Draft Environmental Impact Report

Volume IV

(Technical Appendices D-7 through H)

Metropolitan Transportation Authority West Los Angeles Transportation Facility *and* Sunset Avenue Project

(EIR 2004-1407)
(SCH No. 2003121036)
(SCH No. 2004031139)

October 2004

PCR

D7 – Phase II Environmental Site Assessment -
100 East Sunset Avenue,
MACTEC,
April 15, 2004.

MACTEC

VOLUME 1 OF 3

FINAL REPORT OF PHASE II ENVIRONMENTAL SITE ASSESSMENT

METROPOLITAN TRANSPORTATION AUTHORITY DIVISION 6 MAINTENANCE FACILITY AND BUS YARD

100 SUNSET AVENUE
VENICE, CALIFORNIA

Prepared for:

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

One Gateway Plaza
Los Angeles, California 90012-1009

APRIL 15, 2004

MACTEC Project 4525030096

MACTEC Engineering and Consulting, Inc.
2171 Campus Drive, Suite 100 • Irvine, CA 92612
949-224-0050 • Fax: 949-224-0073
www.mactec.com

MACTEC

April 15, 2004

Emmanuel Liban, Ph.D.
Metropolitan Transportation Authority
One Gateway Plaza, Mail Stop 99-17-2
Los Angeles, California 90012-1009

Subject: **Final Report of Phase II Environmental Site Assessment**
MTA Division 6 Maintenance Facility and Bus Yard
100 Sunset Avenue
Venice, California
MACTEC Project 4525-03-0096

Dear Dr. Liban:

Attached is our final Phase II Environmental Site Assessment report for the above-referenced site. The purpose of the assessment was to document subsurface conditions at the municipal bus yard and maintenance facility prior to the sale/land swapping of the property.

Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable environmental consultants practicing in this or similar localities at the time of service. This warranty is in lieu of all other warranties, express or implied. This report has been prepared for MTA to be used solely in evaluating potential environmental implications at the subject site. The report has not been prepared for use by other parties and may not contain sufficient information for purposes of other parties or other uses.

We appreciate the opportunity to work with you on this project. Please contact us if you have any questions or if we may be of further service.

Respectfully submitted,

MACTEC Engineering and Consulting, Inc.

Gregory Sena

Gregory Sena
Staff Geologist

by Ofelia Guerra-Walther with permission

Dave DeVries
Principal Hydrogeologist

(10 copies submitted)

REGISTERED GEOLOGIST
DAVID J. DeVRIES
No. 6313
Exp. 4-30-05
STATE OF CALIFORNIA

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY iii

1.0 INTRODUCTION 1

2.0 PURPOSE, SCOPE, AND REPORT FORMAT 1
- 2.1 PURPOSE 1
- 2.2 SCOPE OF WORK 1
- 2.3 REPORT FORMAT 2

3.0 GEOLOGIC SETTING AND GROUNDWATER 3
- 3.1 GEOLOGY 3
- 3.2 GROUNDWATER 4

4.0 SITE HISTORY 4
- 4.1 HISTORICAL AND CURRENT ACTIVITIES 4
- 4.2 PREVIOUS INVESTIGATIONS 5
  - 4.2.1 Converse Environmental Consultants (Converse) 5
  - 4.2.2 Holguin, Fahan & Associates, Inc. (HFA), as a subcontractor to Bentley Company 6
  - 4.2.3 Tyree Corporation 7
  - 4.2.4 URS and MACTEC 7

5.0 FIELD ACTIVITIES 8
- 5.1 DRILLING AND SAMPLING ACTIVITIES 8
  - 5.1.1 Soil Vapor and Soil Borings 9
  - 5.1.2 Soil Borings 10
  - 5.1.3 Groundwater Borings 17
- 5.2 FIELD OBSERVATIONS 17
  - 5.2.1 Soil Vapor Borings 17
  - 5.2.2 Soil and Groundwater Borings 18

6.0 ANALYTICAL RESULTS 19
- 6.1 SOIL VAPOR RESULTS 19
- 6.2 SOIL RESULTS 19
- 6.3 GROUNDWATER RESULTS 23

7.0 DISCUSSION 23
- 7.1 SOIL VAPOR DISCUSSION 23
- 7.2 SOIL DISCUSSION 24
- 7.3 GROUNDWATER DISCUSSION 33

8.0 CONCLUSIONS 33

9.0 LIMITATIONS 35

10.0 REFERENCES 35

Tables

Table 1 – Groundwater Analytical Results
Table 2 – Historical Soil Data
Table 3 – Soil Vapor Analytical Results
Table 4 – Soil Carbon Range Analytical Results
Table 5 – Soil Analytical Results
Table 6 – Title 22 Metals Soil Analytical Results
Table 7 – Title 22 Metals Groundwater Analytical Results

Figures

Figure 1 – Site Location Map
Figure 2 – Site Plan
Figure 3 – Area 1 Location Plan
Figure 4 – Area 2 Location Plan
Figure 5 – Area 3 Location Plan
Figure 6 – Area 4 Location Plan
Figure 7 – Area 5 Location Map
Figure 8 – Groundwater Boring Locations

APPENDIX A: STANDARD STRATAPROBE SOIL SAMPLING PROTOCOL
APPENDIX B: BORING LOGS
APPENDIX C: ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION (Attached as Volume 2 of 3 and Volume 3 of 3)

EXECUTIVE SUMMARY

MACTEC Engineering and Consulting, Inc. (MACTEC) has performed a Phase II subsurface environmental assessment at the current Metropolitan Transportation Authority (MTA) Division 6 bus yard and maintenance facility at the southwest corner of Sunset Avenue and Main Street in Venice, California. MTA is considering a real estate transaction that would result in the property becoming residential. MTA has contracted MACTEC to conduct a subsurface assessment prior to commencing the real estate transaction. The site assessment included subsurface evaluation in five defined areas inclusive of the areas previously investigated by other consultants and areas previously not addressed.

The site geology/hydrogeology indicates that fill materials consisting of primarily sand and construction debris were present in some of the borings to depths up to 5 feet below ground surface (bgs). Other than the fill, the soil from the surface to 10 to 15 feet bgs was predominantly yellowish brown sand with some gravelly sand and silty sand. Clays were encountered at approximately 10 feet bgs in the northern portion of the site and increased to approximate depths of 20 feet in the southern portion of the site. Groundwater was measured to be at approximately 24 to 26 feet bgs in the four deep borings drilled during this investigation.

The site was first developed in 1901 as a rail yard for the Venice Short Line. In the 1950s, the site was converted into a bus division. The site currently houses underground storage tanks (USTs) for fuel and other bus maintenance related fluids and open service bay trenches to allow inspection/repair of the buses.

Previous environmental investigations conducted by various consultants in the areas of the USTs indicated that soil and groundwater were impacted with petroleum hydrocarbons. In 1998, each UST was removed and new USTs were installed. Currently five groundwater monitoring wells exist onsite and one is offsite. The six wells are sampled quarterly with the results reported to the Los Angeles Regional Water Quality Control Board.

The five assessment areas are the former powerhouse substation and northern site locations (Area-1); the former old car house, current bus washer and former gas storage building locations (Area-2); the former and current gasoline and diesel USTs, dispenser islands, former old pump fuel house, and eastern site locations (Area-3); the bus maintenance trenches and former waste oil tank locations (Area-4); and the former or current clarifier locations (Area-5). Furthermore, to address the potential site-wide impact of volatile organic compounds (VOCs) or petroleum hydrocarbons from current site activities, 34 soil vapor and soil sample collection probes were completed in a grid pattern. Finally, four groundwater grab samples were retrieved in areas were current groundwater samples are not collected to assess groundwater conditions and the potential for migration of constituents from possible subsurface impacted locations.

The 34 soil vapor samples were collected at depths of 8 feet bgs and analyzed for VOCs. Various analyses were conducted on the soil and groundwater samples depending on the suspected past use of the collection location and field observations during the assessment. The analytical methods used were EPA method 418.1 for total recoverable petroleum hydrocarbons (TRPH), EPA method 8015M for total petroleum hydrocarbons as gasoline (TPH-g) and total petroleum hydrocarbons as diesel (TPH-d), EPA method 9010B for total cyanide, EPA method 8270C for polycyclic aromatic hydrocarbons (PAH), EPA method 8151 for herbicides, EPA method 8082 for polychlorinated biphenyls (PCBs), EPA method 6010 for Title 22 metals, EPA method 8260 for VOCs, and EPA GC/MS isotope dilution method for 1,4-dioxane (groundwater only). Other analyses were considered but based on site history and use there is no basis for initiating the request to perform these analyses. Twenty nine soil samples were selected for total petroleum hydrocarbons carbon range C7 to C44 analysis by EPA method 3550B. The basis for the carbon range selection was total recoverable petroleum hydrocarbons (TRPH) EPA method 418.1 results at or above 100 milligrams per kilogram (mg/kg).

The soil vapor VOC results were all reported as not detected, indicating that VOCs are not present in subsurface soils.

The results of soil assessment in Area-1, Area-2, and Area-4 indicate near-surface impact by petroleum hydrocarbons, primarily in the oil and grease range. The results of Area-3 indicate that the soil in the area of the fuel USTs and the dispenser island are impacted by petroleum hydrocarbons. The UST area has been previously assessed by other consultants and five groundwater monitoring wells have been placed around the area. The fuel USTs in Area 3 are known to have been the source for petroleum impact to groundwater. Quarterly groundwater monitoring has been conducted for the UST area since 1999. The petroleum hydrocarbons and fuel oxygenates groundwater concentrations have been steadily decreasing indicating that the contamination mass is decreasing and it is not impacting groundwater. Area-5 (clarifiers spread throughout the site) again indicated that soil in the area of the fuel USTs and dispenser islands is impacted with petroleum hydrocarbons, that soil by the employee gym (in boring CL8) may be impacted with minor petroleum hydrocarbons primarily in the oil and grease range at a depth of 14.5 feet bgs, and that near-surface relatively low levels of petroleum hydrocarbons primarily in the oil and grease range exist in the area of the steam cleaner clarifier (borings CL4 and CL5). The metals concentrations detected for the 95 soil samples analyzed indicate that risk-based evaluation for metals is not needed. The total cyanide, herbicides, and PCB results were all reported as not detected for the soil and groundwater samples. Preliminary risk-based screening was conducted as part of this assessment. Based on the risk based screening data generated therein, PAHs do not appear to be significant contributors to risk/hazard for the MTA Division 6 property. The risk screening will be elaborated in a separate human health risk assessment document.

Chloroform was detected in groundwater samples from MB31-GW and MB11-GW at respective concentrations of 5 µg/kg and 1.5 µg/kg. 1,4-dioxane was detected at a concentration of 3.4 µg/kg in MW-5. These detections are isolated and appear minor; however, they will be further addressed in the risk assessment report to follow.

The results of this Phase II environmental site assessment indicate that petroleum hydrocarbon impacted soil, primarily in the oil and grease range is present in the near-surface soils in numerous areas of the site. These impacts indicate that these soils could be left in place; however, if the existing pavement is removed and the site is graded for future development, these soils will need to be stockpiled and analyzed after excavation and prior to removal from the site or replacement in the ground. Additionally, due to the nature of the use of the site (bus parking and maintenance), it is very likely that near-surface impact from petroleum hydrocarbons is present beneath the pavement in areas not assessed. Previous use impacts were investigated but the data does not indicate any concern for the previous uses. During removal of the pavement and initial grading/excavation of the site, the soil will need to be handled properly to separate areas that are impacted with petroleum hydrocarbons.

Based on the previous consultant's assessment reports and the additional borings drilled in the area during this assessment, the soil in the area of the fuel UST and dispenser area (central portion of Area-3) is impacted with petroleum hydrocarbons. Whether the soil will need to be remediated prior to residential development and to what depths/concentrations will be assessed in the following health risk assessment.

The current quarterly groundwater sampling of five onsite wells and one offsite well indicates that petroleum concentrations in the groundwater are decreasing. The petroleum hydrocarbons and fuel oxygenates groundwater concentrations have been steadily decreasing as evidenced in the groundwater monitoring data from 1999 to present indicating that the contamination mass is decreasing and it is not impacting groundwater sources. The fourth quarter 2004 event reported TPH-d and TPH-g as not detected in each of the six wells, and MTBE was detected at a maximum concentration of 5.1 micrograms per liter (μg/l). The fourth quarter report states that "If the next two quarterly monitoring results continue to show the trend of decreasing concentrations, it appears that the site should be recommended for regulatory closure." The 1st quarter 2004 groundwater monitoring event data indicates that TPH-g and TPH-d were not detected and that MTBE was detected in MW-1 at a maximum concentration of 30 μg/l. This 1st quarter 2004 data supports the decreasing groundwater concentration trend. A complete report on the 1st quarter 2004 groundwater monitoring is being prepared in an accompanying monitoring report.

1.0 INTRODUCTION

The Los Angeles County Metropolitan Transportation Authority (MTA) contracted with MACTEC Engineering and Consulting, Inc. (MACTEC) perform a Phase II Environmental Site Assessment (ESA) of the MTA Division 6 Maintenance Facility and Bus Yard property (subject site) located at 100 Sunset Avenue in Venice, California. This report was prepared for the exclusive use of MTA in general accordance with our Work Plan and Cost/Schedule Proposal dated December 31, 2003. Other parties wishing to rely on this report should contact us so we can execute a secondary client agreement.

2.0 PURPOSE, SCOPE, AND REPORT FORMAT

This section describes the purpose, scope, and format of the report.

2.1 PURPOSE

The purpose of this site assessment was to assess the presence, degree, and extent of potential contamination from current or past activities that have occurred on site. This was accomplished by documenting subsurface conditions by exploratory drilling and the sampling of soil vapor, soil, and groundwater in selected investigation areas across the site.

2.2 SCOPE OF WORK

The Phase II investigation was designed to characterize subsurface environmental conditions in five selected areas (Area-1 through Area-5) based on the historical use of the site and information discussed in MACTEC's Phase I Environmental Site Assessment (draft report dated January 29, 2004). The Phase II assessment included the following services:

- **Site History—**Prior to implementing the site assessment, MACTEC reviewed available documents from prior environmental investigations conducted onsite. We have also briefly summarized the historical use of the site to schedule investigative borings in new locations that have not been previously investigated.

- **Field Activities—**Section 5.0 discusses activities recently concluded and details the site-wide subsurface investigation conducted in five predetermined areas of concern. Subsurface conditions logged by the field geologist are also discussed in this section.

- **Analytical Results—**Section 6.0 describes the analytical results from the soil vapor, soil, and groundwater samples collected during the investigation in detail for each area of concern.

- **Report Discussion—**Section 7.0 discusses and renders opinions on the significance of the assessment results.

2.3 REPORT FORMAT

Our report is presented in the following format:

- Geologic Setting
- Site History
- Field Activities
- Analytical Results
- Discussion
- Conclusions

A statement of interpretative limitations follows the conclusions.

The boring logs, field procedures, laboratory results, and chain-of-custody documentation are presented in the appendices.

3.0 GEOLOGIC SETTING AND GROUNDWATER

The surface and subsurface drainage and geology are of interest because they provide an indication of the fate and transport of contaminants if present.

3.1 GEOLOGY

The site is located in Venice, California, approximately 1 mile northwest of Ballona Creek. The site slopes gently toward the north and is at an average elevation of approximately 30 feet above mean sea level (msl) (Figure 1, Site Location Map). The shoreline of the Pacific Ocean is approximately 1,200 feet southwest of the site. Regionally, the site is located within the Peninsular Ranges geomorphic province, which is characterized by elongated northwest-trending mountain ridges separated by straight-sided sediment-filled valleys. The northwest trend is further reflected in the direction of the dominant geologic structural features of the province, which are northwest to west-northwest trending folds and faults, such as the Newport-Inglewood fault zone, located northeast of the site.

Materials underlying the site, from the surface down, are as follows:

- Fill materials, extending to depths of up to approximately 10 feet below ground surface (bgs), are present beneath the site (URS Corporation [URS], 2002).
- The site lies within the Ballona Gap Region of the Santa Monica Basin. The Ballona Gap forms and east-west trending trough that is filled by recent alluvial deposits. The alluvium is composed of interbedded sand, sandy clay and gravely sand and has a maximum thickness of 50 feet bgs (California Department of Water Resources [CADWR], 1961).
- Below the alluvial deposits are approximately 200 feet of sedimentary bedrock of the early Pleistocene-age San Pedro Formation. The San Pedro Formation consists of sand, gravel, silty sand, and silt.
- The Pliocene-age Pico Formation, a sequence of marine sedimentary deposits, underlies the San Pedro Formation beneath the site.

3.2 GROUNDWATER

The site is located in Section 17, Township 2 South, Range 15 West in the USGS Venice Quadrangle. It is in the West Coast Groundwater Sub-basin of the Coastal Plain of the Los Angeles Groundwater Basin, also known as the West Coast Basin, which is bounded on the north by the Ballona Escarpment, on the east by the Newport-Inglewood Fault Zone, and on the south and west by the Pacific Ocean and Palos Verdes Hills. The Los Angeles and San Gabriel Rivers cross the West Coast Basin and terminate into the Pacific Ocean through the Dominguez and Alamitos Gaps, respectively (CADWR, 2003). Ground water is commonly withdrawn from Holocene to Pliocene-age marine and nonmarine deposits in the West Coast Basin. Notably, the first occurring ground water-bearing unit as defined by Poland et al. (1959) is the "50-foot gravel" located within the Holocene-age alluvial deposits. However, groundwater in areas close to the Pacific Ocean often is of poor quality due to seawater intrusion. According to ground water level measurements conducted in monitoring wells onsite (MACTEC, 2004), groundwater is approximately 19 to 25 feet bgs and flows toward the south at a gradient of 0.025 foot per foot.

4.0 SITE HISTORY

The subject site consists of an approximately 3.5-acre, irregular-shaped parcel that is bounded by Sunset Avenue to the north, Main Street to the east, Thornton Place to the south, and Pacific Avenue to the west. The site generally slopes from south to north and was constructed with a retaining wall along Main Street and Thornton Place. The southeast corner of the site is elevated approximately 9 to 10 feet above Main Street.

4.1 HISTORICAL AND CURRENT ACTIVITIES

The site was developed in 1901 by Los Angeles Pacific and served as the rail yard for the Venice Short Line, which provided service from Venice to downtown Los Angeles in 1902. The site contained an electrical substation at the northeast corner of the site and a car barn with three sets of rail tracks on the west-central portion of the site. In the 1950s, the site was converted into a bus division.

Currently, the site is used by the MTA Division 6 Maintenance Facility and Bus Yard as the base for a fleet of 78 buses that provide public transportation service generally between downtown Los Angeles and the west side of the city. The main service routes include Santa Monica Boulevard, Pico Boulevard, Olympic Boulevard, and Pacific Coast Highway (Temescal Canyon). Fuel dispensing islands are located on the southeastern portion of the site along Main Street, and until February 1998, the northern portion of the site contained four single-walled steel USTs (two 10,000-gallon diesel, one 8,000-gallon motor oil, and one 6,000-gallon gasoline) used for fueling buses. The USTs were removed and replaced with four dual-wall fiberglass USTs in February 1998 (two 10,000-gallon diesel, one 8,000-gallon gasoline, and one 5,000-gallon waste fuel). The central portion of the site contains approximately 52 stalls for bus parking. The remainder of the site is open and used for vehicle parking and driveway access.

The bus maintenance area contains four service bays with inspection/repair pits that allow MTA mechanics to perform maintenance work underneath the buses without having to use hydraulic lifts. Daily maintenance activities on the buses involve new tire and wheel (rim) repairs, painting, steam cleaning of parts and equipment, and washing. (A bus wash rack is situated on the west-central portion of the site adjacent to Pacific Avenue.)

4.2 PREVIOUS INVESTIGATIONS

A summary of available reports of previous investigations conducted onsite by other environmental consultants is presented below. Data from these reports are summarized in Table 1, Groundwater Analytical Results and Table 2, Historical Soil Data. The locations of soil samples retrieved during prior investigations are depicted on Figure 2, Site Plan. Please be aware that the locations of borings by previous consultants are rough approximations based on reports with differing information.

4.2.1 Converse Environmental Consultants (Converse)

In March 1988, Converse drilled 11 soil borings (BH-1 through BH-11) adjacent to the former USTs at depths ranging from 10 to 40 feet bgs. Soil samples were collected at 5-foot intervals, and ground water was encountered at an average depth of 26 feet bgs. Laboratory analytical results indicated elevated total petroleum hydrocarbons (TPH) and/or oil and grease concentrations in borings BH-3 through BH-7 and BH-9 through BH-11. The highest TPH concentration (12,000 milligrams per kilogram [mg/kg]) was detected in the soil sample collected from boring BH-4 at a depth of 25 feet bgs.

4.2.2 Holguin, Fahan & Associates, Inc. (HFA), as a subcontractor to Bentley Company

In November 1995, HFA performed a limited site assessment to identify the type and distribution of subsurface hydrocarbons in the areas that were to be excavated for UST removal and replacement. A total of 16 direct-push cone penetrometer test (CPT) borings (CPT-1 through CPT-16) were advanced to depths of 30 feet bgs. Soil samples were collected at 5-foot intervals within each CPT boring. TPH, total recoverable petroleum hydrocarbons (TRPH), and benzene, toluene, ethylbenzene, and xylene (BTEX) were detected at sample locations CPT-1, CPT-2, CPT-7, CPT-10, and CPT-11 at concentrations in excess of the Los Angeles County Fire Department (LAFD) soil action levels (defined as 100 mg/kg TPH and TRPH, 1 mg/kg benzene, and 50 mg/kg TEX).

Three Hydropunch groundwater samples (CPT-1, CPT-2, and CPT-6) were collected. Total petroleum hydrocarbons as gasoline (TPH-g) and total petroleum hydrocarbons as diesel (TPH-d) were detected in CPT-1 at respective concentrations of 1.1 milligrams per liter (mg/l) and 1.5 mg/l. Benzene was detected in all three groundwater samples at a maximum concentration of 0.083 mg/l, which exceeded the California Title 22 Maximum Contaminant Level (MCL) of 0.001 mg/l.

In July 1997, HFA collected five Hydropunch groundwater samples (HP-1 through HP-5) near the fuel USTs. TPH-g was detected at a maximum concentration of 160,000 micrograms per liter (µg/l) in groundwater sample HP-1. Benzene was detected in groundwater samples at concentrations ranging from 0.5 to 2,900 µg/l. The gasoline fuel oxygenate methyl tertiary butyl ether (MTBE) was also detected at concentrations up to 27,000 µg/l (HP-1).

4.2.3 Tyree Corporation

In 1998, The Tyree Organization, Ltd. (Tyree), was contracted by MTA to replace eight USTs located at the site. Two 10,000-gallon diesel USTs, one 8,000-gallon motor oil UST, and one 6,000-gallon gasoline UST were removed from the northern portion of the property. Subsequently, one 300-gallon diesel UST, one 2,000-gallon used oil UST, and one 500-gallon used oil UST were removed from the eastern side of the site near the maintenance building. Soil samples were collected approximately 2 feet below the base of each tank invert. TPH-d was detected in soil samples collected from beneath the two 10,000-gallon diesel tanks at concentrations of 1,740 mg/kg and 5,000 mg/kg. TPH-g was detected in soil samples collected from the southern and northern ends of the gasoline tank at respective concentrations of 16.3 mg/kg and 1,390 mg/kg. TRPH was detected at respective concentrations of 472 mg/kg and 23,600 mg/kg in soil samples collected from the southern and northern ends of the motor oil tank. Benzene was not detected in any of the soil samples. Five of the soil samples collected below the USTs contained detectable concentrations of toluene, ethylbenzene, and total xylenes. MTBE was detected at concentrations ranging from 0.492 mg/kg to 46.8 mg/kg. Concentrations of lead ranged from 45.8 mg/kg to 302 mg/kg.

The removed tanks were reportedly replaced with three 10,000-gallon USTs, one 8,000-gallon UST, two 5,000-gallon USTs, two 2,000-gallon USTs, and one 500-gallon UST. Refer to Figure 2 for current and former UST locations. However, site observations and MTA listings indicate that two 10,000-gallon, one 8,000-gallon, two 5,000-gallon, two 2,000-gallon, and one 500-gallon USTs are at the site.

4.2.4 URS and MACTEC

As reported in the URS Groundwater Monitoring Well Installation Report (2002), in 1999, URS was contracted by MTA to conduct a subsurface soil and groundwater investigation at the site and install four groundwater monitoring wells (MW-1 through MW-4). Groundwater monitoring wells MW-5 and MW-6 were installed in February 2002 by URS, and a total of seven soil samples were collected. BTEX, MTBE, and TPH-g were not detected in any of the soil samples collected from borings MW-5 and MW-6. TPH-d was detected in soils collected from MW-5 at a depth of 10 feet bgs and MW-6 at a depth of 15 feet bgs at concentrations of 200 mg/kg and 41 mg/kg, respectively.

TRPH was detected in soils collected from MW-5 at a depth of 10 feet bgs (94 mg/kg) and MW-6 at depths of 15 feet bgs (38 mg/kg) and 20 feet bgs (10 mg/kg). These wells are sampled quarterly with reports going to the Los Angeles Regional Water Quality Control Board. Installation of a seventh well was attempted along with MW-5 and MW-6. The seventh well would have been in the sidewalk across Main Street to the east of MW-6. Well MW-7 was not installed due to underground obstructions/utilities. Due to the indications of a southern groundwater gradient and overall reducing petroleum hydrocarbon concentrations in groundwater at the site, further attempts to install well MW-7 were determined to be unnecessary.

5.0 FIELD ACTIVITIES

A December 31, 2003 Workplan describing the initial scope of the Phase II assessment was prepared by MACTEC. Before conducting subsurface activities, MACTEC prepared a site-specific Health and Safety Plan that outlined health and safety procedures to be followed during fieldwork. We visited the site to mark boring locations and assess potential drilling obstructions. We identified the boring locations in the field after taking into consideration (1) environmental investigations previously conducted by other consultants, (2) the site historical use as a rail yard and locations of rail yard buildings, and (3) locations not previously investigated in which past or current MTA-related facility activities may have impacted soil and ground water conditions. Prior to drilling, a subsurface geophysical survey was performed on January 27 and February 10, 2004 by Spectrum Geophysics around each proposed boring location to identify potential underground utilities, structures, or obstructions. Other precautionary measures included hand augering to a minimum of 5 feet below grade for each boring prior to drilling with the direct-push Strataprobe rig. In addition, we contacted Underground Service Alert (USA) 48 hours prior to drilling in an effort to locate possible underground utility lines at the site.

5.1 DRILLING AND SAMPLING ACTIVITIES

Between the dates of January 28 and February 13, 2004, we retained the services of H&P Mobile Geochemistry to advance a total of 34 soil and soil vapor probes, 43 soil borings, and 4 soil and groundwater borings in five areas as described below and shown on Figure 2, Site Location Plan.

Area of Concern	Location
Area 1	Rail-yard powerhouse/substation and northern site
Area 2	Rail-yard old car house and current MTA bus washer, including former gas storage building location
Area 3	Former and current gasoline and diesel USTs, dispenser island, and eastern site, including former crude oil tank and fuel pump house
Area 4	MTA bus maintenance trenches and former waste oil tanks
Area 5	Underground clarifiers, oil water separators, and sumps

Each boring was advanced using a Strataprobe direct-push drill rig equipped with a 1¼-inch-or 2-inch-diameter, stainless steel, large-bore sampling rod. We collected soil vapor, soil, and groundwater samples in the three areas as outlined below. Upon completion of the field activities, most of the borings were backfilled with hydrated bentonite granules. The hand auger borings MB20 through MB30 were backfilled with native cuttings. The upper 10 to 12 inches of each boring were capped with concrete. Appendix A, Standard Strataprobe Sampling Protocol, contains a detailed explanation of the drilling, sampling, logging, and decontamination procedures generally used for soil, soil vapor, and ground water (Hydropunch) sampling. Appendix B, Boring Logs, contains the log for each of the soil vapor, soil, and ground water borings.

5.1.1 Soil Vapor and Soil Borings

In consideration of the combined 100-year site history as a rail yard and bus maintenance facility, VOCs were presumed to have been used for various purposes. To determine the potential impact to subsurface soil and ground water conditions site-wide, 34 soil vapor and soil borings (SV1 through SV34) were conducted in a grid pattern (Figure 8). Soil vapor samples were retrieved (in general accordance with Appendix A) by advancing a hollow 2-inch rod using the Strataprobe direct push rig to approximately 8 feet bgs. Purging and sample collection were conducted according to DTSC guidelines. Soil vapor samples were submitted onsite to H&P's mobile analytical laboratory for VOC analysis by EPA Method 8260B.

All soil samples were retrieved between 4 to 4.5 feet bgs in accordance with soil sampling procedures described in Appendix A. Based on the historical locations of the rail lines at the site, soil samples retained from SV1 at 4 feet, SV14 at 4.5 feet, SV31 at 4.5 feet and SV33 at 4.5 feet bgs were analyzed for Title 22 metals, PAHs, total cyanide, and herbicides. SV33 at 4 feet bgs was also selected for VOC analyses due to the lab operator indicating below reporting limit xylenes. SV5 at 4 feet bgs was analyzed for TPHg, TPHd, and VOCs due to PID readings and field observations.

5.1.2 Soil Borings

Soil samples that were analyzed for volatile organic carbons (VOCs) with and without fuel oxygenates by EPA Method 8260B and TPH-g by EPA Method 8015M were immediately submitted to H&P Geochemistry onsite mobile laboratories for analysis. These analyses were conducted using the 5035 preparation method. All other soil samples were submitted to Calscience Environmental Laboratories, Inc., a state certified analytical laboratory, for analysis. Soil vapor measurements using a PID were recorded for the 34 soil vapor borings (SV). Equipment difficulties prevented soil vapor readings from the remaining soil borings.

Area-1

Because of the historical use of cooling oils for the electrical equipment, soil samples collected in the old powerhouse substation were analyzed for TRPH by EPA Method 418.1, polychlorinated biphenyls (PCBs) by EPA Method 8082, and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270 (Figure 3). A summary of the sampling schedule in Area-1 is described below.

Area - 1						
Boring ID	**Total Depth**	**Initial Analytical Methods**	**Soil sample Collection Depths (feet bgs)**	**Soil Samples Analyzed**	**Groundwater Analyzed**	**Structure / Previous Structure Boring is Assessing**
MB1, MB4, MB5, & MB6	16	TRPH, PCBs, PAH	1, 3, 5, 10, & 15	1, 5 & 15	No	Old Powerhouse-Substation
MB2	1	TRPH, PCBs, PAH	NONE (refusal)	NONE (refusal)	No	Old Powerhouse-Substation

MB3	36	TRPH, PCBs, PAH	1, 3, 5, 10, 15, & 20	1, 5 & 15	**Yes**	Old Powerhouse-Substation
MB19	28	Total Cyanide, PAH	Continuous Core	8.5 & 26	No	Off-site Manufactured Gas Plant

Boring MB2 was not drilled to the planned 15 foot depth and samples were not collected due to subsurface refusal at a depth of 1 foot bgs. Four soil samples collected with TRPH detections above 100 mg/kg were, in addition, selected for VOC and carbon chain analysis. As stated in the work plan, dioxins and dibenzofurans analysis were proposed to be performed for select samples based on any detection of PCBs in the collected soil samples. Since PCBs were reported as not-detected these additional analyses were not completed.

Soil boring MB19 was specifically chosen to assess possible lateral migration of manufactured gas plant contaminants in the unsaturated zone. MB19 was a continuous core boring drilled to a total depth of 28 feet bgs. Selected soil samples from MB19 at depths of 8.5 and 26 feet were analyzed for PAH and total cyanide by EPA Method 9010B. Both soil sample depths were selected based on the presence of sandy materials logged within the continuous core and the possibility of lateral migration of contaminants through the conductive sandy media.

Area-2

Because of the historical use of Area 2 as a covered rail car house for general maintenance, painting, and cleaning of the electric cars and current cleaning operations for MTA buses that may have involved the use of lubricants, oils, and petroleum hydrocarbons, 9 soil borings (MB7A, MB7B, MB8 through MB13, and MB20) were conducted in this area, including 1 combined soil and ground water boring (MB11) within/near the old car house footprint (Figure 4). A summary of the sampling schedule in Area-2 is described below.

Area - 2

Boring ID	Total Depth	Initial Analytical Methods	Soil sample Collection Depths (feet bgs)	Soil Samples Analyzed	Groundwater Analyzed	Structure / Previous Structure Boring is Assessing
MB7A	3.5	VOCs, METALS, TRPH, PCBs, & PAH	3.5	1.5 (Refusal encountered)	No	Bus Cleaning Area
MB7B	16	VOCs, METALS, TRPH, PCBs, & PAH	1, 3, 5, 10, & 15	1, 5 & 15	No	Bus Cleaning Area
MB8, MB9, MB10, MB12, MB13, & MB20	16	VOCs, METALS, TRPH, PCBs, & PAH	1, 3, 5, 10, & 15	1, 5, & 15	No	Covered Rail Car House
MB11	36	VOCs, METALS, TRPH, PCBs, & PAH	1, 3, 5, 10, 15, & 20	1, 5 & 15	**Yes**	Covered Rail Car House
GS1	15	VOCs & TRPH	5, 10, & 15	5 & 10	No	Gas Storage Building

Boring MB7B was drilled in replacement of MB7A, which was completed to a depth of only 3.5 feet due to refusal (both borings were located near the bus wash clarifier) Nine soil samples collected with TRPH detections above 100 mg/kg were, in addition, selected for carbon chain analysis. All remaining soil samples were placed on hold.

In proximity to the old car house footprint, boring GS1 was drilled in the location of the former gas storage building to a depth of 15 feet bgs. The samples collected at 5 and 10 feet were analyzed for VOCs and TRPH. Soil samples retrieved at 15 feet bgs were placed on hold pending analytical results.

Area-3

In the area spanning the north-central to eastern corner of the MTA facility, several borings were completed to assess subsurface conditions associated with the old fuel pump house (OP1), former crude oil tank (CO1), current gasoline and diesel dispenser island (DI1 and DI2), and former rail-line entry location (MB17). Based on field observations, selected soil samples were submitted for analysis. The remaining soil samples were placed on hold. A summary of the sampling schedule in Area-3 is described below.

Area - 3						
Boring ID	**Total Depth**	**Initial Analytical Methods**	**Soil sample Collection Depths (feet bgs)**	**Soil Samples Analyzed**	**Groundwater Analyzed**	**Structure / Previous Structure Boring is Assessing**
OP1	16	TRPH, VOCs with Fuel Oxygenates	5, 10, & 15	5 & 10	No	Old Fuel Pump House
CO1	16	TRPH and VOCs	5, 10, & 15	5 & 10	No	Former Crude Oil Tank
DI1 & DI2	16	TPH-g, TPH-d, VOCs with Fuel Oxygenates	5, 10, & 15	5, 10, & 15	No	Current Dispenser Island
MB17	28	See discussion in text below	Continuous Core	3, 10, & 15	No	Former Rail Line Entry Location

Three soil samples collected with TRPH detections above 100 mg/kg were, in addition, selected for carbon chain analysis. Boring MB17, a continuous core boring, was drilled to a depth of 28 feet bgs. Soil samples submitted for laboratory analysis from boring MB17 were collected at 3, 10, and 15 feet bgs. Soils collected at 3 feet bgs were analyzed for VOCs with fuel oxygenates; soils collected at 10 feet bgs were analyzed for VOCs with fuel oxygenates, Title 22 metals, PAH, total cyanide, and herbicides by EPA Method 8151; and soils collected at 15 feet bgs were analyzed for Title 22 metals, PAH, total cyanide and herbicides.

Area-4

Area 4 was designed to investigate MTA activities in the areas of the bus maintenance trenches and former waste oil tanks in the eastern and southern corners of the site (parallel to Thornton Place). Maintenance trench borings were specifically conducted to detect the presence of various petroleum hydrocarbons, metals, lubricants, and oils associated with general bus maintenance and painting. Borings in the vicinity of the former waste oil tanks were specifically conducted to investigate possible paint wastes, solvent wastes, lubricant or oil products, and petroleum hydrocarbon constituents from the use of the waste oil tanks (Figure 6). A summary of the sampling schedule in Area-4 is described below.

Area - 4						
Boring ID	**Total Depth**	**Initial Analytical Methods**	**Soil sample Collection Depths (feet bgs)**	**Soil Samples Analyzed**	**Groundwater Analyzed**	**Structure / Previous Structure Boring is Assessing**
MB14 to MB16 & MB21 to MB30	11	VOCS, METALS, TRPH, PAH	1, 3, 5, & 10	1, 5, & 10	No	Maintenance Trenches
MB18	4	VOCs, METALS, TRPH, PAH	1 & 3	1 & 3* (*See text below	No	Maintenance Trenches
MB31	35	VOCs, METALS, TRPH, PAH, & PCBs	1, 3, 5, 10, 15 & 20	3 & 15	**Yes**	Former 500-gallon UST
MB32	16	VOCs, METALS, TRPH, PAH, PCBs	1, 3, 5, 10 & 15	3 & 15	No	Existing 2,000-gallon Waste Oil Tank
MB33	36	VOCs, METALS, TRPH, PAH, & PCBs	5, 10, 15 & 20	5 & 15	**Yes**	Former 2,000-gallon UST

Five soil samples collected with TRPH detections above 100 mg/kg were, in addition, selected for carbon chain analysis. The sample from MB18 collected at a depth of 3 feet was analyzed for pH and total lead since it was from an area that appeared to have corroded concrete that may have been from past battery storage.

<u>Area-5</u>

Although not spatially confined within a designated study zone, Area-5 includes the clarifiers, oil-water separators, and sumps distributed across the site (Figure 7). A total of 9 soil borings, CL1 though CL9, were completed to a depth of 15 feet bgs. A summary of the sampling schedule in Area-5 is described below.

Area - 5						
Boring ID	**Total Depth**	**Initial Analytical Methods**	**Soil sample Collection Depths (feet bgs)**	**Soil Samples Analyzed**	**Groundwater Analyzed**	**Structure / Previous Structure Boring is Assessing**
CL1 &CL2	15	VOCs, METALS, & TRPH	5, 10, & 15	10 & 15	No	Current Oil-Water Separators and Gasoline/Diesel USTs
CL4 & CL5	15	VOCs, METALS, TRPH, PAH, & PCBs	1, 3, 5, 10, & 15	1, 5, & 15	No	Current Bus Steam Clean Area
CL6	15	VOCs, METALS, TRPH	5, 10, & 15	10 & 15	No	Maintenance Trench Drain (Maintenance Building)
CL7	15	VOCs, METALS, TRPH	5, 10, & 15	10 & 15	No	Sump
CL8	15	VOCs, METALS, TRPH	5, 10, & 15	10 & 14	No	Clarifier (Former Battery Room
CL9	15	VOCs, METALS, TRPH	5, 10, & 15	10 & 15	No	Former Clarifier in Small Parts Cleaning Area
CL3	15	VOCs, METALS, & TRPH	5, 10, & 15	10 & 15	No	Former Clarifier

Eight soil samples collected with TRPH detections above 100 mg/kg were, in addition, selected for carbon chain analysis. All other soil samples not submitted for analysis from CL1 through CL9 were placed on hold.

5.1.3 Groundwater Borings

Grab groundwater samples were collected in borings MB3 (Area-1), MB11 (Area-2), MB31 (Area-4), and MB33 (Area-4) utilizing Hydropunch sampling techniques with the Strataprobe direct push rig (Figure 9). Groundwater samples from these four locations were selected to obtain groundwater data from areas where groundwater monitoring wells are not located. Based on information obtained from our prior investigations and the current MTA ground water monitoring program, groundwater was estimated to be approximately 26 to 28 feet bgs. Hydropunch sampling techniques involved the advancement of 2-inch-diameter rods approximately 8 to 10 feet below detected groundwater levels (depths of 34 to 36 feet bgs). At the correct depth, the rod was pulled back to expose an inner 0.02-inch slotted screen. Groundwater samples were then micropurged from Teflon tubing within each Hydropunch boring screen. In general, groundwater samples were retrieved in general accordance with sampling protocols outlined in Appendix A.

Groundwater samples were submitted to Calscience Environmental Laboratories and analyzed for Title 22 metals, TPH-d, PAH, herbicides, total cyanide, 1,4-dioxane, and VOCs. Dioxins and dibenzofurans were tentatively scheduled to be analyzed pending PCB results. However, PCB results were later reported as nondetect and therefore dioxions and bibenzofurans were not requested.

5.2 FIELD OBSERVATIONS

Field observations include the general soil descriptions on the subsurface geologic conditions as logged by the field geologist.

5.2.1 Soil Vapor Borings

The average thickness of the concrete pavement for soil and soil vapor probes (SV1 though SV34) was approximately 8 inches. Immediately beneath the pavement, materials logged generally consisted of brown fine sand with some fine to coarse gravel to approximately 4 to 4.5 below grade. In some borings, construction debris was encountered that consisted of traces of brick, asphalt, wood, and plaster. Between 4.5 and 8 feet bgs, soil samples were not retrieved. As a result, soils could not be logged below 4.5 feet. Soil vapor samples were obtained, however, by advancing the Strataprobe rod to 8 feet bgs as discussed in Section 5.1.2. In two borings, SV8 and SV5, petroleum hydrocarbon odors were noticed in the soils. In particular, petroleum odors were detected from subsurface soils logged between 4 to 5 feet in SV8 and 1.5 to 4 feet in SV5. Petroleum hydrocarbon odors were not detected in any of the remaining borings. SV8 was located adjacent to the fuel dispenser canopy. SV5 was drilled adjacent to the tire area and the SV5-4 sample was selected for TPH-g and TPH-d analyses based on the photo-ionization detector (PID) readings. Please refer to the boring logs for PID readings and odor comments.

5.2.2 Soil and Groundwater Borings

Subsurface soil conditions logged during the investigation for the soil and ground water borings corresponded to the conditions at the soil vapor borings; however, because of the greater depth range of the completed borings (MB1 through MB33, CL1 through CL9, OP1, GS1, and CO1) the vertical distribution of soils was better defined. Completed borings ranged in depth from 4 to 28 feet bgs, with most borings completed between 11 and 16 feet bgs. Surface concrete pavement ranged between 8 to 12 inches in thickness. In general, materials logged directly beneath the pavement consisted of brown to yellowish brown, sandy gravel to gravelly sand to a depth of 1 to 3 feet bgs. In borings MB1, MB4, MB17, and MB18, artificial fill was evident by the presence of construction debris consisting of asphalt and brick fragments to a maximum depth of 5 feet bgs.

Below the base or fill, soils generally consisted of yellowish brown clean sand with some gravelly sand and silty sand that occurred to a depth of 10 to 15 feet bgs. At greater depth, soils graded downward into brown sandy clay to clayey soils from 10 to 15 feet bgs to a maximum depth of 20 feet (MB31). However, soil materials logged in MB33 illustrate that clays may first occur as deep as 20 feet bgs. Based on the distribution of the first occurrence of fine materials, it is interpreted that in the northern portion of the site, clays are approximately 10 feet below grade and increase in depth southward and are generally capped by clean sands. Furthermore, borings located inside the maintenance trenches did not contain any fine materials. At greater depth, as logged in continuous core borings MB17 and MB19, most soils below 20 feet consist of various grades of sands with some gravel. Boring MB17, in addition, contained small pieces of fibrous wood at approximately 3 feet bgs that may have been from rail road spurs.

Finally, during the investigation, groundwater depths in ground water borings MB3, MB11, MB31, and MB33 were measured to be approximately 24.4 feet, 26.6 feet, 26.1 feet, and 26.0 feet bgs, respectively.

6.0 ANALYTICAL RESULTS

Through the course of the site-wide investigation of the five areas, MACTEC analyzed soil vapor samples, soil samples, and groundwater grab samples. As previously discussed, each area was defined to further assess subsurface conditions from past and current activities. Samples collected and submitted for various laboratory analyses were scheduled according to the type of activity that predominantly occurred at that location. The following discussion included data from detected constituents. Detailed results are listed in Tables 1 and 3 though 5. The laboratory reports are included as Appendix C.

6.1 SOIL VAPOR RESULTS

As shown in Table 3, laboratory analysis for VOCs for all soil vapor samples (SV1 though SV34) did not detect any constituent above laboratory detection limits. During the soil vapor investigation, however, field observations indicated the presence of petroleum hydrocarbons in SV5. As a result, soil sample SV5-4 was submitted for TPH-g, TPH-d, and VOC analysis. Soil samples from SV1, SV14, SV31, and SV33 were selected for Title 22 metals, PAH, total cyanide and herbicide analyses based on the historic location of rail lines.

6.2 SOIL RESULTS

Area-1

Soil samples within the footprint of the former powerhouse/substation did not indicate the presence of PCBs. Two soil samples, MB4 at 1 foot bgs and MB6 at 1 foot bgs did have detected PAH constituents. In boring MB4, pyrene was detected at 0.47 mg/kg and in boring MB 6, fluoranthene and pyrene were detected at 0.43 mg/kg and 0.44 mg/kg, respectively. TRPH was detected in four of the five borings conducted within the powerhouse/substation footprint. Detected concentrations of TPH ranged between 21 mg/kg to 6,300 mg/kg. Additionally, the selected soil sample submitted for analysis from SV1 collected from a depth of 4 feet bgs did not indicate the presence of PAH or herbicides.

MB19 was collected to the north of the powerhouse/substation footprint. Total cyanide and PAH analyzed in boring MB19 were not detected.

Area-2

Soil samples within and around the area of the former old car house and current bus washer did not indicate the presence of PCBs. Each soil sample except MB20 at 1 foot bgs did not indicate the presence of VOCs. The total detected concentration of VOCs in MB20 was 26 mg/kg. VOCs were not detected in soils from boring GS1. PAH constituents were not detected in all but two soil samples, MB10 at 1.5 foot bgs and MB11 at 1.5 foot bgs. Detected concentrations of PAHs in MB10 consisted of pyrene at 0.47 mg/kg and in MB11 consisted of fluoranthene and pyrene at 0.42 mg/kg and 0.46 mg/kg, respectively. Concentrations of TRPH were detected in five of the nine soil borings conducted in Area 2, including soil boring GS1. The detected concentrations of TRPH ranged between 15 to 4,200 mg/kg.

Area-3

VOCs, TRPH, and TPH-d were detected in some soil samples retrieved in Area-3. In the vicinity of the former crude oil tank and old fuel pump house (CO1 and OP1), VOCs were not detected in the soil samples. In two soil samples retrieved from DI1 a total concentration of VOCs was determined to be 1736.1 mg/kg at 10 feet bgs and 311 mg/kg at 15 feet bgs. In particular, MTBE in soil sample DI1 at 15 feet bgs was detected at 71 mg/kg. TRPH was detected in soil samples at concentrations of 290 mg/kg in CO1 at 5.5 feet bgs and 230 mg/kg and 220 mg/kg in OP1 at 5.5 feet bgs and 10.5 feet bgs, respectively. TPH-g was detected only in DI1 at 10 feet bgs at a concentration of 4.5 mg/kg. TPH-d was detected in DI1 at a maximum concentration of 480 mg/kg in soils retrieved at 5.5 feet bgs and in DI2 at a maximum concentration of 510 mg/kg in soils retrieved at 5.5 feet bgs. At the far eastern corner of the site, there were no detectable concentrations of total cyanide, PAH and herbicides in boring MB17. Soil samples submitted from SV31 retrieved at 4.5 feet bgs did contain one PAH constituent, benzo(g,h,i)-perylene, at a concentration of 350 mg/kg. However, herbicides were not detected.

Area-4

VOCs and PAH were not detected in any of the soil samples submitted from borings in Area 4. In addition, PCBs were not detected in the soil samples submitted from borings MB31, MB32, and MB33. TRPH concentrations were detected in 39 of 48 soil samples submitted for analysis. The detected concentrations of TRPH ranged from 11 mg/kg to 340 mg/kg. Concentrations of PAH and herbicides in soil samples from SV33 at 4.5 feet bgs were below laboratory detection limits.

Area-5

Concentrations of TRPH and VOC were detected in soil samples retrieved in Area 5. TRPH was detected in 17 out of 20 soil samples submitted for analysis. Detected TRPH concentrations ranged from 11 mg/kg to 1,200 mg/kg. Total VOC concentrations, detected in 5 out of 20 submitted soil samples, ranged from 5.1 mg/kg to 251 mg/kg. In particular, MTBE was detected in boring CL1 at 15 feet bgs at a concentration of 5.1 mg/kg and in boring CL2 at 15 feet bgs at a concentration of 9.5 mg/kg. PAH and PCB concentrations were not detected in soil samples submitted from borings CL4 and CL5. Additionally, PAH and herbicides were not detected in the soil sample submitted from SV14 at 4.5 feet bgs.

SV1, SV14, SV31, and SV33

Soil samples collected at depths of 4 to 4.5 feet bgs from soil vapor borings SV1, SV14, SV31, and SV33 were selected to be analyzed for PAHs and herbicides based on the historical location of rail lines at the site. Herbicide concentrations were not detected in soil samples submitted from the four borings. The PAH benzo(g,h,i)perylene was detected in the sample from SV31 at a concentration of 350 mg/kg. PAHs were not detected in the other three borings.

Metals for Area-1 through Area-5

Results of the metals analyses are discussed in Section 7.0 below.

6.3 GROUNDWATER RESULTS

Grab groundwater samples were collected in four borings: MB3 (Area 1), MB11 (Area 2), MB31 (Area 4), and MB33 (Area 4). TPH-d, PAH, herbicides, total cyanide, PCBs, and 1,4-dioxane were not detected in any of the four grab groundwater samples. Chloroform was detected at concentrations of 5 µg/l and 1.5 µg/kg in MB31-GW and MB11-GW respectively and was the only VOC detected in the four grab groundwater samples.

Six groundwater monitoring wells (MW-1 through MW-6) in the area of the four large USTs and the associated dispensers are sampled on a quarterly basis for petroleum hydrocarbons and related compounds. The groundwater monitoring began in 1999 and analytical results since then have been decreasing in concentrations indicating that any hydrocarbons remaining in the soil are not impacting groundwater.

7.0 DISCUSSION

7.1 SOIL VAPOR DISCUSSION

The soil vapor survey was conducted using an approximate 55-foot grid pattern over the majority of the site. The Los Angeles Regional Water Quality Control Board's Interim Guidance for Active Soil Gas Investigation dated February 25, 1997 indicates that grid patterns of 100 feet or less are sufficient for areas without known contamination.

Each sample was reported as not detected for VOCs. This indicates that significant quantities of VOCs are not present in the subsurface soils.

7.2 SOIL DISCUSSION

Carbon Chain Analysis

Twenty nine soil samples were selected for total petroleum hydrocarbons carbon range C7 to C44 analysis by EPA method 3550B. The basis for the selection was total recoverable petroleum hydrocarbons (TRPH) EPA method 418.1 results at or above 100 milligrams per kilogram (mg/kg). In addition, four soil samples from Area 1 were selected for volatile organic compound (VOC) analysis by EPA method 8260B, also based on the initial TRPH results at or above 100 mg/kg.

The carbon ranges were placed into three groups for purposes of discussion in this section. The groups are C7 to C12, C13 to C22, and C23 to C44 which generally represent gasoline, diesel, and oil/grease ranges respectively. The carbon range analytical results are summarized on Table 4.

Area 1

TRPH was detected in MB4 at depths of 1 and 5 feet bgs at respective concentrations of 6,300 mg/kg and 5,000 mg/kg and was reported as not detected at 15 feet bgs. Pyrene (a PAH) was reported at a concentration of 0.47 mg/kg at 1 foot bgs and not detected in the 5 and 15 foot samples.

TRPH was detected in MB6 at depths of 1 and 15 feet bgs at respective concentrations of 5,600 mg/kg and 21 mg/kg and was reported as not detected at 5 feet bgs. Fluoranthene and pyrene (PAHs) were reported at respective concentrations of 0.43 mg/kg and 0.44 mg/kg at 1 foot bgs and not detected in the 5 and 15 foot samples.

The Phase I ESA prepared by MACTEC prior to this report indicated that properties to the northeast of the site were occupied for several years by a manufactured gas plant. Results from boring MB19, drilled in the northern corner of the site do not indicate the presence of off-site impacts.

The carbon range C7 to C12 was reported as not detected (ND) for Area 1. The carbon range results for C13 to C22 were between 3 mg/kg and 65 mg/kg. The carbon range results for C22 to C44 were between 123 mg/kg and 927 mg/kg.

The results for Area 1 indicate near-surface impact of petroleum hydrocarbons. The carbon range results indicate that the vast majority of the petroleum hydrocarbons detected are in the oil/grease range. The petroleum hydrocarbon and PAH concentrations do not indicate a threat to groundwater. Additional evaluation of PAH soil analytical results are discussed later in this section.

Area 2

TRPH was detected in five of the nine borings from Area 2. Detected concentrations ranged from 15 mg/kg to 4,200 mg/kg. In general, the higher concentrations were reported for the samples collected from 1.5 feet bgs, and the next highest concentrations were from depths of 5.5 feet bgs. The maximum concentration detected from a sample below the 5.5 foot depth was reported as 370 mg/kg from MB7 at a depth of 15 feet bgs. Pyrene was reported at a concentration of 0.47 mg/kg at 1.5 foot bgs and not detected in the 5 and 15 foot samples from MB10. Fluoranthene and pyrene were reported at respective concentrations of 0.42 mg/kg and 0.46 mg/kg at 1.5 foot bgs and not detected in the 5.5 and 15.5 foot samples from MB11. The VOCs 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene were each reported at concentrations 13 µg/kg in the soil sample from MB20 at a depth of 1 foot bgs.

The carbon range C7 to C12 was reported as ND for Area 2. The carbon range results for C13 to C22 were between 2 mg/kg and 135 mg/kg. The carbon range results for C22 to C44 were between 100 mg/kg and 4,640 mg/kg.

These results for Area 2 indicate near-surface impact of petroleum hydrocarbons. The carbon range results indicate that the vast majority of the petroleum hydrocarbons detected are in the oil/grease range. The PAH and VOC detections were limited to depths of 1.5 feet bgs. The petroleum hydrocarbon, VOC, and PAH concentrations do not indicate a threat to groundwater. Additional evaluation of PAH soil analytical results are discussed later in this section.

Area 3

The two borings in the area of the fuel dispenser island (DI1 and DI2) were reported to have diesel fuel detections at the 5.5 and 10.5 foot depths ranging from 410 to 510 mg/kg. Diesel was not detected at depths of 15.5 bgs for both borings. TPH-g was detected only in DI1 at 10 feet bgs at a concentration of 4.5 mg/kg. Total VOCs of 1,736.1 µg/kg were reported for DI1 at 10 feet bgs. See Table 5 for details on the specific compounds. VOCs detected at 15 feet bgs in DI1 were MTBE and TBA at respective concentrations of 71 and 240 µg/kg. Carbon range analyses were not requested for these borings because TPH-g and TPH-g provide sufficient information. The data for the fuel dispenser area indicate that most of the diesel fuel impact is above 15 feet bgs and that some fuel oxygenates are in the area of DI1 at 10 feet and to a lesser extent at 15 feet bgs.

The one soil boring (CO1) in the suspected area of the former crude oil tank (CO1) was reported with a concentration of 290 mg/kg TRPH at 5.5 feet bgs, and TRPH was reported as not detected at 10.5 feet bgs. The carbon range C7 to C12 was reported as ND. The carbon range results for C13 to C22 were reported as 10 mg/kg. The carbon range results for C22 to C44 were reported as 199 mg/kg. VOCs were not detected at 5 or 10 feet bgs. These data indicate the presence of near surface impact of petroleum hydrocarbons primarily in the oil and grease range.

The one soil boring (OP1) in the suspected area of the old pump house was reported with concentrations of 230 mg/kg TRPH and 220 mg/kg at respective depths of 5.5 and 10.5 feet bgs. VOCS were not detected at 5 or 10 feet bgs. The carbon range C7 to C12 was reported as ND for boring OP1. The carbon range results for C13 to C22 were 10 mg/kg and 1 mg/kg for the 5.5 and 10.5 foot depths, respectively. The carbon range results for C22 to C44 were 327 mg/kg and 17 mg/kg for the 5.5 and 10.5 foot depths, respectively. These data indicate the presence of near-surface impact of petroleum hydrocarbons primarily in the oil and grease range. Deeper samples were not collected in this boring, this boring was drilled near the former and current USTs where soil impact is known to exist.

The fuel USTs in Area 3 are known to have been the source for petroleum impact to groundwater. Quarterly groundwater monitoring has been conducted for the UST area since 1999. The petroleum hydrocarbons and fuel oxygenates groundwater concentrations have been steadily decreasing indicating that the contamination mass is decreasing and it is not impacting groundwater sources.

Area-4

Seventeen borings were installed in the area of waste oil tanks and bus maintenance trenches. The maximum TRPH soil concentration detected was 340 mg/kg. The maximum TRPH soil concentration below 5.5 feet bgs was 51 mg/kg. The carbon range C7 to C12 was reported as ND for Area 4. The carbon range results for C13 to C22 were between 10 mg/kg and 39 mg/kg. The carbon range results for C22 to C44 were between 311 mg/kg and 950 mg/kg. VOCs were not detected in any of the samples. These data indicate that near-surface, relatively low levels of petroleum hydrocarbons primarily in the oil and grease range may exist. The petroleum hydrocarbon concentrations do not indicate a threat to groundwater.

Area-5

CL4 and CL5 were installed in the area of the steam cleaner. CL4 was reported to have TRPH concentrations of 1,000 mg/kg, 220 mg/kg, and 22 mg/kg in the 1.5, 5.5, and 15.5 foot deep samples, respectively. CL5 was reported to have TRPH concentrations of 470 mg/kg and 26 mg/kg in the 1.5 and 15.5 foot deep samples, respectively (the 5.5 foot sample was ND). The carbon range results for C7 to C12 were reported as ND for CL4 and CL5 samples. The carbon range results for C13 to C22 were reported as 7 mg/kg to 71 mg/kg. The carbon range results for C23 to C44 were reported as 75 mg/kg to 1,830 mg/kg. The only VOCs detected in these two borings were in the sample from CL4 at a depth of 1 foot bgs at a total concentration of 18.3 μg/kg. These data indicate that near-surface, relatively low levels of petroleum hydrocarbons, primarily in the oil and grease range exist in the area of the steam cleaner clarifier. The VOC detections were limited to depths of 1 feet bgs. The petroleum hydrocarbon and VOC concentrations do not indicate a threat to groundwater.

CL6, CL7, and CL9 were each installed by separate clarifiers/sumps. The maximum TRPH concentration detected in these three borings was 35 mg/kg. VOCs were not detected in the three borings. These data indicate that the impact of contaminated soil is not significant and does not indicate a threat to groundwater.

CL8 was installed in the employee gym and had reported TRPH concentrations of 20 mg/kg and 110 mg/kg at respective depths of 10.5 and 14.5 feet bgs. The carbon range results for C7 to C12 were reported as ND. The carbon range results for C13 to C22 were reported as 27 mg/kg. The carbon range results for C23 to C44 were reported as 412 mg/kg. PAHs were detected at a total concentration of 7.78 mg/kg. Please refer to Table 5 for the detailed results. These data indicate that some petroleum impact of primarily the oil and grease range is present at a depth of 14.5 feet bgs. These petroleum hydrocarbon and PAH concentrations do not indicate a threat to groundwater. Refer to the *Additional Evaluation of PAH Soil Analytical Results* section below for discussion of the PAHs detected in this area and in the soil sample from SV31.

CL1 and CL2 were installed in the area of the clarifier that is located between the fuel dispenser canopy/island and the underground fuel tanks. CL1 was reported to have TRPH concentrations of 150 mg/kg and 21 mg/kg in the 10.5 and 15.5 foot deep samples respectively. CL2 was reported to have TRPH concentrations of 1,200 mg/kg and 840 mg/kg in the 10.5 and 15.5 foot deep samples, respectively. The carbon range results for C7 to C12 were reported as ND for CL1 at 10.5 and CL2 at 15.5 feet bgs. The carbon range results for C7 to C12 was reported as 1,300 mg/kg for CL2 at 10.5 feet bgs. The carbon range results for C13 to C22 were reported as 16 mg/kg to 2,303 mg/kg. The carbon range results for C23 to C44 were reported as 186 mg/kg to 2,700 mg/kg. Of the VOCs, only MTBE was detected in CL1 at 15 feet bgs at a concentration of 5.1 μg/kg. Only naphthalene was detected in CL2 at 10 feet bgs at a concentration of 5.2 μg/kg. In CL2 at 15 feet, 251 μg/kg of total VOCs was detected. Refer to Table 5 for the detailed results. These data indicate that petroleum hydrocarbon impact exists in the area of the two clarifiers. These concentrations do not appear to indicate a threat to groundwater. This impact is most probably associated with the nearby USTs and dispensers (refer to Section 3 above for UST area groundwater discussion).

CL3 was installed in the area of a former clarifier and is adjacent to the underground fuel tanks. CL3 was reported to have TRPH concentrations of 780 mg/kg and 16 mg/kg in the 10.5 and 15.5 foot deep samples respectively. The carbon range results for C7 to C12 were reported as ND. The carbon range results for C13 to C22 were reported as 159 mg/kg. The carbon range results for C23 to C44 were reported as 918 mg/kg. Of the VOCs, only 1,3,5-trimethylbenzene was detected at 10 feet bgs at a concentration of 5.4 µg/kg. These data indicate that petroleum hydrocarbon impact of primarily the oil and grease range exists in the area of the former clarifier. These VOC and petroleum hydrocarbon concentrations do not indicate a threat to groundwater. This impact may be associated with the nearby USTs (refer to Section 3 above for UST area groundwater discussion).

Additional Evaluation of PAH Soil Analytical Results

The following table contains a summary of the PAH detections obtained by analysis of 95 samples representing Areas 1 through 5 and the bus stall area:

Risk-Based Screening of PAH Results

Soil Boring #	Area	Sample Depth (feet bgs)	PAH Analyte	Concentration (mg/kg)	Residential Soil PRG (mg/kg)	Potential Contribution to Risk/Hazard	
						Risk (ILCR)	Hazard (HI)
MB4	1	1	Pyrene	0.47	2,300 (nc)	NA	.0002
MB6	1	1	Pyrene	0.44	2,300 (nc)	NA	.0002
MB6	1	1	Fluoranthene	0.43	2,300 (nc)	NA	.0002
MB10	2	1.5	Pyrene	0.47	2,300 (nc)	NA	.0002
MB11	2	1.5	Pyrene	0.46	2,300 (nc)	NA	.0002
MB11	2	1.5	Fluoranthene	0.42	2,300 (nc)	NA	.0002
CL8	5	14.5	Pyrene	1.4	2,300 (nc)	NA	.0006
CL8	5	14.5	Benzo(a)anthracene	1.3	0.62 (ca)	2E-6	NA
CL8	5	14.5	Chrysene	1.5	62 (ca)	2E-8	NA

CL8	5	14.5	Benzo(k)fluoranthene	1.3	6.2 (ca)	2E-7	NA
CL8	5	14.5	Benzo(b)fluoranthene	1.4	0.62 (ca)	2E-6	NA
CL8	5	14.5	Benzo(a)pyrene	0.88	0.062 (ca)	1E-5	NA
SV31		4.5	Benzo(g,h,i)perylene	350	460*	NA	0.8

ILCR = increased lifetime cancer risk; HQ = chemical-specific hazard quotient; HI = multiple-chemical, or multiple-pathway hazard index
nc = non-cancer basis for risk-based concentration; ca = cancer basis for risk-based concentration
NA = not applicable for this data screening
PRGs, Preliminary Remediation Goals, are from EPA Region IX's PRG Table and are used here for streamlined risk-based evaluation.
*The risk-based concentration for benzo(g,h,i)perylene, 460 mg/kg, was taken from the California Regional Water Quality Control Board document, Application of Risk-Based Screening Levels and Decision Making to Sites With Impacted Soil and Groundwater, Volume 1: Summary Tier 1 Lookup Tables.

The listing of the results with straightforward evaluation for potential contribution to human health risk as increased lifetime cancer risk (ILCR) or human health hazard (hazard index, HI) for a residential land use scenario provides some ready conclusions with regard to the disposition and importance of the results for PAHs.

Overall, the results are spatially scattered. For instance, in Area 1, detections in samples MB4 and MB6 are separated by about lateral 60 feet. Note that the results are at 1 foot bgs, and there were no detections at greater depths. Even if it is assumed that the space in between the sampling locations is homogeneous for pyrene and fluoranthene content in the soil at 1 foot bgs, the potential contribution of pyrene and fluoranthene to health hazard is insignificant, i.e., is much less than 1.0, the upper threshold criterion of acceptable exposure. Sample locations MB10 and MB11 are closer to one another in Area 2, with about 40 feet of separation, but the analytical results are almost exactly the same. Pyrene and fluoranthene in Area 2 have an insignificant potential contribution of health hazard. Even if the HI for pyrene and fluoranthene in Areas 1 and 2 were summed, as in a residential scenario for the entire area, the HI would be much less than 1.0.

A number of PAHs were detected in sample CL8 at 14.5 feet bgs. They were not detected at more shallow depths. The location of sample CL8 is several hundred feet away from the other sample locations with PAH detections and can be considered separately for potential contribution to risk/hazard. In the table, risk estimated for single detections of benzo(a)anthracene, chrysene, benzo(k)fluoranthene, benzo(b)fluoranthene, and benzo(a)pyrene is potentially significant at values greater than one-in-a-million ILCR (1E-6 ILCR). This might be important for site assessment except that the detections are located at 14.5 feet bgs. California surface soil is defined as 0 to 10 feet bgs, the soil interval that might be exposed for a typical property improvement such as installing a swimming pool. The detections at 14.5 feet bgs are not significant for potential direct human exposure to soil. Further, the years of disposition of these detections in the subsurface soil and the absence of them in the groundwater samples is an indicator that they are not moving to the groundwater.

A detection of benzo(g.h.i)perylene in boring SV31, about 40 feet west of MB11, seems to be significant based on the result of 350 mg/kg. However, when compared to a surrogate risk-based concentration of 460 mg/kg for direct exposure, the HI of 0.8 indicates acceptable exposure less than 1.0 HI. Even if all the MB results are summed with SV31, the result is less than 1.0.

The summing of risk-based results is usually helpful as a conservative estimate of cumulative risk/hazard for a residential property or living area. For the current PAH results, this is not appropriate. For instance, over a site of 3.67 acres there is only one detection of benzo(a)pyrene at one single location. That single detection is not representative of the entire property, especially considering that it is at a depth of 14.5 feet bgs. A human receptor could never be thought of as existing at that one spot for direct exposure during the 30-year 90^{th} percentile exposure duration of a residential land use exposure scenario. The argument is the same for the four other PAHs detected in sample CL8.

PAHs do not appear to be significant contributors to risk/hazard for the MTA Division 6 property. The risk screening of this section will be elaborated in the human health risk assessment.

Metals for Areas-1 through 5

The array of analytical results for Title 22 metals in soil is presented in Table 6. Areas of the 3.67-acre site where the site history and materials usage indicated the potential for metals release to the environment were sampled. The result is 95 sample results for each of the 17 Title 22 metals. The array of 26 samples per acre provides high statistical confidence that the analytical results are representative of the site.

Table 6 indicates that certain of the metals, notably antimony, beryllium, cadmium, mercury, molybdenum, selenium, silver, and thallium, are predominantly not detected at their respective reporting limits (practical quantitation limits). Nonetheless, for purposes of the initial evaluation of the metals results, an ND (not detected) result was assumed to be the reporting limit concentration. Common statistics were determined for the metal-specific data sets on this basis.

The table lists the EPA Region IX Preliminary Remediation Goals (PRGs) (EPA, 2002) for each of the metals in surface soil for a residential land use exposure scenario. Also listed are the ranges of typical background concentrations for each of the metals in soil across the State of California (Bradford et al., 1996). In addition, the mean/average, standard deviation, confidence interval above the mean for a 95% upper confidence limit (UCL), and the 95% UCL for each metal were determined from their respective data sets and listed in the table.

Regardless of the toxicity properties for each of the metals as a potential carcinogen or non-carcinogen, several conclusions are apparent from inspection of the statistical evaluation:

- The 95% UCL concentration for each of the metals, except selenium, is less than or within the range of background concentrations reported in the Kearney Foundation report (Bradford et al., 1996).

- Selenium has 72% non detect results; the frequency of detection is 28%. Further, the conservatively calculated 95% UCL of 0.86 mg/kg is 0.2% of the residential soil PRG of 390 mg/kg.

- All of the 95% UCL concentrations of the respective metals are well below their respective PRGs, and there should not be a significant contribution of metals to either increased lifetime cancer risk (ILCR) or health hazard (hazard index, HI) for risk-based evaluation.

The results and evaluation of Table 6 indicate that metals in soil on the MTA Division 6 site need not be included in the chemicals of potential concern for possible later risk-based evaluation.

7.3 GROUNDWATER DISCUSSION

In addition to the four grab groundwater samples, select data from the 1st quarter 2004 for groundwater monitoring wells MW-3 and MW-5 are included in Table 1. The MW-3 and MW-5 data along with additional selected data for the other four groundwater wells are shown on Figure 8. Samples from wells MW-3 and MW-5 were additionally analyzed for PAH, herbicides, total cyanides, PCBs, and 1,4-dioxane during the 1st quarterly groundwater sampling event of 2004 to supplement the grab groundwater sample data in this report.

Chloroform was detected in MB31-GW and MB11-GW at respective concentrations of 5 μg/kg and 1.5 μg/kg. 1,4-dioxane was detected at a concentration of 3.4 μg/kg in MW-5. These detections are isolated and appear minor; however, they will be further addressed in the risk assessment report to follow.

8.0 CONCLUSIONS

The results of this assessment indicate that oil and grease range petroleum hydrocarbon impacted soil is present in the near-surface soils in numerous areas of the site. Previous assessments indicate that petroleum hydrocarbon impact is present in the soil in the area of the current four fuel USTs. Preliminarily, these impacts indicate that the affected soils could be left in place; however, if the existing pavement is removed and the site is graded/excavated for future development, these soils will need to be stockpiled and analyzed after excavation and prior to removal from the site or replacement in the ground. Additionally, due to the nature of the use of the site (bus parking and maintenance), it is very likely that the near-surface impact from petroleum hydrocarbons is present beneath the pavement in areas not assessed. During removal of the pavement and initial grading/excavation of the site, the soil will need to be handled properly to separate areas that are impacted with petroleum hydrocarbons. Soil grading and excavation for property development will be performed using a soil excavation plan that will be prepared along with the developer's excavation specifications. The soil excavation plan will discuss proper handling of petroleum impacted soils that are encountered. It is recommended that MTA complete a survey (by a licensed surveyor) of selected boring locations or adjacent current and historical structures to aid in soil excavation management. A risk assessment is being prepared to compliment the soil and groundwater conclusions made herein and to address human receptor risk.

Total cyanide and herbicides were not detected during this assessment. PAHs do not appear to be significant contributors to risk/hazard at the site. Metals in soil at the site need not be included in the chemicals of potential concern for possible later risk-based evaluation.

There is no evidence that contamination is migrating onto or off-from the site in either soil or groundwater mediums.

The current quarterly groundwater sampling of five onsite wells and one offsite well indicates that petroleum concentrations in the groundwater are decreasing. The petroleum hydrocarbons and fuel oxygenates groundwater concentrations have been steadily decreasing since 1999 indicating that the contamination mass is decreasing and it is not impacting groundwater sources. The 4th quarter 2003 event reported TPH-d and TPH-g as not detected in each of the six wells, and MTBE was detected at a maximum concentration of 5.1 μg/l. The 4th quarter report states that "If the next two quarterly monitoring results continue to show the trend of decreasing concentrations, it appears that the site should be recommended for regulatory closure." The 1st quarter 2004 groundwater monitoring event data indicates that TPH-g and TPH-d were not detected and that MTBE was detected in MW-1 at a maximum concentration of 30 μg/l. As part of the first quarter 2004 groundwater monitoring report, an exponential trend line for MW-1 historical data (from 1999 to present) was computed using Microsoft Excel. The Excel graph of the data shows that the first quarter 2004 MTBE detection of 30 ug/l is on the trend line indicating that it is a continuation of the overall decreasing trend. A complete report on the 1st quarter 2004 groundwater monitoring is being prepared in an accompanying monitoring report.

The soil in the area of the fuel UST and dispenser area (central portion of Area-3) is impacted with petroleum hydrocarbons based on the previous consultant's assessment reports and the few borings installed in the area during this assessment. Based on the decreasing concentrations of petroleum hydrocarbons and fuel oxygenates in groundwater discussed above, the impacted soil in this area is not a threat to groundwater. Whether the soil is recommended to be remediated prior to residential development will be assessed in a separate health risk assessment.

9.0 LIMITATIONS

The findings and opinions are relevant to the dates of our site work and should not be relied on to represent conditions at later dates.

Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable environmental consultants practicing in this or similar localities. No other warranty, express or implied, is made as to the professional advice included in this report.

The opinions included herein are based on information obtained during the study and on our experience. If additional information becomes available that might impact our environmental conclusions, we request the opportunity to review the information, reassess the potential concerns, and modify our opinion, if warranted.

10.0 REFERENCES

Bentley Company, The, 1996. *Environmental Assessment Report, Division 6 Underground Storage Tank Replacement Project*. January 12.

California Code of Regulations Title 22, June 4, 1999. *California Drinking Water Primary Maximum Containment Levels.*

California Department of Water Resources, 1961. *Planned Utilization of Groundwater Basins of the Coastal Plain of Los Angeles County*, Bulletin 104, Appendix A.

California Department of Water Resources, 2003. On-line Ground Water Bulletin 118 (Update 2003), http://www.dwr.ca.gov.

Holguin, Fahan & Associates, Inc. (HFA), 1995. *Environmental Laboratory Analytical Results for Samples Collected November 17, 1995.*

HFA, 1997a. *Workplan for Continued Site Assessment at Los Angeles County Metropolitan Transportation Authority, Division 6 Bus Maintenance and Fueling Facility, 100 Sunset Avenue, Venice, California (CRWQCB-LAR ID# 902910152).* July 24.

HFA, 1997b. *Groundwater Assessment at Los Angeles County Metropolitan Transportation Authority, Division 6 Bus Maintenance and Fueling Facility, 100 Sunset Avenue, Venice, California.* August 8.

MACTEC, Inc., 2004. *Groundwater Monitoring Report – Fourth Quarter 2003, Los Angeles County Metropolitan Transportation Authority, Division 6, 100 Sunset Avenue, Venice, California, MACTEC Project Number 4525030056, January 13.*

Poland, J.F., Garrett, A.A., and Sinnott, A., 1959. *Geology, Hydrology, and Chemical Character of Groundwaters in the Torrance–Santa Monica Area, California*, U.S. Geological Survey Water Supply Paper 1461.

Tyree Organization, Ltd., The, 1999. *Report of Underground Storage Tank Removal at Los Angeles County Metropolitan Transit Authority, Division 6, 100 Sunset Avenue, Venice, California.* May 21.

URS Corporation, 1999. *4th Quarter 1999 Groundwater Monitoring Report, Metropolitan Transportation Authority, Division 6, 100 Sunset Avenue, Venice, California.* December.

URS Corporation, 2002. *Groundwater Monitoring Well Installation Report, Metropolitan Transportation Authority, Division 6, 100 Sunset Avenue, Venice, California.* June 12.

TABLES

Table 1: Groundwater Analytical Results

Groundwater Boring/Well #	Area	GW depth (ft)	Date	EPA 8015M TPH-d (µg/L)	EPA 8015M TPH-g (µg/L)	EPA 8270C PAH (µg/L)	EPA 8151 Herbicides (ug/L)	EPA 335.2 Total Cyanides (mg/L)	EPA 8082 PCBs (µg/L)	EPA GC/MS Isotope Dilution 1,4 Dioxane (µg/L)	EPA 8260B VOCs (ug/L)
MB3-GW	Area 1	26.1	2/12/2004	ND	-	ND	ND	ND	ND	ND	ND
MW5	Area 1		2/10/2004	ND	ND	ND	ND	ND	ND	3.4	ND
MB11-GW	Area 2	26.5	2/12/2004	ND	-	ND	ND	ND	ND	ND	Chloroform 1.5
MW3	Area 3		2/10/2004	ND	ND	ND	ND	ND	ND	ND	ND
MB31-GW	Area 4	26	2/12/2004	ND	-	ND	ND	ND	ND	ND	Chloroform 5
MB33-GW	Area 4	24	2/11/2004	ND	-	ND	ND	ND	ND	ND	ND
Historical Data											
				EPA 8015M TPH-d (µg/L)	EPA 8015M TPH-g (µg/L)						EPA 602 VOCs (ug/L)
HP1	-	24.58	7/28/1997	-	160,000	-	-	-	-	-	B:2900 T:8400 E:5400 X:26000 MTBE:27000
HP2	-	24.73	7/28/1997	-	690	-	-	-	-	-	B:220 T:4 E:10 X:16 MTBE:380
HP3	-	23.43	7/28/1997	-	ND	-	-	-	-	-	B:0.5 T:ND E:ND X:0.7 MTBE:ND
HP4	-	23	7/28/1997	-	2,400	-	-	-	-	-	B:150 T:29 E:120 X:250 MTBE:1200
HP5	-	23.92	7/28/1997	-	1,200	-	-	-	-	-	B:110 T:6.9 E:27 X:120 MTBE:830
CPT-1			11/6/1995	1,500	1,100						B:83 T:69 E:24.2 X:101.6
CPT-2			11/6/1995	ND	ND						B:7 T:0.5 E:0.7 X:4.0
CPT-6			11/6/1995	ND	ND						B:7.7 T:1.5 E:0.7 X:3.0

Notes:

VOCs: Volatile organic compounds
ND: Not detected over reporting limit (RL)
TRPH: Total recoverable petroleum hydrocarbons
TPH-d: Total Petroleum Hydrocarbons as Diesel
TPH-g: Total Petroleum Hydrocarbons as gasoline
BTEX: B(benzene) T(toluene) E(ethylbenzene) X(total xylenes)
MTBE: Methyl tert-butyl ether
PAH: Poly aromatic hydrocarbons
PCB: Polychlorinated biphenyls
- Sample Not analyzed for that analyte
mg/L - milligrams per liter
µg/L - micrograms per liter
Historical data was collected by previous consultants

Table 2: Historical Soil Data

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 453.2 Oil and Grease (ppm)	EPA 7421 Lead (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8015M TPH-g (mg/kg)	EPA 8020 (mg/kg)					Acetone (µg/kg)	Tetrachloroethene (µg/kg)
									Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
T1-N		15	2/23/1998	-	-	302	-	390	ND	85	46.4	665	ND	-	-
T1-S		15	2/23/1998	-	-	45.8	-	16.3	ND	0.374	ND	2.68	0.912	-	-
T2-N		15	2/23/1998	23600	-	56.8	-	-	ND	342	138	978	46.8	-	-
T2-S		15	2/23/1998	472	-	52.7	-	-	ND	1.35	0.509	3.67	0.562	-	-
T3-N		15	2/23/1998	-	-	73	ND	-	ND	ND	ND	ND	ND	-	-
T3-S		15	2/23/1998	-	-	259	1740	-	ND	ND	ND	0.241	0.492	-	-
T4-N		15	2/23/1998	-	-	67.4	ND	-	ND	ND	ND	ND	ND	-	-
T4-S		15	2/23/1998	-	-	185	5000	-	ND	ND	ND	ND	ND	-	-
D-1		9	3/18/1998	-	-	-	ND	-	ND	ND	ND	ND	ND	-	-
WO-1		12	3/18/1998	ND	-	-	-	-	ND	ND	ND	ND	ND	-	-
WOTP-1		10.5	6/30/1998	145	-	175	ND	ND						-	-
CPT1	Area 1	15	11/7/1995	ND	-	-	ND	ND	ND	ND	ND	ND	-	-	-
CPT1	Area 1	25	11/7/1995	80	-	-	189	1690	4.2	66	27.6	152.8	-	-	-
CPT2	Area 1	20	11/7/1995	ND	-	-	ND	ND	0.006	0.029	0.016	0.089	-	-	-
CPT2	Area 1	25	11/7/1995	340	-	-	ND	ND	0.006	0.008	ND	0.017	-	-	-
CPT6	Area 1	15	11/7/1995	ND	-	-	25	ND	ND	ND	ND	ND	-	-	-
CPT6	Area 1	20	11/7/1995	ND	-	-	ND	ND	ND	0.006	ND	0.045	-	-	-
CPT6	Area 1	25	11/7/1995	63	-	-	ND	ND	0.076	0.04	0.061	0.296	-	-	-
CPT7	Area 1	15	11/7/1995	ND	-	-	ND	ND	ND	0.007	ND	0.02	-	-	-
CPT7	Area 1	25	11/7/1995	3500	-	-	4040	864	1.5	2.6	1.5	4.8	-	-	-
CPT9	Area 1	15	11/7/1995	ND	-	-	ND	ND	ND	0.019	0.017	0.082	-	-	-
CPT9	Area 1	25	11/7/1995	ND	-	-	ND	ND	ND	ND	ND	ND	-	-	-
CPT10	Area 1	15	11/8/1995	830	-	-	16	37	0.026	0.514	0.428	2.5	-	-	-
CPT10	Area 1	20	11/8/1995	480	-	-	1330	929	1.2	28.7	13.2	77.8	-	-	-
CPT10	Area 1	25	11/8/1995	ND	-	-	ND	ND	ND	0.009	ND	0.017	-	-	-
CPT11	Area 1	10	11/8/1995	520	-	-	ND	ND	ND	0.01	ND	0.039	-	-	-
CPT16	Area 1	10	11/8/1995	ND	-	-	ND	ND	ND	ND	ND	ND	-	-	-
CPT4	Area 2	10	11/8/1995	ND	-	-	-	-	ND	ND	ND	ND	-	-	-
CPT4	Area 2	20	11/8/1995	ND	-	-	-	-	ND	0.011	ND	0.015	-	-	-
CPT12	Area 2	5	11/8/1995	ND	-	-	-	-	ND	0.037	ND	0.07	-	-	-
CPT12	Area 2	15	11/8/1995	ND	-	-	-	-	ND	0.007	ND	ND	-	-	-
CPT13	Area 2	5	11/8/1995	ND	-	-	-	-	ND	ND	ND	ND	-	-	-
CPT13	Area 2	15	11/8/1995	ND	-	-	-	-	ND	0.008	ND	ND	-	-	-
CPT15	Area 2	5	11/8/1995	-	-	-	ND	-	ND	0.005	ND	0.021	-	-	-
CPT15	Area 2	10	11/8/1995	-	-	-	ND	-	ND	0.012	ND	0.045	-	-	-
CPT5	Area 3	5	11/9/1995	ND	-	-	-	-	ND	0.007	ND	ND	-	-	-
CPT5	Area 3	15	11/9/1995	11	-	-	-	-	ND	ND	ND	ND	-	-	-
CPT14	Area 3	5	11/8/1995	ND	-	-	-	-	ND	0.01	ND	0.022	-	-	-
CPT14	Area 3	15	11/8/1995	ND	-	-	-	-	ND	ND	ND	ND	-	-	-

Table 2: Historical Soil Data

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 453.2 Oil and Grease (ppm)	EPA 7421 Lead (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8015M TPH-g (mg/kg)	EPA 8020 (mg/kg)					Acetone (µg/kg)	Tetrachloroethene (µg/kg)
									Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
							TPH (ppm)		**EPA 8015M (ppm)**						
BH1 S(1-5)		5-25	3/1/1988	-	-	-	<5**		<1	<1	-	<1	-	-	-
BH2 S(1-5)		5-25	3/1/1988	-	-	-	<5**		<1	<1	-	<1	-	-	-
BH3 S(1-4)		5-20	3/2/1988	-	350	-	-		-	-	-	-	-	-	-
BH3 S(5-8)		25-40	3/2/1988	-	<10	-	-		-	-	-	-	-	-	-
BH3 S1		5	3/2/1988	-	160	-	-		-	-	-	-	-	-	-
BH3 S2		10	3/2/1988	-	160	-	-		-	-	-	-	-	-	-
BH3 S3		15	3/2/1988	-	2600	-	-		-	-	-	-	-	-	-
BH3 S4		20	3/2/1988	-	310	-	-		-	-	-	-	-	-	-
BH4 S(1-3)		5-15	3/2/1988	25	-	-	-		-	-	-	-	-	-	-
BH4 S(4-6)		20-30	3/2/1988	960	-	-	-		-	-	-	-	-	-	-
BH4 S4		20	3/2/1988	9000	-	-	-		-	-	-	-	-	-	-
BH4 S5		25	3/2/1988	12000	-	-	-		-	-	-	-	-	-	-
BH4 S6		30	3/2/1988	<10	-	-	-		-	-	-	-	-	-	-
BH5 S(1-3)		5-15	3/1/1988	160	-	-	-		-	-	-	-	-	-	-
BH5 S(4-6)		20-30	3/1/1988	<10	-	-	-		-	-	-	-	-	-	-
BH5 S1		5	3/1/1988	<10	-	-	-		-	-	-	-	-	-	-
BH5 S2		10	3/1/1988	300	-	-	-		-	-	-	-	-	-	-
BH5 S3		15	3/1/1988	<10	-	-	-		-	-	-	-	-	-	-
BH6 S(1-3)		5-15	3/1/1988	90	-	-	-		-	-	-	-	-	-	-
BH6 S(4-6)		20-30	3/1/1988	<10	-	-	-		-	-	-	-	-	-	-
BH7 S(1-3)		5-15	2/29/1988	110	-	-	-		-	-	-	-	-	-	-
BH7 S(4-6)		20-30	2/29/1988	<10	-	-	-		-	-	-	-	-	-	-
BH7 S1		5	2/29/1988	270	-	-	-		-	-	-	-	-	-	-
BH7 S2		10	2/29/1988	<10	-	-	-		-	-	-	-	-	-	-
BH7 S3		15	2/29/1988	<10	-	-	-		-	-	-	-	-	-	-
BH8 S(1-3)		5-15	2/29/1988	-	<10	-	-		-	-	-	-	-	-	-
BH8 S(4-6)		20-30	2/29/1988	-	<10	-	-		-	-	-	-	-	-	-
BH9 S(1-4)		5-20	3/2/1988	-	38	-	-		-	-	-	-	-	-	-
BH9 S(5-8)		25-40	3/2/1988	-	<10	-	-		-	-	-	-	-	-	-
BH10 S(1-2)		5-10	3/1/1988	9100	9100	-	1100**		<1	<1	-	2	-	-	-
BH10 S1		5	3/1/1988	2700	2700	-	91**		<1	<1	-	<1	-	-	-
BH10 S2		10	3/1/1988	3500	3500	-	140**		<1	<1	-	<1	-	-	-
BH11 S(1-2)		5-10	3/1/1988	5400	5500	-	1900**		<1	<1	-	4	-	-	-
BH11 S1		5	3/1/1988	5600	5600	-	230**		<1	<1	-	<1	-	-	-
BH11 S2		10	3/1/1988	130	140	-	100**		<1	<1	-	<1	-	-	-
									(ug/kg)						
MW-5		10	2/25/2002	94		5.68	200*	ND	ND	ND	ND	ND	ND	47	ND
MW-5		15	2/25/2002	ND		2.29	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5		20	2/25/2002	ND		1.88	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5		25	2/25/2002	ND		1.04	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6		10	2/26/2002	ND		6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6		15	2/26/2002	38		3.02	41*	ND	ND	ND	ND	ND	ND	ND	ND
MW-6		20	2/26/2002	10		1.36	ND	ND	ND	ND	ND	ND	ND	ND	1.3

Table 2: Historical Soil Data

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 453.2 Oil and Grease (ppm)	EPA 7421 Lead (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8015M TPH-g (mg/kg)	EPA 8020 (mg/kg)					Acetone (µg/kg)	Tetrachloroethene (µg/kg)
									Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
MW1	Area 1	10	May, 2002				2500	790	-	-	-	-	ND		
MW1	Area 1	15	May, 2002				ND	ND	-	-	-	-	0.027		
MW1	Area 1	20	May, 2002				ND	ND	-	-	-	-	0.032		
MW1	Area 1	22	May, 2002				ND	ND	-	-	-	-	0.017		
MW2	Area 1	10	May, 2002				930	ND	-	-	-	-	ND		
MW2	Area 1	15	May, 2002				ND	ND	-	-	-	-	ND		
MW2	Area 1	20	May, 2002				ND	ND	-	-	-	-	ND		
MW2	Area 1	22	May, 2002				ND	ND	-	-	-	-	ND		
MW3	Area 1	10	May, 2002				ND	ND	-	-	-	-	ND		
MW3	Area 1	15	May, 2002				ND	ND	-	-	-	-	ND		
MW3	Area 1	20	May, 2002				ND	ND	-	-	-	-	ND		
MW3	Area 1	22	May, 2002				ND	ND	-	-	-	-	ND		
MW4	Area 1	10	May, 2002				ND	ND	-	-	-	-	0.0095		
MW4	Area 1	15	May, 2002				ND	ND	-	-	-	-	0.0065		
MW4	Area 1	20	May, 2002				ND	ND	-	-	-	-	ND		
MW4	Area 1	22	May, 2002				ND	ND	-	-	-	-	ND		

Notes:

VOCs: Volatile organic compounds
ND: Not detected over reporting limit (RL)
TRPH: Total recoverable petroleum hydrocarbons
TPH-d: Total Petroleum Hydrocarbons as Diesel
TPH-g: Total Petroleum Hydrocarbons as gasoline
BTEX: B(benzene) T(toluene) E(ethylbenzene) X(total xylenes)
MTBE: Methyl tert-butyl ether
PAH: Poly aromatic hydrocarbons
PCB: Polychlorinated biphenyls
- Sample Not analyzed for that analyte
mg/kg - milligrams per kilogram
mg/L - milligrams per liter
µg/kg - micrograms per kilogram
µg/L - micrograms per liter
ppm: parts per million
* Lab reported this value with the following comment: "The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard:
** Lab reported these results without specifying them for TPH-g or TPH-d

Table 3: Soil Vapor Analytical Results

Soil Vapor Boring #	Depth (ft)	Sample Volume (cc)	Sample Date	Analysis for VOCs by EPA method 8260B (µg/L)
SV1	8	90	1/28/2004	ND
SV2	8	90	1/28/2004	ND
SV3	8	90	1/28/2004	ND
SV4	8	90	1/28/2004	ND
SV5	8	90	1/29/2004	ND
SV6	8	90	1/29/2004	ND
SV7	8	90	1/28/2004	ND
SV8	8	30	1/28/2004	ND
SV8	8	90	1/28/2004	ND
SV8	8	210	1/28/2004	ND
SV8	8	90	1/29/2004	ND
SV8 (Dpl)	8	140	1/29/2004	ND
SV9	8	90	1/28/2004	ND
SV10	8	90	1/28/2004	ND
SV11	8	90	1/28/2004	ND
SV12	8	90	1/29/2004	ND
SV13	8	90	1/30/2004	ND
SV14	8	90	1/29/2004	ND
SV15	8	90	1/29/2004	ND
SV16	8	90	1/29/2004	ND
SV17	8	90	1/28/2004	ND
SV17 (Dpl)	8	140	1/28/2004	ND
SV18	9	93	2/25/2004	ND
SV18 (Dpl)	9	443	2/25/2004	ND
SV19	8	90	1/30/2004	ND
SV20	8	90	1/29/2004	ND
SV21	8	90	1/29/2004	ND
SV22	8	90	1/29/2004	ND
SV23	8	90	1/30/2004	ND
SV24	8	90	1/28/2004	ND
SV25	8	90	1/29/2004	ND
SV26	8	90	1/30/2004	ND
SV27	8	90	1/29/2004	ND
SV28	8	90	1/29/2004	ND
SV29	8	90	1/30/2004	ND
SV30	8	90	1/30/2004	ND
SV31	8	90	1/29/2004	ND
SV32	8	90	1/30/2004	ND
SV33	8	90	1/30/2004	ND
SV34	8	90	1/30/2004	ND
SV34 (Dpl)	8	140	1/30/2004	ND

Notes

VOCs: Volatile organic compounds
ND: Not detected over reporting limit (RL)
cc: cubic centimeters
Dpl: Duplicate sample
µg/L - micrograms per liter

Table 4: Soil Carbon Range Analytical Results

					EPA 3550B, TPH Carbon Range (mg/kg)																		
				EPA 418.1	Carbon Range (C7-C12)				Carbon Range (C13-C22)					Carbon Range (C23-C44)									
Sample ID	Area	Depth	Date	TRPH (mg/kg)	C7	C8	C9-C10	C11-C12	C13-C14	C15-C16	C17-C18	C19-C20	C21-C22	C23-24	C25-C28	C29-C32	C33-C36	C37-C40	C41-C44	C7-C44 Total	C7-C12 Total	C13-C22 Total	C23-C44 Total
MB4	Area 1	1	2/13/2004	6300	ND	ND	ND	ND	ND	ND	0.96	3.9	7.4	15	60	94	91	100	93	470	ND	12	453
MB4	Area 1	5	2/13/2004	5000	ND	ND	ND	ND	ND	0.77	10	19	35	47	150	220	190	170	150	1000	ND	65	927
MB5	Area 1	5	2/13/2004	390	ND	ND	ND	ND	ND	ND	0.042	0.76	1.7	3.2	13	28	24	29	26	130	ND	3	123
MB6	Area 1	1	2/13/2004	5600	ND	ND	ND	ND	ND	ND	ND	ND	3.3	7.2	40	89	76	83	79	380	ND	3	374
GS1	Area 2	5.5	2/11/2004	220	ND	ND	ND	ND	ND	ND	0.078	0.49	1.1	2.1	8.9	19	19	25	26	100	ND	2	100
MB7	Area 2	1.5	2/10/2004	1200	ND	ND	ND	ND	ND	ND	13	44	78	160	630	1100	810	750	620	4200	ND	135	4070
MB7	Area 2	15	2/13/2004	370	ND	ND	ND	ND	ND	ND	0.75	3.6	6.8	13	48	47	41	35	37	230	ND	11	221
MB8	Area 2	1.5	2/10/2004	4200	ND	ND	ND	ND	ND	ND	8.7	40	69	130	590	1100	980	1000	840	4700	ND	118	4640
MB9	Area 2	1.5	2/10/2004	300	ND	ND	ND	ND	ND	ND	2.7	9.7	23	33	150	300	270	340	250	1400	ND	35	1343
MB10	Area 2	1.5	2/10/2004	3300	ND	ND	ND	ND	ND	ND	ND	19	32	67	280	580	470	590	530	2600	ND	51	2517
MB11	Area 2	1.5	2/10/2004	2900	ND	ND	ND	ND	ND	ND	ND	33	46	92	300	570	500	540	580	2700	ND	79	2582
MB12	Area 2	1.5	2/10/2004	1600	ND	ND	ND	ND	ND	ND	3.9	44	69	91	290	730	670	730	550	3200	ND	117	3061
MB12	Area 2	5.5	2/10/2004	630	ND	ND	ND	ND	ND	ND	ND	4	7.9	13	63	150	160	150	140	690	ND	12	676
CO1	Area 3	5.5	2/11/2004	290	ND	ND	ND	ND	ND	ND	0.56	2.9	6.5	5.1	23	40	42	45	44	210	ND	10	199
OP1	Area 3	5.5	2/11/2004	230	ND	ND	ND	ND	ND	ND	0.37	2.6	7.3	14	47	81	66	64	55	340	ND	10	327
OP1	Area 3	10.5	2/11/2004	220	ND	ND	ND	ND	ND	ND	ND	0.22	0.61	0.97	2.7	5.7	1.9	2.3	3.4	18	ND	1	17
MB18	Area 4	1	2/13/2004	230	ND	ND	ND	ND	ND	ND	0.28	3.4	13	28	100	140	82	58	42	470	ND	17	450
MB18	Area 4	3	2/13/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MB28	Area 4	5.5	2/12/2004	340	ND	ND	ND	ND	ND	ND	1.4	11	27	53	210	320	170	120	77	990	ND	39	950
MB30	Area 4	1.5	2/11/2004	230	ND	ND	ND	ND	ND	ND	0.64	2.6	8.4	15	57	93	67	54	35	330	ND	12	321
MB30	Area 4	5.5	2/11/2004	100	ND	ND	ND	ND	ND	ND	0.31	2.4	7	13	54	91	62	58	36	320	ND	10	314
MB32	Area 4	3.5	2/11/2004	130	ND	ND	ND	ND	ND	ND	0.55	3.2	7.1	13	49	76	60	60	53	320	ND	11	311
CL1	Area 5	10.5	2/11/2004	150	ND	ND	ND	ND	ND	0.57	8.5	24	61	86	320	480	380	280	170	1800	ND	94	1716
CL2	Area 5	10.5	2/11/2004	1200	ND	ND	100	1200	1500	530	100	63	110	210	600	820	500	320	250	6300	1300	2303	2700
CL2	Area 5	15.5	2/11/2004	840	ND	ND	ND	ND	ND	0.27	2	5.2	8.3	11	32	44	34	35	30	200	ND	16	186
CL3	Area 5	10.5	2/11/2004	780	ND	ND	ND	ND	ND	2.9	28	60	68	58	170	210	170	150	160	1100	ND	159	918
CL4	Area 5	1.5	2/10/2004	1000	ND	ND	ND	ND	ND	ND	3.9	21	46	95	330	470	360	310	200	1800	ND	71	1765
CL4	Area 5	5.5	2/10/2004	220	ND	ND	ND	ND	ND	ND	0.15	1.7	4.8	4.6	15	22	14	11	8.6	81	ND	7	75
CL5	Area 5	1.5	2/10/2004	470	ND	ND	ND	ND	ND	ND	2.4	14	37	90	350	530	390	280	190	1900	ND	53	1830
CL8	Area 5	14.5	2/13/2004	110	ND	ND	ND	ND	ND	0.36	2.3	6.7	18	42	110	130	72	37	21	440	ND	27	412

Notes:

VOCs: Volatile organic compounds

ND: Not detected over reporting limit (RL)

-: Sample not analyzed for that analyte

TPH: Total petroleum hydrocarbons

TRPH: Total recoverable petroleum hydrocarbons

mg/kg - milligrams per kilogram

µg/kg - micrograms per kilogram

Table 5: Soil Analytical Results

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8260B** TPH-g (mg/kg)	EPA 9010B/335.2 Cyanide (mg/kg)	EPA 8270C/8310 PAH (mg/kg)	EPA 8151 Herbicides (µg/kg)	pH (pH units)	EPA 8082 PCBs (µg/kg)	EPA 8260B VOCs (µg/kg)
MB1	Area 1	1	2/12/2004	52	-	-	-	ND	-	-	ND	-
MB1	Area 1	5	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB1	Area 1	15	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB3	Area 1	1	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB3	Area 1	5	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB3	Area 1	15	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB4	Area 1	1	2/13/2004	6300	-	-	-	Pyrene: 0.47	-	-	ND	Methylene Chloride:66* PCE: 9.6
MB4	Area 1	5	2/13/2004	5000	-	-	-	ND	-	-	ND	Methylene Chloride:54*
MB4	Area 1	15	2/13/2004	ND	-	-	-	ND	-	-	ND	-
MB5	Area 1	1	2/13/2004	21	-	-	-	ND	-	-	ND	-
MB5	Area 1	5	2/13/2004	390	-	-	-	ND	-	-	ND	ND
MB5	Area 1	15	2/13/2004	26	-	-	-	ND	-	-	ND	-
MB6	Area 1	1	2/13/2004	5600	-	-	-	Fluoranthene: 0.43 Pyrene: 0.44	-	-	ND	ND
MB6	Area 1	5	2/13/2004	ND	-	-	-	ND	-	-	ND	-
MB6	Area 1	15	2/13/2004	21	-	-	-	ND	-	-	ND	-
MB19	Area 1	1.5	2/13/2004	-	-	-	-	-	-	-	-	ND
MB19	Area 1	8.5	2/13/2004	-	-	-	ND	ND	-	-	-	-
MB19	Area 1	26	2/13/2004	-	-	-	ND	ND	-	-	-	-
GS1	Area 2	5	2/11/2004	-	-	-	-	-	-	-	-	ND
GS1	Area 2	5.5	2/11/2004	220	-	-	-	-		-	-	-
GS1	Area 2	10	2/11/2004	-	-	-	-	-		-	-	ND
GS1	Area 2	10.5	2/11/2004	25	-	-	-	-		-	-	-
MB7B	Area 2	1	2/13/2004	-	-	-	-	-	-	-	-	ND
MB7A	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB7A	Area 2	1.5	2/10/2004	1200	-	-	-	ND	-	-	ND	-
MB7B	Area 2	5	2/13/2004	-	-	-	-	-	-	-	-	ND
MB7B	Area 2	5.5	2/13/2004	22	-	-	-	ND	-	-	ND	-
MB7B	Area 2	15	2/13/2004	370	-	-	-	ND	-	-	ND	ND
MB8	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB8	Area 2	1.5	2/10/2004	4200	-	-	-	ND	-	-	ND	-
MB8	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB8	Area 2	5.5	2/10/2004	27	-	-	-	ND	-	-	ND	-
MB8	Area 2	15	2/10/2004	15	-	-	-	ND	-	-	ND	ND
MB9	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB9	Area 2	1.5	2/10/2004	300	-	-	-	ND	-	-	ND	-
MB9	Area 2	6	2/10/2004	-	-	-	-	-	-	-	-	ND
MB9	Area 2	6.5	2/10/2004	44	-	-	-	ND	-	-	ND	-
MB9	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB9	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB10	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB10	Area 2	1.5	2/10/2004	3300	-	-	-	Pyrene: 0.47	-	-	ND	-
MB10	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB10	Area 2	5.5	2/10/2004	81	-	-	-	ND	-	-	ND	-
MB10	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB10	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB11	Area 2	1	2/12/2004	-	-	-	-	-	-	-	-	ND
MB11	Area 2	1.5	2/12/2004	2900	-	-	-	Fluoranthene: 0.42 Pyrene: 0.46	-	-	ND	-
MB11	Area 2	5	2/12/2004	-	-	-	-	-	-	-	-	ND
MB11	Area 2	5.5	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB11	Area 2	15	2/12/2004	-	-	-	-	-	-	-	-	ND
MB11	Area 2	15.5	2/12/2004	20	-	-	-	ND	-	-	ND	-
MB12	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB12	Area 2	1.5	2/10/2004	1600	-	-	-	ND	-	-	ND	-
MB12	Area 2	3	2/10/2004	-	-	-	-	-	-	-	-	ND
MB12	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB12	Area 2	5.5	2/10/2004	630	-	-	-	ND	-	-	ND	-
MB12	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB12	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB13	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB13	Area 2	1.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB13	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB13	Area 2	5.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB13	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB13	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-

Table 5: Soil Analytical Results

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8260B** TPH-g (mg/kg)	EPA 9010B/335.2 Cyanide (mg/kg)	EPA 8270C/8310 PAH (mg/kg)	EPA 8151 Herbicides (µg/kg)	pH (pH units)	EPA 8082 PCBs (µg/kg)	EPA 8260B VOCs (µg/kg)
MB20	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	1,3,5-TMB: 13 1,2,4-TMB: 13
MB20	Area 2	1.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB20	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB20	Area 2	5.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB20	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB20	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB17	Area 3	3	2/13/2004	-	-	-	-	-	-	-	-	ND
MB17	Area 3	3.5	2/13/2004	-	-	-	ND	ND	ND	-	-	-
MB17	Area 3	10	2/13/2004	-	-	-	-	-	-	-	-	ND
MB17	Area 3	15	2/13/2004	-	-	-	ND	ND	ND	-	-	-
CO1	Area 3	5	2/11/2004	-	-	-	-	-	-	-	-	ND
CO1	Area 3	5.5	2/11/2004	290	-	-	-	-		-	-	-
CO1	Area 3	10	2/11/2004	-	-	-	-	-	-	-	-	ND
CO1	Area 3	10.5	2/11/2004	ND	-	-	-	-		-	-	-
DI1	Area 3	5	2/10/2004	-	-	ND	-	-	-	-	-	ND
DI1	Area 3	5.5	2/10/2004	-	480	-	-	-	-	-	-	-
DI1	Area 3	10	2/10/2004	-	-	4.5	-	-	-	-	-	Total VOCs: 1736.1 See note #1
DI1	Area 3	10.5	2/10/2004	-	450	-	-	-	-	-	-	-
DI1	Area 3	15	2/10/2004	-	-	ND	-	-	-	-	-	MTBE: 71 TBA: 240
DI1	Area 3	15.5	2/10/2004	-	ND	-	-	-	-	-	-	-
DI2	Area 3	5	2/11/2004	-	-	ND	-	-	-	-	-	ND
DI2	Area 3	5.5	2/11/2004	-	510	-	-	-		-	-	-
DI2	Area 3	10	2/11/2004	-	-	ND	-	-	-	-	-	ND
DI2	Area 3	10.5	2/11/2004	-	410	-	-	-		-	-	-
DI2	Area 3	15	2/11/2004	-	-	ND	-	-	-	-	-	ND
DI2	Area 3	15.5	2/11/2004	-	ND	-	-	-		-	-	-
OP1	Area 3	5	2/11/2004	-	-	-	-	-	-	-	-	ND
OP1	Area 3	5.5	2/11/2004	230	-	-	-	-		-	-	-
OP1	Area 3	10	2/11/2004	-	-	ND	-	-	-	-	-	ND
OP1	Area 3	10.5	2/11/2004	220	-	-	-	-		-	-	-
MB14	Area 4	1	2/13/2004	-	-	-	-	-	-	-	-	ND
MB14	Area 4	1.5	2/13/2004	49	-	-	-	ND	-	-	-	-
MB14	Area 4	5.5	2/13/2004	12	-	-	-	ND	-	-	-	ND
MB14	Area 4	10.5	2/13/2004	29	-	-	-	ND	-	-	-	ND
MB15	Area 4	1	2/13/2004	-	-	-	-	-	-	-	-	ND
MB15	Area 4	1.5	2/13/2004	18	-	-	-	ND	-	-	-	-
MB15	Area 4	5.5	2/13/2004	22	-	-	-	ND	-	-	-	ND
MB15	Area 4	10.5	2/13/2004	ND	-	-	-	ND	-	-	-	ND
MB15	Area 4	15.5	2/13/2004	22	-	-	-	-	-	-	-	-
MB16	Area 4	1.5	2/13/2004	ND	-	-	-	ND	-	-	-	ND
MB16	Area 4	5.5	2/13/2004	ND	-	-	-	ND	-	-	-	ND
MB16	Area 4	10	2/13/2004	11	-	-	-	ND	-	-	-	ND
MB18	Area 4	1	2/13/2004	230	-	-	-	ND	-	-	-	ND
MB18	Area 4	3	2/13/2004	-	-	-	-		-	10.47	-	-
MB21	Area 4	1	2/13/2004	46	-	-	-	ND	-	-	-	ND
MB21	Area 4	5	2/13/2004	-	-	-	-	-	-	-	-	ND
MB21	Area 4	5.5	2/13/2004	19	-	-	-	ND	-	-	-	-
MB21	Area 4	10	2/13/2004	25	-	-	-	ND	-	-	-	ND
MB22	Area 4	1	2/13/2004	-	-	-	-	-	-	-	-	ND
MB22	Area 4	1.5	2/13/2004	22	-	-	-	ND	-	-	-	-
MB22	Area 4	5	2/13/2004	-	-	-	-	-	-	-	-	ND
MB22	Area 4	5.5	2/13/2004	16	-	-	-	ND	-	-	-	-
MB22	Area 4	10	2/13/2004	-	-	-	-	-	-	-	-	ND
MB22	Area 4	10.5	2/13/2004	ND	-	-	-	ND	-	-	-	-
MB23	Area 4	1	2/13/2004	27	-	-	-	ND	-	-	-	ND
MB23	Area 4	5	2/13/2004	19	-	-	-	ND	-	-	-	ND
MB23	Area 4	10	2/13/2004	27	-	-	-	ND	-	-	-	ND
MB24	Area 4	1	2/13/2004	95	-	-	-	ND	-	-	-	ND
MB24	Area 4	5	2/13/2004	ND	-	-	-	ND	-	-	-	ND
MB24	Area 4	10	2/13/2004	14	-	-	-	ND	-	-	-	ND
MB25	Area 4	1	2/11/2004	-	-	-	-	-	-	-	-	ND
MB25	Area 4	1.5	2/11/2004	25	-	-	-	ND		-	-	-
MB25	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND

Table 5: Soil Analytical Results

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8260B** TPH-g (mg/kg)	EPA 9010B/335.2 Cyanide (mg/kg)	EPA 8270C/8310 PAH (mg/kg)	EPA 8151 Herbicides (µg/kg)	pH (pH units)	EPA 8082 PCBs (µg/kg)	EPA 8260B VOCs (µg/kg)
MB25	Area 4	5.5	2/11/2004	23	-	-	-	ND		-	-	-
MB25	Area 4	10	2/11/2004	-	-	-	-	-	-	-	-	ND
MB25	Area 4	10.5	2/11/2004	ND	-	-	-	ND		-	-	-
MB26	Area 4	1	2/11/2004	-	-	-	-	-	-	-	-	ND
MB26	Area 4	1.5	2/11/2004	ND	-	-	-	ND		-	-	-
MB26	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND
MB26	Area 4	5.5	2/11/2004	16	-	-	-	ND		-	-	-
MB26	Area 4	10	2/11/2004	-	-	-	-	-	-	-	-	ND
MB26	Area 4	10.5	2/11/2004	17	-	-	-	ND		-	-	-
MB27	Area 4	1	2/12/2004	-	-	-	-	-	-	-	-	ND
MB27	Area 4	1.5	2/12/2004	ND	-	-	-	ND	-	-	-	-
MB27	Area 4	5	2/12/2004	-	-	-	-	-	-	-	-	ND
MB27	Area 4	5.5	2/12/2004	ND	-	-	-	ND	-	-	-	-
MB27	Area 4	10	2/12/2004	-	-	-	-	-	-	-	-	ND
MB27	Area 4	10.5	2/12/2004	14	-	-	-	ND	-	-	-	-
MB28	Area 4	1	2/12/2004	-	-	-	-	-	-	-	-	ND
MB28	Area 4	1.5	2/12/2004	88	-	-	-	ND	-	-	-	-
MB28	Area 4	5	2/12/2004	-	-	-	-	-	-	-	-	ND
MB28	Area 4	5.5	2/12/2004	340	-	-	-	ND	-	-	-	-
MB28	Area 4	10	2/12/2004	-	-	-	-	-	-	-	-	ND
MB28	Area 4	10.5	2/12/2004	42	-	-	-	ND	-	-	-	-
MB29	Area 4	2	2/11/2004	60	-	-	-	ND		-	-	-
MB29	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND
MB29	Area 4	5.5	2/11/2004	51	-	-	-	ND		-	-	-
MB29	Area 4	10	2/11/2004	-	-	-	-	-	-	-	-	ND
MB29	Area 4	10.5	2/11/2004	45	-	-	-	ND		-	-	-
MB30	Area 4	1	2/11/2004	-	-	-	-	-	-	-	-	ND
MB30	Area 4	1.5	2/11/2004	230	-	-	-	ND		-	-	-
MB30	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND
MB30	Area 4	5.5	2/11/2004	100	-	-	-	ND		-	-	-
MB31	Area 4	3	2/12/2004	-	-	-	-	-	-	-	-	ND
MB31	Area 4	3.5	2/12/2004	51	-	-	-	ND	-	-	ND	-
MB31	Area 4	15	2/12/2004	-	-	-	-	-	-	-	-	ND
MB31	Area 4	15.5	2/12/2004	51	-	-	-	ND	-	-	ND	-
MB32	Area 4	3.5	2/11/2004	130	-	-	-	ND	-	-	ND	ND
MB32	Area 4	15	2/11/2004	-	-	-	-	-	-	-	-	ND
MB32	Area 4	15.5	2/11/2004	20	-	-	-	ND		-	ND	-
MB33	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND
MB33	Area 4	5.5	2/11/2004	26	-	-	-	ND		-	ND	-
MB33	Area 4	15	2/11/2004	26	-	-	-	ND	-	-	ND	ND
CL1	Area 5	10	2/11/2004	-	-	-	-	-	-	-	-	ND
CL1	Area 5	10.5	2/11/2004	150	-	-	-	-		-	-	-
CL1	Area 5	15	2/11/2004	-	-	-	-	-	-	-	-	MTBE: 5.1
CL1	Area 5	15.5	2/11/2004	21	-	-	-	-		-	-	-
CL2	Area 5	10	2/11/2004	-	-	-	-	-	-	-	-	Naphthalene: 5.2
CL2	Area 5	10.5	2/11/2004	1200	-	-	-	-		-	-	-

Table 5: Soil Analytical Results

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8260B** TPH-g (mg/kg)	EPA 9010B/335.2 Cyanide (mg/kg)	EPA 8270C/8310 PAH (mg/kg)	EPA 8151 Herbicides (µg/kg)	pH (pH units)	EPA 8082 PCBs (µg/kg)	EPA 8260B VOCs (µg/kg)
CL2	Area 5	15	2/11/2004	-	-	-	-	-	-	-	-	Total VOCs: 251 See note # 2
CL2	Area 5	15.5	2/11/2004	840	-	-	-	-		-	-	-
CL3	Area 5	10	2/11/2004	-	-	-	-	-	-	-	-	1,3,5-TMB: 5.4
CL3	Area 5	10.5	2/11/2004	780	-	-	-	-		-	-	-
CL3	Area 5	15	2/11/2004	-	-	-	-	-	-	-	-	ND
CL3	Area 5	15.5	2/11/2004	16	-	-	-	-		-	-	-
CL4	Area 5	1	2/10/2004	-	-	-	-	-	-	-	-	m,p-Xylene: 13 o-Xylene: 5.3
CL4	Area 5	1.5	2/10/2004	1000	-	-	-	ND	-	-	ND	-
CL4	Area 5	5	2/10/2004	-	-	-	-	-	-	-	-	ND
CL4	Area 5	5.5	2/10/2004	220	-	-	-	ND	-	-	ND	-
CL4	Area 5	15	2/10/2004	-	-	-	-	-	-	-	-	ND
CL4	Area 5	15.5	2/10/2004	22	-	-	-	ND	-	-	ND	-
CL5	Area 5	1	2/10/2004	-	-	-	-	-	-	-	-	ND
CL5	Area 5	1.5	2/10/2004	470	-	-	-	ND	-	-	ND	-
CL5	Area 5	5	2/10/2004	-	-	-	-	-	-	-	-	ND
CL5	Area 5	5.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
CL5	Area 5	15	2/10/2004	-	-	-	-	-	-	-	-	ND
CL5	Area 5	15.5	2/10/2004	26	-	-	-	ND	-	-	ND	-
CL6	Area 5	10	2/12/2004	-	-	-	-	-	-	-	-	ND
CL6	Area 5	10.5	2/12/2004	ND	-	-	-	-	-	-	-	-
CL6	Area 5	15	2/12/2004	-	-	-	-	-	-	-	-	ND
CL6	Area 5	15.5	2/12/2004	11	-	-	-	-	-	-	-	-
CL7	Area 5	10	2/12/2004	-	-	-	-	-	-	-	-	ND
CL7	Area 5	10.5	2/12/2004	28	-	-	-	-	-	-	-	-
CL7	Area 5	15	2/12/2004	-	-	-	-	-	-	-	-	ND
CL7	Area 5	15.5	2/12/2004	ND	-	-	-	-	-	-	-	-
CL8	Area 5	10	2/12/2004	-	-	-	-	-	-	-	-	ND
CL8	Area 5	10.5	2/12/2004	20	-	-	-	-	-	-	-	-
CL8	Area 5	14	2/13/2004	-	-	-	-	-	-	-	-	ND
CL8	Area 5	14.5	2/13/2004	110	-	-	-	See note # 3	-	-	-	-
CL9	Area 5	10	2/13/2004	-	-	-	-	-	-	-	-	ND
CL9	Area 5	10.5	2/13/2004	35	-	-	-	-	-	-	-	-
CL9	Area 5	15	2/13/2004	-	-	-	-	-	-	-	-	ND
CL9	Area 5	15.5	2/13/2004	22	-	-	-	-	-	-	-	-
SV1		4	1/28/2004	-	-	-	ND	ND	ND	-	-	-
SV5		4	1/29/2004	-	960	ND**	-	-	-	-	-	Tetrachloroethene: 19 1,2,4-TMB: 13
SV14		4.5	1/29/2004	-	-	-	ND	ND	ND	-	-	-
SV31		4.5	1/29/2004	-	-	-	ND	Benzo (g,h,i)-Perylene: 350	ND	-	-	-
SV33		4	1/30/2004	-	-	-	-	-	-	-	-	ND
SV33		4.5	1/30/2004	-	-	-	ND	ND	ND	-	-	-

All tables Created By: JL, 2/26/04

All tables Checked By: SP, 2/27/04

Notes:

VOCs: Volatile organic compounds
ND: Not detected over reporting limit (RL)
TRPH: Total recoverable petroleum hydrocarbons
TPH-d: Total Petroleum Hydrocarbons as Diesel
TPH-g: Total Petroleum Hydrocarbons as gasoline
BTEX: B(benzene) T(toluene) E(ethylbenzene) X(total xylenes)
MTBE: Methyl tert-butyl ether
PAH: Poly aromatic hydrocarbons
PCB: Polychlorinated biphenyls
TMB: Trimethyl benzene
PCE: Tetrachloroethene
* The two methylene chloride detections from boring MB4 are suspected to be from laboratory cross contamination
**: THP-g analysis was performed using EPA method 8015M on this sample
-: Sample not analyzed for that analyte
mg/kg - milligrams per kilogram
µg/kg - micrograms per kilogram
1 Ethylbenzene: 13; m,p-xylene: 31; o-xylene: 7.7; isopropylbenzene: 6.4; n-propylbzene: 24; 1,3,5-TMB: 300; 1,2,4-TMB: 800; sec-butylbenzene: 22; p-isopropyltoluene: 28; n-Butylbenzene: 84; naphthalene: 290; TBA: 130
2 MTBE: 9.5; benzene: 15; ethylbenzene: 53; m,p-xylene: 11; o-xylene: 15; isopropylbenzene: 11; n-propylbenzene: 14; 1,3,5-TMB: 27; 1,2,4-TMB: 82; p-isopropyltoluene: 6; n-Butylbenzene: 7.5
3 pyrene: 1.4; benzo (a) anthracene: 1.3; chrysene: 1.5; benzo (k) fluoranthene: 1.3; benzo (b) fluoranthene: 1.4; benzo (a) pyrene: 0.88

Table 6: Title 22 Metals Soil Analytical Results (mg/kg)

Sample ID	Area	Depth (ft)	Date Collected	Matrix	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Chromium (Total) mg/kg	Cobalt mg/kg	Copper mg/kg	Lead mg/kg	Mercury mg/kg	Molybdenum mg/kg	Nickel mg/kg	Selenium mg/kg	Silver mg/kg	Thallium mg/kg	Vanadium mg/kg	Zinc mg/kg
MB7	Area 2	1.5	2/10/2004	Soil	< 0.75	3.56	75.9	< 0.25	1.15	23.6	8.78	102	120	**0.111**	< 0.25	14.1	0.833	< 0.25	< 0.75	33.8	101
MB7	Area 2	5.5	2/13/2004	Soil	< 0.75	2.24	14.7	< 0.25	< 0.5	7.56	2.24	6.74	0.989	< 0.0835	4.70	8.32	< 0.75	< 0.25	< 0.75	13.3	7.33
MB7	Area 2	15	2/13/2004	Soil	< 0.75	3.53	26.7	< 0.25	< 0.5	13.1	3.40	31.0	43.1	< 0.0835	0.356	11.0	< 0.75	< 0.25	< 0.75	22.1	39.4
MB8	Area 2	1.5	2/10/2004	Soil	< 0.75	4.46	88.8	< 0.25	0.826	12.6	13.8	25	15.5	< 0.0835	0.562	10.2	0.898	0.944	< 0.75	21.4	42.3
MB8	Area 2	5.5	2/10/2004	Soil	< 0.75	2.87	16.8	< 0.25	0.533	7.07	2.22	7.36	3.22	< 0.0835	< 0.25	8.19	< 0.75	< 0.25	< 0.75	11.7	11.5
MB8	Area 2	15	2/10/2004	Soil	< 0.75	1.96	27.2	< 0.25	0.532	7.56	2.49	5.27	1.25	< 0.0835	0.342	8.04	< 0.75	< 0.25	< 0.75	9.8	10.9
MB9	Area 2	1.5	2/10/2004	Soil	< 0.75	2.48	19.6	< 0.25	0.537	10.5	1.92	26.2	10.9	< 0.0835	0.3	6.91	< 0.75	< 0.25	< 0.75	9.12	28.7
MB9	Area 2	6.5	2/10/2004	Soil	< 0.75	1.61	9.95	< 0.25	< 0.5	5.35	1.65	10	0.938	< 0.0835	< 0.25	6.01	< 0.75	< 0.25	< 0.75	8.24	9.27
MB9	Area 2	15.5	2/10/2004	Soil	< 0.75	< 0.75	89	< 0.69	0.724	18.2	6.47	16	5.3	< 0.0835	< 0.25	15	1.21	< 0.25	< 0.75	30.1	28.5
MB10	Area 2	1.5	2/10/2004	Soil	< 0.75	5.56	87.5	< 0.25	0.811	12.1	5.69	32.8	15.1	< 0.0835	0.406	10.9	< 0.75	< 0.25	< 0.75	21.9	60.8
MB10	Area 2	5.5	2/10/2004	Soil	< 0.75	2.18	12.8	< 0.25	< 0.5	6.71	2.01	25	1.6	< 0.0835	< 0.25	4.91	< 0.75	< 0.25	< 0.75	6.03	15.1
MB10	Area 2	15.5	2/10/2004	Soil	< 0.75	0.972	50.8	0.371	0.576	9.89	3.75	12.2	3.28	< 0.0835	< 0.25	8.53	< 0.75	< 0.25	< 0.75	17.3	23.4
MB11	Area 2	1.5	2/12/2004	Soil	< 0.75	4.11	49.8	< 0.25	< 0.5	7.9	3.28	7.3	6.14	< 0.0835	0.409	8.08	1.27	< 0.25	< 0.75	12.9	29.6
MB11	Area 2	5.5	2/12/2004	Soil	< 0.75	0.946	16.8	< 0.25	< 0.5	4.58	1.41	1.25	< 0.5	< 0.0835	< 0.25	4.4	< 0.75	< 0.25	< 0.75	5.24	2.41
MB11	Area 2	15.5	2/12/2004	Soil	< 0.75	0.883	16.2	< 0.25	< 0.5	5.69	1.6	1.75	< 0.5	< 0.0835	0.39	6.3	< 0.75	< 0.25	< 0.75	6.54	11.9
MB12	Area 2	1.5	2/10/2004	Soil	< 0.75	3.82	39.9	< 0.25	0.524	9.49	4.16	45.7	11.6	< 0.0835	0.335	7.14	< 0.75	< 0.25	< 0.75	11.7	46.3
MB12	Area 2	5.5	2/10/2004	Soil	< 0.75	2.62	17.8	< 0.25	< 0.5	6.24	4.16	23.7	2.44	< 0.0835	< 0.25	5.43	< 0.75	< 0.25	< 0.75	6.28	19.3
MB12	Area 2	15.5	2/10/2004	Soil	< 0.75	< 0.75	38.1	< 0.25	< 0.5	6.49	5.19	7.45	2.16	0.1	< 0.25	5.87	< 0.75	< 0.25	< 0.75	10.4	17.2
MB13	Area 2	1.5	2/10/2004	Soil	< 0.75	1.76	12.8	< 0.25	< 0.5	4.64	1.67	34	1.33	< 0.0835	< 0.25	5.86	< 0.75	< 0.25	< 0.75	7.21	22.6
MB13	Area 2	5.5	2/10/2004	Soil	< 0.75	1.27	8.82	< 0.25	< 0.5	2.55	0.883	8.27	1.65	< 0.0835	< 0.25	2.75	< 0.75	< 0.25	< 0.75	3.58	8.53
MB13	Area 2	15.5	2/10/2004	Soil	< 0.75	1.82	118	0.595	0.683	26.2	11.2	15.8	5.43	< 0.0835	< 0.25	14.6	0.962	< 0.25	< 0.75	43.5	37.8
MB20	Area 2	1.5	2/10/2004	Soil	< 0.75	1.94	17.1	< 0.25	0.579	7.02	2.43	19.7	18.9	< 0.0835	< 0.25	7.19	< 0.75	< 0.25	< 0.75	11.2	58.8
MB20	Area 2	5.5	2/10/2004	Soil	< 0.75	1.58	21.2	< 0.25	0.686	7.32	2.56	41.3	28.2	< 0.0835	< 0.25	6.77	< 0.75	< 0.25	< 0.75	10.2	54.8
MB20	Area 2	15.5	2/10/2004	Soil	< 0.75	< 0.75	99.8	< 0.445	0.789	19	11.5	21.2	5.94	< 0.0835	< 0.25	13.5	1.2	< 0.25	< 0.75	33.2	39.2
MB17	Area 3	3.5	2/13/2004	Soil	< 0.75	3.33	44.1	< 0.25	< 0.5	13.0	4.69	63.8	97.1	**0.111**	4.79	12.5	< 0.75	< 0.25	< 0.75	24.1	59.9
MB17	Area 3	15	2/13/2004	Soil	< 0.75	< 0.75	71.1	0.562	< 0.5	17.1	7.27	10.4	4.23	< 0.0835	< 0.25	10.6	0.846	< 0.25	< 0.75	36.0	26.5
MB14	Area 4	1.5	2/13/2004	Soil	< 0.75	2.58	16.0	< 0.25	< 0.5	10.6	2.99	6.56	5.35	< 0.0835	< 0.25	9.99	< 0.75	< 0.25	< 0.75	15.3	9.83
MB14	Area 4	5.5	2/13/2004	Soil	< 0.75	1.69	12.9	< 0.25	< 0.5	5.12	1.95	2.25	0.71	< 0.0835	0.254	7.48	< 0.75	< 0.25	< 0.75	9.53	7.46
MB14	Area 4	10.5	2/13/2004	Soil	< 0.75	2.07	13.8	< 0.25	< 0.5	6.45	2.00	8.67	2.56	< 0.0835	< 0.25	6.74	< 0.75	< 0.25	< 0.75	9.29	8.04
MB15	Area 4	1.5	2/13/2004	Soil	< 0.75	1.28	11.4	< 0.25	< 0.5	3.89	1.73	5.90	1.81	< 0.0835	< 0.25	5.12	< 0.75	< 0.25	< 0.75	6.85	6.68
MB15	Area 4	5.5	2/13/2004	Soil	< 0.75	1.71	14.3	< 0.25	< 0.5	9.35	2.37	2.69	1.32	< 0.0835	< 0.25	7.20	< 0.75	< 0.25	< 0.75	10.3	7.70
MB15	Area 4	10.5	2/13/2004	Soil	< 0.75	2.96	15.4	< 0.25	< 0.5	6.27	2.23	2.25	1.08	< 0.0835	< 0.25	7.83	< 0.75	< 0.25	< 0.75	13.6	7.26
MB16	Area 4	1.5	2/13/2004	Soil	< 0.75	2.65	15.9	< 0.25	< 0.5	6.66	2.46	2.30	0.957	< 0.0835	< 0.25	8.60	< 0.75	< 0.25	< 0.75	13.3	9.38
MB16	Area 4	5.5	2/13/2004	Soil	< 0.75	2.09	12.5	< 0.25	< 0.5	5.20	2.00	1.98	1.02	< 0.0835	< 0.25	7.36	< 0.75	< 0.25	< 0.75	9.42	7.01
MB16	Area 4	10	2/13/2004	Soil	< 0.75	2.24	15.4	< 0.25	< 0.5	6.49	2.11	3.34	0.820	< 0.0835	< 0.25	7.77	0.763	< 0.25	< 0.75	11.9	9.68
MB18	Area 4	1	2/13/2004	Soil	0.882	2.57	56.5	< 0.25	< 0.5	7.04	3.38	79.4	189	**0.108**	< 0.25	8.11	< 0.75	< 0.25	< 0.75	9.24	63.5
MB18	Area 4	3	2/13/2004	Soil	-	-	-	-	-	-	-	-	< 0.5	-	-	-	-	-	-	-	-
MB21	Area 4	1	2/13/2004	Soil	< 0.75	3.22	16.3	< 0.25	< 0.5	7.89	2.76	3.81	2.79	< 0.0835	4.48	9.78	< 0.75	< 0.25	< 0.75	15.8	8.95
MB21	Area 4	5.5	2/13/2004	Soil	< 0.75	2.57	15.5	< 0.25	< 0.5	8.20	2.52	3.15	1.01	< 0.0835	0.311	8.82	0.979	< 0.25	< 0.75	14.1	7.74
MB21	Area 4	10	2/13/2004	Soil	< 0.75	2.30	17.3	< 0.25	< 0.5	6.94	2.29	6.23	2.58	< 0.0835	< 0.25	6.57	< 0.75	< 0.25	< 0.75	12.1	9.82
MB22	Area 4	1.5	2/13/2004	Soil	< 0.75	2.97	15.2	< 0.25	< 0.5	8.96	2.70	4.91	1.18	< 0.0835	< 0.25	9.25	< 0.75	< 0.25	< 0.75	17.2	9.74
MB22	Area 4	5.5	2/13/2004	Soil	< 0.75	2.26	14.3	< 0.25	< 0.5	8.37	2.28	9.25	1.26	< 0.0835	< 0.25	7.94	< 0.75	< 0.25	< 0.75	14.7	11.1
MB22	Area 4	10.5	2/13/2004	Soil	< 0.75	1.68	29.2	< 0.25	< 0.5	9.34	3.17	6.18	1.38	< 0.0835	< 0.25	9.94	< 0.75	< 0.25	< 0.75	17.2	14.0
MB23	Area 4	1	2/13/2004	Soil	< 0.75	2.99	17.7	< 0.25	< 0.5	8.68	2.74	4.44	1.54	< 0.0835	< 0.25	8.91	0.751	< 0.25	< 0.75	15.4	8.16
MB23	Area 4	5	2/13/2004	Soil	< 0.75	2.54	13.4	< 0.25	< 0.5	6.00	2.28	2.22	0.866	< 0.0835	4.75	8.47	0.866	< 0.25	< 0.75	12.1	7.62
MB23	Area 4	10	2/13/2004	Soil	< 0.75	2.71	26.9	< 0.25	< 0.5	6.85	2.56	3.10	1.21	< 0.0835	4.62	8.03	0.773	< 0.25	< 0.75	11.7	10.8
MB24	Area 4	1	2/13/2004	Soil	< 0.75	3.11	18.2	< 0.25	< 0.5	9.18	2.71	17.7	26.5	< 0.0835	< 0.25	9.37	< 0.75	< 0.25	< 0.75	14.8	20.5
MB24	Area 4	5	2/13/2004	Soil	< 0.75	1.49	10.5	< 0.25	< 0.5	4.09	1.36	1.75	0.564	< 0.0835	< 0.25	4.59	< 0.75	< 0.25	< 0.75	6.24	6.20
MB24	Area 4	10	2/13/2004	Soil	< 0.75	2.20	14.6	< 0.25	< 0.5	5.80	2.48	7.73	15.0	< 0.0835	< 0.25	7.63	< 0.75	< 0.25	< 0.75	11.1	11.7
MB25	Area 4	1.5	2/11/2004	Soil	< 0.75	2.03	14.4	< 0.25	< 0.5	6.18	2.08	2.13	1.75	< 0.0835	< 0.25	7.17	< 0.75	< 0.25	< 0.75	9.56	10.3
MB25	Area 4	5.5	2/11/2004	Soil	< 0.75	1.08	9.21	< 0.25	< 0.5	3.77	1.02	1.23	0.809	< 0.0835	< 0.25	3.63	< 0.75	< 0.25	< 0.75	4.89	5.19
MB25	Area 4	10.5	2/11/2004	Soil	< 0.75	2.86	15.5	< 0.25	< 0.5	6.99	2.52	2.14	3.05	< 0.0835	< 0.25	9.64	< 0.75	0.276	< 0.75	12.8	7.94

Table 6: Title 22 Metals Soil Analytical Results (mg/kg)

Sample ID	Area	Depth (ft)	Date Collected	Matrix	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Chromium (Total) mg/kg	Cobalt mg/kg	Copper mg/kg	Lead mg/kg	Mercury mg/kg	Molybdenum mg/kg	Nickel mg/kg	Selenium mg/kg	Silver mg/kg	Thallium mg/kg	Vanadium mg/kg	Zinc mg/kg
MB26	Area 4	1.5	2/11/2004	Soil	< 0.75	2.16	11.5	< 0.25	< 0.5	4.22	1.37	1.76	< 0.5	< 0.0835	< 0.25	4.83	0.866	< 0.25	< 0.75	5.63	4.27
MB26	Area 4	5.5	2/11/2004	Soil	< 0.75	2.77	14.4	< 0.25	< 0.5	5.65	2.06	1.89	1.64	< 0.0835	< 0.25	7.1	< 0.75	< 0.25	< 0.75	10.4	7.88
MB26	Area 4	10.5	2/11/2004	Soil	< 0.75	2.57	16.5	< 0.25	< 0.5	6.52	2.62	6.06	3.23	< 0.0835	< 0.25	9.45	< 0.75	< 0.25	< 0.75	14.5	8.92
MB27	Area 4	1.5	2/12/2004	Soil	< 0.75	1.32	9.08	< 0.25	< 0.5	3.07	1.06	2.02	< 0.5	< 0.0835	< 0.25	3.86	0.941	< 0.25	< 0.75	4.63	< 1
MB27	Area 4	5.5	2/12/2004	Soil	< 0.75	1.71	11.41	< 0.25	< 0.5	6	1.41	2.04	< 0.5	< 0.0835	< 0.25	5.49	0.954	< 0.25	< 0.75	5.73	2.65
MB27	Area 4	10.5	2/12/2004	Soil	< 0.75	1.88	12.4	< 0.25	< 0.5	4.36	1.75	11.2	2.64	< 0.0835	< 0.25	5.98	1.21	< 0.25	< 0.75	8.85	8.84
MB28	Area 4	1.5	2/12/2004	Soil	< 0.75	2.6	19	< 0.25	< 0.5	7.96	2.4	20.8	42.1	< 0.0835	< 0.25	9.2	< 0.75	< 0.25	< 0.75	11.5	23.4
MB28	Area 4	5.5	2/12/2004	Soil	< 0.75	2.67	28.2	< 0.25	< 0.5	7.37	2.45	31.7	34.3	< 0.0835	< 0.25	9.03	1.45	< 0.25	< 0.75	11.1	19.9
MB28	Area 4	10.5	2/12/2004	Soil	< 0.75	2.65	20.6	< 0.25	< 0.5	5.43	1.91	23.8	25.8	< 0.0835	< 0.25	7.04	1.32	< 0.25	< 0.75	8.82	14.5
MB29	Area 4	2	2/11/2004	Soil	< 0.75	3.11	17.8	< 0.25	< 0.5	9.59	3.21	9.2	12.5	< 0.0835	0.3	11.1	< 0.75	< 0.25	< 0.75	17	16.2
MB29	Area 4	5.5	2/11/2004	Soil	< 0.75	2.18	15.7	< 0.25	< 0.5	7.24	2.01	17.5	27	< 0.0835	< 0.25	7.31	< 0.75	< 0.25	< 0.75	10.3	17.1
MB29	Area 4	10.5	2/11/2004	Soil	< 0.75	2.36	14.9	< 0.25	< 0.5	7.65	2.39	4.82	5.36	< 0.0835	< 0.25	8.43	< 0.75	< 0.25	< 0.75	13.8	12.4
MB30	Area 4	1.5	2/11/2004	Soil	1.38	2.67	23.6	< 0.25	< 0.5	9.94	2.55	31.7	69.2	< 0.0835	< 0.25	9.15	< 0.75	< 0.25	< 0.75	13.9	31.4
MB30	Area 4	5.5	2/11/2004	Soil	2.47	3.7	21.6	< 0.25	< 0.5	8.05	2.67	28.6	48.1	< 0.0835	< 0.25	9.93	0.947	< 0.25	< 0.75	15.9	26.4
MB31	Area 4	3.5	2/12/2004	Soil	< 0.75	2.32	23.7	< 0.25	< 0.5	5.99	1.78	24.6	34.5	< 0.0835	< 0.25	6.52	< 0.75	< 0.25	< 0.75	7.55	23.5
MB31	Area 4	15.5	2/12/2004	Soil	< 0.75	2.12	58.8	< 0.25	< 0.5	6.97	13.1	22.9	30.1	< 0.0835	< 0.25	6.57	< 0.75	< 0.25	< 0.75	14.4	30.1
MB32	Area 4	3.5	2/11/2004	Soil	4.2	4.94	29.8	< 0.25	< 0.5	6.92	2.66	73.5	**382**	< 0.0835	< 0.25	7.14	< 0.75	< 0.25	< 0.75	11.2	42.7
MB32	Area 4	15.5	2/11/2004	Soil	< 0.75	1.67	13.2	< 0.25	< 0.5	4.34	1.71	2.33	1.23	< 0.0835	< 0.25	6.43	< 0.75	< 0.25	< 0.75	7.9	8.7
MB33	Area 4	5.5	2/11/2004	Soil	< 0.75	3.12	16.7	< 0.25	< 0.5	7.61	2.7	2.49	2.06	< 0.0835	< 0.25	10	0.968	< 0.25	< 0.75	15.4	11.7
MB33	Area 4	15	2/11/2004	Soil	< 0.75	1.7	14.1	< 0.25	< 0.5	5.62	2.01	1.98	1.27	< 0.0835	< 0.25	7.56	< 0.75	< 0.25	< 0.75	9.89	11.3
CL1	Area 5	10.5	2/11/2004	Soil	< 0.75	3.02	43.3	< 0.25	< 0.5	9.16	3.38	32.8	58.3	**0.0895**	< 0.25	9.68	< 0.75	< 0.25	< 0.75	17.1	87.7
CL1	Area 5	15.5	2/11/2004	Soil	< 0.75	< 0.75	52.1	0.455	< 0.5	9.02	4.84	8.51	3.88	< 0.0835	< 0.25	6.74	0.818	< 0.25	< 0.75	21	21.6
CL2	Area 5	10.5	2/11/2004	Soil	< 0.75	2.46	17.5	< 0.25	< 0.5	7.79	2.69	14.9	23.6	< 0.0835	< 0.25	9.54	< 0.75	< 0.25	< 0.75	17.6	66
CL2	Area 5	15.5	2/11/2004	Soil	< 0.75	0.811	68.5	0.5	< 0.5	11.5	6.17	8.92	4.62	< 0.0835	< 0.25	8.88	1.67	< 0.25	< 0.75	26.3	24.9
CL3	Area 5	10.5	2/11/2004	Soil	5.29	5.05	68.3	< 0.25	< 0.5	9.74	3.41	96.3	**178**	**0.109**	< 0.25	9.14	0.956	< 0.25	< 0.75	16.3	87.1
CL3	Area 5	15.5	2/11/2004	Soil	< 0.75	< 0.75	59.4	0.257	< 0.5	8.04	4.58	6.7	2.71	**0.0839**	< 0.25	5.48	< 0.75	< 0.25	< 0.75	16.7	20.3
CL4	Area 5	1.5	2/10/2004	Soil	< 0.75	5.49	55.5	< 0.25	0.747	10.3	3.91	151	117	**0.107**	< 0.25	10.2	< 0.75	< 0.25	< 0.75	16.9	58.8
CL4	Area 5	5.5	2/10/2004	Soil	< 0.75	3.45	19.4	< 0.25	0.573	10.8	2.34	32.2	28.4	< 0.0835	0.314	9.19	< 0.75	< 0.25	< 0.75	10.8	23.4
CL4	Area 5	15.5	2/10/2004	Soil	< 0.75	1.91	17.8	< 0.25	< 0.5	6.82	2.23	4.37	1.07	< 0.0835	< 0.25	9.14	< 0.75	< 0.25	< 0.75	10.2	8.89
CL5	Area 5	1.5	2/10/2004	Soil	3.99	7.52	51.7	< 0.25	< 1.25	15	5.03	327	**300**	**0.164**	< 0.25	14.3	< 0.75	0.86	< 0.75	19.6	133
CL5	Area 5	5.5	2/10/2004	Soil	< 0.75	1.57	11	< 0.25	< 0.5	6.45	1.09	5.91	2.81	< 0.0835	< 0.25	4.17	< 0.75	< 0.25	< 0.75	4.77	6.64
CL5	Area 5	15.5	2/10/2004	Soil	< 0.75	1.38	17.9	< 0.25	< 0.5	4.89	1.68	4.6	0.91	< 0.0835	< 0.25	5.74	< 0.75	< 0.25	< 0.75	7.75	8.32
CL6	Area 5	10.5	2/12/2004	Soil	< 0.75	1.69	13.4	< 0.25	< 0.5	4.82	1.29	1.77	< 0.5	< 0.0835	< 0.25	5.23	0.983	< 0.25	< 0.75	5.65	1.12
CL6	Area 5	15.5	2/12/2004	Soil	< 0.75	2.04	20.5	< 0.25	< 0.5	6.99	1.84	1.83	< 0.5	< 0.0835	0.497	7.77	0.765	< 0.25	< 0.75	8	1.91
CL7	Area 5	10.5	2/12/2004	Soil	< 0.75	2.67	20	< 0.25	< 0.5	6.93	2.24	17.5	19.6	< 0.0835	< 0.25	8.25	0.954	< 0.25	< 0.75	10.4	12
CL7	Area 5	15.5	2/12/2004	Soil	< 0.75	1.84	13.9	< 0.25	< 0.5	3.75	1.25	0.917	< 0.5	< 0.0835	< 0.25	4.54	0.756	< 0.25	< 0.75	5.24	< 1
CL8	Area 5	10.5	2/12/2004	Soil	< 0.75	2.64	16.5	< 0.25	< 0.5	8.11	2.82	12.5	2.88	< 0.0835	< 0.25	10.2	< 0.75	< 0.25	< 0.75	11.9	11.1
CL8	Area 5	14.5	2/13/2004	Soil	< 0.75	3.00	24.1	< 0.25	< 0.5	9.48	3.59	24.0	23.5	< 0.0835	0.470	12.0	0.988	< 0.25	< 0.75	21.9	22.7
CL9	Area 5	10.5	2/13/2004	Soil	< 0.75	2.99	23.9	< 0.25	< 0.5	10.6	3.51	3.01	2.15	< 0.0835	< 0.25	13.1	< 0.75	< 0.25	< 0.75	24.6	11.4
CL9	Area 5	15.5	2/13/2004	Soil	< 0.75	< 0.75	101	0.376	< 0.5	17.7	8.62	11.3	3.77	< 0.0835	< 0.25	10.7	1.07	< 0.25	< 0.75	29.6	30.6
SV1		4	1/28/2004	Soil	< 0.75	1.04	9.03	< 0.25	< 0.5	2.76	0.855	1.63	0.56	< 0.0835	< 0.25	3.49	< 0.75	< 0.25	< 0.75	3.99	6.25
SV14		4.5	1/29/2004	Soil	< 0.75	1.79	15.2	< 0.25	< 0.5	10.1	2.17	2.08	1.61	< 0.0835	< 0.25	9.34	< 0.75	< 0.25	< 0.75	14.8	11.7
SV31		4.5	1/29/2004	Soil	< 0.75	2.32	31	< 0.25	< 0.5	7.87	3.27	8.55	3.27	< 0.0835	< 0.25	9.46	< 0.75	< 0.25	< 0.75	16.3	18.5
SV33		4.5	1/30/2004	Soil	< 0.75	2	15.06	< 0.25	< 0.5	7.21	2.43	1.72	1.53	< 0.0835	< 0.25	10.1	< 0.75	< 0.25	< 0.75	17.5	12.1
Residential Soil Preliminary Remediation Goals (mg/kg)					31	22	5400	150	37	210	900	3100	150.0*	23	390	1600	390	390	5.2	550	2300
Kearney Foundation California Background Range					0.15 1.95	0.6 11	133 1,400	0.25 2.7	0.05 1.7	23 1579	2.7 46.9	9 96.4	12 97.1	0.1 0.9	0.1 9.6	9 509	0.015 0.43	0.1 8.3	5.3 36.2	39 288	88 236
	STATISTICAL EVALUATION OF ALL RESULTS, BY METAL																				
	count				95	95	95	95	95	95	95	95	96	95	95	95	95	95	95	95	95
	#NDs				89	7	0	87	86	0	0	0	11	86	77	0	68	92	95	0	2
	Range (Min Max)				0.75 5.29	0.75 7.52	8.82-101	0.25 0.69	0.5 1.25	2.55 26.2	0.855 13.8	0.9 327	0.5 382	0.084 0.164	0.25 0.562	2.75 15	0.75 1.67	0.25 0.944	0.75 0.75	3.6 43.5	1 133
	mean/average				0.89	2.32	30	0.27	0.54	8.08	3.28	23.28	25.67	0.09	0.27	7.93	0.82	0.26	0.75	12.92	24.72
	standard dev.				0.69	1.31	25	0.07	0.12	4.29	2.74	45.66	63.71	0.01	0.05	2.69	0.17	0.09	0.0	7.57	25.52
	confidence				0.14	0.26	5	0.01	0.02	0.86	0.55	9.18	12.74	0.00	0.01	0.54	0.03	0.02	NA	1.52	5.13
	95% UCL				1.03	2.59	35	0.28	0.56	8.94	3.83	32.46	38.41	0.09	0.28	8.47	0.86	0.28	0.75	14.44	29.85

Table 7: Title 22 Metals Groundwater Analytical Results (mg/L)

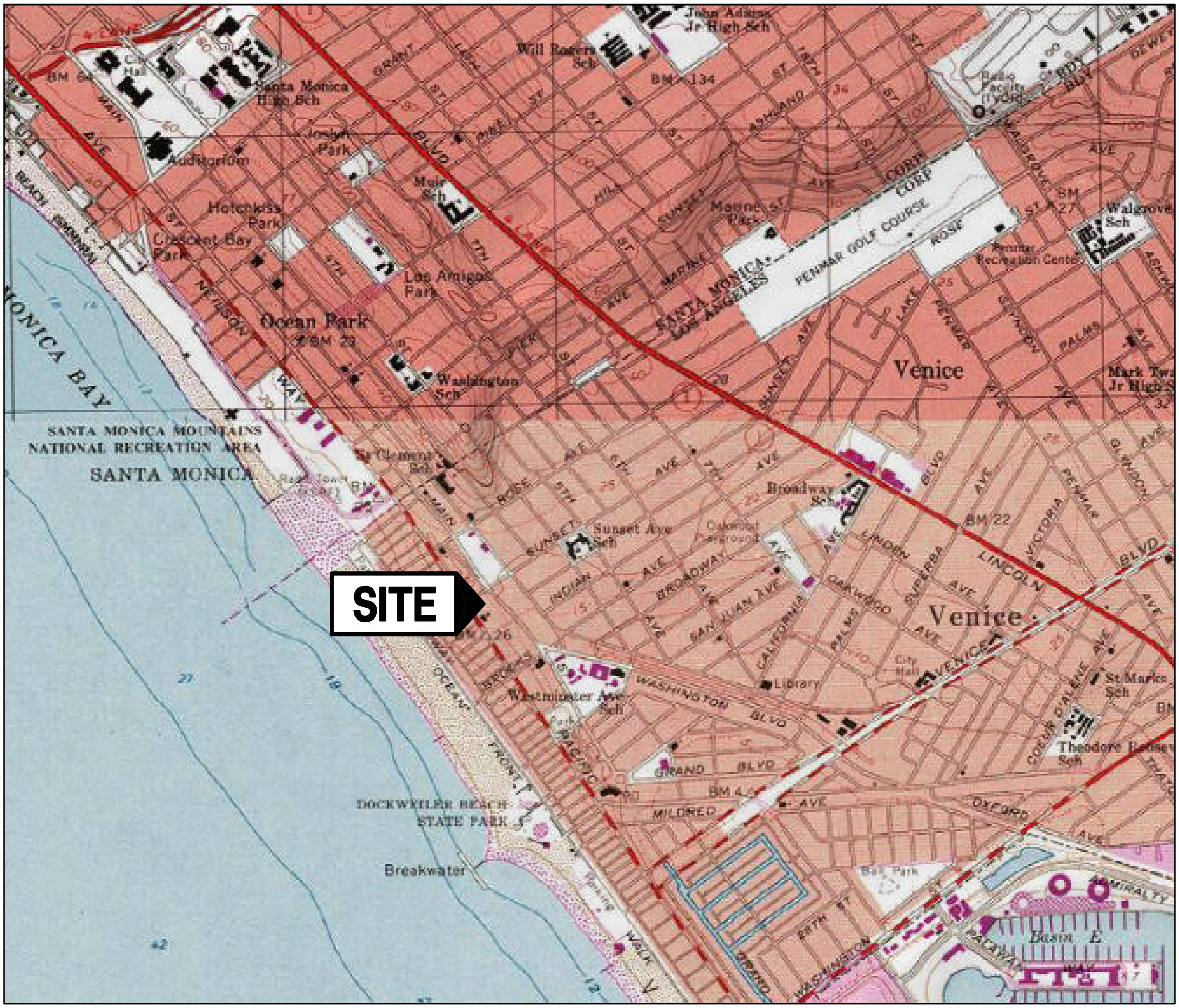
Sample ID	Area	Date Collected	Matrix	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (Total)	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MB3-GW (Filt)	Area 1	2/12/2004	Water	0.0291	<0.015	0.127	<0.001	<0.005	<0.005	<0.005	<0.005	<0.01	<0.0005	<0.005	<0.005	<0.015	<0.005	<0.015	<0.005	<0.01
MB3-GW (Total)	Area 1	2/12/2004	Water	0.0233	<0.015	0.121	<0.001	<0.005	<0.005	<0.005	<0.005	<0.01	<0.0005	0.00808	<0.005	0.0255	<0.005	<0.015	<0.005	<0.01
MW05 (Filt)	Area 1	2/10/2004	Water	0.0238	<0.015	0.0915	<0.001	<0.005	<0.005	<0.005	<0.005	<0.01	<0.0005	0.00977	<0.005	<0.015	<0.005	<0.015	<0.005	0.0316
MW05 (Total)	Area 1	2/10/2004	Water	0.0244	<0.015	0.093	<0.001	<0.005	<0.005	<0.005	<0.005	<0.01	<0.0005	0.00722	<0.005	<0.015	<0.005	<0.015	0.00692	0.0392
MB11-GW (Filt)	Area 2	2/12/2004	Water	0.0269	<0.015	0.141	<0.001	<0.005	<0.005	<0.005	<0.005	<0.01	<0.0005	0.012	<0.005	<0.015	<0.005	<0.015	<0.005	<0.01
MB11-GW (Total)	Area 2	2/12/2004	Water	0.0285	<0.015	0.143	<0.001	<0.005	<0.005	<0.005	<0.005	<0.01	<0.0005	0.0111	<0.005	0.0278	<0.005	<0.015	<0.005	<0.01
MW03 (Filt)	Area 3	2/10/2004	Water	0.0228	<0.015	0.087	<0.001	<0.005	<0.005	<0.005	<0.005	<0.01	<0.0005	0.00746	<0.005	<0.015	<0.005	<0.015	<0.005	0.0339
MW03 (Total)	Area 3	2/10/2004	Water	0.0247	<0.015	0.0944	<0.001	<0.005	<0.005	<0.005	0.0065	0.0219	<0.0005	0.00762	<0.005	<0.015	<0.005	<0.015	0.00501	0.033
MB31-GW (Filt)	Area 4	2/12/2004	Water	0.0273	<0.015	0.162	<0.001	<0.005	<0.005	<0.005	<0.005	<0.01	<0.0005	0.0129	<0.005	<0.015	<0.005	<0.015	<0.005	<0.01
MB31-GW (Total)	Area 4	2/12/2004	Water	0.0241	<0.015	0.2163	<0.001	<0.005	<0.005	<0.005	<0.005	<0.01	<0.0005	0.0165	0.00527	0.0224	<0.005	<0.015	<0.005	<0.01
MB33-GW (Filt)	Area 4	2/11/2004	Water	<0.015	<0.015	0.153	<0.001	<0.005	<0.005	0.00719	<0.005	<0.01	<0.0005	0.0478	0.0135	<0.015	<0.005	<0.015	<0.005	<0.01
MB33-GW (Total)	Area 4	2/11/2004	Water	<0.015	0.0303	0.901	0.00384	<0.005	0.167	0.0617	0.149	0.0857	0.000807	0.0436	0.0996	<0.015	<0.005	<0.015	0.094	0.423
California Maximum Contamination Levles (mg/L)				0.006	0.05	1	0.004	0.005	0.05	NA	1	NA	0.002	NA	0.1	0.05	0.1	0.002	NA	5

Notes:

mg/L - milligrams per liter
NA - Not available

FIGURES

TB-A1-HARDING-ESE.DWG - 10/16/00



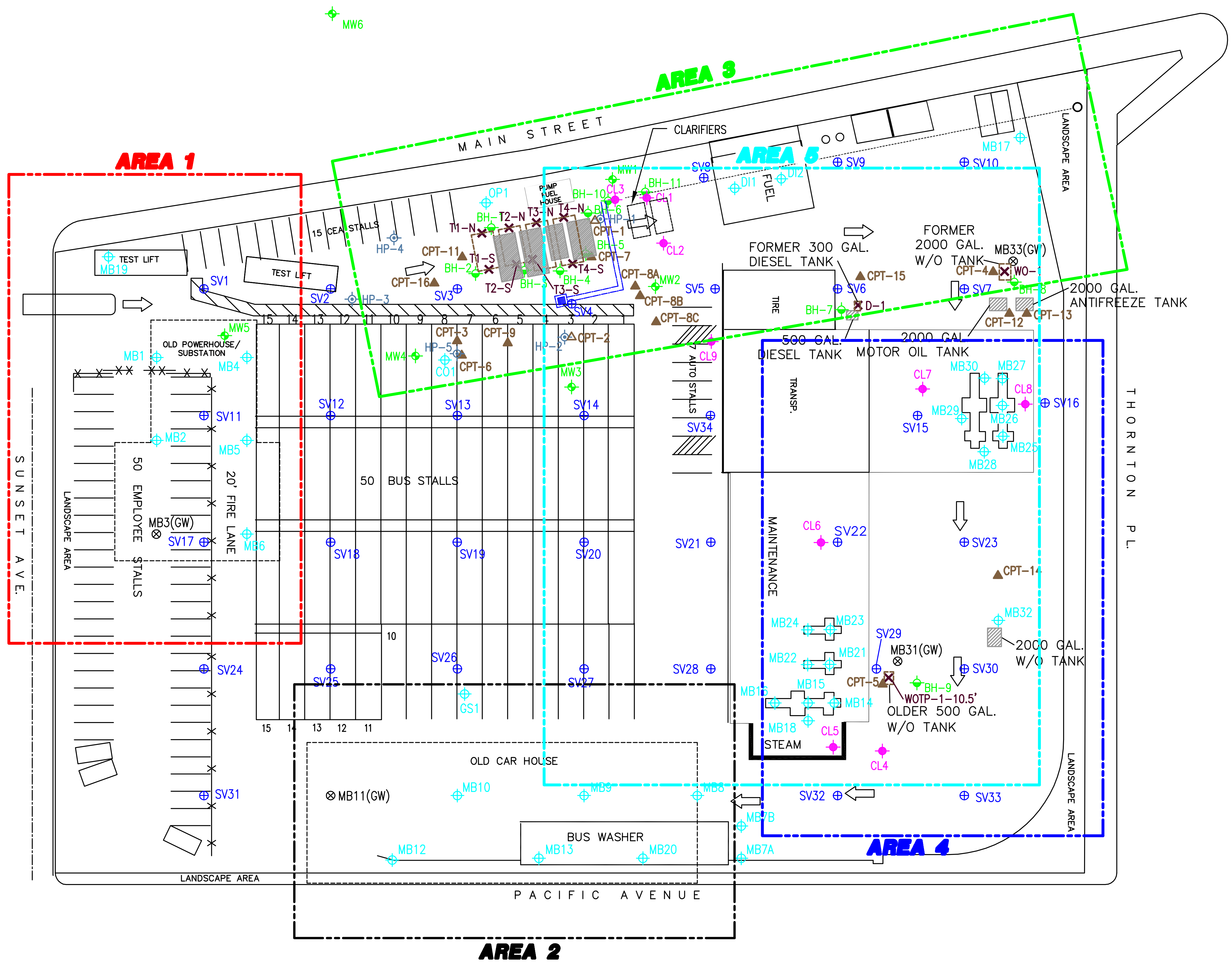
Scale 0 2000 feet

REFERENCE: USGS 7.5-MINUTE LOS ANGELES QUADRANGLE (JULY 1981).

DATE PLOTTED: 2/25/04 1=1

MACTEC	DWG BY NMM	SITE LOCATION MAP	FIGURE NO. 1
	DATE 2/04		
2171 CAMPUS DRIVE, SUITE 100 IRVINE, CA 92612	REV BY	Metropolitan Transportation Authority Division 6 Facility Plan 100 Sunset Avenue Venice, California	PROJECT NO. 4525030096-60.01.01
	REVISED		

FILE: K:\DWGS\P:\HLA\CAD\CAD2\4525030096-60.01.01\0204-DIV6-LM1



EXPLANATION

- BH-11 — SOIL BORINGS BY CONVERSE (1988)
- CPT-8C — SOIL BORINGS BY BENTLEY (1995)
- CPT-2 — SOIL BORING/HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1995)
- HP-3 — HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1997)
- T4-S — SAMPLE LOCATIONS BY THE TYREE ORGANIZATION, LTD. (1999)
- MW1 — GROUNDWATER MONITORING WELLS BY URS CORP. (MW1-MW4 INSTALLED IN 1999 AND MW5-MW6 INSTALLED IN 2002)
- SV31 — SOIL AND VAPOR SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB10 — SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB31(GW) — SOIL AND GROUNDWATER SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- CL1 — AREA 5 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- TANK LOCATION
- FORMER TANK LOCATION

NOTE:

THE LOCATIONS OF THE BORINGS BY PREVIOUS CONSULTANTS ARE ROUGH APPROXIMATIONS BASED ON REPORTS WITH DIFFERING INFORMATION.

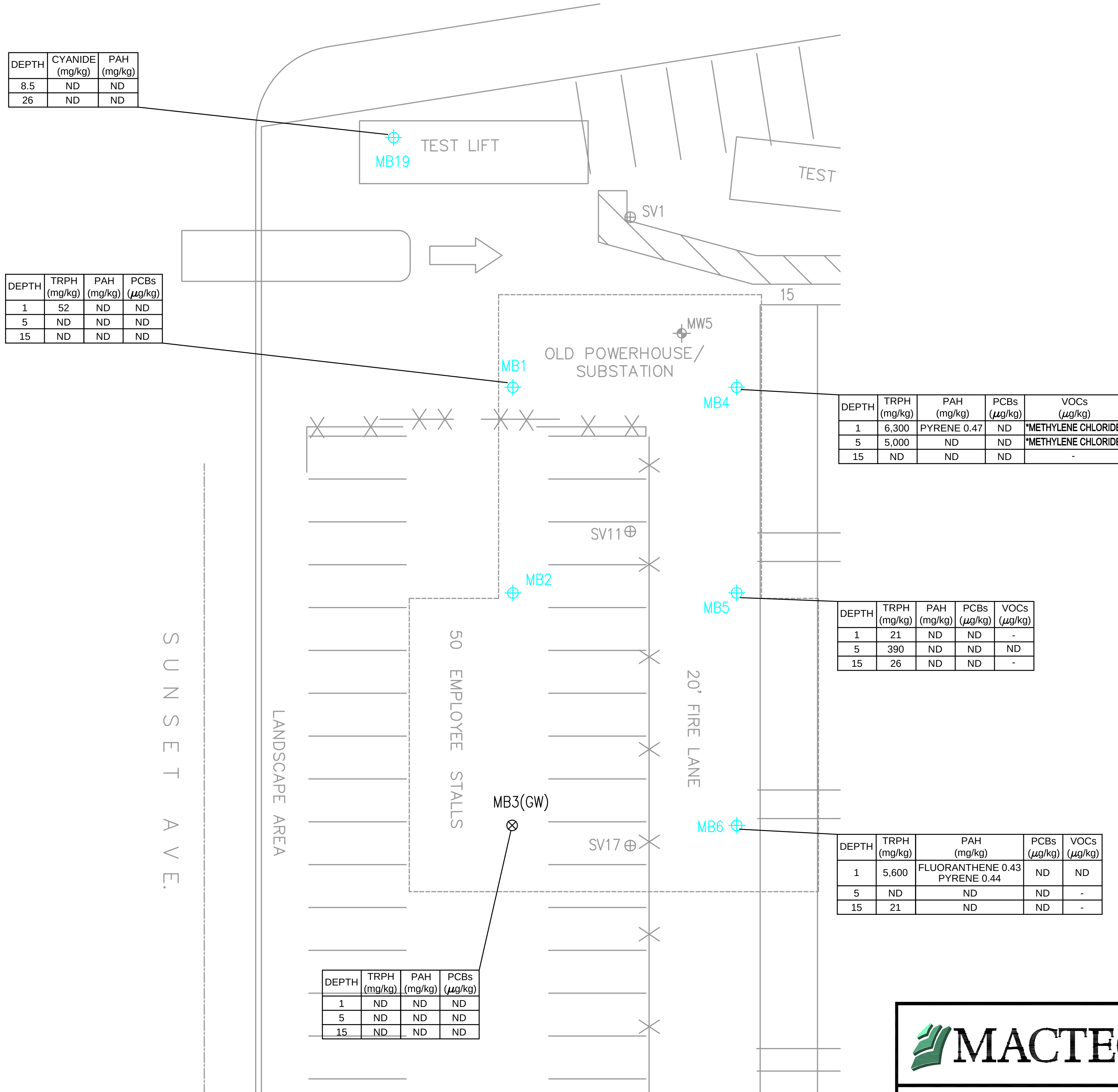
Scale 0 25 50 feet

MACTEC	DWG BY NMM	SITE PLAN		FIGURE NO. 2
	DATE 2/04			
2171 CAMPUS DRIVE, SUITE 100 IRVINE, CA 92612	REV BY 2/04	Metropolitan Transportation Authority – Division 6 Venice, California		PROJECT NO. 4525030096-60.01.01
	REVISED NMM			

DATE PLOTTED: 4/9/04 1=1

FILE: P:\HLA\CAD\CAD2\4525030096-MTA\60-01-01\0204-DIV6-SM1.dwg [AREAS]

TB-B1.DWG-10/16/00



MB19

DEPTH	CYANIDE (mg/kg)	PAH (mg/kg)
8.5	ND	ND
26	ND	ND

MB1

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs ($\mu g/kg$)
1	52	ND	ND
5	ND	ND	ND
15	ND	ND	ND

MB4

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs ($\mu g/kg$)	VOCs ($\mu g/kg$)
1	6,300	PYRENE 0.47	ND	*METHYLENE CHLORIDE
5	5,000	ND	ND	*METHYLENE CHLORIDE
15	ND	ND	ND	-

MB5

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs ($\mu g/kg$)	VOCs ($\mu g/kg$)
1	21	ND	ND	-
5	390	ND	ND	ND
15	26	ND	ND	-

MB6

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs ($\mu g/kg$)	VOCs ($\mu g/kg$)
1	5,600	FLUORANTHENE 0.43 PYRENE 0.44	ND	ND
5	ND	ND	ND	-
15	21	ND	ND	-

MB3(GW)

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs ($\mu g/kg$)
1	ND	ND	ND
5	ND	ND	ND
15	ND	ND	ND

EXPLANATION

BH-11 SOIL BORINGS BY CONVERSE (1988)
CPT-8C SOIL BORINGS BY BENTLEY (1995)
CPT-2 SOIL BORING/HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1995)
HP-3 HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1997)
T4-S SAMPLE LOCATIONS BY THE TYREE ORGANIZATION, LTD. (1999)
MW1 GROUNDWATER MONITORING WELLS BY URS CORP. (MW1-MW4 INSTALLED IN 1999 AND MW5-MW6 INSTALLED IN 2002)
SV31 SOIL AND VAPOR SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
MB10 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
MB31(GW) SOIL AND GROUNDWATER SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
CL1 AREA 5 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
TANK LOCATION
FORMER TANK LOCATION
ND NOT DETECTED ABOVE LABORATORY DETECTION LIMIT
TRPH TOTAL RECOVERABLE FUEL HYDROCARBONS IN MILLIGRAM PER KILOGRAM (mg/kg)
PAH POLYNUCLEAR AROMATIC HYDROCARBONS
PCBs POLYCHLORINATED BIPHENYL
VOCs VOLATILE ORGANIC CARBONS IN MILLIGRAM PER KILOGRAM (mg/kg)
– ANALYSIS NOT PERFORMED OR DATA NOT AVAILABLE
* METHYLENE CHLORIDE DETECTED APPEARS TO BE RESULT OF LABORATORY CROSS-CONTAMINATION

N

Scale 0 10 20 feet

MACTEC
2171 CAMPUS DRIVE, SUITE 100
IRVINE, CA 92612

DWG BY NMM
DATE 2/04
REV BY 2/04
REVISED NMM

AREA 1
SOIL SAMPLE RESULTS

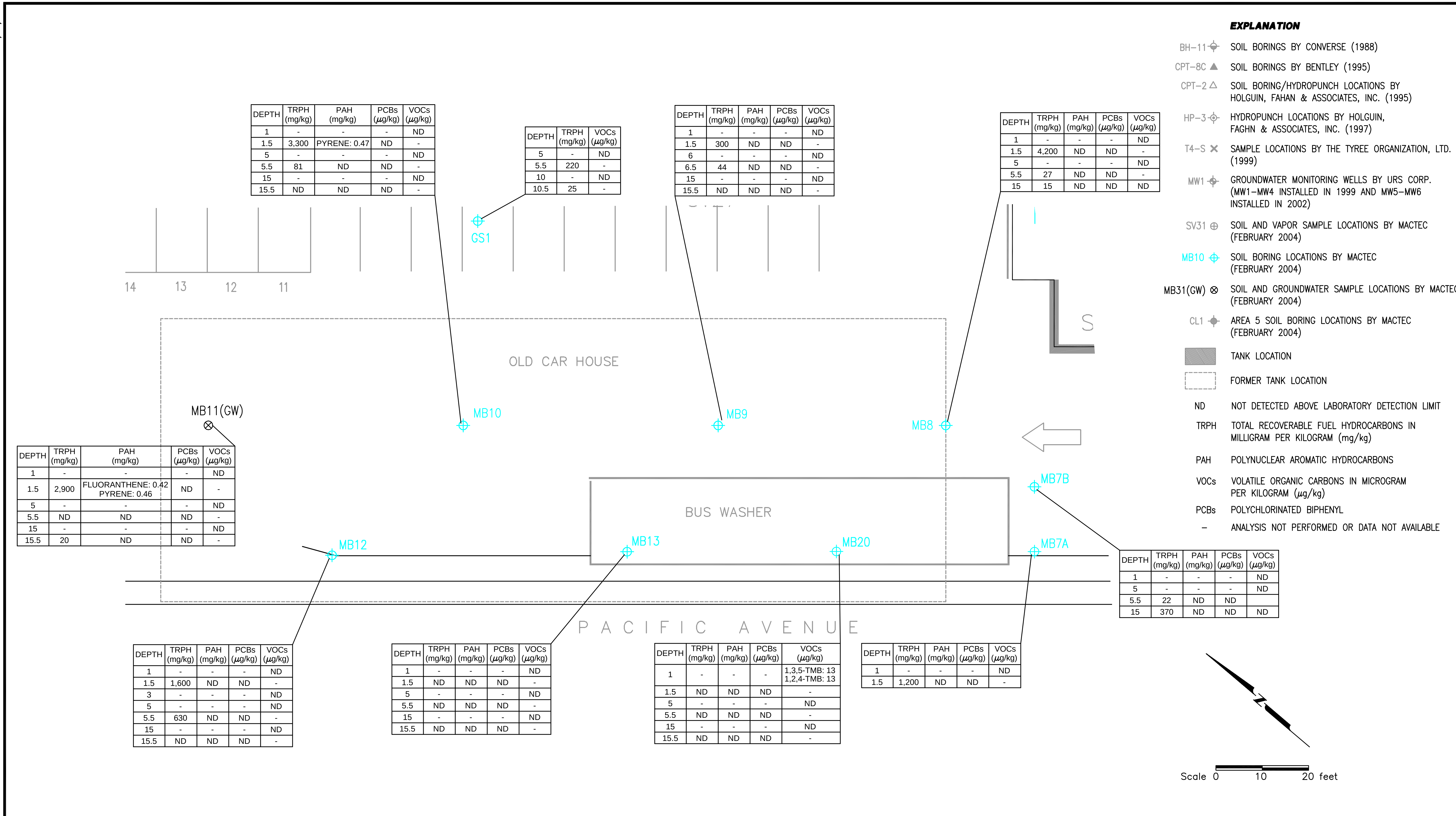
Metropolitan Transportation Authority – Division 6
Venice, California

FIGURE NO. 3
PROJECT NO. 4525030096-60.01.01

DATE PLOTTED: 4/9/04 1=1

FILE: P:\HLA\CAD\CAD2\4525030096-MTA\60-01-01\0204-DIV6-AREA1.dwg [AREAS]

TB-B1.DWG-10/16/00



MB10

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (μg/kg)	VOCs (μg/kg)
1	-	-	-	ND
1.5	3,300	PYRENE: 0.47	ND	-
5	-	-	-	ND
5.5	81	ND	ND	-
15	-	-	-	ND
15.5	ND	ND	ND	-

GS1

DEPTH	TRPH (mg/kg)	VOCs (μg/kg)
5	-	ND
5.5	220	-
10	-	ND
10.5	25	-

MB9

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (μg/kg)	VOCs (μg/kg)
1	-	-	-	ND
1.5	300	ND	ND	-
6	-	-	-	ND
6.5	44	ND	ND	-
15	-	-	-	ND
15.5	ND	ND	ND	-

MB8

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (μg/kg)	VOCs (μg/kg)
1	-	-	-	ND
1.5	4,200	ND	ND	-
5	-	-	-	ND
5.5	27	ND	ND	-
15	15	ND	ND	ND

MB11(GW)

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (μg/kg)	VOCs (μg/kg)
1	-	-	-	ND
1.5	2,900	FLUORANTHENE: 0.42 PYRENE: 0.46	ND	-
5	-	-	-	ND
5.5	ND	ND	ND	-
15	-	-	-	ND
15.5	20	ND	ND	-

MB7B

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (μg/kg)	VOCs (μg/kg)
1	-	-	-	ND
5	-	-	-	ND
5.5	22	ND	ND	
15	370	ND	ND	ND

MB12

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (μg/kg)	VOCs (μg/kg)
1	-	-	-	ND
1.5	1,600	ND	ND	-
3	-	-	-	ND
5	-	-	-	ND
5.5	630	ND	ND	-
15	-	-	-	ND
15.5	ND	ND	ND	-

MB13

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (μg/kg)	VOCs (μg/kg)
1	-	-	-	ND
1.5	ND	ND	ND	-
5	-	-	-	ND
5.5	ND	ND	ND	-
15	-	-	-	ND
15.5	ND	ND	ND	-

MB20

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (μg/kg)	VOCs (μg/kg)
1	-	-	-	1,3,5-TMB: 13 1,2,4-TMB: 13
1.5	ND	ND	ND	-
5	-	-	-	ND
5.5	ND	ND	ND	-
15	-	-	-	ND
15.5	ND	ND	ND	-

MB7A

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (μg/kg)	VOCs (μg/kg)
1	-	-	-	ND
1.5	1,200	ND	ND	-

EXPLANATION

- BH-11 — SOIL BORINGS BY CONVERSE (1988)
- CPT-8C — SOIL BORINGS BY BENTLEY (1995)
- CPT-2 — SOIL BORING/HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1995)
- HP-3 — HYDROPUNCH LOCATIONS BY HOLGUIN, FAGHN & ASSOCIATES, INC. (1997)
- T4-S — SAMPLE LOCATIONS BY THE TYREE ORGANIZATION, LTD. (1999)
- MW1 — GROUNDWATER MONITORING WELLS BY URS CORP. (MW1-MW4 INSTALLED IN 1999 AND MW5-MW6 INSTALLED IN 2002)
- SV31 — SOIL AND VAPOR SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB10 — SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB31(GW) — SOIL AND GROUNDWATER SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- CL1 — AREA 5 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- TANK LOCATION
- FORMER TANK LOCATION
- ND — NOT DETECTED ABOVE LABORATORY DETECTION LIMIT
- TRPH — TOTAL RECOVERABLE FUEL HYDROCARBONS IN MILLIGRAM PER KILOGRAM (mg/kg)
- PAH — POLYNUCLEAR AROMATIC HYDROCARBONS
- VOCs — VOLATILE ORGANIC CARBONS IN MICROGRAM PER KILOGRAM (μg/kg)
- PCBs — POLYCHLORINATED BIPHENYL
- – — ANALYSIS NOT PERFORMED OR DATA NOT AVAILABLE

MACTEC

2171 CAMPUS DRIVE, SUITE 100
IRVINE, CA 92612

DWG BY	DATE	REV BY	REVISED
NMM	2/04	2/04	NMM

AREA 2
SOIL SAMPLE RESULTS

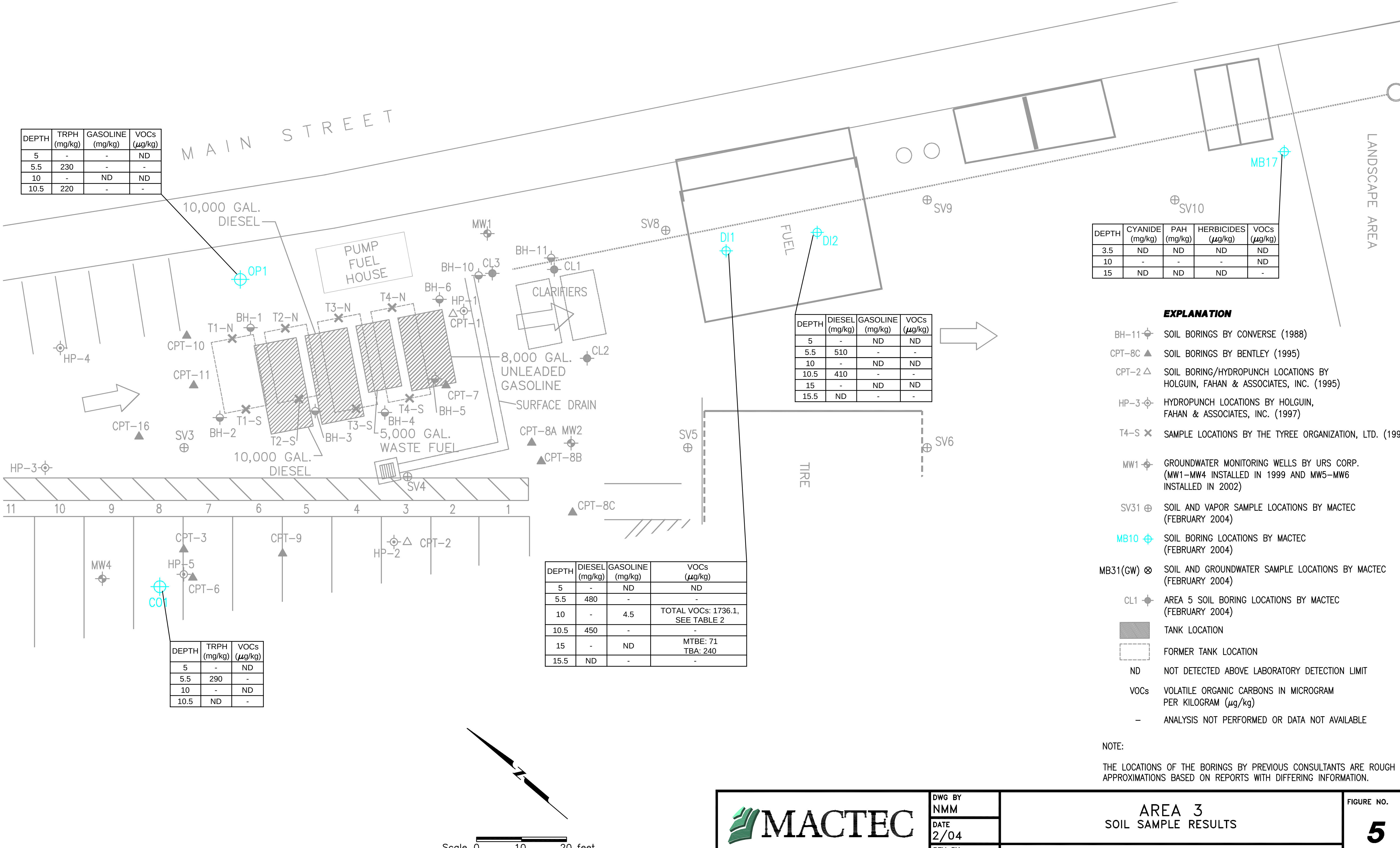
Metropolitan Transportation Authority – Division 6
Venice, California

FIGURE NO. **4**

PROJECT NO. 4525030096-60.01.01

DATE PLOTTED: 4/9/04 1=1

FILE: P:\HLA\CAD\CAD2\4525030096-MTA\60-01-01\0204-DIV6-AREA2.dwg [AREAS]



DEPTH	TRPH (mg/kg)	GASOLINE (mg/kg)	VOCs (µg/kg)
5	-	-	ND
5.5	230	-	-
10	-	ND	ND
10.5	220	-	-

DEPTH	TRPH (mg/kg)	VOCs (µg/kg)
5	-	ND
5.5	290	-
10	-	ND
10.5	ND	-

DEPTH	DIESEL (mg/kg)	GASOLINE (mg/kg)	VOCs (µg/kg)
5	-	ND	ND
5.5	480	-	-
10	-	4.5	TOTAL VOCs: 1736.1, SEE TABLE 2
10.5	450	-	-
15	-	ND	MTBE: 71 TBA: 240
15.5	ND	-	-

DEPTH	DIESEL (mg/kg)	GASOLINE (mg/kg)	VOCs (µg/kg)
5	-	ND	ND
5.5	510	-	-
10	-	ND	ND
10.5	410	-	-
15	-	ND	ND
15.5	ND	-	-

DEPTH	CYANIDE (mg/kg)	PAH (mg/kg)	HERBICIDES (µg/kg)	VOCs (µg/kg)
3.5	ND	ND	ND	ND
10	-	-	-	ND
15	ND	ND	ND	-

EXPLANATION

BH-11 SOIL BORINGS BY CONVERSE (1988)

CPT-8C SOIL BORINGS BY BENTLEY (1995)

CPT-2 SOIL BORING/HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1995)

HP-3 HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1997)

T4-S SAMPLE LOCATIONS BY THE TYREE ORGANIZATION, LTD. (1999)

MW1 GROUNDWATER MONITORING WELLS BY URS CORP. (MW1-MW4 INSTALLED IN 1999 AND MW5-MW6 INSTALLED IN 2002)

SV31 SOIL AND VAPOR SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)

MB10 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)

MB31(GW) SOIL AND GROUNDWATER SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)

CL1 AREA 5 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)

TANK LOCATION

FORMER TANK LOCATION

ND NOT DETECTED ABOVE LABORATORY DETECTION LIMIT

VOCs VOLATILE ORGANIC CARBONS IN MICROGRAM PER KILOGRAM (µg/kg)

\- ANALYSIS NOT PERFORMED OR DATA NOT AVAILABLE

NOTE:

THE LOCATIONS OF THE BORINGS BY PREVIOUS CONSULTANTS ARE ROUGH APPROXIMATIONS BASED ON REPORTS WITH DIFFERING INFORMATION.

MACTEC

2171 CAMPUS DRIVE, SUITE 100
IRVINE, CA 92612

DWG BY NMM
DATE 2/04
REV BY 2/04
REVISED NMM

AREA 3
SOIL SAMPLE RESULTS

Metropolitan Transportation Authority – Division 6
Venice, California

FIGURE NO. 5

PROJECT NO. 4525030096-60.01.01

DATE PLOTTED: 4/9/04 1=1

FILE: P:\HLA\CAD\CAD2\4525030096-MTA\60-01-01\0204-DIV6-AREA3.dwg [AREAS]

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	27	ND	ND
5	19	ND	ND
10	27	ND	ND

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	95	ND	ND
5	ND	ND	ND
10	14	ND	ND

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	46	ND	ND
5	-	-	ND
5.5	19	ND	-
10	25	ND	ND

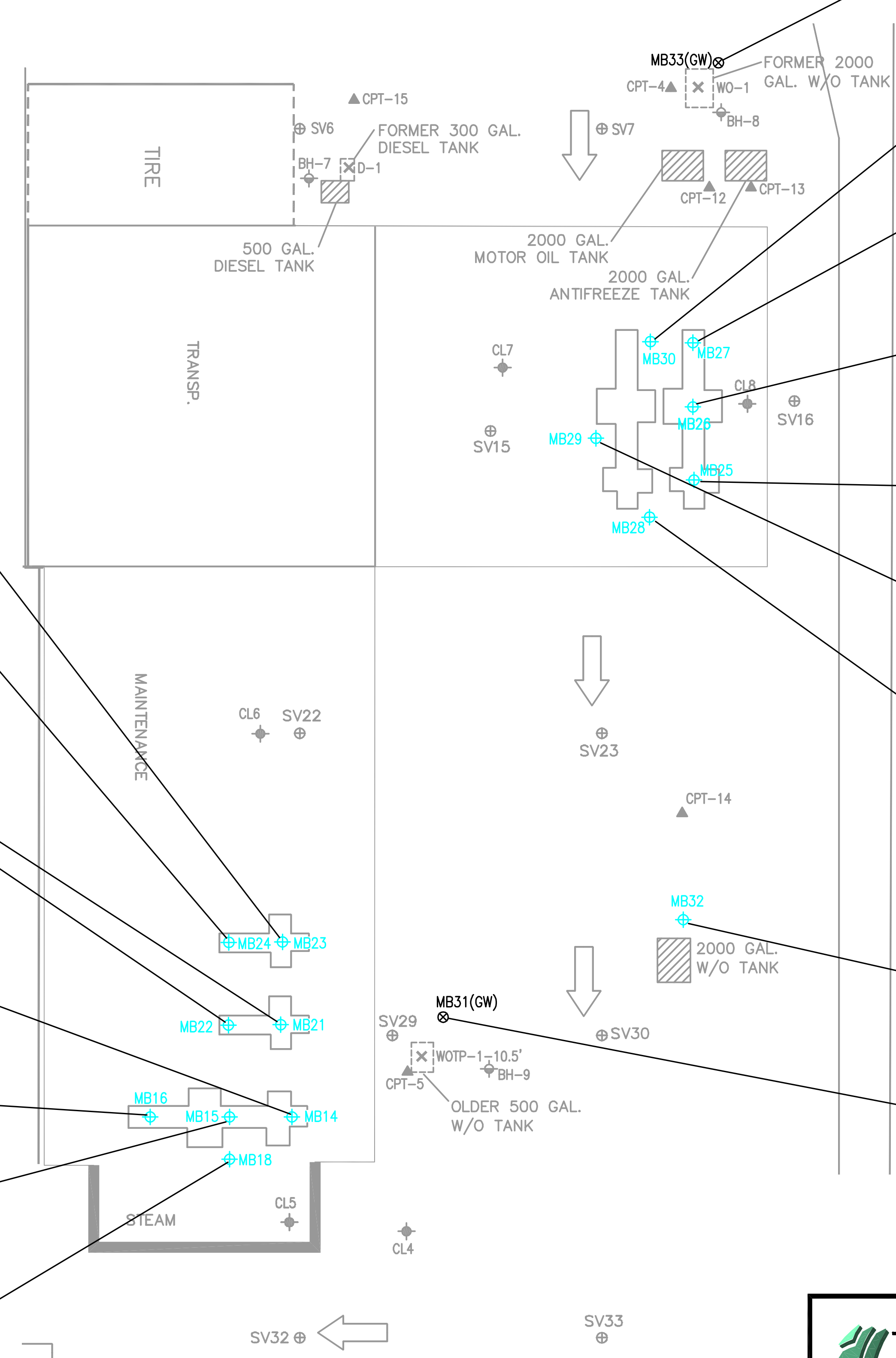
DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	-	-	ND
1.5	22	ND	-
5	-	-	ND
5.5	16	ND	-
10	-	-	ND
10.5	ND	ND	-

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	-	-	ND
1.5	49	ND	-
5.5	12	ND	ND
10.5	29	ND	ND

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1.5	ND	ND	ND
5.5	ND	ND	ND
10	11	ND	ND

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1.1	-	-	ND
1.5	18	ND	-
5.5	22	ND	ND
10.5	ND	ND	ND
15.5	22	-	-

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)	LEAD (mg/kg)	pH
1	230	ND	ND	-	-
3	-	-	-	ND	10.47



DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (µg/kg)	VOCs (µg/kg)
5	-	-	-	ND
5.5	26	ND	ND	ND
15	26	ND	ND	ND

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	-	-	ND
1.5	230	ND	-
5	-	-	ND
5.5	100	ND	-

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	-	-	ND
1.5	ND	ND	-
5	-	-	ND
5.5	ND	ND	-
10	-	-	ND
10.5	14	ND	-

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	-	-	ND
1.5	ND	ND	-
5	-	-	ND
5.5	16	-	-
10	-	-	ND
10.5	17	ND	-

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	-	-	ND
1.5	25	ND	-
5	-	-	ND
5.5	23	ND	-
10	-	-	ND
10.5	ND	ND	-

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
2	60	ND	-
5	-	-	ND
5.5	51	ND	-
10	-	-	ND
10.5	45	ND	-

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
1	-	-	ND
1.5	88	ND	-
5	-	-	ND
5.5	340	ND	-
10	-	-	ND
10.5	42	ND	-

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (µg/kg)	VOCs (µg/kg)
3.5	130	ND	ND	ND
15	-	-	-	ND
15.5	20	ND	ND	-

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (µg/kg)	VOCs (µg/kg)
3	-	-	-	ND
3.5	51	ND	ND	-
15	-	-	-	ND
15.5	51	ND	ND	-

EXPLANATION

BH-11 SOIL BORINGS BY CONVERSE (1988)

CPT-8C SOIL BORINGS BY BENTLEY (1995)

CPT-2 SOIL BORING/HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1995)

HP-3 HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1997)

T4-S SAMPLE LOCATIONS BY THE TYREE ORGANIZATION, LTD. (1999)

MW1 GROUNDWATER MONITORING WELLS BY URS CORP. (MW1-MW4 INSTALLED IN 1999 AND MW5-MW6 INSTALLED IN 2002)

SV31 SOIL AND VAPOR SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)

MB10 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)

MB31(GW) SOIL AND GROUNDWATER SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)

CL1 AREA 5 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)

TANK LOCATION

FORMER TANK LOCATION

ND NOT DETECTED ABOVE LABORATORY DETECTION LIMIT

TRPH TOTAL RECOVERABLE FUEL HYDROCARBONS IN MILLIGRAM PER KILOGRAM (mg/kg)

PAH POLYNUCLEAR AROMATIC HYDROCARBONS

VOCs VOLATILE ORGANIC CARBONS IN MICROGRAM PER KILOGRAM (µg/kg)

– ANALYSIS NOT PERFORMED OR DATA NOT AVAILABLE

NOTE:

THE LOCATIONS OF THE BORINGS BY PREVIOUS CONSULTANTS ARE ROUGH APPROXIMATIONS BASED ON REPORTS WITH DIFFERING INFORMATION.

Scale 0 15 30 feet

MACTEC

2171 CAMPUS DRIVE, SUITE 100
IRVINE, CA 92612

DWG BY NMM
DATE 2/04
REV BY 2/04
REVISED NMM

AREA 4
SOIL SAMPLE RESULTS

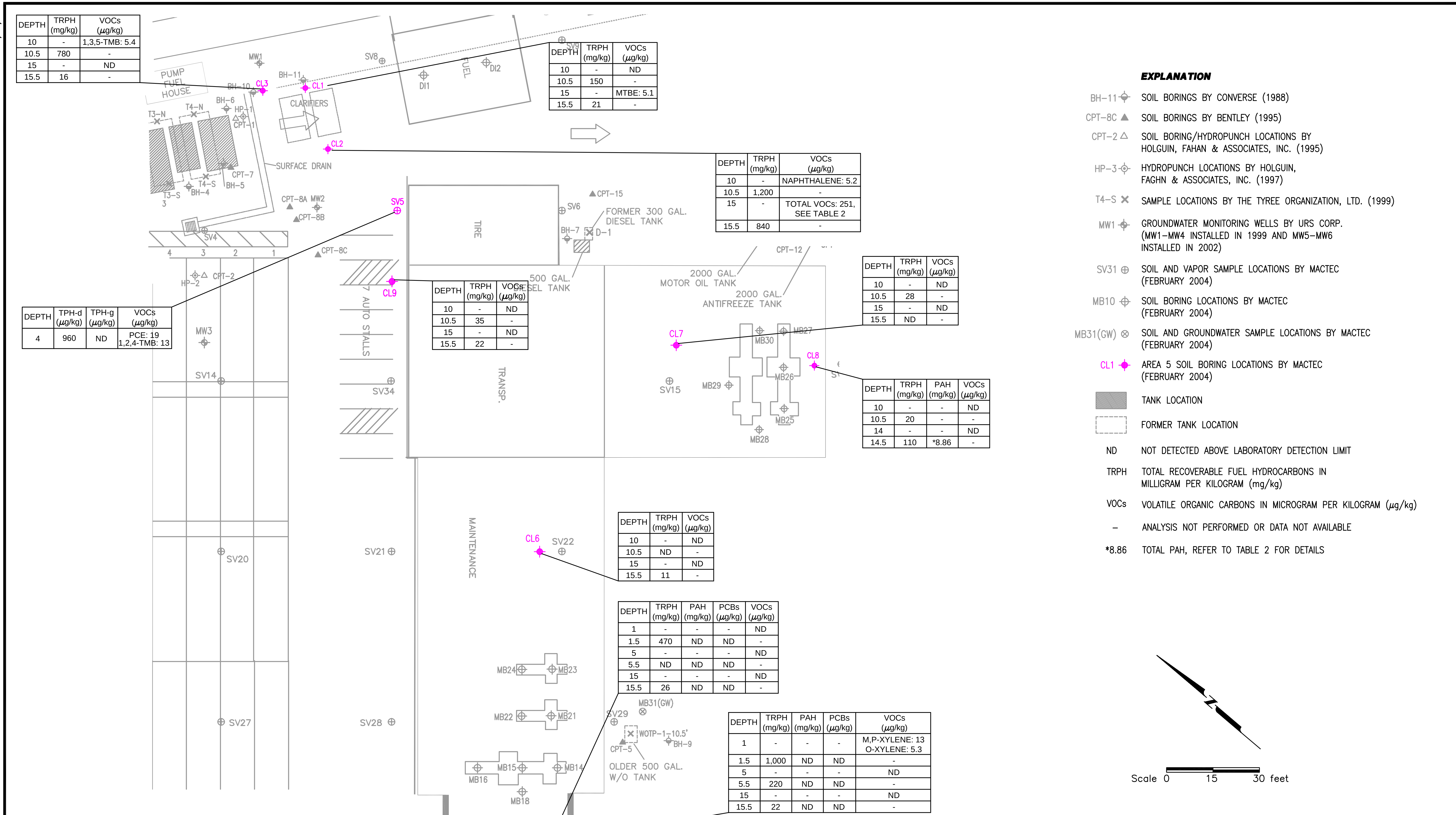
Metropolitan Transportation Authority – Division 6
Venice, California

FIGURE NO. 6

PROJECT NO. 4525030096-60.01.01

DATE PLOTTED: 4/9/04 1=1

FILE: P:\HLA\CAD\CAD2\4525030096-MTA\60-01-01\0204-DIV6-AREA4.dwg [AREAS]



CL3

DEPTH	TRPH (mg/kg)	VOCs (µg/kg)
10	-	1,3,5-TMB: 5.4
10.5	780	-
15	-	ND
15.5	16	-

CL1

DEPTH	TRPH (mg/kg)	VOCs (µg/kg)
10	-	ND
10.5	150	-
15	-	MTBE: 5.1
15.5	21	-

CL2

DEPTH	TRPH (mg/kg)	VOCs (µg/kg)
10	-	NAPHTHALENE: 5.2
10.5	1,200	-
15	-	TOTAL VOCs: 251, SEE TABLE 2
15.5	840	-

SV5

DEPTH	TPH-d (µg/kg)	TPH-g (µg/kg)	VOCs (µg/kg)
4	960	ND	PCE: 19 1,2,4-TMB: 13

CL9

DEPTH	TRPH (mg/kg)	VOCs (µg/kg)
10	-	ND
10.5	35	-
15	-	ND
15.5	22	-

CL7

DEPTH	TRPH (mg/kg)	VOCs (µg/kg)
10	-	ND
10.5	28	-
15	-	ND
15.5	ND	-

CL8

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	VOCs (µg/kg)
10	-	-	ND
10.5	20	-	-
14	-	-	ND
14.5	110	*8.86	-

CL6

DEPTH	TRPH (mg/kg)	VOCs (µg/kg)
10	-	ND
10.5	ND	-
15	-	ND
15.5	11	-

CL5

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (µg/kg)	VOCs (µg/kg)
1	-	-	-	ND
1.5	470	ND	ND	-
5	-	-	-	ND
5.5	ND	ND	ND	-
15	-	-	-	ND
15.5	26	ND	ND	-

CL4

DEPTH	TRPH (mg/kg)	PAH (mg/kg)	PCBs (µg/kg)	VOCs (µg/kg)
1	-	-	-	M,P-XYLENE: 13 O-XYLENE: 5.3
1.5	1,000	ND	ND	-
5	-	-	-	ND
5.5	220	ND	ND	-
15	-	-	-	ND
15.5	22	ND	ND	-

EXPLANATION

- BH-11 — SOIL BORINGS BY CONVERSE (1988)
- CPT-8C — SOIL BORINGS BY BENTLEY (1995)
- CPT-2 — SOIL BORING/HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1995)
- HP-3 — HYDROPUNCH LOCATIONS BY HOLGUIN, FAGHN & ASSOCIATES, INC. (1997)
- T4-S — SAMPLE LOCATIONS BY THE TYREE ORGANIZATION, LTD. (1999)
- MW1 — GROUNDWATER MONITORING WELLS BY URS CORP. (MW1–MW4 INSTALLED IN 1999 AND MW5–MW6 INSTALLED IN 2002)
- SV31 — SOIL AND VAPOR SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB10 — SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB31(GW) — SOIL AND GROUNDWATER SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- CL1 — AREA 5 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- TANK LOCATION
- FORMER TANK LOCATION
- ND — NOT DETECTED ABOVE LABORATORY DETECTION LIMIT
- TRPH — TOTAL RECOVERABLE FUEL HYDROCARBONS IN MILLIGRAM PER KILOGRAM (mg/kg)
- VOCs — VOLATILE ORGANIC CARBONS IN MICROGRAM PER KILOGRAM (µg/kg)
- – — ANALYSIS NOT PERFORMED OR DATA NOT AVAILABLE
- *8.86 — TOTAL PAH, REFER TO TABLE 2 FOR DETAILS

MACTEC
2171 CAMPUS DRIVE, SUITE 100
IRVINE, CA 92612

DWG BY NMM
DATE 2/04
REV BY 2/04
REVISED NMM

AREA 5
SOIL SAMPLE RESULTS

Metropolitan Transportation Authority – Division 6
Venice, California

FIGURE NO. 7
PROJECT NO. 4525030096-60.01.01

TB-B1.DWG-10/16/00
DATE PLOTTED: 4/9/04 1=1
FILE: P:\HLA\CAD\CAD2\4525030096-MTA\60-01-01\0204-DIV6-AREA5.dwg [AREAS]

DEPTH	TPH-d (µg/L)	TPH-g (µg/L)	VOCs (µg/L)
20.58	ND	ND	ND

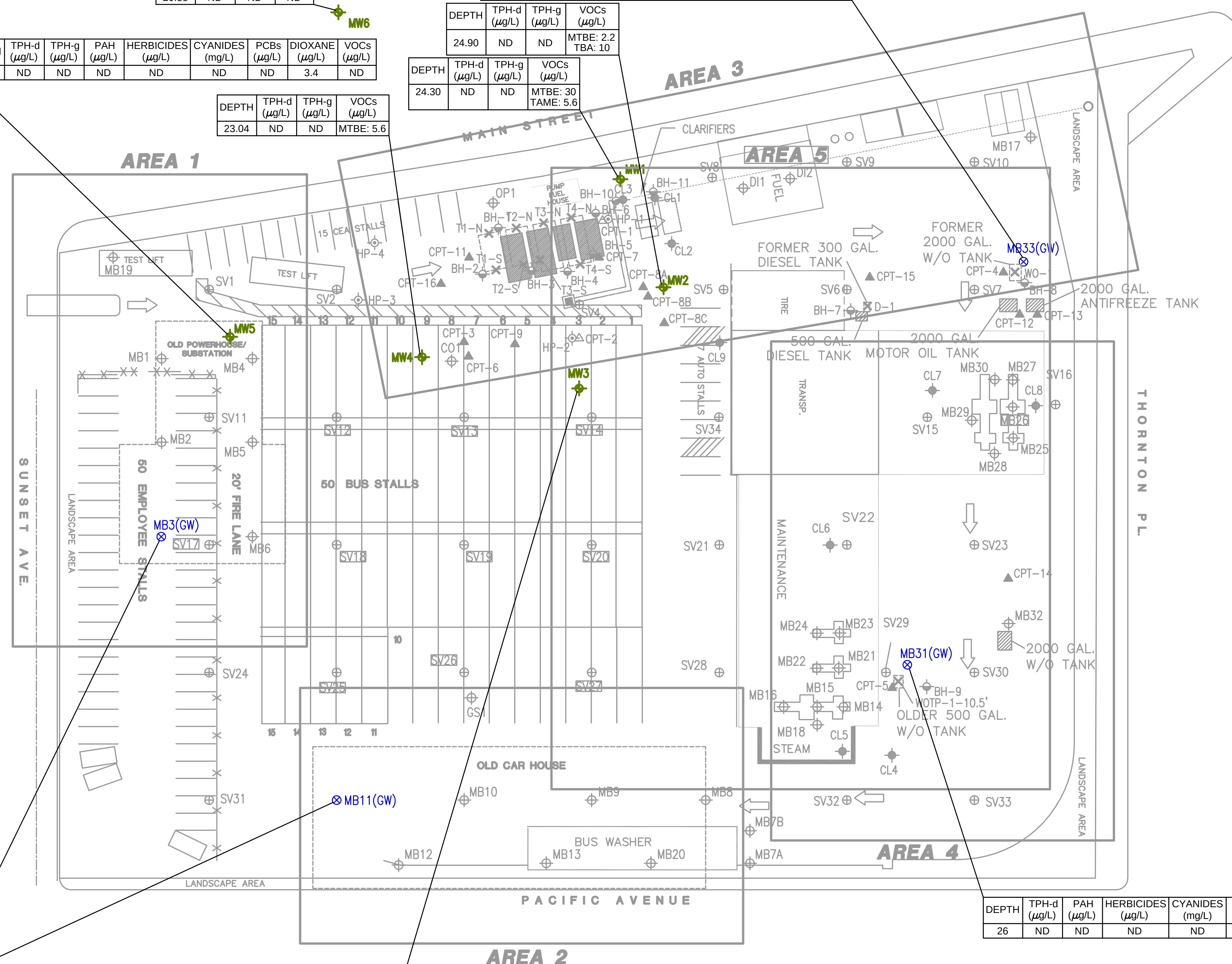
DEPTH	TPH-d (µg/L)	TPH-g (µg/L)	PAH (µg/L)	HERBICIDES (µg/L)	CYANIDES (mg/L)	PCBs (µg/L)	DIOXANE (µg/L)	VOCs (µg/L)
21.98	ND	ND	ND	ND	ND	ND	3.4	ND

DEPTH	TPH-d (µg/L)	TPH-g (µg/L)	VOCs (µg/L)
23.04	ND	ND	MTBE: 5.6

DEPTH	TPH-d (µg/L)	PAH (µg/L)	HERBICIDES (µg/L)	CYANIDES (mg/L)	PCBs (µg/L)	DIOXANE (µg/L)	VOCs (µg/L)
24	ND	ND	ND	ND	ND	ND	ND

DEPTH	TPH-d (µg/L)	TPH-g (µg/L)	VOCs (µg/L)
24.90	ND	ND	MTBE: 2.2 TBA: 10

DEPTH	TPH-d (µg/L)	TPH-g (µg/L)	VOCs (µg/L)
24.30	ND	ND	MTBE: 30 TAME: 5.6



DEPTH	TPH-d (µg/L)	PAH (µg/L)	HERBICIDES (µg/L)	CYANIDES (mg/L)	PCBs (µg/L)	DIOXANE (µg/L)	VOCs (µg/L)
26	ND	ND	ND	ND	ND	ND	CHLOROFORM: 5

DEPTH	TPH-d (µg/L)	PAH (µg/L)	HERBICIDES (µg/L)	CYANIDES (mg/L)	PCBs (µg/L)	DIOXANE (µg/L)	VOCs (µg/L)
26.5	ND	ND	ND	ND	ND	ND	CHLOROFORM: 1.5

DEPTH	LEAD (mg/L)	TPH-d (µg/L)	PAH (µg/L)	HERBICIDES (µg/L)	CYANIDES (mg/L)	PCBs (µg/L)	DIOXANE (µg/L)	VOCs (µg/L)
26.1	-	ND	ND	ND	ND	ND	ND	ND

DEPTH	TPH-d (µg/L)	TPH-g (µg/L)	PAH (µg/L)	HERBICIDES (µg/L)	CYANIDES (mg/L)	PCBs (µg/L)	DIOXANE (µg/L)	VOCs (µg/L)
24.15	ND	ND	ND	ND	ND	ND	ND	ND

EXPLANATION

- BH–11 SOIL BORINGS BY CONVERSE (1988)
- CPT–8C SOIL BORINGS BY BENTLEY (1995)
- CPT–2 SOIL BORING/HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1995)
- HP–3 HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1997)
- T4–S SAMPLE LOCATIONS BY THE TYREE ORGANIZATION, LTD. (1999)
- MW1 GROUNDWATER MONITORING WELLS BY URS CORP. (MW1–MW4 INSTALLED IN 1999 AND MW5–MW6 INSTALLED IN 2002)
- SV31 SOIL AND VAPOR SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB10 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB31(GW) SOIL AND GROUNDWATER SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- CL1 AREA 5 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- TANK LOCATION
- FORMER TANK LOCATION

	NON DETECT
TPH	TOTAL PETROLEUM HYDROCARBONS IN MICROGRAM PER LITER (µg/L)
PAH	POLYNUCLEAR AROMATIC HYDROCARBONS
VOCs	VOLATILE ORGANIC CARBONS IN MICROGRAM PER LITER (µg/L)
PCBs	POLYCHLORINATED BIPHENYL
–	ANALYSIS NOT PERFORMED OR DATA NOT AVAILABLE

NOTE: LABORATORY ANALYTICAL DATA FOR MONITORING WELLS MW–1 THROUGH MW–6 PRESENTED IN 1st QUARTER 2004 GROUNDWATER MONITORING REPORT. DATA SUMMARIZED ON THIS PLATE FOR CONVENIENCE.

MACTEC
2171 CAMPUS DRIVE, SUITE 100
IRVINE, CA 92612

DWG BY	DATE	REV BY	REVISED
NMM	2/04	2/04	NMM

GROUNDWATER BORING LOCATIONS

Metropolitan Transportation Authority – Division 6
Venice, California

FIGURE NO. 8

PROJECT NO. 4525030096–60.01.01

TB-B1.DWG–10/16/00

DATE PLOTTED: 4/14/04 1=1

APPENDIX A

STANDARD STRATAPROBE SOIL SAMPLING PROTOCOL

STRATAPROBE SOIL SAMPLING PROTOCOL

The following procedures are followed when sampling soil with the Strataprobe hydraulic soil sampling system.

1. Stainless steel probes (1.5" outside diameter) are used.

2. Probes and samplers are cleaned before use. Equipment is washed with TSP phosphate-free soap and triple rinsed between borings. This reduces the probability of cross-contamination.

3. A registered geologist or other appropriately trained personnel observes the drilling, visually logs the soils, and obtains soil samples at appropriate intervals as determined by field conditions.

4. The Unified Soils Classification System (USCS) is used to classify the soils. Rocks are classified according to the Colorado School of Mines "Classification of Rocks."

5. The soil samples are obtained using a Strataprobe hydraulic soil sampling system. The sampler accommodates 1" diameter acetate or brass sleeves.

6. After the sample rings are removed from the sampler, the latter is completely disassembled and scrubbed in TSP and tap water. The sampler is rinsed with tap and distilled water and reassembled with the required number (four) of clean brass sleeves.

7. The sampler is driven 24" at each sampling interval. Generally, the lowest tube or most intact brass sleeve is retained for analysis. The soil in the remaining brass sleeves is used for field screening with a photoionization detector (PID) and for screening by the USCS.

8. The sample is logged on the boring log. The ends of the sleeve are capped with a Teflon lner and tight-fitting plastic cap to minimize leaching, volatilization, and cross-contamination. The samples are then labeled, identified on a chain of custody, and placed in a clean ice chest to retain the samples at or about 4° Celsius until delivery to the analytical laboratory.

9. The samples are kept in the ice chest until delivered to a California Department of Health Services (CADHS)-certified analytical laboratory.

10. Samples are accompanied by a chain-of-custody form, documenting the time, date, and person-in-charge since retrieval of the sample from the sampler.

11. In case of visual and/or olfactory evidence of contamination, soil cuttings are impounded in drums carrying cautionary labels. The drums are secured from random contact. Custody of the drums and their content will remain with the client at all times.

12. If chemical analyses of the soil samples show the presence of elevated levels of pollutants, then the client will be informed of the test results and advised about the lawful means of disposal or detoxification. Upon the written request and authorization of the Client, MACTEC will organize the disposal or detoxification of the impounded soil according to applicable federal, state, county and local regulations.

13. The sleeve soil sample label includes:

    - Job Number;
    - Boring Number and Depth;
    - Sampling Date;
    - Sampler's Initials; and
    - Test to be performed (if known at the time of sampling).

14. An indelible marking pen is used to label the sleeves.

15. A detailed daily log is kept of field activities; this will include the number of drums generated during the daily field activities.

APPENDIX B

BORING LOGS

MACTEC

LOG OF BORING CL-1

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete pavement
						GP		GRAVEL with SAND, 5Y 4/3, dark olive, 20% fine-grained sand, very dense, damp, 75% coarse gravel, trace silt
						SP		SAND with some GRAVEL, 2.5Y 4/3, olive brown, 75% fine-grained sand, very dense, damp, ~15-20% medium gravel, trace silt
5						SW		CLEAN SAND, 10YR 4/4, dark yellowish brown, 100% sand, dense, damp
10						SW		same as above
15						CL		SANDY CLAY, 10YR 3/6, dark yellowish brown, ~25% medium-grained sand, hard, dry, 75% clay
20								

Total depth of boring: 16 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\CL-1.bor

MACTEC

LOG OF BORING CL-2

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:	Drilling Co.	: H&P
Date	: 2/11/04	Drilling Rig	: Geoprobe
Logged By	: G. Sena	Drilling Method	: Direct Push & Hand Auger
Total Depth of Boring	: 16	Sampling Method	:
Diameter of Boring	: 2-4"	Hammer Weight (lbs.)	:
Backfill Material	: Bentonite	Hammer Drop (in.)	:
		Depth to Groundwater	: NA
		Vapor Meter	:
		Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								7" concrete pavement
						GP		SANDY GRAVEL, dark yellowish brown, ~20% fine-grained sand, dense, damp, 80% coarse gravel
						SP		GRAVELLY SAND, 3' decreasing gravel, mostly sand, dense, damp
5	■							same as above
10	■							increasing moisture content
15	■					CL		CLAY, 10YR 4/3, brown, trace sand, very stiff to hard, damp, mostly clay
20								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.

California Registered Geologist No. 6313

MACTEC

LOG OF BORING CL-3

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Cuttings & Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								7" concrete pavement
						GW		GRAVEL, 10YR 4/6, dark yellowish brown, trace sand, dense, damp
						SP		SAND with GRAVEL, 10YR 5/6, yellowish brown, 85% sand, dense, damp, ~15% gravel
5	■					SP		CLEAN SAND, 10YR 4/4, dark yellowish brown, 100% sand, dense, damp
10	■							increasing fine-grained sand content, some silt, fine gravel
15	■					CL		SANDY CLAY, 2.5Y 4/3, olive brown, ~20% fine-grained sand, very stiff, damp, 80% clay
20								

Total depth of boring: 16 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

California Registered Geologist No. 6313

MACTEC

LOG OF BORING CL-4

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/10/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~6" concrete pavement
						SP		GRAVELLY SAND, 10YR 3/3, dark brown, 75% sand, dense, damp, ~25% fine gravel
								CLEAN SAND, 10YR 5/6, yellowish brown, loose, damp, ~100% sand
5								same as above
						SP		
10								same as above
15								same as above
								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.
20								

PBN

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\CL-4.bor

MACTEC

LOG OF BORING CL-5

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/10/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								7" concrete pavement
						SW		CLEAN SAND, 10YR 4/4, dark yellowish brown, ~100% fine- to medium-grained sand, loose to medium dense, moist
								same as above
5								same as above
10								same as above
15						CL		SANDY CLAY, 10YR 3/3, dark brown, ~10% sand, stiff, moist, 90% clay
								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.
20								

California Registered Geologist No. 6313

MACTEC

LOG OF BORING CL-6

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/10/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete pavement
						SW		CLEAN SAND, 10YR 5/6, yellowish brown, ~100% sand, dense, damp
5	■							same as above
10	■							dry, increasing fine content, some silt
15	■					SM		SILTY SAND, 10YR 5/6, yellowish brown, 80% fine sand, medium dense, dry, ~20% silt
20								

Total depth of boring: 16 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

DBV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\CL-6.bor

MACTEC

LOG OF BORING CL-7

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/12/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								5" concrete pavement
						SP		GRAVELLY SAND, 10YR 4/4, dark yellowish brown, 75% coarse-grained sand, very dense, damp, ~25% gravel, gravel up to 3"
						SW		CLEAN SAND, 10YR 5/4, ~100% sand, yellowish brown, dense, damp
5	■							same as above
10	■					SM		SILTY SAND, 10YR 6/4, light yellowish brown, 65% fine-grained sand, medum dense, dry, ~35% silt
15	■							same as above
20								

Total depth of boring: 16 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

DRV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING CL-8

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/12/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite
Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~7" concrete pavement
						SW		CLEAN SAND, 10YR 5/6-5/8, yellowish brown, ~100% sand, medium dense to dense, damp
5	■							same as above
10	■							same as above
	■							increasing moisture content
15								Total depth of boring: 15 feet. No groundwater encountered. Caving at ~14 feet, stopped hole at 4' to drive sample. Backfilled with bentonite. First 5 feet hand augered.
20								

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\CL-8.bor

MACTEC

LOG OF BORING CL-9

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
						GP		SANDY GRAVEL, very dark grayish brown, ~40% sand, very dense, dry, 60% gravel
						SP		GRAVELLY SAND, 2.5Y 3/3, dark olive brown, 85% sand, loose, damp, 15% gravel
5	■					SW		CLEAN SAND, 10YR 5/3, 100% sand, brown, dense, damp
10	■					SM		SILTY SAND, 10YR 5/2, grayish brown, medium dense, dry
15	■					CL		CLAY, 7.5YR 3/3, dark brown, trace sand, very stiff, moist
20								

Total depth of boring: 16 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\CL-9.bor

MACTEC

LOG OF BORING CO-1

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Hauger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								7" concrete slab
						SP		SAND with GRAVEL, 10YR 3/3, dark brown, ~85% sand, very dense, damp, ~15% gravel
						SW		CLEAN SAND, 10YR 4/6, dark yellowish brown, 100% sand, loose, damp
5	■							same as above
10	■							same as above
15	■					CL		SANDY CLAY, 10YR 3/3, brown, ~20% coarse sand, stiff, damp, 80% clay
								Total depth of boring: 16 feet. No groundwater encountered. Backfilled with bentonite. First 5 feet hand augered.
20								

California Registered Geologist No. 6313

MACTEC

LOG OF BORING GS-1

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Hauger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								7" concrete slab
						GP		GRAVELLY SAND, 2.5Y 3/3, dark grayish brown, fine-grained sand, dense, moist, fine gravel
						SW		CLEAN SAND, 10YR 4/4, yellowish brown, fine- to medium-grained sand, loose, damp
5	■							
10	■							same as above
15	■					CL		CLAY, 10YR 3/3, dark brown, trace sand, medium stiff, damp, clay
20								

Total depth of boring: 16 feet.
No groundwater encountered.
Backfilled with bentonite.
First 5 feet hand augered.

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\GS-1.bor

MACTEC

LOG OF BORING OP-1

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Hauger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								10" concrete pavement
						GP		GRAVEL with SAND, 10YR 3/3, dark brown, trace sand, dense, damp, mostly gravel
								CLEAN SAND, 10YR 5/6, yellowish brown, mostly sand, medium dense, damp, trace silt
5	■					SW		same as above
10	■							CLAY, 10YR 2/2, very dark brown, trace sand, damp, mostly clay
						CL		
15	■							increasing sand content
								Total depth of boring: 16 feet. No groundwater encountered. Backfilled with bentonite. First 5 feet hand augered.
20								

California Registered Geologist No. 6313

MACTEC

LOG OF BORING DI-1

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/10/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								10" concrete pavement
						GP		0-2' coarse gravel, with some fine-grained sand
								SAND with GRAVEL, 10YR 3/6, dark yellowish brown, medium dense, moist, ~20% coarse gravel
5	■							
						SP		
10	■							same as above
15	■					CL		CLAY, 10YR 4/3, brown, trace sand, stiff, moist
								Total depth of boring: 16 feet. No groundwater encountered. Some caving approximately at 3 feet. Backfilled with bentonite. First 5 feet hand augered.
20								

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\DI-1.bor

MACTEC

LOG OF BORING DI-2

(Page 1 of 1)

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Hauger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								10" concrete pavement
						GP-GW		GRAVEL with SAND, 2.5Y 4/3, olive brown, coarse-grained sand, dense, damp
								CLEAN SAND, 10YR 5/6, yellowish brown, 100% sand, loose, damp
5	■							same as above
						SW		
10	■							same as above
15	■					CL		CLAY with SAND, 10YR 3/6, dark yellowish brown, ~15% sand, 85% clay, medium stiff, damp
								Total depth of boring: 16 feet. No groundwater encountered. No caving or sloughing Backfilled with bentonite. First 5 feet hand augered.
20								

ABN

California Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-1

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/12/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~10" concrete slab pavement
	■					AF		Artificial fill, clay, sand, and brick fragments
	■					SW		CLEAN SAND, 10YR 5/6, yellowish brown, ~100% sand, medium dense, damp
5	■					SW		same as above
10	■					CL		CLAY, 10YR 4/3, brown, trace sand, very stiff, damp
15	■					CL		same as above
20								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.

DKV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-2

(Page 1 of 1)

Drilling Co.	: H&P	Field Location	:
Drilling Rig	:	Date	: 2/12/04
Drilling Method	: Hand Auger	Logged By	: G. Sena
Sampling Method	:	Total Depth of Boring	: 16
Hammer Weight (lbs.)	:	Diameter of Boring	: 4"
Hammer Drop (in.)	:	Backfill Material	:
Depth to Groundwater	: NA		
Vapor Meter	:		
Surf. Seal Material	: Concrete		

MTA
Division 6

Project No. 4525.03.0096

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~10" concrete slab Possible concrete slab below surface concrete pavement. Abandon location.
								Total depth of boring: 1 feet Stopped boring due to refusal.
5								
10								
15								
20								

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-2.bor

MACTEC

LOG OF BORING MB-3

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 2/12/04
Logged By : G. Sena
Total Depth of Boring : 16
Diameter of Boring : 2-4"
Backfill Material : Bentonite

Drilling Co. : H&P
Drilling Rig : Geoprobe
Drilling Method : Direct Push & Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater : 24.4'
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~9" concrete pavement
	■					SW		GRAVELLY SAND, 10YR 3/3, dark brown, 70% sand, dense, dry, ~30% gravel, gravel up to 2"
	■							CLEAN SAND, 10YR 5/6, yellowish brown, 100% sand, medium dense, damp
5	■							same as above
10	■							same as above
15	■					CL		CLAY, 10YR 4/3, brown, stiff, damp, ~100% clay
20						SC		SAND with CLAY, 10YR 4/3, brown, 80% sand, dense, moist, ~20% clay
25								
30								
35								
40								

Tip driven down: 36 feet
Total depth of boring: 36 feet.
Groundwater encountered at 24.4 feet.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

BDV

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-3.bor

MACTEC

LOG OF BORING MB-4

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								10" concrete pavement
	■					AF		Artificial fill, 10YR 4/2, dark grayish brown, sand and large brick fragments, very dense, dry
	■							very large brick fragments
5	■					SW		CLEAN SAND, 10YR 3/4, dark yellowish brown, ~100% sand, dense, damp
10	■					CL		SANDY CLAY, 10YR 3/3, dark brown, ~15% coarse-grained sand, hard, damp, 85% clay
15	■							CLAY, 10YR 3/3, dark brown, trace sand, medium stiff, damp, ~95% clay
								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.
20								

DDV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-5

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								10" concrete pavement
						SP		GRAVELLY SAND, 10YR 5/6, yellowish brown, ~85% sand, very dense, damp, ~15% coarse gravel
						SW		CLEAN SAND, 10YR 5/6, yellowish brown, 100% sand, dense, damp
5								same as above
10						CL		CLAY with SAND, 10YR 4/3, brown, ~10% sand, stiff, damp, 90% clay
15								increasing coarse-grained sand content, dry
20								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.

DDV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-6

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete pavement
						SP		GRAVELLY SAND, 10YR 4/2, dark grayish brown, 75% sand, dense, dry, ~25% coarse gravel, trace silt
5						SW		CLEAN SAND, 10YR 5/6, yellowish brown, ~100% sand, dense, dry,
10						CL		SILTY CLAY, 10YR 3/2, very dark grayish brown, ~20% silt, 80% clay, medium stiff, damp
15								increasing sand content

Total depth of boring: 16 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

20

DBV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-6.bor

MACTEC

LOG OF BORING MB-7A

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 2/10/04
Logged By : G. Sena
Total Depth of Boring : 16
Diameter of Boring : 4"
Backfill Material : Bentonite

Drilling Co. :
Drilling Rig :
Drilling Method : Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater : NA
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								10" concrete pavement
						SP		SAND with GRAVEL, 10YR 4/4, dark yellowish brown, 90% fine- to medium-grained sand, medium dense, damp, ~10% coarse gravel
								same as above
								Terminated boring at 3.5 feet due to refusal. Backfilled with bentonite.
5								
10								
15								
20								

California Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-7B

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								10" concrete pavement
						GP		SANDY GRAVEL, 7.5YR 3/3, dark brown, ~40% sand, dense, 60% gravel
						SW		CLEAN SAND, 10YR 4/6, dark yellowish brown, 100% sand, dense, damp
5								same as above
10								same as above
15								same as above
20								

Total depth of boring: 16 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-7B.bor

MACTEC

LOG OF BORING MB-8

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/10/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite
Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete pavement
	■					SP		GRAVELLY SAND, 10YR 4/4, dark yellowish brown, 70% sand, dense, damp, ~30% gravel
	■					SW		CLEAN SAND, 10YR 5/6, yellowish brown, ~100% sand, medium dense, damp
5	■							same as above
10	■							same as above
15	■							same as above
20								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.

DDV

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-8.bor

MACTEC

LOG OF BORING MB-9

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/10/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete pavement
						SP		GRAVELLY SAND, 10YR 2/2, very dark brown, 80% sand, dense to very dense, damp, ~20% fine to medium gravel
						SW		SAND, 10YR 4/4, dark yellowish brown, 100% sand, medium dense, damp
5								same as above
10								increasing moisture content
15						CL		CLAY, 10YR 2/2, very dark brown, trace sand, medium stiff, moist, 95% clay
20								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.

CCalifornia Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-10

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/10/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								9" concrete pavement
	■					SP		GRAVELLY SAND, 10YR 2/2, very dark brown, 80% sand, medium dense, damp, ~20% fine to medium gravel
	■					SW		SAND, 10YR 6/4, light yellowish brown, 100% fine- to medium-grained sand, loose to medium dense, damp
5	■							same as above
10	■							same as above
15	■					SC		CLAYEY SAND, 10YR 3/3, dark brown, 75% sand, ~25% clay, dense, moist to wet
20								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.

DDV

CCCalifornia Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-11

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/12/04
Logged By	: G. Sena
Total Depth of Boring	: 21
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: 26.6'
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								12" concrete pavement
	■					GP		SANDY GRAVEL, 10YR 3/3, dark brown, ~20% sand, very dense, damp, 80% coarse gravel
	■					SW		CLEAN SAND, 10YR 5/6, yellowish brown, ~100% sand, medium dense, damp
5	■							same as above
10	■							same as above
						CL		CLAY, 10YR 3/2, very dark grayish brown, trace sand, very stiff, damp, ~95% clay
15	■					SW		CLEAN SAND, 10YR 5/6, yellowish brown, ~100% sand, medium dense, damp
20	■					CL		CLAY with SAND, 10YR 3/2, very dark grayish brown, ~15% sand, 85% clay, stiff to very stiff, damp
25								
30								
35								
40								

Tip driven down 36 feet
Total depth of boring: 36 feet.
Groundwater encountered at 26.6 feet.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

DDV

CCalifornia Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-12

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/10/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								9" concrete pavement
	■					GP		SANDY GRAVEL, 10YR 3/3, 40% sand, loose, damp, ~60% fine gravel
						SP		SAND, 10YR 6/4, light yellowish brown, ~100% fine- to medium-grained sand, loose, damp
	■							same as above
5	■							same as above
10	■							same as above
15	■					SP		GRAVELLY SAND, 10YR 4/6, dark yellowish brown, ~80% sand, medium dense, moist, 20% fine gravel
20								

Total depth of boring: 16 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

DDV

CCCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-12.bor

MACTEC

MTA
Division 6

Project No. 4525.03.0096

LOG OF BORING MB-13

(Page 1 of 1)

Field Location	:
Date	: 2/10/04
Logged By	: G. Sena
Total Depth of Boring	: 16
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								7" concrete pavement
	■					SW		SAND, 10YR 6/4-5/4, light yellowish brown, ~100% sand, medium dense, moist
	■							same as above
5	■							same as above
10	■							same as above
15	■					SC		CLAYEY SAND, 10YR 3/3, dark brown, 75% sand, dense, moist to wet, ~25% clay
20								

Total depth of boring: 16 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO 60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-13.bor

MACTEC

LOG OF BORING MB-14

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
						SW		CLEAN SAND, 10YR 4/6, dark yellowish brown, ~100% sand, dense, damp to moist
								same as above
5								same as above
10								same as above
15								
20								

Total depth of boring: 11 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

DDV

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-14.bor

MACTEC

LOG OF BORING MB-15

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
	■					SW		CLEAN SAND, 10YR 4/6, dark yellowish brown, ~100% sand, dense, damp to moist
	■							same as above
5	■							same as above
10	■							same as above
15								Total depth of boring: 11 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.
20								

DDV

CCCalifornia Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-16

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
	■							CLEAN SAND, 10YR 4/6, dark yellowish brown, ~100% sand, dense, damp to moist
	■							same as above
5	■					SW		same as above
10	■							same as above
								Total depth of boring: 11 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.
15								
20								

ODV

CCalifornia Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-17

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:	Drilling Co.	: H&P
Date	: 2/11/04	Drilling Rig	: Geoprobe
Logged By	: G. Sena	Drilling Method	: Direct Push & Hand Auger
Total Depth of Boring	: 28'	Sampling Method	:
Diameter of Boring	: 2-4"	Hammer Weight (lbs.)	:
Backfill Material	: Bentonite	Hammer Drop (in.)	:
		Depth to Groundwater	: NA
		Vapor Meter	:
		Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0	■					AR		ARTIFICIAL FILL, 7.5YR 3/3, very dark brown, 60% sand, ~20% silt, 20% fine to coarse gravel
	■					ML		SANDY SILT, 7.5YR 3/4, dark brown, 85% sand, dense, damp, ~15% silt
5	■ ■ ■					SW		CLEAN SAND, 10YR 4/4, dark yellowish brown, dense, damp, trace fragments of very dark green, 10YR 2/2, fibrous wood (possibly wood from rail-road ties)
10	■					SC		CLAYEY SAND, 10YR 3/3, dark brown, 80% fine-grained sand, dense, damp,~20% clay, grading down to fine-grained sand or silt traces of coarse gravel up to 2" diameter, increasing fines to silty sand
15	■					SW		SAND, 10YR 4/4, dark yellowish brown, ~100% sand, dense, damp
						SP		SAND with GRAVEL, 10YR 5/6, yellowish brown, 80% coarse-grained sand, very dense, damp, ~20% gravel, gravel up to ~1" diameter
20						SM		SILTY SAND, 10YR 4/4, dark yellowish brown, 70% fine-grained sand, loose, dry, ~30% silt
						SP		GRAVELLY SAND, 10YR 6/5, brownish yellow, 60% coarse-grained sand, very dense, damp, ~30-40% medium gravel
25						SM		grades downward, less gravel
						SP		SILTY SAND, 10YR 4/4, dark yellowish brown, 70% fine-grained sand, loose, dry, ~30% silt
								SAND, 10YR 4/4, dark brownish yellow, coarse-grained sand, very dense, wet, trace gravel
30								Total depth of boring: 28 feet. No groundwater encountered. No caving. Backfilled with bentonite. First 5 feet hand augered.
35								
40								

DDV

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-17.bor

MACTEC

LOG OF BORING MB-18

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 2/13/04
Logged By : G. Sena
Total Depth of Boring : 4'
Diameter of Boring : 2-4"
Backfill Material : Bentonite

Drilling Co. :
Drilling Rig :
Drilling Method : Direct Push & Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater : NA
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								10" concrete pavement
						AF		ARTIFICIAL FILL, brick fragments, very dense, dry, concrete
						SW		CLEAN SAND, 10YR 5/4, yellowish brown, 100% sand, medium dense, damp very dense
5								
10								

Total depth of boring: 4 feet.
No groundwater encountered.
No caving.
Backfilled with bentonite.
First 5 feet hand augered.

DDV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-19

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 28'
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	: H&P
Drilling Rig	: Geoprobe
Drilling Method	: Direct Push & Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: 26'
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								10" concrete pavement
						SP		GRAVELLY SAND, 10YR 4/3, 5/4, brown to yellowish brown, 65% sand, very dense, damp, 65% sand, trace silt, ~30% coarse gravel
5						SW		CLEAN SAND, 10YR 5/4, yellowish brown, ~100% medium-grained sand, dense, damp to moist
						CL		SANDY CLAY, 10YR 3/3, dark brown, ~25-30% fine-grained sand, medium to stiff, very moist, 70% clay
	■					SP		SAND, 10YR 5/4, yellowish brown, coarse-grained sand, hard, very dry
10						SW		CLEAN SAND, 10YR 5/4, yellowish brown, ~100% sand, medium dense, moist
						SC		CLAYEY SAND, 10YR 4/3, brown, ~80% coarse-grained sand, dense, damp, ~20% clay
15						SP		SAND, 10YR 4/3, dark yellowish brown, ~50% sand, loose, moist, trace clays and silt increasing fines content, trace coarse gravel
20						SW		CLEAN SAND, 10YR 5/4, yellowish brown, ~100% sand, dense, damp coarse-grained sand, trace small (fine) gravel, moist
25	■							coarse-grained sand, saturated, trace fine gravel
30								Total depth of boring: 28 feet. Groundwater encountered at 26 feet. No caving. Backfilled with bentonite. First 5 feet hand augered.
35								
40								

DDV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-21

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 4"
Backfill Material	: Cuttings

Drilling Co.	:
Drilling Rig	:
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
	■					SW		CLEAN SAND, 10YR 4/6, dark yellowish brown, ~100% sand, dense, damp to moist
	■							same as above
5	■							same as above
10	■							same as above
15								
20								

Total depth of boring: 11 feet.
No groundwater encountered.
No caving.
Backfilled with cuttings.

DDV

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-21.bor

MACTEC

LOG OF BORING MB-22

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 4"
Backfill Material	: Cuttings

Drilling Co.	:
Drilling Rig	:
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
						SW		CLEAN SAND, 10YR 4/6, dark yellowish brown, ~100% sand, dense, damp to moist
								same as above
5								same as above
10								same as above
15								
20								

Total depth of boring: 11 feet.
No groundwater encountered.
No caving.
Backfilled with cuttings.

CCalifornia Registered Geologist No. 6313

MACTEC

MTA
Division 6

Project No. 4525.03.0096

LOG OF BORING MB-23

(Page 1 of 1)

Field Location	:
Date	: 2/13/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 4"
Backfill Material	: Cuttings

Drilling Co.	:
Drilling Rig	:
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
						SW		CLEAN SAND, 10YR 4/6, dark yellowish brown, ~100% sand, dense, damp to moist
								same as above
5								same as above
10								same as above
								Total depth of boring: 11 feet. No groundwater encountered. No caving. Backfilled with cuttings.
15								
20								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-23.bor

MACTEC

LOG OF BORING MB-24

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 2/13/04
Logged By : G. Sena
Total Depth of Boring : 11
Diameter of Boring : 4"
Backfill Material : Cuttings

Drilling Co. :
Drilling Rig :
Drilling Method : Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater : NA
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
						SW		CLEAN SAND, 10YR 4/6, dark yellowish brown, ~100% sand, dense, damp to moist
								same as above
5								same as above
10								same as above

Total depth of boring: 11 feet.
No groundwater encountered.
No caving.
Backfilled with cuttings.

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-24.bor

MACTEC

LOG OF BORING MB-25

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 4"
Backfill Material	: Cuttings

Drilling Co.	:
Drilling Rig	:
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~10" concrete pavement
						SW		CLEAN SAND, 10YR 4/4, dark yellowish brown, ~100% sand, dense, damp
								same as above
5								same as above
10								same as above
15								
20								

Total depth of boring: 11 feet.
No groundwater encountered.
No caving.
Backfilled with cuttings.

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-25.bor

MACTEC	LOG OF BORING MB-26 (Page 1 of 1)	Drilling Co. : Drilling Rig : Drilling Method : Hand Auger Sampling Method : Hammer Weight (lbs.) : Hammer Drop (in.) : Depth to Groundwater : NA Vapor Meter : Surf. Seal Material : Concrete
MTA Division 6 Project No. 4525.03.0096	Field Location : Date : 2/11/04 Logged By : G. Sena Total Depth of Boring : 11 Diameter of Boring : 4" Backfill Material : Cuttings	

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~10" concrete pavement
						SW		CLEAN SAND, 10YR 4/6, dark yellowish brown, ~100% sand, dense, damp
								same as above
5								same as above
10								same as above
15								
20								

Total depth of boring: 11 feet.
No groundwater encountered.
No caving.
Backfilled with cuttings.

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-26.bor

MACTEC

LOG OF BORING MB-27

(Page 1 of 1)

Drilling Co.	:
Drilling Rig	:
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 4"
Backfill Material	: Cuttings

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~10" concrete pavement
						SW		CLEAN SAND, 10YR 5/6, dark yellowish brown, ~100% sand, medium dense, moist
								same as above
5								same as above
10								increasing moisture content
15								
20								

Total depth of boring: 11 feet.
No groundwater encountered.
No caving.
Backfilled with cuttings.

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-27.bor

MACTEC

LOG OF BORING MB-28

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 4"
Backfill Material	: Cuttings

Drilling Co.	:
Drilling Rig	:
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~7" concrete pavement
						SW		CLEAN SAND, 7.5YR 5/6, strong brown, ~100% sand, medium dense, damp
								same as above
5								same as above
10								increasing moisture content
								Total depth of boring: 11 feet. No groundwater encountered. No caving. Backfilled with cuttings.
15								
20								

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-28.bor

MACTEC

LOG OF BORING MB-29

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/11/04
Logged By	: G. Sena
Total Depth of Boring	: 11
Diameter of Boring	: 4"
Backfill Material	: Cuttings

Drilling Co.	:
Drilling Rig	:
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: NA
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~7-8" concrete pavement
	■					SW		CLEAN SAND, 10YR 4/4, dark yellowish brown, ~100% sand, medium dense, damp
	■					SW		same as above
5	■					SW		same as above
10	■					SW		same as above
								Total depth of boring: 11 feet. No groundwater encountered. No caving. Backfilled with cuttings.
15								
20								

CCalifornia Registered Geologist No. 6313

MACTEC	LOG OF BORING MB-30 (Page 1 of 1)	Drilling Co. : Drilling Rig : Drilling Method : Hand Auger Sampling Method : Hammer Weight (lbs.) : Hammer Drop (in.) : Depth to Groundwater : NA Vapor Meter : Surf. Seal Material : Concrete
MTA Division 6	Field Location : Date : 2/11/04 Logged By : G. Sena Total Depth of Boring : 6' Diameter of Boring : 4" Backfill Material : Cuttings	
Project No. 4525.03.0096		

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete pavement
	■							CLEAN SAND, 10YR 4/4, dark yellowish brown, ~100% sand, dense, damp
	■					SW		same as above
5	■							same as above
								Total depth of boring: 6 feet. No groundwater encountered. No caving. Backfilled with cuttings. Terminated at 6 feet due to refusal.
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-30.bor

MACTEC

LOG OF BORING MB-31

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/12/04
Logged By	: G. Sena
Total Depth of Boring	: 21
Diameter of Boring	: 2-4"
Backfill Material	: Bentonite

Drilling Co.	:
Drilling Rig	:
Drilling Method	: Hand Auger & Direct Push
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: 26.1'
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
	■					SP		SAND with GRAVEL, 7.5YR 5/6, 80% sand, medium dense, damp, ~20% small gravel, grades into clean sand
	■							CLEAN SAND, 7.5YR 5/6, strong brown, 100% sand, dense, damp
5	■							same as above
10	■					SW		same as above
15	■							decreasing moisture content, some calcium carbonate
20	■					CL		CLAY, 10YR 2/2, very dark brown, trace sand, hard, damp, 95% clay
25								
30								
35								Tip driven down 35 feet
40								

Total depth of boring: 35 feet.
Groundwater encountered at 26.1 feet.
No caving.
Backfilled with bentonite.

California Registered Geologist No. 6313

MACTEC

LOG OF BORING MB-32

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 2/11/04
Logged By : G. Sena
Total Depth of Boring : 16
Diameter of Boring : 2-4"
Backfill Material : Bentonite

Drilling Co. :
Drilling Rig :
Drilling Method : Hand Auger & Direct Push
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater : NA
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								12" concrete pavement
	■					GW		GRAVEL, dark yellowish brown, trace sand, very dense, damp
	■					SW		CLEAN SAND, 10YR 5/8, yellowish brown, ~100% sand, dense, damp
5	■							same as above
10	■					SW		same as above
15	■							same as above
20								Total depth of boring: 16 feet. No groundwater encountered. No caving. Backfilled with bentonite.

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\MB-32.bor

MACTEC

LOG OF BORING MB-33

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 2/12/04
Logged By	: G. Sena
Total Depth of Boring	: 36'
Diameter of Boring	: 2-4"
Backfill Material	: Cuttings & Bentonite

Drilling Co.	:
Drilling Rig	:
Drilling Method	: Hand Auger & Direct Push
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	: 26'
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								~8" concrete pavement
						SW		~1" thick layer small gravel CLEAN SAND, 10YR 5/6, yellowish brown, 100% sand, dense, damp
5	■							same as above
10	■							same as above
15	■					CL		CLAY with SAND, 10YR 3/3, dark brown, ~15% coarse-grained sand, very hard, damp, 85% clay
20	■					SW		CLEAN SAND, 10YR 5/6, yellowish brown, 100% sand, loose to medium dense, damp
25								
30								
35								
40								Tip driven down to 36 feet. Total depth of boring: 36 feet. Groundwater encountered at 26 feet. No caving. Backfilled with cuttings and bentonite.

California Registered Geologist No. 6313

MACTEC

LOG OF BORING SV-1

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/28/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								Red BRICK augered through at 2 feet
			0					SAND, brown, fine-grained sand, moist
					SV1-4'			
5					SV1-4.5'			
						SP		
					~~SV1-8'~~			
								Total depth of boring: 8 feet
10								

DBV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-1.bor

MACTEC

LOG OF BORING SV-2

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 1/28/04
Logged By : D. DeVries
Total Depth of Boring : 8'
Diameter of Boring :
Backfill Material :

Drilling Co. : H&P
Drilling Rig : Direct Push
Drilling Method : Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater :
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, brown, fine-grained sand, with some medium-grained sand, moist, fine gravel and chuncks of asphalt
			0					
					SV2-4'			
5					SV2-4.5'	SP		
					SV2-8'			
								Total depth of boring: 8 feet
10								

DDV

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-2.bor

MACTEC

LOG OF BORING SV-4

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/28/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete at surface
								1 foot dense base material (angular gravel as seen in most others also)
								SAND, dark brown, fine-grained sand, moist, with occasional gravel (1/4" to 1/2" diameter)
3			0					
4–5					SV4-4'			
					SV4-4.5'	SP		
5								
8					SV4-8'			
								Total depth of boring: 8 feet
10								

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-4.bor

MACTEC

LOG OF BORING SV-5

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, dark brown, fine-grained sand, with some silt strong odor in soil
			55					
					SV5-4'			
5					SV5-4.5'	SP		
					SV5-8'			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING SV-6

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, dark reddish brown, fine-grained sand, moist, with occasional gravel to 1/2" diameter
			0					
					SV6-4'			
5					SV6-4.5'	SP		
					~~SV6-8'~~			
								Total depth of boring: 8 feet
10								

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-6.bor

MACTEC

LOG OF BORING SV-7

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 1/28/04
Logged By : D. DeVries
Total Depth of Boring : 8'
Diameter of Boring :
Backfill Material :

Drilling Co. : H&P
Drilling Rig : Direct Push
Drilling Method : Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater :
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								5" base
								SAND, brown, fine-grained sand, moist
			0					
					SV7-4'			
5					SV7-4.5'	SP		
					~~SV7-8'~~			
								Total depth of boring: 8 feet
10								

ADV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-7.bor

MACTEC

LOG OF BORING SV-8

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/28/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								SAND, brown, moist, with gravel up to 3/4:
			0					no odor
								petroleum odor noticed in soils samples
					SV8-4'	SP		
5					SV8-4.5'			
					~~SV8-8'~~			
								Total depth of boring: 8 feet
10								

ADV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-8.bor

MACTEC

LOG OF BORING SV-9

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/28/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, brown, fine-grained sand, moist
			0					
								large rock
					SV9-4'			
5					SV9-4.5'	SP		
					SV9-8'			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-9.bor

MACTEC

MTA
Division 6

Project No. 4525.03.0096

LOG OF BORING SV-10

(Page 1 of 1)

Field Location	:
Date	: 1/28/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, brown, fine-grained sand, moist, with occasional fine gravel to 1/2" diameter
			0					
					SV10-4'			
5					SV10-4.5'	SP		
					SV10-8'			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING SV-11

(Page 1 of 1)

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/28/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, brown, moist, with bricks, wood, degraded plaster (construction debri)
			0					
					SV11-4'			
5					SV11-4.5'	SP		
					~~SV11-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-11.bor

MACTEC

LOG OF BORING SV-12

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, brown, fine-grained sand, moist
3			0					
4–5					SV12-4' SV12-4.5'	SP		
8					~~SV12-8'~~			
								Total depth of boring: 8 feet
10								

DBV

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-12.bor

MACTEC

LOG OF BORING SV-13

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/30/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
					SV13-4'			
5					SV13-4.5'	SP		
					~~SV13-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-13.bor

MACTEC

LOG OF BORING SV-14

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, brown, fine-grained sand, moist
3			0					
4					SV13-4'			
5					SV13-4.5'	SP		
8					~~SV13-8'~~			
								Total depth of boring: 8 feet
10								

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-14.bor

MACTEC

LOG OF BORING SV-15

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								6" concrete
								SAND, light brown, fine-grained sand, moist
			0					
					SV15-4'	SP		
5					SV15-4.5'			
					~~SV15-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-15.bor

MACTEC

LOG OF BORING SV-16

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 1/29/04
Logged By : D. DeVries
Total Depth of Boring : 8'
Diameter of Boring :
Backfill Material :

Drilling Co. : H&P
Drilling Rig : Direct Push
Drilling Method : Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater :
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND
3			0					
					SV16-4'			
5					SV16-4.5'	SP		
8					SV16-8'			
								Total depth of boring: 8 feet
10								

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-16.bor

MACTEC

MTA
Division 6

Project No. 4525.03.0096

LOG OF BORING SV-17

(Page 1 of 1)

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, reddish brown, moist
3			0					
					SV17-4'			
5					SV17-4.5'	SP		
8					~~SV17-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-17.bor

MACTEC

LOG OF BORING SV-18

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 1/29/04
Logged By : D. DeVries
Total Depth of Boring : 8'
Diameter of Boring :
Backfill Material :

Drilling Co. : H&P
Drilling Rig : Direct Push
Drilling Method : Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater :
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND
3			0					
4					SV18-4'			
5					SV18-4.5'	SP		
8					~~SV18-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-18.bor

MACTEC

LOG OF BORING SV-19

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 1/30/04
Logged By : D. DeVries
Total Depth of Boring : 8'
Diameter of Boring :
Backfill Material :

Drilling Co. : H&P
Drilling Rig : Direct Push
Drilling Method : Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater :
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
					SV19-4'			
5					SV19-4.5'	SP		
					~~SV19-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-19.bor

MACTEC

LOG OF BORING SV-20

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
					SV20-4'			
5					SV20-4.5'	SP		
					~~SV20-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-20.bor

MACTEC

LOG OF BORING SV-21

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist, with occoasional gravel to 1/2" diameter
			0					
					SV21-4'			
5					SV21-4.5'	SP		
					~~SV21-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING SV-22

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
					SV22-4'			
5					SV22-4.5'	SP		
8					~~SV22-8'~~			
								Total depth of boring: 8 feet
10								

ODV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-22.bor

MACTEC

LOG OF BORING SV-23

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/30/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, brown, fine-grained sand, moist
			0					
					SV23-4'			
5					SV23-4.5'	SP		
					SV23-8'			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-23.bor

MACTEC

LOG OF BORING SV-24

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/28/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, loose, moist
			0					
					SV24-4'			
5					SV24-4.5'	SP		
					~~SV24-8'~~			
								Total depth of boring: 8 feet
10								

California Registered Geologist No. 6313

MACTEC

LOG OF BORING SV-25

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/29/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light yellowish brown, fine-grained sand, moist
3			0					
4–5					SV25-4' SV25-4.5'	SP		
8					SV25-8'			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-25.bor

MACTEC

LOG OF BORING SV-26

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/30/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
					SV26-4'			
5					SV26-4.5'	SP		
					~~SV26-8'~~			
								Total depth of boring: 8 feet
10								

DDV

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-26.bor

MACTEC

LOG OF BORING SV-27

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/30/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
					SV27-4'			
5					SV27-4.5'	SP		
					~~SV27-8'~~			
								Total depth of boring: 8 feet
10								

BDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-27.bor

MACTEC

LOG OF BORING SV-28

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/30/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
					SV28-4'			
5					SV28-4.5'	SP		
					~~SV28-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

MACTEC

LOG OF BORING SV-29

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/30/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
					SV29-4'			
5					SV29-4.5'	SP		
					~~SV29-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-29.bor

MACTEC

LOG OF BORING SV-30

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/30/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, brown, fine-grained sand, moist
			0					
					SV30-4'			
5					SV30-4.5'	SP		
					~~SV30-8'~~			
								Total depth of boring: 8 feet
10								

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-30.bor

MACTEC

LOG OF BORING SV-31

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 1/29/04
Logged By : D. DeVries
Total Depth of Boring : 8'
Diameter of Boring :
Backfill Material :

Drilling Co. : H&P
Drilling Rig : Direct Push
Drilling Method : Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater :
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
					SV31-4'			
5					SV31-4.5'	SP		
					~~SV31-8'~~			
								Total depth of boring: 8 feet
10								

DDV

CCalifornia Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-31.bor

MACTEC

LOG OF BORING SV-32

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/30/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown to brown, fine-grained sand, moist
			0					
5					SV32-4' SV32-4.5'	SP		
					~~SV32-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-32.bor

MACTEC

LOG OF BORING SV-33

(Page 1 of 1)

MTA
Division 6

Project No. 4525.03.0096

Field Location :
Date : 1/30/04
Logged By : D. DeVries
Total Depth of Boring : 8'
Diameter of Boring :
Backfill Material :

Drilling Co. : H&P
Drilling Rig : Direct Push
Drilling Method : Hand Auger
Sampling Method :
Hammer Weight (lbs.) :
Hammer Drop (in.) :
Depth to Groundwater :
Vapor Meter :
Surf. Seal Material : Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown to brown, fine-grained sand, moist
			0					
					SV33-4'			
5					SV33-4.5'	SP		
					~~SV33-8'~~			
								Total depth of boring: 8 feet
10								

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLAMTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-33.bor

MACTEC

LOG OF BORING SV-34

MTA
Division 6

Project No. 4525.03.0096

Field Location	:
Date	: 1/30/04
Logged By	: D. DeVries
Total Depth of Boring	: 8'
Diameter of Boring	:
Backfill Material	:

Drilling Co.	: H&P
Drilling Rig	: Direct Push
Drilling Method	: Hand Auger
Sampling Method	:
Hammer Weight (lbs.)	:
Hammer Drop (in.)	:
Depth to Groundwater	:
Vapor Meter	:
Surf. Seal Material	: Concrete

Depth in Feet	Samples	Blows/ft.	Vapor Conc. (ppm)	Sample Type	Sample ID	USCS	GRAPHIC	DESCRIPTION
0								8" concrete
								base material
								SAND, light brown, fine-grained sand, moist
			0					
5					SV34-4'			
					SV34-4.5'	SP		
					~~SV34-8'~~			
10								Total depth of boring: 8 feet

DDV

California Registered Geologist No. 6313

04-15-2004 P:\HLA\MTA\CWO-60 Div 6 Site Inv. & RAP\Phase 2 Report\Boring Logs\4525-03-0096\SV-34.bor

D8 – Final Report-

Streamlined Risk Assessment

MACTEC,

August 17, 2004

FINAL REPORT

STREAMLINED RISK ASSESSMENT

MTA DIVISION 6
100 SUNSET AVENUE
VENICE, CALIFORNIA

Prepared for:

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

One Gateway Plaza
Los Angeles, California 90012-1009

August 17, 2004

MACTEC

MACTEC

August 17, 2004

Dr. Emmanuel Liban, Ph.D.
Senior Environmental Specialist
Metropolitan Transportation Authority
One Gateway Plaza, Mail Stop 99-17-2
Los Angeles, California 90012-1009

Subject: **LETTER OF TRANSMITTAL**
Final Report, Streamlined Risk Assessment
MTA Division 6 Maintenance Facility and Bus Yard
100 Sunset Avenue
Venice, California
MACTEC Project 4525-03-0096

Dear Dr. Liban:

Attached is the final Streamlined Risk Assessment report for the above-referenced site. The basic outline of the Cal/EPA Preliminary Endangerment Assessment has been followed because it is a commonly-accepted format for risk-based property assessment.

MACTEC professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable environmental consultants practicing in this or similar localities at the time of service. This warranty is in lieu of all other warranties, expressed or implied. This report has been prepared for MTA to be used solely in evaluating potential environmental implications at the subject site. The report has not been prepared for use by other parties and may not contain sufficient information for purposes of other parties or other uses.

We appreciate the opportunity to work with you on this project. Please contact us if you have any questions or if we may be of further service.

Respectfully submitted,
MACTEC Engineering and Consulting, Inc.

Larry R. Froebe

Larry R. Froebe, Ph.D., R.E.A.
Senior Principal Scientist
Risk Assessment & Toxicology

Dave J DeVries

David J. DeVries, R.G., C.H.G., R.E.A.
Principal Hydrogeologist
Project Manager

REGISTERED GEOLOGIST
DAVID J. DeVRIES
No. 6313
Exp. 4-30-05
STATE OF CA

LRF/DJD:lrf

cc: MACTEC Project File No. 4525030096

FINAL REPORT
STREAMLINED RISK ASSESSMENT

MTA DIVISION 6
100 SUNSET AVENUE
VENICE, CALIFORNIA

Prepared for:

LOS ANGELES COUNTY
METROPOLITAN TRANSPORTATION AUTHORITY

One Gateway Plaza
Los Angeles, California 90012-1009

MACTEC Engineering and Consulting, Inc.

Irvine, California

August 17, 2004

Project 4525-03-0096

FOREWORD

This streamlined risk assessment report should be considered a companion document to the Draft Phase II Environmental Site Assessment for the Metropolitan Transportation Authority Division 6 Maintenance Facility and Bus Yard, located at 100 Sunset Avenue in Venice, California dated March 5, 2004, and the Phase I Environmental Site Assessment, dated March 5, 2004, for the same property.

The function of this report is to provide an assessment of the Phase II data with regard to protection of human health and the environment and to support environmental decision- making. The Phase I and Phase II reports along with this report provide a logical progression in the identification of potential environmental impact on and under the property; the identification and selection of chemicals of potential concern (COPCs); the determination of representative concentrations of those COPCs; and the preparation of a risk-based evaluation for residuals of COPCs in environmental media on the property that may require remedial action or a substantiated recommendation for no further action.

ACKNOWLEDGEMENTS

The environmental site assessment (ESA) of the Metropolitan Transportation Authority (MTA) Division 6 property has a unique aspect. A business arrangement for transfer of the property requires that milestones in the ESA be met according to a fixed schedule. Ordinarily, closure of the environmental investigation cannot be tightly timed because of the review time required by the administering agency.

The LARWQCB has agreed to consider closure of the Site under the Underground Storage Tank (UST) program. If the results of the environmental investigation indicate that closure based on the investigation of the USTs and related areas of the Site is not appropriate, closure based on review by the Spills, Leaks, Investigations, and Cleanup (SLIC) unit of LARWQCB will be conducted.

TABLE OF CONTENTS

1.0 INTRODUCTION 1-1
1.1 THE STREAMLINED RISK ASSESSMENT APPROACH 1-2
1.2 ORGANIZATION OF THE REPORT 1-3

2.0 SITE DESCRIPTION 2-1
2.1 SITE HISTORY 2-1
2.1.1 Historical Activities 2-1
2.1.2 Current Activities 2-1
2.2 GEOLOGIC SETTING AND GROUNDWATER DESCRIPTION 2-2
2.2.1 Geologic Setting 2-2
2.2.2 Groundwater Description 2-3

3.0 BACKGROUND 3-1
3.1 PREVIOUS ENVIRONMENTAL INVESTIGATIONS ON THE SITE 3-1
3.2 GROUNDWATER MONITORING 3-1
3.2.1 Identification of Need for Groundwater Monitoring 3-1
3.2.2 UST Case 3-2

4.0 APPARENT PROBLEM 4-1

5.0 ENVIRONMENTAL SETTING 5-1
5.1 CONCEPTUAL SITE MODEL (CSM) 5-1
5.2 POTENTIAL EXPOSURE PATHWAYS 5-2
5.2.1 CSM Environmental Media and Pathways 5-2
5.2.2 CSM Summary 5-4
5.3 POTENTIAL RECEPTORS 5-4
5.3.1 Adult Workers in Commercial-Industrial Land Use 5-5
5.3.2 Adults and Children in Residential Land Use 5-5
5.3.3 Adult Workers in Construction Activities 5-5

6.0 SAMPLING ACTIVITIES AND RESULTS 6-1
6.1 SELECTION OF THE CHEMICALS OF POTENTIAL CONCERN 6-1
6.1.1 Volatile Organic Chemicals (VOCs) in Soil 6-1
6.1.2 Semi-Volatile Organic Chemicals (SVOCs) in Soil 6-5
6.1.3 Metals in Soil 6-9
6.1.4 Petroleum Hydrocarbons 6-10
6.1.5 All Chemicals in Groundwater 6-11

7.0 STREAMLINED RISK ASSESSMENT FOR HUMAN HEALTH PROTECTION 7-1
7.1 EXPOSURE AND RISK 7-1
7.2 UNCERTAINTIES IN THE RISK ASSESSMENT 7-1

8.0 ECOLOGICAL SCREENING EVALUATION 8-1

9.0 COMMUNITY PROFILE 9-1
9.1 LAND USE SURROUNDING THE FACILITY.................................... 9-1
9.2 COMMUNITY RELATIONS 9-1

10.0 CONCLUSIONS AND LIMITATIONS 10-1
10.1 CONCLUSIONS 10-1
10.2 LIMITATIONS 10-2

11.0 REFERENCES 11-1

TABLES

FIGURES

APPENDIX A: STREAMLINED RISK ASSESSMENT TECHNIQUES AND METHODOLOGY

APPENDIX B: TOTAL PETROLEUM HYDROCARBON CHEMICALS OF POTENTIAL CONCERN

APPENDIX C: COMPARISON OF EXPOSURE SCENARIOS IN STREAMLINED RISK ASSESSMENT

LIST OF TABLES

Table

1 Soil Vapor Analytical Results

2 Soil Analytical Results

3 Title 22 Metals Soil Analytical Results

4 Groundwater Analytical Results

5 Title 22 Metals Groundwater Analytical Results

6 Historical Soil Data

7 Soil Carbon Range Analytical Results

LIST OF FIGURES

Figure

1 Site Location Map
2 Conceptual Site Model
3 Site Plan

EXECUTIVE SUMMARY

The environmental investigation of the underground storage tank installation at the Los Angeles County Metropolitan Transportation Authority (MTA) Division 6 facility (Site) has been complemented with a Phase I and Phase II investigation for the other portions of the Site. The objective is to obtain concurrence of the Los Angeles Regional Water Quality Control Board (LARWQCB) Underground Storage Tank (UST) Program for the remedial action recommendations and approach to be developed based on evaluation of prior investigation and the Phase I and Phase II investigation results. The property is planned for redevelopment as residential multi-unit housing, so various environmental conditions for protection of human health, including a residential land use exposure scenario, were evaluated using a risk-based approach. This report constitutes a streamlined risk assessment of the Phase II results that may be used to support environmental decision-making in developing the remedial action approach.

As a basis for final evaluation of the property, the preliminary conceptual site model (PCSM) from the risk assessment work plan was updated as a final conceptual site model (CSM) based on the results of the Phase II investigation. The results indicated that for both current and future land use, the paving, buildings, and landscaping effectively preclude exposure pathways via surface soil, including inhalation of volatiles and entrained fugitive dust. This conclusion is based on no detections in soil gas and the scattered detections in the surface soil. More specific description is provided below. Soil-related pathways might be important in a construction worker exposure scenario except that the Phase II results indicate that the scattered detections are significantly less than the EPA Region IX residential soil preliminary remediation goals (PRGs). Ground water is not an exposure pathway either now or in the future because there is a municipal source of drinking water. Free-product liquid was not encountered in any of the investigations and is not of concern for the Site. Surface water is not associated with the site, and storm-water runoff is regulated under a storm-water management plan. A biota pathway is not warranted for the Site, because the Site has been developed since before the National Environmental Policy Act and the California Environmental Quality Act were enacted, and threatened, endangered, or special status species of regulatory concern would not be present on the Site.

Data were collected in the Phase II investigation for soil gas, soil, and groundwater to identify and measure concentrations of chemicals of potential concern (COPCs) that might be present and associated with unacceptable human health and environmental exposure on the Site. The data from the investigation were first grouped in tables by environmental media: soil gas, soil, and groundwater. Next, the concentrations were compared to applicable regulatory criteria and existing, chemical-specific RBCs as a means of selecting COPCs for further risk/hazard characterization for increased lifetime cancer risk (ILCR) and health hazard (chemical-specific hazard quotient, HQ; summed HQs for groups of chemicals and groups of pathways is called a hazard index, HI).

The results by environmental media are as follows:

- The results of **soil vapor sampling** from a network of probes covering the entire site were all non-detect;

- Soil sampling in five areas of the Site corresponding to areas of past site use and materials handling was conducted with analysis of the samples for volatile organic chemicals (VOCs); semi-volatile organic chemicals (SVOCs) including polycyclic aromatic hydrocarbons (PAHs); polychlorinated biphenyls (PCBs); herbicides; total petroleum hydrocarbons (TPH); metals; and cyanide. Detections of analytes were scattered over the approximately 3.5-acre Site and did not indicate uniform occurrence in support of a residential exposure scenario usually envisioned for a 0.5-acre area.

- The VOCs that were detected were each 2-3 orders of magnitude less than their respective PRG.

- Of the SVOC analytes, herbicides and PCBs were not detected on the property. PAHs were detected in scattered locations, and all of the detected concentrations in the surface soil interval (0-10 feet below ground surface, bgs) were three orders of magnitude less than the respective PRGs.

  A single sample, CL8, from 14.5 feet bgs, below the surface soil interval, gave PAH concentrations corresponding to risk above the *de minimis* level of 1E-6 incremental lifetime cancer risk (ILCR) but below the *de maximus* level of 1E-4 ILCR. In other words, the depth below the surface soil interval, the absence of any PAHs in the groundwater, and the absence of PAHs in samples MB25, MB26, and MB27 within 10-15 feet of CL8 indicate an isolated occurrence not warranting further concern.

- Cyanides were not detected in any of the samples;

- Metals, normally found in common soils, were also detected among 95 Site soil samples; all of the metals, excepting selenium were below both California background levels and risk-based PRG levels; while the representative concentration of selenium exceeded the California background level, it was over 2 orders of magnitude lower than the PRG level (0.86 vs. 390 mg/kg); these findings indicate that metals in soil need not be evaluated further for risk/hazard;

- TPH is a complex mixture of hydrocarbons, and sample analysis compared to a gasoline standard (results denoted as C7-C12), a diesel fuel standard (denoted as C13-C22), and a motor oil standard (denoted as C23-C44), when totaled, gave results that were all below the risk-based value of 8,000 mg/kg developed by the Total Petroleum Hydrocarbon Working Group (TPHCWG); further evaluation is not necessary;

● Groundwater sampling was conducted associated with the former UST installation;

- although historical groundwater monitoring indicated detections of benzene, ethylbenzene, toluene, xylenes, and methyl tertiary-butyl ether (MTBE), more recent sampling gave not-detected results for all these chemicals;

- chloroform was detected in separate Areas (2 and 4), but there is no maximum contaminant level (MCL) for chloroform, and there is no site-history connection to chloroform presence on the Site; chloroform was not found in soil samples in these areas;

- a single detection of 1,4-dioxane out of 6 samples was obtained (3.4 µg/L) that was above the 3.0 µg/L Advisory Action Level of the California Department of Health Services, but is below the risk-based PRG concentration of 6.1 µg/L; and

- metals detected in ground water were determined to be less than MCLs, less than RBCs or part of background concentrations.

Based on all of these results for groundwater, there are no COPCs in groundwater.

On the basis of these results, ***the Site passes the streamlined risk assessment and is confirmed as a good candidate for closure of the environmental investigation of the property***.

1.0 INTRODUCTION

The Los Angeles County Metropolitan Transportation Authority (MTA) engaged MACTEC Engineering and Consulting, Inc. (MACTEC) to perform environmental assessment of the property at 100 Sunset Avenue in Venice, California (Site). The Site is denoted as MTA Division 6 and is now used as a maintenance facility and bus yard. Per usual professional practice, this report has been prepared for the exclusive use of MTA in general accordance with the MACTEC Work Plan and Cost/Schedule Proposal dated December 31, 2003. If other parties wish to rely on this report and have the permission of MTA, they should contact the MACTEC Project Manager, David DeVries (949-224-0050, x234) so that a secondary client agreement can be executed.

The results of the Phase II investigation indicated no detection of volatile organic chemicals (VOCs) from 34 soil vapor samples (Table 1) and only scattered detections of VOCs in the analysis of 110 soil boring samples (Table 2). Scattered detections were also obtained for analysis of soil samples for polycyclic aromatic hydrocarbons (PAHs) (Table 2). Cyanide, herbicides, and polychlorinated biphenyls (PCBs) were not detected in any of the soil samples analyses conducted (Table 2). Petroleum hydrocarbons were detected in soil samples as total recoverable petroleum hydrocarbons (TRPH), and diesel range hydrocarbons were detected in a portion of those samples (Table 2). Results of soil sampling during the installation of monitoring wells MW-1 and MW-4 in the area of the UST, indicated residual concentrations of methyl tertiary-butyl ether (MTBE) (Table 6). Supplemental analysis of the TRPH samples identifying the carbon-fraction ranges present indicated predominantly motor-oil-range hydrocarbons with lesser amounts of diesel-range hydrocarbons and one detection of gasoline-range hydrocarbons (Table 7). Naturally-occurring metals were detected in the soil samples with frequency-of-detection depending on the specific metal (Table 3). Metals were detected much less frequently in the groundwater samples (Table 4). The inconsistent and scattered occurrence of the detections found in the Phase II investigation are not consistent with a uniform impact over the Site or even identifiable areas of concern (AOCs). Therefore, the risk-based evaluation includes a detailed evaluation for selection of COPCs compared to risk-based concentrations that provide a reference for significant exposure.

1.1 THE STREAMLINED RISK ASSESSMENT APPROACH

Risk-based support for environmental closure is part of a complement of promulgated regulatory criteria (concentrations and/or narrative requirements) and risk assessment for human health and the environment for those residuals of chemicals of potential concern (COPCs) in environmental media for which there are no promulgated criteria. The streamlined risk assessment presented herein includes promulgated regulatory criteria, namely maximum contaminant levels (MCLs), for the protection of groundwater. It also includes a risk-based evaluation of COPCs in soil for which there are no promulgated regulatory criteria.

The risk-based evaluation is consistent with the components and techniques of the risk assessment paradigm developed within the National Academy of Science by its National Research Council and published (NRC, 1983, 1994) for use by federal agencies and practitioners across the United States and abroad. The risk assessment paradigm, often called traditional risk assessment, has been an integral part of the Environmental Protection Agency (EPA) Superfund decision making process since the mid-1980's (see for instance, EPA, 1989, 1990). The process is sometimes called a "forward" risk assessment, since the elements of Site-specific **data collection**, **exposure assessment**, and **toxicity assessment** are used to develop a **risk characterization**, an estimate of increased lifetime cancer risk (ILCR) and health hazard (as a hazard index, HI) and a narrative description that includes an assessment of uncertainties to ensure that the process has been conducted conservatively for the protection of the public health.

In this risk assessment, a variant of the above methodology has been applied by comparing representative Site concentrations (based on Site-specific **data collection**) to risk-based concentrations (RBCs) that have been calculated for a particular type of land use using **exposure assessment** and **toxicity assessment**, coupled with standard **risk characterization** choices of target risk (one-in-a-million ILCR) and hazard index (HI) of 1.0. This type of risk assessment is sometimes referred to as Streamlined Risk Assessment and selected elements of the process are described as risk-based evaluation. EPA Region IX has capitalized on the publication of the equations and descriptions for RBCs, called Preliminary Remediation Goals (PRGs) in the Superfund program (EPA, 1991a), to publish a standard table of PRGs (most recently in EPA, 2002). These RBCs are applicable to the MTA Division 6 Site because the exposure pathways included in the calculation of the PRG tables are the same as those identified in the conceptual site model for the Site (see Sections 5.1 and 5.2).

Both risk-based evaluation and streamlined risk assessment are used in this risk assessment. In some cases, risk-based evaluation is sufficient to indicate that COPCs need not be evaluated further. In other cases, streamlined risk assessment is used for comparison to residual COPC concentrations to support environmental decision-making for the Site.

1.2 ORGANIZATION OF THE REPORT

The general outline of the California EPA Preliminary Endangerment Assessment (PEA; Cal/EPA, 1999) has been used to provide a structure of the report acceptable to the LARWQCB for this type of site, and, thereby, promote ease of review in support in Site closure.

Section 1 presents an **Introduction** to the report with descriptions of the project setting and the streamlined risk assessment approach utilized to support environmental decision making.

Section 2 provides **Site Description**. The basis of the decisions for the sampling plan is the site history, including records and reliable recollections of the usage of chemical materials on the Site over the years. The site description supports that rationale.

Section 3 provides **Background** on the discovery and response to the environmental release from the USTs and the relation of that case to the overall due diligence investigation described in the Phase II report.

Section 4 is a statement of the **Apparent Problem** and mitigation of it to establish a basis for closure of the environmental investigation of the Site.

Section 5 begins the streamlined risk assessment by providing information on the **Environmental Setting** and the potential exposure pathways and receptors that are part of the risk-based evaluation.

Section 6 describes the evaluation of the **Sampling Activities and Results** from the Phase II report for inclusion or exclusion as COPCs for risk-based evaluation.

Section 7 presents the **Streamlined Risk Assessment for Human Health Protection.**

Section 8 addresses the **Ecological Screening Evaluation** component for protection of the environment.

Section 9 presents a brief **Community Profile** in support of the present and future land use choice in the risk-based evaluation.

Section 10 presents the **Conclusions and Limitations** from the streamlined risk assessment

Section 11 contains the **References** cited in corroboration of the reports, methods, and techniques utilized in the report.

The **Tables** Section presents data and evaluation consistent with the streamlined risk assessment. The tables are not intended to be a re-publishing of the extensive data tables included in the Phase II report (MACTEC, 2004b).

The **Figures** Section presents those from the Phase II report that are germane to the description and rationale for the evaluations presented herein.

Appendix A is a more detailed description than in the main body of the report of Streamlined Risk Assessment Techniques and Methodology for the interested reader.

Appendix B is a description of the methodology by which the Total Petroleum Hydrocarbon Working Group (TPHCWG) developed risk-based concentrations for the complex mixtures that make up various hydrocarbon products, including gasoline, diesel fuel, and motor oil. The methodology also applies to crude oil, as produced in exploration, and to weathered products that might be the result of environmental releases after volatilization and environmental degradation have taken place.

All of these sections constitute the Streamlined Risk Assessment in support of the closure of the environmental investigation of the Site.

2.0 SITE DESCRIPTION

The Site history, geologic setting, and groundwater characterization are important in site description for environmental investigation. Prior environmental investigations have been conducted for the Site.

2.1 SITE HISTORY

The Site consists of an approximately 3.5-acre, irregular-shaped parcel that is bounded by Sunset Avenue to the northwest, Main Street to the northeast, Thornton Place to the southeast, and Pacific Avenue to the southwest (Figure 1). The site generally slopes from south to north and was constructed with a retaining wall along Main Street and Thornton Place. The southeast corner of the site is elevated approximately 9 to 10 feet above Main Street.

2.1.1 **Historical Activities**

The site was developed in 1901 by Los Angeles Pacific and served as the rail yard for the Venice Short Line, which provided service from Venice to downtown Los Angeles in 1902. The site contained an electrical substation at the northeast corner of the site and a car barn with three sets of rail tracks on the west-central portion of the site. In the 1950s, the site was converted into a bus division.

2.1.2 **Current Activities**

Currently, the site is used by the MTA Division 6 Maintenance Facility and Bus Yard as the base for a fleet of 78 buses that provide public transportation service generally between downtown Los Angeles and the west side of the city. The main service routes include Santa Monica Boulevard, Pico Boulevard, Olympic Boulevard, and Pacific Coast Highway (Temescal Canyon). Fuel dispensing islands are located on the southeastern portion of the site along Main Street, and until February 1998, the northern portion of the site contained four single-walled steel USTs (two 10,000-gallon diesel fuel, one 8,000-gallon motor oil, and one 6,000-gallon gasoline) used for fueling buses. The USTs were removed and replaced with four dual-wall fiberglass USTs in February 1998 (two 10,000-gallon diesel, one 8,000-gallon gasoline, and one 5,000-gallon waste fuel). The central portion of the site contains approximately 52 stalls for bus parking. The remainder of the site is open and used for vehicle parking and driveway access.

The bus maintenance area contains four service bays with inspection/repair pits that allow MTA mechanics to perform maintenance work underneath the buses without having to use hydraulic lifts. Daily maintenance activities on the buses involve new tire and wheel (rim) repairs, painting, steam cleaning of parts and equipment, and washing. (A bus wash rack is situated on the west-central portion of the site adjacent to Pacific Avenue.)

2.2 GEOLOGIC SETTING AND GROUNDWATER DESCRIPTION

The surface and subsurface drainage and geology are of interest because they provide an indication of the fate and transport of COPCs, if present.

2.2.1 **Geologic Setting**

The site is located in Venice, California, approximately 1 mile northwest of Ballona Creek. The site slopes gently toward the north and is at an average elevation of approximately 30 feet above mean sea level (msl) (Plate 1, Site Location Map). The shoreline of the Pacific Ocean is approximately 1,200 feet southwest of the site. Regionally, the site is located within the Peninsular Ranges geomorphic province, which is characterized by elongated northwest-trending mountain ridges separated by straight-sided sediment-filled valleys. The northwest trend is further reflected in the direction of the dominant geologic structural features of the province, which are northwest to west-northwest trending folds and faults, such as the Newport-Inglewood fault zone, located northeast of the site.

Materials underlying the site, from the surface down, are as follows:

- Fill materials, extending to depths of up to approximately 10 feet below ground surface (bgs), are present beneath the site (URS Corporation [URS], 2002).
- The site lies within the Ballona Gap Region of the Santa Monica Basin. The Ballona Gap forms and east-west trending trough that is filled by recent alluvial deposits. The alluvium is composed of inter-bedded sand, sandy clay and gravely sand and has a maximum thickness of 50 feet bgs (California Department of Water Resources [CADWR], 1961).
- Below the alluvial deposits are approximately 200 feet of sedimentary bedrock of the early Pleistocene-age San Pedro Formation. The San Pedro Formation consists of sand, gravel, silty sand, and silt.

- The Pliocene-age Pico Formation, a sequence of marine sedimentary deposits, underlies the San Pedro Formation beneath the site.

2.2.2 **Groundwater Description**

The site is located in Section 17, Township 2 South, Range 15 West in the USGS Venice Quadrangle. It is in the West Coast Groundwater Sub-basin of the Coastal Plain of the Los Angeles Groundwater Basin, also known as the West Coast Basin, which is bounded on the north by the Ballona Escarpment, on the east by the Newport-Inglewood Fault Zone, and on the south and west by the Pacific Ocean and Palos Verdes Hills. The Los Angeles and San Gabriel Rivers cross the West Coast Basin and terminate into the Pacific Ocean through the Dominguez and Alamitos Gaps, respectively (CADWR, 2003). Ground water is commonly withdrawn from Holocene to Pliocene-age marine and non-marine deposits in the West Coast Basin. Notably, the first occurring ground water-bearing unit as defined by Poland et al. (1959) is the "50-foot gravel" located within the Holocene-age alluvial deposits. However, groundwater in areas close to the Pacific Ocean often is of poor quality due to seawater intrusion. According to ground water level measurements conducted in monitoring wells onsite (MACTEC, 2004a), groundwater is approximately 19 to 25 feet bgs and generally flows toward the south, measured at a gradient of 0.015 – 0.025 foot per foot during the last twelve months.

3.0 BACKGROUND

The Site has been investigated previously as part of the investigation of the UST installation for potential environmental release(s).

3.1 PREVIOUS ENVIRONMENTAL INVESTIGATIONS ON THE SITE

Environmental investigations related to a potential release(s) from the USTs have been conducted by Converse Environmental Consultants (1988); Holguin, Fahan & Associates, Inc., as a subcontractor to Bentley Company (1995, 1997); and Tyree Corporation (1998). Locations of the borings and samples identified below are listed on the Site Plan (Figure 3).

A summary of available reports of previous investigations conducted onsite by other environmental consultants is presented in the Phase II report (MACTEC, 2004c). Data from these reports are summarized in Table 4, Groundwater Analytical Results and Table 6, Historical Soil Data. The locations of soil samples retrieved during prior investigations are depicted on Figure 3, Site Plan. Please be aware that the locations of borings by previous consultants are rough approximations based on reports with differing information. Nonetheless, the data in the tables were considered for purposes of streamlined risk assessment.

3.2 GROUNDWATER MONITORING

The historical site characterization conducted by various consultants in the area of the USTs led to the need to monitor the groundwater.

3.2.1 **Identification of Need for Groundwater Monitoring**

As specified by URS (2002),

> "Results of previous investigation work at the site indicated that soil and groundwater in the vicinity of the former fuel USTs was impacted with fuel petroleum hydrocarbons. During subsequent UST removal and replacement activities conducted in February 1998, petroleum hydrocarbon-impacted soil was identified immediately beneath the former USTs. Specific objectives of the investigation included the following:

- Evaluate the groundwater elevation, flow direction, and gradient beneath the UST area at the northern portion of the site.
- Evaluate the lateral and vertical extent of groundwater impacted with petroleum hydrocarbons, volatile organic compounds (VOCs), and total lead.
- Evaluate geochemical parameters that indicate natural attenuation of the petroleum hydrocarbons and related fuel constituents in groundwater."

3.2.2 **UST Case**

In order to track progress with respect to the USTs and potential groundwater impact, the LARWQCB assigned file no. 902910151 to the case. The investigation reported in the Phase II report (MACTEC, 2004) pertains to a due-diligence investigation of the portions of the MTA Division 6 Site other than the USTs. The potential for closure of the environmental investigation centers on the USTs and file no. 902910151 but can include all the due-diligence investigation, especially as it relates to hydrocarbon products from facility operations that might be released to environmental media. In discussions during the March 8, 2004 LARWQCB meeting, the following items were agreed:

- the Site is low priority based on LARWQCB data review;
- LARWQCB wants to close this Site, but upon MTA request would keep the file open;
- LARWQCB is to consider for complete closure the groundwater monitoring data, and the Phase II site assessment data; the risk assessment was not a requirement of the LARWQCB but MTA has provided it to LARWQCB for their records to complete the file; and
- The LARWQCB UST Section can only close the case if the COPCs[1] are related to petroleum hydrocarbons.

[1] The selection process utilized in screening COPCs detected in the Phase II investigation is based on Exhibit 5-1 in EPA's *Risk Assessment Guidance for Superfund* (EPA, 1989). Chemicals such as 1,4-dioxane and chloroform were detected in one and two groundwater samples, respectively, with no source(s) detected in the soil and soil vapor investigation. Chloroform sources cited in the United States Public Health Service Web Page (http://www.eco-usa.net/toxics/chcl3.shtml) indicates that usual sources of chloroform releases are chemical companies, paper mills, and waste water from sewage treatment plants. None of those have been associated with MTA Division 6 property.

This report presents the historical and MACTEC Phase II investigation results in addition to groundwater monitoring data as support for closure.

4.0 APPARENT PROBLEM

The apparent problem on the Site is the residuals in soil and groundwater for the open UST case of the LARWQCB coupled with the possibility of other petroleum hydrocarbon residuals in other areas of the Site. Over-excavation was conducted in the removal of the USTs and the installation of new USTs on the property, and it is shown herein that these residuals of the COPCs in the soil are insignificant. Petroleum hydrocarbons were detected on other portions of the Site, primarily in shallow soil.

Monitoring of groundwater wells on the Site has been underway for several years. There has been significant reduction in the observed concentrations of the COPCs to the point that confirmation sampling during 2004 may be sufficient for closure of the environmental investigation of the USTs. Further, this streamlined risk assessment will be reviewed as potential support for inclusion in the other areas of the Site in the summary section of the no-further-action (NFA) letter for the case. The streamlined risk assessment is conducted in this context.

5.0 ENVIRONMENTAL SETTING

For purposes of risk-based evaluation and streamlined risk assessment, a choice of land use (and the associated exposure scenario) must be made. For MTA Division 6, the current land use is commercial-industrial. For future land use in the redevelopment of the property, the land use is planned to be residential.

A detailed description of the methodology underlying streamlined risk assessment is presented in Appendix A. In this section, the component elements supporting streamlined risk assessment are developed: exposure pathways, receptors and exposure routes, as exemplified in the CSM shown in Figure 2. Because the CSM is a straightforward, pictorial way of designating and communicating exposure pathways and receptors with exposure routes, the description of environmental setting will begin with the CSM.

5.1 CONCEPTUAL SITE MODEL (CSM)

Figure 2 is the CSM for the MTA Division 6 property. Complete exposure pathways may be traced from left to right. Beginning at the left in the CSM, sources, pathways, and receptors are identified as boxes and may be thought of as the concentration of each COPC at each reference point (box) as it disperses and attenuates along its fate & transport pathway. The arrows may be thought of as the equation, algorithm, model, or concentration reduction factor that allows the COPC concentration in any particular box to be estimated based on the concentration in the box to its left. Where environmental sampling data are available, the concentrations in each box are known specifically. Where the data are not known, or are not available, modeling or other estimation techniques are employed, as needed, to permit the quantitative estimation of the exposure intake for the designated receptors. Where a pathway is determined to be incomplete (dashed lines in Figure 2), the receptor boxes are empty and are colored light green. The red receptor boxes indicate those pathways that are considered potentially complete. A black dot is used to indicate current land use. A square block is used to indicate future land use. Complete pathways warrant evaluation for the significance of risk/hazard via the pathway for exposure.

Consistent with standard practice, risk/hazard may be calculated using streamlined risk assessment for a potentially complete exposure pathway to assess its significance (ASTM, 1995, 2000; EPA, 1989). Construction and development has taken place on the property, and the risk-based evaluation considers the property as it currently is, including historical environmental releases, if they occurred, in evaluating the current land use as a commercial-industrial facility. Future land use is also considered in the CSM for the potential future use of the property as residential development.

5.2 POTENTIAL EXPOSURE PATHWAYS

Figure 2 shows the understanding of potential exposure pathways for the MTA Division 6 Site.

5.2.1 CSM Environmental Media and Pathways

The identification of potential exposure pathways tie to the results of investigations taken to characterize the Site in addition to that conducted to characterize the UST area.

Soil

Currently, the Site is completely paved. Were it not for the paving, the soil exposure pathway would include human exposure (adult workers) to soil via incidental ingestion, dermal contact with soil, and volatilization and inhalation (of fugitive dust) by adult workers and construction workers in the current land use. However, this pathway is incomplete for current land use because of the buildings and paving over the entire Site. As shown in Table 1, even if there were potential for volatilization from soil through cracks in the pavement to ambient air or indoor air, the pathway is shown to be incomplete because all the results from samples of the soil vapor survey over the entire Site are not-detected (see later, Section 6.1.1.1).

For residential land use in the future, human exposure to bare soil would include incidental ingestion, dermal contact with soil, and volatilization and inhalation (of fugitive dust) by adult and children residents on the property. The future development plan for the property includes essentially complete paving and landscaping around the constructed residential building. Exposure to bare soil in current or future land use is precluded, so that pathway is incomplete for current and for future land use. This is supported by the finding shown in Table 1 that all the results of soil vapor samples over the entire Site are not-detected (see later, Section 6.1.1.1). Construction workers might be exposed via a soil pathway during construction activities.

The highly developed status of the property over the years precludes the need for biological survey.

Air

The air exposure pathway could be complete in a residential housing scenario for adults and children,[2] because of inhalation of vapors and fugitive dust entrained in outdoor air from the soil. However, for current or future land use, the pathway is incomplete because of the constructed buildings and paving over the entire Site. Also, the low concentrations and percentage detection of the COPCs indicates that the concentrations are insignificant compared to risk-based concentrations. Table 1 indicates that all of the soil vapor probes yielded not-detected results.

During construction activities, there could be potential for exposure to construction workers.

Groundwater

The groundwater exposure pathway could be impacted by leaching from subsurface soil. However, groundwater has been monitored where potential impact is an issue, and the results are below MCLs. The groundwater is not used on the Site, and municipal water is available to the facility. Also, the groundwater would not be used by construction workers regardless of the land use. The groundwater pathway is considered incomplete.

For protection of groundwater quality, a due-diligence comparison has been conducted for concentrations of the COPCs detected in the groundwater to the maximum concentration limits (MCLs) as promulgated regulatory criteria for selection of potential COPCs for risk-based evaluation of water quality. (As will be shown later, this evaluation substantiates that this pathway is incomplete for this Site.)

[2] It is understood that the surrounding area contains residential housing where adults and children may be residents. The redevelopment of the Site is currently intended for apartment lofts, usually inhabited by adults. However, because there is the possibility that adults and children may be present on the redeveloped property, it is appropriate to consider risk-based evaluation that is protective for both adults and children.

Free-Phase Liquid Plume

The portion of Figure 2 for free-phase liquid plume and mobile free-liquid migration does not apply to the Site. No free-phase liquids have been encountered in any of the investigations of the Site. The free-phase liquid plume pathway is incomplete.

Surface Water and Sediments

Surface water is not found on or associated with the MTA Division 6 Site. Sediments normally associated with surface water are also absent. Stormwater runoff is regulated under a Stormwater Management Plan. Liquids collected in the drain system on-Site are processed through a clarifier before discharge to the sewer system under an Industrial Wastewater Discharge Permit.

5.2.2 **CSM Summary**

The CSM provides the communication tool for the current understanding of the site characterization and the potential exposure pathways in future land use. Exposure pathways for adult workers do not occur in the current land use because of the complete cover of the Site with paving and the constructed buildings. Adult and child resident exposure pathways could exist in future land use excepting that the redevelopment of the property is planned to result in pavement and building coverage of the soil, thereby precluding soil as a potential exposure pathway. It is understood that exposure of residents to ground water will not occur, because they have a municipal source of drinking water. Groundwater quality has been assessed for protection of the groundwater resource by monitoring and comparison to MCLs. A construction worker could be exposed to the soil dust and vapors during construction, but would not be exposed to the groundwater. There are no pathways for free-phase liquid migration (because there are no free-phase liquids) or surface water and sediments. Rainwater runoff is regulated through a storm-water management plan and liquid discharge off the site is controlled through compliance with an Industrial Wastewater Discharge permit.

5.3 POTENTIAL RECEPTORS

Potential receptors are associated with the land use and exposure pathways. There are no operative exposure pathways in current land use with adult workers because the Site is completely paved and built over and the soil vapor survey indicated non-detect results over the entire Site. Nonetheless, the traditional potential receptors can be identified.

5.3.1 **Adult Workers in Commercial-Industrial Land Use**

The current land use is for commercial-industrial purposes. Full-time, on-site workers are present on the property. However, they are protected from exposure, if significant exposure could occur, by the paving and building that completely cover the site. The paving also serves to mitigate potential inhalation pathways for fugitive dust and volatilization from soil.

Workers on the property after property transfer and redevelopment might include gardeners, landscapers, or maintenance workers. Appendix C presents data and discussion substantiating that the COPC selection process utilizing a screening against residential soil PRGs is conservative and also protects for commercial-industrial, gardening, and landscaping exposure scenarios.

5.3.2 **Adults and Children in Residential Land Use**

Pathways for these receptors are not complete on the CSM, but as a conservative measure for risk-based screening, they are discussed below. Future residential land use is considered assuming that adults and children will both be present. RBCs based on an "age-adjusted individual" receptor are used. These are exactly those RBCs compiled for the EPA Region IX PRG table (EPA, 2002). Exposure parameters for an age-adjusted individual comes from a calculation based on a child for a 6-year exposure, sometimes called 0-6 years, plus a calculation based on an adult exposure for 24 years. Together, these calculated contributions to risk/hazard constitute a 30-year exposure corresponding to the 90th percentile duration for residential tenure at one residence (EPA, 1991a).

5.3.3 **Adult Workers in Construction Activities**

The construction worker exposure scenario is based on an adult worker. The construction scenario is different from the commercial-industrial exposure scenario because the adult worker in a construction scenario works on the Site for a short time (weeks to months), while the adult worker in a commercial-industrial scenario works at the job for 25 years. Also, the default incidental soil ingestion rate for construction workers is 480 mg/day, while that for the commercial-industrial scenario is only 50 mg/day. While the construction worker has significantly more incidental dust ingestion, it is for a significantly shorter period of time. These parameters are reflected in Table C-1 and the discussion of Appendix C.

The exposure parameters used for calculating risk/hazard in traditional risk assessment (see for instance, EPA, 1989 and Cal/EPA, 1996), and RBCs for streamlined risk assessment (EPA, 1991a) are well established and are used in the RBCs compiled in the PRG table (EPA, 2002).

The use of residential PRGs for streamlined risk assessment is also protective of the construction worker exposure scenario. As shown in Appendix C, when the default exposure factors for a residential exposure scenario are compared to a construction worker scenario, the residential scenario with an adult is 8 to 86 times more stringent (more protective) than the construction worker scenario. Further, the residential scenario with a child receptor is 16 to 39 times more stringent (more protective) than the construction worker scenario. Clearly, streamlined risk assessment using a comparison in COPC selection for a residential exposure scenario (*i.e.*, using residential PRGs) is also protective for the construction worker scenario.

6.0 SAMPLING ACTIVITIES AND RESULTS

The Phase II investigation was designed to characterize subsurface environmental conditions in five selected areas (Area-1 through Area-5) based on the historical use of the site and information discussed in MACTEC's Phase I Environmental Site Assessment (MACTEC, 2004a). The Phase II assessment included the following activities:

- **Site History—**Prior to implementing the site assessment, MACTEC reviewed available documents from prior environmental investigations conducted onsite. The historical use of the site was used to identify areas of COC use for investigation and to schedule investigative borings in new locations that have not been previously investigated.

- **Field Activities—**Site-wide subsurface investigation was conducted in five predetermined areas of concern. Subsurface conditions were logged by the field geologist.

- **Analytical Results—**Analytical results from the soil vapor, soil, and groundwater samples collected during the investigation were compiled in the Phase II report.

- **Report Discussion—**Opinions were rendered on the significance of the assessment results.

For purposes of risk-based evaluation and streamlined risk assessment, the results of the Phase II investigation are assessed as presented in the following sections.

6.1 SELECTION OF THE CHEMICALS OF POTENTIAL CONCERN

The COPCs tested for in the Phase II investigation were based on the site history and knowledge of chemical materials usage on the Site as elaborated in the Phase I report (MACTEC, 2004b). The Phase II results are especially interesting in that they indicate inconsistent occurrence of the various COPC residuals in environmental media. The detections are predominantly related to petroleum hydrocarbons, and the isolated detections of chlorinated hydrocarbons are insignificant by virtue of their concentration, low frequency of detection, and lack of connection to activities that have occurred on the Site over the years.

6.1.1 **Volatile Organic Chemicals (VOCs) in Soil**

VOCs were tested for in the soil borings and in the soil vapor sampling and analysis.

6.1.1.1 VOCs in Soil Vapor

The soil vapor survey was conducted using an approximate 55-foot grid pattern over the majority of the site, centered on the bus stalls (see Figure 3, Site Plan). Of 41 samples (34 samples plus 4 duplicates plus 3 various purge volume tests) taken at 34 locations, each sample was reported as not detected for VOCs using EPA method 8260B. This indicates that VOCs are not present above their respective detection limits in the surface soils (0 to 10 feet bgs) over the Site. Soil vapor probes, SV3, SV4, SV5, SV6, SV8, and SV9 (see Figure 3) in the area of the former UST installation are particularly significant in this regard. This is the substantiation that a potential pathway for soil vapor intrusion into a building is incomplete for either current or future land use.

6.1.1.2 VOCs in Soil Borings

The results of the analysis of samples from the soil borings are listed in Table 2, Soil Analytical Results, and Table 6 Historical Soil Data.

Table 2 summarizes the recent MACTEC Phase II results. Sample MB20, collected in Area 2 (see for comparison, Figure 5) on 2/10/2004 at a depth of 1 foot bgs, gave results for both 1,3,5-timethylbenzene and 1,2,4-trimethylbenzenene at 13 µg/kg (parts-per-billion). Compared to residential PRGs of 21 mg/kg and 52 mg/kg (parts-per-million), respectively for 1,3,5-trimethylbenzene and 1,2,4-tirmethylbenzene, the results of 13 ppb is insignificant as a contributor to health hazard for these non-carcinogenic COPCs.

Sample DI1 in Area 3 (see Figure 6 for comparison) gave numerous hydrocarbon chemical detections as follows:

COPC	Detected Concentration in Soil **(µg/kg)**	Residential Soil PRG **(µg/kg)**
Ethylbenzene [ca]	13	8,900
m,p-Xylenes [nc]	31	270,000
o-Xylene [nc]	7.7	270,000
Isopropylbenzene (Cumene) [nc]	6.4	570,000
n-Propylbenzene [nc]	24	240,000
1,3,5-Trimethylbenzene [nc]	300	21,000
1,2,4-Tirmethylbenzene [nc]	800	52,000
sec-Butylbenzene [nc]	22	220,000
p-Isopropyltoluene (cymene) [TBD]	28	Not listed
n-Butylbenzene [nc]	84	240,000
Naphthalene [nc]	290	56,000
Tertiary-butyl alcohol (TBA) [TBD]	130	Not listed
ca = carcinogen; nc = non-carcinogen; TBD = to be determined		

Simple inspection shows that none of the detected concentrations is within 2 orders of magnitude of the respective PRG as the risk-based concentration representing 1E-6 ILCR or 1.0 HQ. Even for the PRGs that are not listed currently, the order of magnitude will likely be the same as the other values in the column of PRGs, indicating by implication that the detections of those COPCs, p-isopropyltoluene (also called cymene) and tertiary-butyl alcohol (TBA) are also probably not significant contributors to risk/hazard. In addition, the next nearest sample, DI1 in Area 3 at 15 feet bgs has MTBE at 71 µg/kg compared to a PRG of 17,000 µg/kg, and TBA of 240 µg/kg compared to a not-listed PRG. The rest of the VOC results in Area 3 and Area 4 are “ND, not detected”. A single spot with detections could indicate a hot spot, but the small concentrations compared to their PRGs indicate that the detections are not significant for calculating risk/hazard and are not significant for environmental decision-making. Based on these comparisons, these COPCs would not be carried forward for risk assessment.

In Area 5, soil sample CL1 from 15 feet bgs has an MTBE detection at 5.1 µg/kg. [Surface soil is 0–10 feet bgs.] Compared to the residential PRG of 17,000 µg/kg for the concentration corresponding to 1E-6 ILCR, the detection is insignificant, and MTBE will not be carried forward into risk assessment.

Sample CL2 from 10 feet bgs in Area 5 has a naphthalene detection of 5.2 µg/kg compared to its residential PRG of 56,000 µg/kg. Once again, the comparison [HQ = 0.00009] indicates that the detection is insignificant and need not be carried forward into the risk assessment.

Sample CL2 from 15 feet bgs in Area 5 has a number of detections as follows:

COPC	Detected Concentration in Soil **(µg/kg)**	Residential Soil PRG **(µg/kg)**
MTBE [ca]	9.5	17,000
Benzene [ca]	15	600
Ethylbenzene [ca]	53	8,900
m,p-xylenes [nc]	11	270,000
o-xylene [nc]	15	270,000
Isopropylbenzene (cumene) [nc]	11	570,000
n-propylbenzene [nc]	14	240,000
1,3,5-trimethylbenzene [nc]	27	21,000
1,2,4-trimethylbenzene [nc]	82	52,000
p-isopropyltoluene (cymene) [TBD]	6	NL
n-butylbenzene [nc]	7.5	240,000
ca = carcinogen; nc = non-carcinogen; TBD = to be determined; NL = not listed		

Just as with the comparison for sample DI1 above, the detected concentrations are insignificant compared to their respective risk-based concentrations, and they need not be carried forward to risk assessment.

There are detections in soil sample SV5 at 4 feet bgs. Tetrachloroethene at 19 µg/kg is much less than its residential PRG of 1,500 µg/kg. 1,2,4-trimethylbenzene at 13 µg/kg is much less than its residential PRG of 52,000 µg/kg. Neither of these COPCs need be carried forward into risk assessment.

Samples from boring MB4 soil samples at 1 and 5 feet bgs, indicate methylene chloride at 66 and 54 µg/kg, respectively, and tetrachloroethene (PCE) at 9.6 µg/kg. Compared to the residential soil PRGs of 9,100 µg/kg for methylene chloride and 1,500 µg/kg for PCE, these isolated detections are insignificant as contributors to risk/hazard. Further, they are not detected in a recurring frequency or lateral pattern to support their inclusion in evaluating an exposure scenario with recurring exposure over a lifetime.

The detections of VOCs found during the MACTEC Phase II investigation in soil across the Site do not support a residential exposure scenario. The results are scattered and isolated across the Site and are much less than RBCs corresponding to acceptable limits for *de minimis* exposure standards of 1E-6 ILCR and 1.0 HI as defined in EPA’s National Contingency Plan (EPA, 1990). Based on the latest data for VOCs in soil, there are no COPCs of significance.

Table 6 lists analysis results of soil samples from past UST investigations. Referring to the results for the EPA 8020 analysis for benzene, toluene, ethylbenzene, xylenes, and MTBE, it is instructive to compare the columns of results to their respective residential PRG. For benzene, the residential PRG is 0.6 mg/kg, and that is exceeded by 3 of the results from 1995 (4.2 mg/kg @ 20 feet bgs, 1.5 mg/kg @ 25 feet bgs, and 1.2 mg/kg @ 20 feet bgs) for Area 1 but is not-detected in the boring for MW-5 in Area 1 in 2002. The residential PRG for toluene of 520 mg/kg is not exceeded by any of the results in Table 6. Four of the ethylbenzene results of Table 6, two from 1995 and two from 1998, exceed the residential PRG of 8.9 mg/kg. Two of the results for xylenes in Table 6 from 1998 exceed the residential PRG of 270 mg/kg. One of the results for MTBE exceeds its residential PRG of 17 mg/kg (46.8 mg/kg @ 15 feet bgs in sample T2-N, Table 6 and Figure 3). The comparison to PRGs is not strictly applicable because in every instance where a sample result exceeded the respective PRG, the sample was collected from greater than 10 feet bgs, the threshold defining surface soil in California for a residential exposure scenario. Further, samples from 10-15 feet away (samples T1-N @ 15 feet bgs and T3-N @ 15 feet bgs) were not-detected for MTBE. These detections will not be accessible to redevelopment on the ground surface; the soil gas testing did not indicate any of these COPCs, and the groundwater sampling has not indicated a significant impact on groundwater. For the information and observations to date, it appears that the historical data for VOCs is exactly that, historical data. The residual VOC soil concentrations indicated in Table 6 have the propensity to degrade over time. Considering the frequency of detection and lack of detection in nearby samples (see above), the potential for significant exposure during excavation and installation of any underground parking is *de minimis*.

6.1.2 **Semi-Volatile Organic Chemicals (SVOCs) in Soil**

The SVOC results in Table 2 apply primarily to the polycyclic aromatic hydrocarbons. Other COPCs also addressed in this section are the herbicides and PCBs.

6.1.2.1 Polycyclic Aromatic Hydrocarbons (PAHs)

Among the results of Table 2 for polycyclic aromatic hydrocarbons (PAHs), the following table contains a summary of the only hits obtained by analysis of 95 samples representing Areas 1-5 and the bus stall area. The listing is separated by Area because evaluation for a residential exposure scenario is based on a residential lot of 0.5 acre (EPA, 1996a,b) compared to the approximately 3.5 acres of the MTA Division 6 property. Detections that are separated by about 148 feet (147.58 feet x 147.58 feet = 0.5 acre) are not likely to be a realistic part of the "home range", the 0.5-acre range of an adult or child receptor on a residential property for a residential exposure scenario.

Risk-Based Screening of PAH Results

Soil Boring #	Area	Sample Depth (feet bgs)	PAH Analyte	Concentration (mg/kg)	Residential Soil PRG (mg/kg)	Potential Contribution to Risk/Hazard	
						Risk (ILCR)	Hazard (HI)
MB4	1	1	Pyrene	0.47	2,300 (nc)	NA	.0002
MB6	1	1	Pyrene	0.44	2,300 (nc)	NA	.0002
MB6	1	1	Fluoranthene	0.43	2,300 (nc)	NA	.0002

Soil Boring #	Area	Sample Depth (feet bgs)	PAH Analyte	Concentration (mg/kg)	Residential Soil PRG (mg/kg)	Potential Contribution to Risk/Hazard	
						Risk (ILCR)	Hazard (HI)
MB10	2	1.5	Pyrene	0.47	2,300 (nc)	NA	.0002
MB11	2	1.5	Pyrene	0.46	2,300 (nc)	NA	.0002
MB11	2	1.5	Fluoranthene	0.42	2,300 (nc)	NA	.0002

Soil Boring #	Area	Sample Depth (feet bgs)	PAH Analyte	Concentration (mg/kg)	Residential Soil PRG (mg/kg)	Potential Contribution to Risk/Hazard	
						Risk (ILCR)	Hazard (HI)
CL8	5	**14.5**	Pyrene	1.4	2,300 (nc)	NA	.0006
CL8	5	**14.5**	Benzo(a)anthracene	1.3	0.62 (ca)	2E-6	NA
CL8	5	**14.5**	Chrysene	1.5	62 (ca)	2E-8	NA
CL8	5	**14.5**	Benzo(k)fluoranthene	1.3	6.2 (ca)	2E-7	NA
CL8	5	**14.5**	Benzo(b)fluoranthene	1.4	0.62 (ca)	2E-6	NA
CL8	5	**14.5**	Benzo(a)pyrene	0.88	0.062 (ca)	1E-5	NA
SV31	West of 2	4.5	Benzo(g,h,i)perylene	350	460*	NA	0.8

ILCR = increased lifetime cancer risk; HQ = chemical-specific hazard quotient; HI = multiple-chemical, or multiple-pathway hazard index
nc = non-cancer basis for risk-based concentration; ca = cancer basis for risk-based concentration
NA = not applicable for this data screening
PRGs, Preliminary Remediation Goals, are from EPA Region IX's PRG Table and are used here as RBCs for streamlined risk-based evaluation.
Because there was not a risk-based concentration in EPA, 2002, the risk-based concentration for Benzo(g,h,i)perylene, 460 mg/kg, was taken from the California Regional Water Quality Control Board San Francisco Region document, Application of Risk-Based Screening Levels and Decision Making to Sites With Impacted Soil and Groundwater, Volume 1: Summary Tier 1 Lookup Tables, 2003 (Cal/EPA, 2003).
NOTE; A samples from greater than 10 feet bgs, the CL8 sample at 14.5 feet bgs, exceeded the *de minimis* exposure criteria of 1E-6 ILCR and 1.0 HI, it is not part of a surface soil (0-10 feet bgs) exposure scenario. Even so, the risk/hazard for sample CL8 at 14.5 feet bgs does not exceed the *de maximus* standards of the National Contingency Plan (EPA, 1990) for acceptable exposure of 1E-4 ICLR and 1.0 HI.

The listing of the results with straight forward evaluation for potential contribution to human health risk as increased lifetime cancer risk (ILCR) or human health hazard (hazard index, HI) for a residential land use scenario provides some ready conclusions with regard to disposition and importance of the results for PAHs.

Overall, the few results are spatially scattered over the approximately 3.5 acre Site. For instance, in Area 1 (Figure 3), detections in samples MB4 and MB6 are separated by about lateral 60 feet. Note that the results are at 1 foot below ground surface, and there were no detections at greater depths (Table 2). Even if it is assumed that the space in between the sampling locations is homogeneous for pyrene and fluoranthene content in the soil at 1 foot below ground surface (bgs), the potential contribution of pyrene and fluoranthene to health hazard is insignificant, *i.e.*, is much less than 1.0 HI, the upper threshold criterion of acceptable exposure. Sample locations MB10 and MB11 are closer to one another in Area 2, with about 40 feet of separation, but the analytical results are almost exactly the same. Pyrene and fluoranthene in Area 2 have insignificant potential contribution to health hazard. Even if the HI for pyrene and fluoranthene in Areas 1 and 2 were summed, as in a residential scenario for the entire area, the HI would be much less than 1.0 (*i.e.*, 0.0008 HI).

A number of PAHs were detected in sample CL8 in Area 5 at 14.5 feet bgs. The location of sample CL8 is several hundred feet away from the MB sample location and can be considered separately for potential contribution to risk/hazard. In the table, risk estimated for single detections of benzo(a)anthracene, chrysene, benzo(k)fluoranthene, benzo(b)fluoranthene, and benzo(a)pyrene is potentially significant at values greater than one-in-a-million ILCR (1E-6 ILCR). This might be important for selection of COPCs except that the detections are located at 14.5 feet bgs. California surface soil is defined as 0 to 10 feet bgs, the soil interval that might be exposed for a typical property improvement such as installing a swimming pool with spreading of the excavated soil on the surface thereafter. The detections at 14.5 feet bgs are not significant for potential direct human exposure to soil. Further, the years of disposition of these detections in the subsurface soil and the absence of them in the groundwater samples is an indicator that they are not moving to the groundwater.

A detection of benzo(g,h,i)perylene in boring SV31, about 40 feet west of MB11, seems to be significant based on the result of 350 mg/kg. However, when compared to a surrogate risk-based concentration of 460 mg/kg for direct exposure (Cal/EPA, 2003), the HI of 0.8 indicates acceptable exposure less than 1.0 HI. Even if all the MB results are summed with SV31, the result is less than 1.0.

The summing of risk-based results is usually helpful as a conservative estimate of cumulative risk/hazard for a residential property or living area. For the current PAH results, this is not appropriate. For instance, over a site of approximately 3.5 acres there is only one detection of benzo(a)pyrene at one single location. That single detection is not representative of the entire property, especially considering that it is located at 14.5 feet bgs. A human receptor could never be thought of as existing at that one spot for direct exposure during the 30-year 90th percentile exposure duration of a residential land use exposure scenario. The argument is the same for the four other PAHs detected in sample CL8, three of which have a single-detection ILCR of more than 1E-6 ILCR.

Based on the isolated detections and locations, PAHs are not significant contributors to risk/hazard for the MTA Division 6 property.

6.1.2.2 Other SVOC-related COPCs

As indicated in Table 2, herbicides were not detected in any of the samples analyzed. PCBs also were not detected in any of the samples analyzed.

6.1.3 **Metals in Soil**

The array of analytical results for Title 22 metals in soil of Areas 1 through 5 is presented in Table 3. Areas of the 3.5-acre site where the site history and materials usage indicated the potential for metals release to the environment were sampled. The result is 95 sample results for each of the 17 Title 22 metals. The array of 26 samples per acre provides high statistical confidence that the analytical results are representative of the site.

Table 3 indicates that certain of the metals, notably antimony, beryllium, cadmium, mercury, molybdenum, selenium, silver, and thallium, are predominantly not detected at their respective reporting limits (practical quantification limits). Nonetheless, for purposes of the initial evaluation of the metals results, an ND (not detected) result was assumed to be the reporting limit concentration. Common statistics were determined for the metal-specific data sets on this basis.

The table lists the Environmental Protection Agency (EPA) Region IX PRGs for each of the metals in surface soil for a residential land use exposure scenario. Also listed are the ranges of typical background concentrations for each of the metals in soil across the State of California (Bradford, et al., 1996). In addition, the mean/average, standard deviation, confidence interval above the mean for a 95% upper confidence limit (UCL), and the 95% UCL for each metal were determined from their respective data sets and listed on the table.

Regardless of the toxicity properties for each of the metals as a potential carcinogen or non-carcinogen several conclusions are apparent from inspection of the statistical evaluation:

- The 95% UCL concentration for each of the metals, except selenium, is less than or within the range of background concentrations reported in the Kearney Foundation report (Bradford, et al., 1996);

- Selenium is 72% non-detect results; the frequency of detection is 28%; further the conservatively-calculated 95% UCL of 0.86 mg/kg is 0.2% of the residential soil PRG of 390 mg/kg.

- All of the 95% UCL concentrations of the respective metals are well below their respective PRGs, and there should not be a significant contribution of metals to either increased lifetime cancer risk (ILCR) or health hazard (hazard index, HI) for risk-based evaluation.

The results and evaluation of Table 3 indicate that metals in soil on the MTA Division 6 site need not be included in the chemicals of potential concern for possible later risk-based evaluation.

6.1.4 **Petroleum Hydrocarbons**

The evaluation of the complex mixture of hydrocarbons called petroleum hydrocarbons as COPCs can be facilitated using risk-based concentrations developed by the TPHCWG. A description of the methodology by which the TPHCWG developed risk-based concentrations for TPH and related petroleum products is presented as Appendix B. Also presented in Appendix B is a graph from which the ranges of risk-based concentrations for a number of petroleum products and weathered residuals can be estimated. That is the sources of the risk-based concentrations used in this section.

6.1.4.1 Total Petroleum Hydrocarbons

Table 2 indicates the results for TRPH (Total Recoverable Petroleum Hydrocarbons) 418.1 analysis of soil in various areas of the Site. Table 6 indicates the historical results obtained from past investigations in 1988, 1995, and 1998. Because TRPH refers to an analytical method, correspondence to risk-based concentrations is made to TPH measured against a gasoline standard, against a diesel fuel standard, and against a motor oil standard, denoted TPH-g, TPH-d, and TPH-mo accordingly. In Table 2, the maximum TPH concentration for TPH-d is 960 mg/kg. If the maximum TRPH concentrations, 960 mg/kg, were taken as a global surrogate for TPH-g, TPH-d, and TPH-mo, it would still not exceed the screening value of 8,000 mg/kg from the TPHCWG report. In Table 7, more recent, detailed data for TPH, as TRPH and for carbon chain fractions, is compiled. The column titled C7-C44 contains the total concentration of all the carbon fractions making up the sample. Note that in column "C7-C44 Total" none of the totals is greater than 6,300 mg/kg, thereby corroborating the simple assessment offered for the TPH data in Table 2. From the TPH data measured to date, including all of the results in Table 7 for carbon range hydrocarbons, no remedial action for TPH is indicated on a risk basis.

Historically, the analytical results were higher for site conditions 15 or 16 years ago compared to recent results. This is consistent with natural biodegradation processes that typically act on petroleum hydrocarbon residuals in the environment. From Table 6, the TRPH result for sample T2-N is 23,600 mg/kg, but none of the individual TPH-g and TPH-d results approach this magnitude. Therefore, even the historical data also fit within the screening concentration of 8,000 mg/kg

6.1.5 **All Chemicals in Groundwater**

As described in the CSM for the Site (Figure 2), there is no complete exposure pathway between human receptors and the groundwater. However, consideration of the occurrence of COPCs in groundwater is useful for closure of the Site.

6.1.5.1 Current versus Historical Monitoring Data For Organics In Groundwater

Historically, the groundwater under the Site contained TPH-g and BTEX compounds. However, in 2004, analysis of groundwater for TPH-d, TPH-g, PAHs, herbicides, cyanides, and PCBs yielded not-detected results in every case. Further, analysis of the groundwater for the emerging chemical, 1,4-dioxane yielded 1 detection (3.4 µg/L) out of 6 sample analyses that was slightly above the 3.0 µg/L Advisory Action Level (AAL) of the California Department of Health Services. However, the 1,4-dioxane concentration is less than the tap water PRG of 6.1 µg/L. Analysis of 6 samples for VOCs (and MTBE) yielded two detections of chloroform at 1.5 µg/L and 5 µg/L which exceed the California-Modified tap water PRG of 0.53 µg/L. There is no MCL for chloroform. Chloroform is associated with chemical manufacturing, paper manufacturing, and discharge from wastewater treatment plants. There is no reason to believe that chloroform is related to any previous or current operations on the Site. Based on current groundwater monitoring data and the grab groundwater samples discussed above, there are no COPCs for organics in groundwater.

6.1.5.2 Title 22 Metals Groundwater Analytical Results

Table 5 shows the groundwater monitoring results for Title 22 metals analyses. Consideration of each metal individually substantiates ruling each out as a COPC for risk assessment.

- **Antimony** is non-carcinogenic with detections in 5 out of 6 monitoring wells across the Site. Filtered and unfiltered groundwater samples were analyzed for each well, and the results were the same within laboratory variation of ±20%. The results from all five wells (MB3, MW05, MB11, MW03, and MB31) compared to one another within ±20% as well. However, the detections of antimony in groundwater did not correspond to the locations of the detections of antimony in the soil. Background concentrations of antimony in California groundwater determined by the Air Force Center for Environmental Excellence (Hunter and Davis, 2004) and by the University of California Division of Agriculture and Natural Resources (Harter, 2003) range from not-detected (detection limit of 0.026 mg/L) to 0.15 mg/L. The uniform detections associated with the Site are considered to be background, and antimony is not considered a COPC.

- **Arsenic** has just one detection out of 12 samples, and it is less than its respective MCL; it is probably part of the natural background and is not a COPC.

- **Barium** is a non-carcinogen with 12 out of 12 detections, all of which are less than the MCL; it is not a COPC.

- **Beryllium** is a carcinogen with only one detection out of 12 samples; the detected concentration is less than the MCL; it is not a COPC.

- **Cadmium** was not detected in the groundwater; it is not a COPC.

- **Chromium (Total)** has one detection in the groundwater out of 12 samples; the detected concentration is greater than the MCL but is less than the tap water PRG for either chromium III or chromium VI; it is not a COPC.

- **Cobalt** has two detections out of 12 samples; it has no MCL, but the detected concentrations are significantly less than the tap water PRG; it is not a COPC.

- **Copper** has two detections that are less than the MCL; it is not a COPC.

- **Lead** has two detections; it does not have an MCL, but the commonly accepted concentration of lead in Southern California drinking water, the federal action level at the tap, 15 µg/L, is significantly larger than the concentrations detected in the groundwater; it is not a COPC.

- **Mercury** has one detection out of 12 samples that is less than the MCL; it is not a COPC.

- **Molybdenum** has 11 detections out of 12 groundwater samples that are all much less than the tap water PRG; it does not have an MCL; it is not a COPC.

- **Nickel** has three detections in the groundwater out of 12 samples that are less than the MCL; it is not a COPC.

- **Selenium** has three detections in the groundwater that are all less than the MCL; it is not a COPC.

- **Silver** is not detected in the groundwater; it is not a COPC.

- **Thallium** is not detected in the groundwater; it is not a COPC.

- **Vanadium** has three detections in 12 groundwater samples that are all less than the tap water PRG; it is not a COPC.

- **Zinc** has five detections in 12 groundwater samples that all are all less than the MCL; it is not a COPC.

This analysis indicates that none of the metals are COPCs in groundwater. Overall, the evaluation indicates that there are no COPCs in the groundwater for risk-based consideration.

7.0 STREAMLINED RISK ASSESSMENT FOR HUMAN HEALTH PROTECTION

This risk assessment of the MTA Division 6 Site is unique in that while there are potential exposure pathways by which exposure to future land use residents might have exposure to environmental COPCs, there are no significant COPCs identified in any of the environmental media upon which to prepare a quantitative risk assessment. On this basis, in effect, ***the Site passes the streamlined risk assessment and is confirmed as a good candidate for closure of the environmental investigation of the property***.

7.1 EXPOSURE AND RISK

Description of the environmental setting in Section 5 resulted in the identification of exposure pathways by which exposure to the COPCs could occur to residents and construction workers in future land use. However, the potentially complete exposure pathways were shown to be incomplete during selection of the COPCs because there were no significant concentrations of the COPCs to support an exposure scenario. The common risk assessment adage is “where there is no exposure, there is no risk”, and where the COPCs are not significant compared to risk-based concentrations, there is no significant exposure.

7.2 UNCERTAINTIES IN THE RISK ASSESSMENT

The risk assessment process, whether traditional or streamlined, must be conducted in a conservative fashion. The risk assessment paradigm (model) is an estimation process because environmental risks cannot be verified (Milloy, 1995). The population required to show unambiguously a significant risk of one in one million would require a population of over 5 trillion (Milloy, 1995), all exposed under the same uniform conditions. These circumstances cannot be achieved on our earth, so we use a process that errs on the conservative, “safe” sides to ensure protection of the public health at the standard of care demanded by society, one-in-one-million to one-in-ten-thousand. This implies that each of the components that make up risk assessment must also be conducted conservatively. When RBCs are used for streamlined risk assessment, the conservatism is already built in from the conservative parameters that were used in the calculation of the RBCs. This conservatism helps to ensure that Type I errors are favored over Type II errors, *i.e.* conservatism favors erring to designate a site as significantly contaminated when it actually may not be, instead of the reverse, designating a site as not contaminated when it actually may be.

8.0 ECOLOGICAL SCREENING EVALUATION

The MTA Division 6 property has been fully developed for over 50 years, and before the passing of the National Environmental Policy Act, 1969, and the California Environmental Quality Act, 1970. The site is almost completely paved, and there is virtually no habitat available for common, threatened, endangered, or special-status species of regulatory interest. Indigenous terrestrial or aquatic species are not present on the Site, and the characterization of ecological risk/hazard is not warranted.

9.0 COMMUNITY PROFILE

This section describes aspects of the community profile.

9.1 LAND USE SURROUNDING THE FACILITY

The community in which the MTA Division 6 facility resides is predominantly residential. Housing varies from small homes to apartments and lofts. Small commercial businesses are located within two blocks of the Site. Main Street is a thoroughfare for Venice, California. It is obvious that adults and children may frequent the surrounding area, but the fencing around the MTA Division 6 facility and complete paving and build-out of the property make entry to the Site unappealing to the casual passer-by. Only authorized personnel are allowed access to MTA Division 6.

9.2 COMMUNITY RELATIONS

The MTA has a community relations function dedicated to listening to and addressing concerns of the community using the transportation system and residing in the area around its facilities. MTA has received complaints from time to time about noise and odors associated with buses at the Division Site. In general, the surrounding community is likely to welcome the departure of the maintenance facility and bus yard in favor of more residential housing.

10.0 CONCLUSIONS AND LIMITATIONS

The conclusions from the streamlined risk assessment are presented here with proper limitations for the work conducted.

10.1 CONCLUSIONS

The Phase II investigation indicates that while there are scattered detections of COPCs in the soil and in the groundwater, there are not high enough concentrations spread over a significant area to constitute an area of concern to be evaluated for risk/hazard. Instead, a methodical evaluation of the detected concentrations in the soil and the groundwater indicates that those concentrations are insignificant when compared with the appropriate residential land use RBCs. The logical conclusion is that there are no viable COPCs requiring completion of risk/hazard calculations to evaluate the significance of the potential threat of exposure posed. To wit,

- Soil vapor testing results from across the Site were all reported as not-detected;
- Detections of PAHs in soil were found to be significantly less than RBCs or detected in samples that were located at greater depth than the surface soil interval of 0-10 feet bgs;
- Detections of TPH as the carbon fractions for C7-C12 (gasoline), C13-C22 (diesel fuel), and C23-C44 (motor oil) yield total concentrations that are less than the risk-based RBC of 8,000 mg/kg developed by the TPHCWG (Vorhees, 1999);
- Representative concentrations for metals in soil are all less than the residential soil PRG without any correction for background;
- Metals concentrations in groundwater samples are less than their MCLs, are less than their respective RBC, or are part of the background.
- Groundwater analytical results for organic chemicals are less than their respective risk-based tap water PRG excepting chloroform which has no MCL or link to historical site activities.

The inconsistent occurrence of the COPCs and the insignificant concentrations compared to their respective RBCs indicates that the COPCs do not qualify as COPCs for evaluation in the risk assessment.

For the MTA Division 6 Site, the COPC concentrations are so trivial that risk/hazard calculations are not needed in order to support a conclusion for environmental decision-making. On the basis of these results, ***the Site passes the streamlined risk assessment and is confirmed as a good candidate for closure of the environmental investigation of the property***.

10.2 LIMITATIONS

The findings and opinions of this report are relevant to the dates of the Site work and should not be relied on to represent conditions at later dates.

MACTEC professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable environmental consultants practicing in this or similar localities. No other warranty, express or implied, is made as to the professional advice included in this report.

The opinions included herein are based on information obtained during the study and on professional experience. If additional information becomes available that might impact the environmental conclusions, we request the opportunity to review the information, reassess the potential concerns, and modify our opinion, if warranted.

11.0 REFERENCES

American Society for Testing and Materials, 1995, Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites, E 1739-95$^{\varepsilon 1}$, West Conshohocken, PA 19428, November 1995, editorial corrections in December 1996.

American Society for Testing and Materials, 2000, Standard Guide for Risk-Based Corrective Action, E 2081-00, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

ASTM, see American Society for Testing and Materials.

Bentley Company, The, 1996. *Environmental Assessment Report, Division 6 Underground Storage Tank Replacement Project.* January 12.

Bradford et al., 1996, Background Concentrations of Trace and Major Elements in California Soils, Kearney Foundation Special Report, UC-Riverside and CAL-EPA DTSC, March.

Burmaster, D.E., and R.H. Harris, 1993, "The Magnitude of Compounding Conservatisms in Superfund Risk Assessments," Risk Analysis, Vol. 13, No. 2, p. 131-134.

California Department of Water Resources, 1961, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology, Bulletin No. 104, State of California, Department of Water Resources, Southern District, June.

Cal/EPA, See California Environmental Protection Agency.

California Environmental Protection Agency, 1994, Preliminary Endangerment Assessment Guidance Manual, State of California Department of Toxic Substances Control, Sacramento, January, Second Printing, June 1999.

California Environmental Protection Agency, 1996, Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities, Prepared by The Office of Scientific Affairs, Sacramento, CA, August.

California Environmental Protection Agency San Francisco Region, 2003, Application of Risk-Based Screening Levels and Decision Making to Sites With Impacted Soil and Groundwater, Volume 1: Summary Tier 1 Lookup Tables, http://www.swrcb.ca.gov/rwqcb2/esl.htm.

EPA, see United States Environmental Protection Agency.

Harter, T., 2003, Groundwater Quality and Groundwater Pollution, Publication 8084, FWQP Reference Sheet 11.2, University of California Division of Agriculture and Natural Resources (http://anrcatalog.ucdavis.edu) in partnership with Natural Resources Conservation Service (http://www.nrce.usda.gov) and Farm Water Quality Planning (http://waterquality.ucanr.org).

Holguin, Fahan & Associates, Inc. (HFA), 1995. *Environmental Laboratory Analytical Results for Samples Collected November 17, 1995.*

HFA, 1997a. *Workplan for Continued Site Assessment at Los Angeles County Metropolitan Transportation Authority, Division 6 Bus Maintenance and Fueling Facility, 100 Sunset Avenue, Venice, California (CRWQCB-LAR ID# 902910152).* July 24.

HFA, 1997b. *Groundwater Assessment at Los Angeles County Metropolitan Transportation Authority, Division 6 Bus Maintenance and Fueling Facility, 100 Sunset Avenue, Venice, California.* August 8.

Hunter, P.M. and B. Davis, 2004, Naturally Occurring Concentrations of Inorganic Chemicals in Ground Water and Soil at California Air Force Installations, Air Force Center for Environmental Excellence, Brooks AFB, Texas, and Department of Toxic Substances Control, Sacramento, California.

MACTEC, Inc., 2004(a), Groundwater Monitoring Report – Fourth Quarter 2003, Los Angeles County Metropolitan Transportation Authority, Division 6, 100 Sunset Avenue, Venice, California, MACTEC Project Number 4525030056, January 13.

MACTEC, 2004b, Report of Phase I Environmental Site Assessment, Metropolitan Transportation Authority Division 6 Maintenance Facility and Bus Yard, 100 Sunset Avenue, Venice, California, MACTEC Project Number 4525030096, March 5.

MACTEC, 2004c, Draft Report of Phase II Environmental Site Assessment, Metropolitan Transportation Authority Division 6 Maintenance Facility and Bus Yard, 100 Sunset Avenue, Venice, California, MACTEC Project Number 4525030096, March 5.

Milloy, Steven J., 1995, Science-Based Risk Assessment, A Piece of the Superfund Puzzle, National Environmental Policy Institute, ISBN 0-9647463-0-1, Washington, DC; *ibid*, 1994, Choices in Risk Assessment, The Role of Science Policy in the Environmental Risk Management Process, prepared for Sandia National Laboratories, sponsored by the U.S. Department of Energy, Office of Environmental Management and Office of Environment, Safety and Health.

NRC, see National Research Council.

National Research Council, 1983, Risk Assessment in the Federal Government: Managing the Process, National Academy Press, Washington, DC.

National Research Council, 1994, Science and Judgment in Risk Assessment, National Academy Press, Washington, DC.

OEHHA, see California Environmental Protection Agency Office of Environmental Health Hazard Assessment.

Poland, J.F., Garrett, A.A., and Sinnott, A., 1959. *Geology, Hydrology, and Chemical Character of Groundwaters in the Torrance–Santa Monica Area, California,* U.S. Geological Survey Water Supply Paper 1461.

Seiler, Fritz A., and Joseph L. Alvarez, 1994, "Definition of a Minimum Significant Risk," Technology: Journal of the Franklin Institute, Vol. 331A, pp. 83-95.

Tyree Organization, Ltd., The, 1999. *Report of Underground Storage Tank Removal at Los Angeles County Metropolitan Transit Authority, Division 6, 100 Sunset Avenue, Venice, California.* May 21.

United States Environmental Protection Agency, 1988, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, EPA/540/G-89/004, OSWER Directive 9355.3-01, Office of Emergency and Remedial Response, Washington, DC 20460, October.

United States Environmental Protection Agency, 1989, Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002, Office of Emergency and Remedial Response, Washington, DC 20460, December.

United States Environmental Protection Agency, 1990, National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300, Environmental Protection Agency, Washington, DC.

United States Environmental Protection Agency, 1991a, Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors," OSWER Directive 9285.6-03, Office of Solid Waste and Emergency Response, Washington, DC 20460, March 25.

United States Environmental Protection Agency, 1991b, Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors," Interim Final, OSWER Directive 9285.6-03, Office of Solid Waste and Emergency Response, Washington, DC 20460, March 25.

United States Environmental Protection Agency, 1991c, Risk Assessment Guidance for Superfund: Volume I -- Human Health Evaluation Manual (Part B: "Development of Risk-based Preliminary Remediation Goals, Interim, OSWER Directive 9285.7-01B, Office of Solid Waste and Emergency Response, Washington, DC 20460, December 13.

United States Environmental Protection Agency, 1992, Guidance for Data Usability in Risk Assessment (Part A), Final, Directive 9285.7-09A, Office of Emergency and Remedial Response, Washington, DC 20460, April.

United States Environmental Protection Agency, 1996a, Soil Screening Guidance: Technical Background Document, EPA/540/R-95/128, Office of Solid Waste and Emergency Response, Washington, DC 20460.

United States Environmental Protection Agency, 1996b, Soil Screening Guidance: User's Guide, EPA/540/R-96/018, Publication 9355.4-23, Office of Solid Waste and Emergency Response, Washington, DC 20460, July.

United States Environmental Protection Agency, 1997, Health Effects Assessment Summary Tables - FY-1997 Update, NTIS PB97-921199LEU, Washington, DC 20460, July, 420 pp.

United States Environmental Protection Agency, 2002, "Region 9 Preliminary Remediation Goals (PRGs) 2002," Stanford J. Smucker, Ph.D., Regional Toxicologist, San Francisco, CA 94105-3901, October 1.

United States Environmental Protection Agency, 2003, Integrated Risk Information System, Internet URL: *http://www.epa.gov/ngispm3/iris/index.html*.

URS Corporation, 1999. *4th Quarter 1999 Groundwater Monitoring Report, Metropolitan Transportation Authority, Division 6, 100 Sunset Avenue, Venice, California.* December.

URS Corporation, 2002. *Groundwater Monitoring Well Installation Report, Metropolitan Transportation Authority, Division 6, 100 Sunset Avenue, Venice, California.* June 12.

Vorhees, D.J., W.H. Weisman, and J.B. Gustafson, 1999, Total Petroleum Hydrocarbon Criteria Working Group, Volume 5, Human Health Risk-Based Evaluation of Petroleum Release Sites: Implementing the Working Group Approach, Amherst Scientific Publishers, Amherst, Massachusetts, June, *http://www.AEHS.com*.

TABLES

Table 1. Soil Vapor Analytical Results

Soil Vapor Boring #	Depth (ft)	Sample Volume (cc)	Sample Date	Analysis for VOCs by EPA method 8260B (µg/L)
SV1	8	90	1/28/2004	ND
SV2	8	90	1/28/2004	ND
SV3	8	90	1/28/2004	ND
SV4	8	90	1/28/2004	ND
SV5	8	90	1/29/2004	ND
SV6	8	90	1/29/2004	ND
SV7	8	90	1/28/2004	ND
SV8	8	30	1/28/2004	ND
SV8	8	90	1/28/2004	ND
SV8	8	210	1/28/2004	ND
SV8	8	90	1/29/2004	ND
SV8 (Dpl)	8	140	1/29/2004	ND
SV9	8	90	1/28/2004	ND
SV10	8	90	1/28/2004	ND
SV11	8	90	1/28/2004	ND
SV12	8	90	1/29/2004	ND
SV13	8	90	1/30/2004	ND
SV14	8	90	1/29/2004	ND
SV15	8	90	1/29/2004	ND
SV16	8	90	1/29/2004	ND
SV17	8	90	1/28/2004	ND
SV17 (Dpl)	8	140	1/28/2004	ND
SV18	9	93	2/25/2004	ND
SV18 (Dpl)	9	443	2/25/2004	ND
SV19	8	90	1/30/2004	ND
SV20	8	90	1/29/2004	ND
SV21	8	90	1/29/2004	ND
SV22	8	90	1/29/2004	ND
SV23	8	90	1/30/2004	ND
SV24	8	90	1/28/2004	ND
SV25	8	90	1/29/2004	ND
SV26	8	90	1/30/2004	ND
SV27	8	90	1/29/2004	ND
SV28	8	90	1/29/2004	ND
SV29	8	90	1/30/2004	ND
SV30	8	90	1/30/2004	ND
SV31	8	90	1/29/2004	ND
SV32	8	90	1/30/2004	ND
SV33	8	90	1/30/2004	ND
SV34	8	90	1/30/2004	ND
SV34 (Dpl)	8	140	1/30/2004	ND

Notes
VOCs - Volatile organic compounds
ND - Not detected over reporting limit (RL)
cc - cubic centimeters
Dpl - Duplicate sample
µg/L - micrograms per liter

Table 2. Soil Analytical Results

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8260B** TPH-g (mg/kg)	EPA 9010B/335.2 Cyanide (mg/kg)	EPA 8270C/8310 PAH (mg/kg)	EPA 8151 Herbicides (µg/kg)	pH (pH units)	EPA 8082 PCBs (µg/kg)	EPA 8260B VOCs (µg/kg)
MB1	Area 1	1	2/12/2004	52	-	-	-	ND	-	-	ND	-
MB1	Area 1	5	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB1	Area 1	15	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB3	Area 1	1	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB3	Area 1	5	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB3	Area 1	15	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB4	Area 1	1	2/13/2004	6300	-	-	-	Pyrene: 0.47	-	-	ND	Methylene Chloride:66* PCE: 9.6
MB4	Area 1	5	2/13/2004	5000	-	-	-	ND	-	-	ND	Methylene Chloride:54*
MB4	Area 1	15	2/13/2004	ND	-	-	-	ND	-	-	ND	-
MB5	Area 1	1	2/13/2004	21	-	-	-	ND	-	-	ND	-
MB5	Area 1	5	2/13/2004	390	-	-	-	ND	-	-	ND	ND
MB5	Area 1	15	2/13/2004	26	-	-	-	ND	-	-	ND	-
MB6	Area 1	1	2/13/2004	5600	-	-	-	Fluoranthene: 0.43 Pyrene: 0.44	-	-	ND	ND
MB6	Area 1	5	2/13/2004	ND	-	-	-	ND	-	-	ND	-
MB6	Area 1	15	2/13/2004	21	-	-	-	ND	-	-	ND	-
MB19	Area 1	1.5	2/13/2004	-	-	-	-	-	-	-	-	ND
MB19	Area 1	8.5	2/13/2004	-	-	-	ND	ND	-	-	-	-
MB19	Area 1	26	2/13/2004	-	-	-	ND	ND	-	-	-	-
GS1	Area 2	5	2/11/2004	-	-	-	-	-	-	-	-	ND
GS1	Area 2	5.5	2/11/2004	220	-	-	-	-	-	-	-	-
GS1	Area 2	10	2/11/2004	-	-	-	-	-	-	-	-	ND
GS1	Area 2	10.5	2/11/2004	25	-	-	-	-	-	-	-	-
MB7B	Area 2	1	2/13/2004	-	-	-	-	-	-	-	-	ND
MB7A	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB7A	Area 2	1.5	2/10/2004	1200	-	-	-	ND	-	-	ND	-
MB7B	Area 2	5	2/13/2004	-	-	-	-	-	-	-	-	ND
MB7B	Area 2	5.5	2/13/2004	22	-	-	-	ND	-	-	ND	-
MB7B	Area 2	15	2/13/2004	370	-	-	-	ND	-	-	ND	ND
MB8	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB8	Area 2	1.5	2/10/2004	4200	-	-	-	ND	-	-	ND	-
MB8	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB8	Area 2	5.5	2/10/2004	27	-	-	-	ND	-	-	ND	-
MB8	Area 2	15	2/10/2004	15	-	-	-	ND	-	-	ND	ND
MB9	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB9	Area 2	1.5	2/10/2004	300	-	-	-	ND	-	-	ND	-
MB9	Area 2	6	2/10/2004	-	-	-	-	-	-	-	-	ND
MB9	Area 2	6.5	2/10/2004	44	-	-	-	ND	-	-	ND	-
MB9	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB9	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB10	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB10	Area 2	1.5	2/10/2004	3300	-	-	-	Pyrene: 0.47	-	-	ND	-
MB10	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB10	Area 2	5.5	2/10/2004	81	-	-	-	ND	-	-	ND	-
MB10	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB10	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB11	Area 2	1	2/12/2004	-	-	-	-	-	-	-	-	ND
MB11	Area 2	1.5	2/12/2004	2900	-	-	-	Fluoranthene: 0.42 Pyrene: 0.46	-	-	ND	-
MB11	Area 2	5	2/12/2004	-	-	-	-	-	-	-	-	ND
MB11	Area 2	5.5	2/12/2004	ND	-	-	-	ND	-	-	ND	-
MB11	Area 2	15	2/12/2004	-	-	-	-	-	-	-	-	ND
MB11	Area 2	15.5	2/12/2004	20	-	-	-	ND	-	-	ND	-
MB12	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB12	Area 2	1.5	2/10/2004	1600	-	-	-	ND	-	-	ND	-
MB12	Area 2	3	2/10/2004	-	-	-	-	-	-	-	-	ND
MB12	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB12	Area 2	5.5	2/10/2004	630	-	-	-	ND	-	-	ND	-
MB12	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB12	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB13	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	ND
MB13	Area 2	1.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB13	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB13	Area 2	5.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB13	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB13	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-

Table 2. Soil Analytical Results

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8260B** TPH-g (mg/kg)	EPA 9010B/335.2 Cyanide (mg/kg)	EPA 8270C/8310 PAH (mg/kg)	EPA 8151 Herbicides (µg/kg)	pH (pH units)	EPA 8082 PCBs (µg/kg)	EPA 8260B VOCs (µg/kg)
MB20	Area 2	1	2/10/2004	-	-	-	-	-	-	-	-	1,3,5-TMB: 13 1,2,4-TMB: 13
MB20	Area 2	1.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB20	Area 2	5	2/10/2004	-	-	-	-	-	-	-	-	ND
MB20	Area 2	5.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB20	Area 2	15	2/10/2004	-	-	-	-	-	-	-	-	ND
MB20	Area 2	15.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
MB17	Area 3	3	2/13/2004	-	-	-	-	-	-	-	-	ND
MB17	Area 3	3.5	2/13/2004	-	-	-	ND	ND	ND	-	-	-
MB17	Area 3	10	2/13/2004	-	-	-	-	-	-	-	-	ND
MB17	Area 3	15	2/13/2004	-	-	-	ND	ND	ND	-	-	-
CO1	Area 3	5	2/11/2004	-	-	-	-	-	-	-	-	ND
CO1	Area 3	5.5	2/11/2004	290	-	-	-	-	-	-	-	-
CO1	Area 3	10	2/11/2004	-	-	-	-	-	-	-	-	ND
CO1	Area 3	10.5	2/11/2004	ND	-	-	-	-	-	-	-	-
DI1	Area 3	5	2/10/2004	-	-	ND	-	-	-	-	-	ND
DI1	Area 3	5.5	2/10/2004	-	480	-	-	-	-	-	-	-
DI1	Area 3	10	2/10/2004	-	-	4.5	-	-	-	-	-	Total VOCs: 1736.1 **See note #1**
DI1	Area 3	10.5	2/10/2004	-	450	-	-	-	-	-	-	-
DI1	Area 3	15	2/10/2004	-	-	ND	-	-	-	-	-	MTBE: 71 TBA: 240
DI1	Area 3	15.5	2/10/2004	-	ND	-	-	-	-	-	-	-
DI2	Area 3	5	2/11/2004	-	-	ND	-	-	-	-	-	ND
DI2	Area 3	5.5	2/11/2004	-	510	-	-	-	-	-	-	-
DI2	Area 3	10	2/11/2004	-	-	ND	-	-	-	-	-	ND
DI2	Area 3	10.5	2/11/2004	-	410	-	-	-	-	-	-	-
DI2	Area 3	15	2/11/2004	-	-	ND	-	-	-	-	-	ND
DI2	Area 3	15.5	2/11/2004	-	ND	-	-	-	-	-	-	-
OP1	Area 3	5	2/11/2004	-	-	-	-	-	-	-	-	ND
OP1	Area 3	5.5	2/11/2004	230	-	-	-	-	-	-	-	-
OP1	Area 3	10	2/11/2004	-	-	ND	-	-	-	-	-	ND
OP1	Area 3	10.5	2/11/2004	220	-	-	-	-	-	-	-	-
MB14	Area 4	1	2/13/2004	-	-	-	-	-	-	-	-	ND
MB14	Area 4	1.5	2/13/2004	49	-	-	-	ND	-	-	-	-
MB14	Area 4	5.5	2/13/2004	12	-	-	-	ND	-	-	-	ND
MB14	Area 4	10.5	2/13/2004	29	-	-	-	ND	-	-	-	ND
MB15	Area 4	1	2/13/2004	-	-	-	-	-	-	-	-	ND
MB15	Area 4	1.5	2/13/2004	18	-	-	-	ND	-	-	-	-
MB15	Area 4	5.5	2/13/2004	22	-	-	-	ND	-	-	-	ND
MB15	Area 4	10.5	2/13/2004	ND	-	-	-	ND	-	-	-	ND
MB15	Area 4	15.5	2/13/2004	22	-	-	-	-	-	-	-	-
MB16	Area 4	1.5	2/13/2004	ND	-	-	-	ND	-	-	-	ND
MB16	Area 4	5.5	2/13/2004	ND	-	-	-	ND	-	-	-	ND
MB16	Area 4	10	2/13/2004	11	-	-	-	ND	-	-	-	ND
MB18	Area 4	1	2/13/2004	230	-	-	-	ND	-	-	-	ND
MB18	Area 4	3	2/13/2004	-	-	-	-		-	10.47	-	-
MB21	Area 4	1	2/13/2004	46	-	-	-	ND	-	-	-	ND
MB21	Area 4	5	2/13/2004	-	-	-	-	-	-	-	-	ND
MB21	Area 4	5.5	2/13/2004	19	-	-	-	ND	-	-	-	-
MB21	Area 4	10	2/13/2004	25	-	-	-	ND	-	-	-	ND
MB22	Area 4	1	2/13/2004	-	-	-	-	-	-	-	-	ND
MB22	Area 4	1.5	2/13/2004	22	-	-	-	ND	-	-	-	-
MB22	Area 4	5	2/13/2004	-	-	-	-	-	-	-	-	ND
MB22	Area 4	5.5	2/13/2004	16	-	-	-	ND	-	-	-	-
MB22	Area 4	10	2/13/2004	-	-	-	-	-	-	-	-	ND
MB22	Area 4	10.5	2/13/2004	ND	-	-	-	ND	-	-	-	-
MB23	Area 4	1	2/13/2004	27	-	-	-	ND	-	-	-	ND
MB23	Area 4	5	2/13/2004	19	-	-	-	ND	-	-	-	ND
MB23	Area 4	10	2/13/2004	27	-	-	-	ND	-	-	-	ND
MB24	Area 4	1	2/13/2004	95	-	-	-	ND	-	-	-	ND
MB24	Area 4	5	2/13/2004	ND	-	-	-	ND	-	-	-	ND
MB24	Area 4	10	2/13/2004	14	-	-	-	ND	-	-	-	ND
MB25	Area 4	1	2/11/2004	-	-	-	-	-	-	-	-	ND
MB25	Area 4	1.5	2/11/2004	25	-	-	-	ND	-	-	-	-
MB25	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND

Table 2. Soil Analytical Results

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8260B** TPH-g (mg/kg)	EPA 9010B/335.2 Cyanide (mg/kg)	EPA 8270C/8310 PAH (mg/kg)	EPA 8151 Herbicides (µg/kg)	pH (pH units)	EPA 8082 PCBs (µg/kg)	EPA 8260B VOCs (µg/kg)
MB25	Area 4	5.5	2/11/2004	23	-	-	-	ND	-	-	-	-
MB25	Area 4	10	2/11/2004	-	-	-	-	-	-	-	-	ND
MB25	Area 4	10.5	2/11/2004	ND	-	-	-	ND	-	-	-	-
MB26	Area 4	1	2/11/2004	-	-	-	-	-	-	-	-	ND
MB26	Area 4	1.5	2/11/2004	ND	-	-	-	ND	-	-	-	-
MB26	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND
MB26	Area 4	5.5	2/11/2004	16	-	-	-	ND	-	-	-	-
MB26	Area 4	10	2/11/2004	-	-	-	-	-	-	-	-	ND
MB26	Area 4	10.5	2/11/2004	17	-	-	-	ND	-	-	-	-
MB27	Area 4	1	2/12/2004	-	-	-	-	-	-	-	-	ND
MB27	Area 4	1.5	2/12/2004	ND	-	-	-	ND	-	-	-	-
MB27	Area 4	5	2/12/2004	-	-	-	-	-	-	-	-	ND
MB27	Area 4	5.5	2/12/2004	ND	-	-	-	ND	-	-	-	-
MB27	Area 4	10	2/12/2004	-	-	-	-	-	-	-	-	ND
MB27	Area 4	10.5	2/12/2004	14	-	-	-	ND	-	-	-	-
MB28	Area 4	1	2/12/2004	-	-	-	-	-	-	-	-	ND
MB28	Area 4	1.5	2/12/2004	88	-	-	-	ND	-	-	-	-
MB28	Area 4	5	2/12/2004	-	-	-	-	-	-	-	-	ND
MB28	Area 4	5.5	2/12/2004	340	-	-	-	ND	-	-	-	-
MB28	Area 4	10	2/12/2004	-	-	-	-	-	-	-	-	ND
MB28	Area 4	10.5	2/12/2004	42	-	-	-	ND	-	-	-	-
MB29	Area 4	2	2/11/2004	60	-	-	-	ND	-	-	-	-
MB29	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND
MB29	Area 4	5.5	2/11/2004	51	-	-	-	ND	-	-	-	-
MB29	Area 4	10	2/11/2004	-	-	-	-	-	-	-	-	ND
MB29	Area 4	10.5	2/11/2004	45	-	-	-	ND	-	-	-	-
MB30	Area 4	1	2/11/2004	-	-	-	-	-	-	-	-	ND
MB30	Area 4	1.5	2/11/2004	230	-	-	-	ND	-	-	-	-
MB30	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND
MB30	Area 4	5.5	2/11/2004	100	-	-	-	ND	-	-	-	-
MB31	Area 4	3	2/12/2004	-	-	-	-	-	-	-	-	ND
MB31	Area 4	3.5	2/12/2004	51	-	-	-	ND	-	-	ND	-
MB31	Area 4	15	2/12/2004	-	-	-	-	-	-	-	-	ND
MB31	Area 4	15.5	2/12/2004	51	-	-	-	ND	-	-	ND	-
MB32	Area 4	3.5	2/11/2004	130	-	-	-	ND	-	-	ND	ND
MB32	Area 4	15	2/11/2004	-	-	-	-	-	-	-	-	ND
MB32	Area 4	15.5	2/11/2004	20	-	-	-	ND	-	-	ND	-
MB33	Area 4	5	2/11/2004	-	-	-	-	-	-	-	-	ND
MB33	Area 4	5.5	2/11/2004	26	-	-	-	ND	-	-	ND	-
MB33	Area 4	15	2/11/2004	26	-	-	-	ND	-	-	ND	ND
CL1	Area 5	10	2/11/2004	-	-	-	-	-	-	-	-	ND
CL1	Area 5	10.5	2/11/2004	150	-	-	-	-	-	-	-	-
CL1	Area 5	15	2/11/2004	-	-	-	-	-	-	-	-	MTBE: 5.1
CL1	Area 5	15.5	2/11/2004	21	-	-	-	-	-	-	-	-
CL2	Area 5	10	2/11/2004	-	-	-	-	-	-	-	-	Naphthalene: 5.2
CL2	Area 5	10.5	2/11/2004	1200	-	-	-	-	-	-	-	-

Table 2. Soil Analytical Results

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8260B** TPH-g (mg/kg)	EPA 9010B/335.2 Cyanide (mg/kg)	EPA 8270C/8310 PAH (mg/kg)	EPA 8151 Herbicides (µg/kg)	pH (pH units)	EPA 8082 PCBs (µg/kg)	EPA 8260B VOCs (µg/kg)
CL2	Area 5	15	2/11/2004	-	-	-	-	-	-	-	-	Total VOCs: 251 **See note # 2**
CL2	Area 5	15.5	2/11/2004	840	-	-	-	-	-	-	-	-
CL3	Area 5	10	2/11/2004	-	-	-	-	-	-	-	-	1,3,5-TMB: 5.4
CL3	Area 5	10.5	2/11/2004	780	-	-	-	-	-	-	-	-
CL3	Area 5	15	2/11/2004	-	-	-	-	-	-	-	-	ND
CL3	Area 5	15.5	2/11/2004	16	-	-	-	-	-	-	-	-
CL4	Area 5	1	2/10/2004	-	-	-	-	-	-	-	-	m,p-Xylene: 13 o-Xylene: 5.3
CL4	Area 5	1.5	2/10/2004	1000	-	-	-	ND	-	-	ND	-
CL4	Area 5	5	2/10/2004	-	-	-	-	-	-	-	-	ND
CL4	Area 5	5.5	2/10/2004	220	-	-	-	ND	-	-	ND	-
CL4	Area 5	15	2/10/2004	-	-	-	-	-	-	-	-	ND
CL4	Area 5	15.5	2/10/2004	22	-	-	-	ND	-	-	ND	-
CL5	Area 5	1	2/10/2004	-	-	-	-	-	-	-	-	ND
CL5	Area 5	1.5	2/10/2004	470	-	-	-	ND	-	-	ND	-
CL5	Area 5	5	2/10/2004	-	-	-	-	-	-	-	-	ND
CL5	Area 5	5.5	2/10/2004	ND	-	-	-	ND	-	-	ND	-
CL5	Area 5	15	2/10/2004	-	-	-	-	-	-	-	-	ND
CL5	Area 5	15.5	2/10/2004	26	-	-	-	ND	-	-	ND	-
CL6	Area 5	10	2/12/2004	-	-	-	-	-	-	-	-	ND
CL6	Area 5	10.5	2/12/2004	ND	-	-	-	-	-	-	-	-
CL6	Area 5	15	2/12/2004	-	-	-	-	-	-	-	-	ND
CL6	Area 5	15.5	2/12/2004	11	-	-	-	-	-	-	-	-
CL7	Area 5	10	2/12/2004	-	-	-	-	-	-	-	-	ND
CL7	Area 5	10.5	2/12/2004	28	-	-	-	-	-	-	-	-
CL7	Area 5	15	2/12/2004	-	-	-	-	-	-	-	-	ND
CL7	Area 5	15.5	2/12/2004	ND	-	-	-	-	-	-	-	-
CL8	Area 5	10	2/12/2004	-	-	-	-	-	-	-	-	ND
CL8	Area 5	10.5	2/12/2004	20	-	-	-	-	-	-	-	-
CL8	Area 5	14	2/13/2004	-	-	-	-	-	-	-	-	ND
CL8	Area 5	14.5	2/13/2004	110	-	-	-	**See note # 3**	-	-	-	-
CL9	Area 5	10	2/13/2004	-	-	-	-	-	-	-	-	ND
CL9	Area 5	10.5	2/13/2004	35	-	-	-	-	-	-	-	-
CL9	Area 5	15	2/13/2004	-	-	-	-	-	-	-	-	ND
CL9	Area 5	15.5	2/13/2004	22	-	-	-	-	-	-	-	-
SV1	Arrea 1	4	1/28/2004	-	-	-	ND	ND	ND	-	-	-
SV5	Arrea 3	4	1/29/2004	-	960	ND**	-	-	-	-	-	Tetrachloroethene: 19 1,2,4 TMB: 13
SV14	Area 5	4.5	1/29/2004	-	-	-	ND	ND	ND	-	-	-
SV31	W of Area 2	4.5	1/29/2004	-	-	-	ND	Benzo (g,h,i)-Perylene: 350	ND	-	-	-
SV33	Area 4	4	1/30/2004	-	-	-	-	-	-	-	-	ND
SV33	Area 4	4.5	1/30/2004	-	-	-	ND	ND	ND	-	-	-

All tables Created By: JL, 2/26/04
All tables Checked By: SP, 2/27/04

Notes:
VOCs: Volatile organic compounds
ND: Not detected over reporting limit (RL)
TRPH: Total recoverable petroleum hydrocarbons
TPH-d: Total Petroleum Hydrocarbons as Diesel
TPH-g: Total Petroleum Hydrocarbons as gasoline
BTEX: B(benzene) T(toluene) E(ethylbenzene) X(total xylenes)
MTBE: Methyl tert-butyl ether
PAH: Poly aromatic hydrocarbons
PCB: Polychlorinated biphenyls
TMB: Trimethyl benzene
PCE: Tetrachloroethene
* The two methylene chloride detections from boring MB4 are suspected to be from laboratory cross contamination
** THP-g analysis was performed using EPA method 8015M on this sample
"-" - Sample not analyzed for that analyte
mg/kg - milligrams per kilogram
µg/kg - micrograms per kilogram
1: Ethylbenzene: 13; m,p-xylene: 31; o-xylene: 7.7; isopropylbenzene: 6.4; n-propylbzene: 24; 1,3,5-TMB: 300; 1,2,4-TMB: 800; sec-butylbenzene: 22; p-isopropyltoluene: 28; n-Butylbenzene: 84; naphthalene: 290; TBA: 130
2: MTBE: 9.5; benzene: 15; ethylbenzene: 53; m,p-xylene: 11; o-xylene: 15; isopropylbenzene: 11; n-propylbenzene: 14; 1,3,5-TMB: 27; 1,2,4-TMB: 82; p-isopropyltoluene: 6; n-Butylbenzene: 7.5
3: pyrene: 1.4; benzo (a) anthracene: 1.3; chrysene: 1.5; benzo (k) fluoranthene: 1.3; benzo (b) fluoranthene: 1.4; benzo (a) pyrene: 0.88

Table 3. Title 22 Metals Soil Analytical Results (mg/kg)

Sample ID	Area	Depth (ft)	Date Collected	Matrix	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Chromium (Total) mg/kg	Cobalt mg/kg	Copper mg/kg	Lead mg/kg	Mercury mg/kg	Molybdenum mg/kg	Nickel mg/kg	Selenium mg/kg	Silver mg/kg	Thallium mg/kg	Vanadium mg/kg	Zinc mg/kg
MB7	Area 2	1.5	2/10/2004	Soil	< 0.75	3.56	75.9	< 0.25	1.15	23.6	8.78	102	120	**0.111**	< 0.25	14.1	0.833	< 0.25	< 0.75	33.8	101
MB7	Area 2	5.5	2/13/2004	Soil	< 0.75	2.24	14.7	< 0.25	< 0.5	7.56	2.24	6.74	0.989	< 0.0835	4.70	8.32	< 0.75	< 0.25	< 0.75	13.3	7.33
MB7	Area 2	15	2/13/2004	Soil	< 0.75	3.53	26.7	< 0.25	< 0.5	13.1	3.40	31.0	43.1	< 0.0835	0.356	11.0	< 0.75	< 0.25	< 0.75	22.1	39.4
MB8	Area 2	1.5	2/10/2004	Soil	< 0.75	4.46	88.8	< 0.25	0.826	12.6	13.8	25	15.5	< 0.0835	0.562	10.2	0.898	0.944	< 0.75	21.4	42.3
MB8	Area 2	5.5	2/10/2004	Soil	< 0.75	2.87	16.8	< 0.25	0.533	7.07	2.22	7.36	3.22	< 0.0835	< 0.25	8.19	< 0.75	< 0.25	< 0.75	11.7	11.5
MB8	Area 2	15	2/10/2004	Soil	< 0.75	1.96	27.2	< 0.25	0.532	7.56	2.49	5.27	1.25	< 0.0835	0.342	8.04	< 0.75	< 0.25	< 0.75	9.8	10.9
MB9	Area 2	1.5	2/10/2004	Soil	< 0.75	2.48	19.6	< 0.25	0.537	10.5	1.92	26.2	10.9	< 0.0835	0.3	6.91	< 0.75	< 0.25	< 0.75	9.12	28.7
MB9	Area 2	6.5	2/10/2004	Soil	< 0.75	1.61	9.95	< 0.25	< 0.5	5.35	1.65	10	0.938	< 0.0835	< 0.25	6.01	< 0.75	< 0.25	< 0.75	8.24	9.27
MB9	Area 2	15.5	2/10/2004	Soil	< 0.75	< 0.75	89	< 0.69	0.724	18.2	6.47	16	5.3	< 0.0835	< 0.25	15	1.21	< 0.25	< 0.75	30.1	28.5
MB10	Area 2	1.5	2/10/2004	Soil	< 0.75	5.56	87.5	< 0.25	0.811	12.1	5.69	32.8	15.1	< 0.0835	0.406	10.9	< 0.75	< 0.25	< 0.75	21.9	60.8
MB10	Area 2	5.5	2/10/2004	Soil	< 0.75	2.18	12.8	< 0.25	< 0.5	6.71	2.01	25	1.6	< 0.0835	< 0.25	4.91	< 0.75	< 0.25	< 0.75	6.03	15.1
MB10	Area 2	15.5	2/10/2004	Soil	< 0.75	0.972	50.8	0.371	0.576	9.89	3.75	12.2	3.28	< 0.0835	< 0.25	8.53	< 0.75	< 0.25	< 0.75	17.3	23.4
MB11	Area 2	1.5	2/12/2004	Soil	< 0.75	4.11	49.8	< 0.25	< 0.5	7.9	3.28	7.3	6.14	< 0.0835	0.409	8.08	1.27	< 0.25	< 0.75	12.9	29.6
MB11	Area 2	5.5	2/12/2004	Soil	< 0.75	0.946	16.8	< 0.25	< 0.5	4.58	1.41	1.25	< 0.5	< 0.0835	< 0.25	4.4	< 0.75	< 0.25	< 0.75	5.24	2.41
MB11	Area 2	15.5	2/12/2004	Soil	< 0.75	0.883	16.2	< 0.25	< 0.5	5.69	1.6	1.75	< 0.5	< 0.0835	0.39	6.3	< 0.75	< 0.25	< 0.75	6.54	11.9
MB12	Area 2	1.5	2/10/2004	Soil	< 0.75	3.82	39.9	< 0.25	0.524	9.49	4.16	45.7	11.6	< 0.0835	0.335	7.14	< 0.75	< 0.25	< 0.75	11.7	46.3
MB12	Area 2	5.5	2/10/2004	Soil	< 0.75	2.62	17.8	< 0.25	< 0.5	6.24	4.16	23.7	2.44	< 0.0835	< 0.25	5.43	< 0.75	< 0.25	< 0.75	6.28	19.3
MB12	Area 2	15.5	2/10/2004	Soil	< 0.75	< 0.75	38.1	< 0.25	< 0.5	6.49	5.19	7.45	2.16	0.1	< 0.25	5.87	< 0.75	< 0.25	< 0.75	10.4	17.2
MB13	Area 2	1.5	2/10/2004	Soil	< 0.75	1.76	12.8	< 0.25	< 0.5	4.64	1.67	34	1.33	< 0.0835	< 0.25	5.86	< 0.75	< 0.25	< 0.75	7.21	22.6
MB13	Area 2	5.5	2/10/2004	Soil	< 0.75	1.27	8.82	< 0.25	< 0.5	2.55	0.883	8.27	1.65	< 0.0835	< 0.25	2.75	< 0.75	< 0.25	< 0.75	3.58	8.53
MB13	Area 2	15.5	2/10/2004	Soil	< 0.75	1.82	118	0.595	0.683	26.2	11.2	15.8	5.43	< 0.0835	< 0.25	14.6	0.962	< 0.25	< 0.75	43.5	37.8
MB20	Area 2	1.5	2/10/2004	Soil	< 0.75	1.94	17.1	< 0.25	0.579	7.02	2.43	19.7	18.9	< 0.0835	< 0.25	7.19	< 0.75	< 0.25	< 0.75	11.2	58.8
MB20	Area 2	5.5	2/10/2004	Soil	< 0.75	1.58	21.2	< 0.25	0.686	7.32	2.56	41.3	28.2	< 0.0835	< 0.25	6.77	< 0.75	< 0.25	< 0.75	10.2	54.8
MB20	Area 2	15.5	2/10/2004	Soil	< 0.75	< 0.75	99.8	< 0.445	0.789	19	11.5	21.2	5.94	< 0.0835	< 0.25	13.5	1.2	< 0.25	< 0.75	33.2	39.2
MB17	Area 3	3.5	2/13/2004	Soil	< 0.75	3.33	44.1	< 0.25	< 0.5	13.0	4.69	63.8	97.1	**0.111**	4.79	12.5	< 0.75	< 0.25	< 0.75	24.1	59.9
MB17	Area 3	15	2/13/2004	Soil	< 0.75	< 0.75	71.1	0.562	< 0.5	17.1	7.27	10.4	4.23	< 0.0835	< 0.25	10.6	0.846	< 0.25	< 0.75	36.0	26.5
MB14	Area 4	1.5	2/13/2004	Soil	< 0.75	2.58	16.0	< 0.25	< 0.5	10.6	2.99	6.56	5.35	< 0.0835	< 0.25	9.99	< 0.75	< 0.25	< 0.75	15.3	9.83
MB14	Area 4	5.5	2/13/2004	Soil	< 0.75	1.69	12.9	< 0.25	< 0.5	5.12	1.95	2.25	0.71	< 0.0835	0.254	7.48	< 0.75	< 0.25	< 0.75	9.53	7.46
MB14	Area 4	10.5	2/13/2004	Soil	< 0.75	2.07	13.8	< 0.25	< 0.5	6.45	2.00	8.67	2.56	< 0.0835	< 0.25	6.74	< 0.75	< 0.25	< 0.75	9.29	8.04
MB15	Area 4	1.5	2/13/2004	Soil	< 0.75	1.28	11.4	< 0.25	< 0.5	3.89	1.73	5.90	1.81	< 0.0835	< 0.25	5.12	< 0.75	< 0.25	< 0.75	6.85	6.68
MB15	Area 4	5.5	2/13/2004	Soil	< 0.75	1.71	14.3	< 0.25	< 0.5	9.35	2.37	2.69	1.32	< 0.0835	< 0.25	7.20	< 0.75	< 0.25	< 0.75	10.3	7.70
MB15	Area 4	10.5	2/13/2004	Soil	< 0.75	2.96	15.4	< 0.25	< 0.5	6.27	2.23	2.25	1.08	< 0.0835	< 0.25	7.83	< 0.75	< 0.25	< 0.75	13.6	7.26
MB16	Area 4	1.5	2/13/2004	Soil	< 0.75	2.65	15.9	< 0.25	< 0.5	6.66	2.46	2.30	0.957	< 0.0835	< 0.25	8.60	< 0.75	< 0.25	< 0.75	13.3	9.38
MB16	Area 4	5.5	2/13/2004	Soil	< 0.75	2.09	12.5	< 0.25	< 0.5	5.20	2.00	1.98	1.02	< 0.0835	< 0.25	7.36	< 0.75	< 0.25	< 0.75	9.42	7.01
MB16	Area 4	10	2/13/2004	Soil	< 0.75	2.24	15.4	< 0.25	< 0.5	6.49	2.11	3.34	0.820	< 0.0835	< 0.25	7.77	0.763	< 0.25	< 0.75	11.9	9.68
MB18	Area 4	1	2/13/2004	Soil	0.882	2.57	56.5	< 0.25	< 0.5	7.04	3.38	79.4	189	**0.108**	< 0.25	8.11	< 0.75	< 0.25	< 0.75	9.24	63.5
MB18	Area 4	3	2/13/2004	Soil	-	-	-	-	-	-	-	-	< 0.5	-	-	-	-	-	-	-	-
MB21	Area 4	1	2/13/2004	Soil	< 0.75	3.22	16.3	< 0.25	< 0.5	7.89	2.76	3.81	2.79	< 0.0835	4.48	9.78	< 0.75	< 0.25	< 0.75	15.8	8.95
MB21	Area 4	5.5	2/13/2004	Soil	< 0.75	2.57	15.5	< 0.25	< 0.5	8.20	2.52	3.15	1.01	< 0.0835	0.311	8.82	0.979	< 0.25	< 0.75	14.1	7.74
MB21	Area 4	10	2/13/2004	Soil	< 0.75	2.30	17.3	< 0.25	< 0.5	6.94	2.29	6.23	2.58	< 0.0835	< 0.25	6.57	< 0.75	< 0.25	< 0.75	12.1	9.82
MB22	Area 4	1.5	2/13/2004	Soil	< 0.75	2.97	15.2	< 0.25	< 0.5	8.96	2.70	4.91	1.18	< 0.0835	< 0.25	9.25	< 0.75	< 0.25	< 0.75	17.2	9.74
MB22	Area 4	5.5	2/13/2004	Soil	< 0.75	2.26	14.3	< 0.25	< 0.5	8.37	2.28	9.25	1.26	< 0.0835	< 0.25	7.94	< 0.75	< 0.25	< 0.75	14.7	11.1
MB22	Area 4	10.5	2/13/2004	Soil	< 0.75	1.68	29.2	< 0.25	< 0.5	9.34	3.17	6.18	1.38	< 0.0835	< 0.25	9.94	< 0.75	< 0.25	< 0.75	17.2	14.0
MB23	Area 4	1	2/13/2004	Soil	< 0.75	2.99	17.7	< 0.25	< 0.5	8.68	2.74	4.44	1.54	< 0.0835	< 0.25	8.91	0.751	< 0.25	< 0.75	15.4	8.16
MB23	Area 4	5	2/13/2004	Soil	< 0.75	2.54	13.4	< 0.25	< 0.5	6.00	2.28	2.22	0.866	< 0.0835	4.75	8.47	0.866	< 0.25	< 0.75	12.1	7.62
MB23	Area 4	10	2/13/2004	Soil	< 0.75	2.71	26.9	< 0.25	< 0.5	6.85	2.56	3.10	1.21	< 0.0835	4.62	8.03	0.773	< 0.25	< 0.75	11.7	10.8
MB24	Area 4	1	2/13/2004	Soil	< 0.75	3.11	18.2	< 0.25	< 0.5	9.18	2.71	17.7	26.5	< 0.0835	< 0.25	9.37	< 0.75	< 0.25	< 0.75	14.8	20.5
MB24	Area 4	5	2/13/2004	Soil	< 0.75	1.49	10.5	< 0.25	< 0.5	4.09	1.36	1.75	0.564	< 0.0835	< 0.25	4.59	< 0.75	< 0.25	< 0.75	6.24	6.20
MB24	Area 4	10	2/13/2004	Soil	< 0.75	2.20	14.6	< 0.25	< 0.5	5.80	2.48	7.73	15.0	< 0.0835	< 0.25	7.63	< 0.75	< 0.25	< 0.75	11.1	11.7
MB25	Area 4	1.5	2/11/2004	Soil	< 0.75	2.03	14.4	< 0.25	< 0.5	6.18	2.08	2.13	1.75	< 0.0835	< 0.25	7.17	< 0.75	< 0.25	< 0.75	9.56	10.3
MB25	Area 4	5.5	2/11/2004	Soil	< 0.75	1.08	9.21	< 0.25	< 0.5	3.77	1.02	1.23	0.809	< 0.0835	< 0.25	3.63	< 0.75	< 0.25	< 0.75	4.89	5.19
MB25	Area 4	10.5	2/11/2004	Soil	< 0.75	2.86	15.5	< 0.25	< 0.5	6.99	2.52	2.14	3.05	< 0.0835	< 0.25	9.64	< 0.75	0.276	< 0.75	12.8	7.94
MB26	Area 4	1.5	2/11/2004	Soil	< 0.75	2.16	11.5	< 0.25	< 0.5	4.22	1.37	1.76	< 0.5	< 0.0835	< 0.25	4.83	0.866	< 0.25	< 0.75	5.63	4.27
MB26	Area 4	5.5	2/11/2004	Soil	< 0.75	2.77	14.4	< 0.25	< 0.5	5.65	2.06	1.89	1.64	< 0.0835	< 0.25	7.1	< 0.75	< 0.25	< 0.75	10.4	7.88
MB26	Area 4	10.5	2/11/2004	Soil	< 0.75	2.57	16.5	< 0.25	< 0.5	6.52	2.62	6.06	3.23	< 0.0835	< 0.25	9.45	< 0.75	< 0.25	< 0.75	14.5	8.92

Table 3. Title 22 Metals Soil Analytical Results (mg/kg)

Sample ID	Area	Depth (ft)	Date Collected	Matrix	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Chromium (Total) mg/kg	Cobalt mg/kg	Copper mg/kg	Lead mg/kg	Mercury mg/kg	Molybdenum mg/kg	Nickel mg/kg	Selenium mg/kg	Silver mg/kg	Thallium mg/kg	Vanadium mg/kg	Zinc mg/kg
MB27	Area 4	1.5	2/12/2004	Soil	< 0.75	1.32	9.08	< 0.25	< 0.5	3.07	1.06	2.02	< 0.5	< 0.0835	< 0.25	3.86	0.941	< 0.25	< 0.75	4.63	< 1
MB27	Area 4	5.5	2/12/2004	Soil	< 0.75	1.71	11.41	< 0.25	< 0.5	6	1.41	2.04	< 0.5	< 0.0835	< 0.25	5.49	0.954	< 0.25	< 0.75	5.73	2.65
MB27	Area 4	10.5	2/12/2004	Soil	< 0.75	1.88	12.4	< 0.25	< 0.5	4.36	1.75	11.2	2.64	< 0.0835	< 0.25	5.98	1.21	< 0.25	< 0.75	8.85	8.84
MB28	Area 4	1.5	2/12/2004	Soil	< 0.75	2.6	19	< 0.25	< 0.5	7.96	2.4	20.8	42.1	< 0.0835	< 0.25	9.2	< 0.75	< 0.25	< 0.75	11.5	23.4
MB28	Area 4	5.5	2/12/2004	Soil	< 0.75	2.67	28.2	< 0.25	< 0.5	7.37	2.45	31.7	34.3	< 0.0835	< 0.25	9.03	1.45	< 0.25	< 0.75	11.1	19.9
MB28	Area 4	10.5	2/12/2004	Soil	< 0.75	2.65	20.6	< 0.25	< 0.5	5.43	1.91	23.8	25.8	< 0.0835	< 0.25	7.04	1.32	< 0.25	< 0.75	8.82	14.5
MB29	Area 4	2	2/11/2004	Soil	< 0.75	3.11	17.8	< 0.25	< 0.5	9.59	3.21	9.2	12.5	< 0.0835	0.3	11.1	< 0.75	< 0.25	< 0.75	17	16.2
MB29	Area 4	5.5	2/11/2004	Soil	< 0.75	2.18	15.7	< 0.25	< 0.5	7.24	2.01	17.5	27	< 0.0835	< 0.25	7.31	< 0.75	< 0.25	< 0.75	10.3	17.1
MB29	Area 4	10.5	2/11/2004	Soil	< 0.75	2.36	14.9	< 0.25	< 0.5	7.65	2.39	4.82	5.36	< 0.0835	< 0.25	8.43	< 0.75	< 0.25	< 0.75	13.8	12.4
MB30	Area 4	1.5	2/11/2004	Soil	1.38	2.67	23.6	< 0.25	< 0.5	9.94	2.55	31.7	69.2	< 0.0835	< 0.25	9.15	< 0.75	< 0.25	< 0.75	13.9	31.4
MB30	Area 4	5.5	2/11/2004	Soil	2.47	3.7	21.6	< 0.25	< 0.5	8.05	2.67	28.6	48.1	< 0.0835	< 0.25	9.93	0.947	< 0.25	< 0.75	15.9	26.4
MB31	Area 4	3.5	2/12/2004	Soil	< 0.75	2.32	23.7	< 0.25	< 0.5	5.99	1.78	24.6	34.5	< 0.0835	< 0.25	6.52	< 0.75	< 0.25	< 0.75	7.55	23.5
MB31	Area 4	15.5	2/12/2004	Soil	< 0.75	2.12	58.8	< 0.25	< 0.5	6.97	13.1	22.9	30.1	< 0.0835	< 0.25	6.57	< 0.75	< 0.25	< 0.75	14.4	30.1
MB32	Area 4	3.5	2/11/2004	Soil	4.2	4.94	29.8	< 0.25	< 0.5	6.92	2.66	73.5	**382**	< 0.0835	< 0.25	7.14	< 0.75	< 0.25	< 0.75	11.2	42.7
MB32	Area 4	15.5	2/11/2004	Soil	< 0.75	1.67	13.2	< 0.25	< 0.5	4.34	1.71	2.33	1.23	< 0.0835	< 0.25	6.43	< 0.75	< 0.25	< 0.75	7.9	8.7
MB33	Area 4	5.5	2/11/2004	Soil	< 0.75	3.12	16.7	< 0.25	< 0.5	7.61	2.7	2.49	2.06	< 0.0835	< 0.25	10	0.968	< 0.25	< 0.75	15.4	11.7
MB33	Area 4	15	2/11/2004	Soil	< 0.75	1.7	14.1	< 0.25	< 0.5	5.62	2.01	1.98	1.27	< 0.0835	< 0.25	7.56	< 0.75	< 0.25	< 0.75	9.89	11.3
CL1	Area 5	10.5	2/11/2004	Soil	< 0.75	3.02	43.3	< 0.25	< 0.5	9.16	3.38	32.8	58.3	**0.0895**	< 0.25	9.68	< 0.75	< 0.25	< 0.75	17.1	87.7
CL1	Area 5	15.5	2/11/2004	Soil	< 0.75	< 0.75	52.1	0.455	< 0.5	9.02	4.84	8.51	3.88	< 0.0835	< 0.25	6.74	0.818	< 0.25	< 0.75	21	21.6
CL2	Area 5	10.5	2/11/2004	Soil	< 0.75	2.46	17.5	< 0.25	< 0.5	7.79	2.69	14.9	23.6	< 0.0835	< 0.25	9.54	< 0.75	< 0.25	< 0.75	17.6	66
CL2	Area 5	15.5	2/11/2004	Soil	< 0.75	0.811	68.5	0.5	< 0.5	11.5	6.17	8.92	4.62	< 0.0835	< 0.25	8.88	1.67	< 0.25	< 0.75	26.3	24.9
CL3	Area 5	10.5	2/11/2004	Soil	5.29	5.05	68.3	< 0.25	< 0.5	9.74	3.41	96.3	**178**	**0.109**	< 0.25	9.14	0.956	< 0.25	< 0.75	16.3	87.1
CL3	Area 5	15.5	2/11/2004	Soil	< 0.75	< 0.75	59.4	0.257	< 0.5	8.04	4.58	6.7	2.71	**0.0839**	< 0.25	5.48	< 0.75	< 0.25	< 0.75	16.7	20.3
CL4	Area 5	1.5	2/10/2004	Soil	< 0.75	5.49	55.5	< 0.25	0.747	10.3	3.91	151	117	**0.107**	< 0.25	10.2	< 0.75	< 0.25	< 0.75	16.9	58.8
CL4	Area 5	5.5	2/10/2004	Soil	< 0.75	3.45	19.4	< 0.25	0.573	10.8	2.34	32.2	28.4	< 0.0835	0.314	9.19	< 0.75	< 0.25	< 0.75	10.8	23.4
CL4	Area 5	15.5	2/10/2004	Soil	< 0.75	1.91	17.8	< 0.25	< 0.5	6.82	2.23	4.37	1.07	< 0.0835	< 0.25	9.14	< 0.75	< 0.25	< 0.75	10.2	8.89
CL5	Area 5	1.5	2/10/2004	Soil	3.99	7.52	51.7	< 0.25	< 1.25	15	5.03	327	**300**	**0.164**	< 0.25	14.3	< 0.75	0.86	< 0.75	19.6	133
CL5	Area 5	5.5	2/10/2004	Soil	< 0.75	1.57	11	< 0.25	< 0.5	6.45	1.09	5.91	2.81	< 0.0835	< 0.25	4.17	< 0.75	< 0.25	< 0.75	4.77	6.64
CL5	Area 5	15.5	2/10/2004	Soil	< 0.75	1.38	17.9	< 0.25	< 0.5	4.89	1.68	4.6	0.91	< 0.0835	< 0.25	5.74	< 0.75	< 0.25	< 0.75	7.75	8.32
CL6	Area 5	10.5	2/12/2004	Soil	< 0.75	1.69	13.4	< 0.25	< 0.5	4.82	1.29	1.77	< 0.5	< 0.0835	< 0.25	5.23	0.983	< 0.25	< 0.75	5.65	1.12
CL6	Area 5	15.5	2/12/2004	Soil	< 0.75	2.04	20.5	< 0.25	< 0.5	6.99	1.84	1.83	< 0.5	< 0.0835	0.497	7.77	0.765	< 0.25	< 0.75	8	1.91
CL7	Area 5	10.5	2/12/2004	Soil	< 0.75	2.67	20	< 0.25	< 0.5	6.93	2.24	17.5	19.6	< 0.0835	< 0.25	8.25	0.954	< 0.25	< 0.75	10.4	12
CL7	Area 5	15.5	2/12/2004	Soil	< 0.75	1.84	13.9	< 0.25	< 0.5	3.75	1.25	0.917	< 0.5	< 0.0835	< 0.25	4.54	0.756	< 0.25	< 0.75	5.24	< 1
CL8	Area 5	10.5	2/12/2004	Soil	< 0.75	2.64	16.5	< 0.25	< 0.5	8.11	2.82	12.5	2.88	< 0.0835	< 0.25	10.2	< 0.75	< 0.25	< 0.75	11.9	11.1
CL8	Area 5	14.5	2/13/2004	Soil	< 0.75	3.00	24.1	< 0.25	< 0.5	9.48	3.59	24.0	23.5	< 0.0835	0.470	12.0	0.988	< 0.25	< 0.75	21.9	22.7
CL9	Area 5	10.5	2/13/2004	Soil	< 0.75	2.99	23.9	< 0.25	< 0.5	10.6	3.51	3.01	2.15	< 0.0835	< 0.25	13.1	< 0.75	< 0.25	< 0.75	24.6	11.4
CL9	Area 5	15.5	2/13/2004	Soil	< 0.75	< 0.75	101	0.376	< 0.5	17.7	8.62	11.3	3.77	< 0.0835	< 0.25	10.7	1.07	< 0.25	< 0.75	29.6	30.6
SV1	Area 1	4	1/28/2004	Soil	< 0.75	1.04	9.03	< 0.25	< 0.5	2.76	0.855	1.63	0.56	< 0.0835	< 0.25	3.49	< 0.75	< 0.25	< 0.75	3.99	6.25
SV14	Area 5	4.5	1/29/2004	Soil	< 0.75	1.79	15.2	< 0.25	< 0.5	10.1	2.17	2.08	1.61	< 0.0835	< 0.25	9.34	< 0.75	< 0.25	< 0.75	14.8	11.7
SV31	Area 4	4.5	1/29/2004	Soil	< 0.75	2.32	31	< 0.25	< 0.5	7.87	3.27	8.55	3.27	< 0.0835	< 0.25	9.46	< 0.75	< 0.25	< 0.75	16.3	18.5
SV33	W of Area 2	4.5	1/30/2004	Soil	< 0.75	2	15.06	< 0.25	< 0.5	7.21	2.43	1.72	1.53	< 0.0835	< 0.25	10.1	< 0.75	< 0.25	< 0.75	17.5	12.1
Residential Soil Preliminary Remediation Goals (mg/kg)					31	22	5400	150	37	210	900	3100	150.0*	23	390	1600	390	390	5.2	550	2300
Kearney Foundation California Background Range					0.15 1.95	0.6 11	133 1,400	0.25 2.7	0.05 1.7	23 1579	2.7 46.9	9.1 96.4	12 97.1	0.1 0.9	0.1 9.6	9 509	0.015 0.43	0.1 8.3	5.3 36.2	39 288	88 236
STATISTICAL EVALUATION OF ALL RESULTS, BY METAL																					
count					95	95	95	95	95	95	95	95	96	95	95	95	95	95	95	95	95
#NDs					89	7	0	87	86	0	0	0	11	86	77	0	68	92	95	0	2
Range (Min Max)					0.75 5.29	0.75 7.52	8.82-101	0.25 0.69	0.5 1.25	2.55 26.2	0.855 13.8	0.92 327	0.5 382	0.0835 0.164	0.25 0.562	2.75 15	0.75 1.67	0.25 0.944	0.75 0.75	3.6 43.5	1 133
mean/average					0.89	2.32	30	0.27	0.54	8.08	3.28	23.28	25.67	0.09	0.27	7.93	0.82	0.26	0.75	12.92	24.72
standard dev.					0.69	1.31	25	0.07	0.12	4.29	2.74	45.66	63.71	0.01	0.05	2.69	0.17	0.09	0.0	7.57	25.52
confidence					0.14	0.26	5	0.01	0.02	0.86	0.55	9.18	12.74	0.00	0.01	0.54	0.03	0.02	NA	1.52	5.13
95% UCL					1.03	2.59	35	0.28	0.56	8.94	3.83	32.46	38.41	0.09	0.28	8.47	0.86	0.28	0.75	14.44	29.85

Table 4. Groundwater Analytical Results

Groundwater Boring/Well #	Area	GW depth (ft)	Date	EPA 8015M TPH-d (µg/L)	EPA 8015M TPH-g (µg/L)	EPA 8270C PAH (µg/L)	EPA 8151 Herbicides (ug/L)	EPA 335.2 Total Cyanides (mg/L)	EPA 8082 PCBs (µg/L)	EPA GC/MS Isotope Dilution 1,4 Dioxane (µg/L)	EPA 8260B VOCs (ug/L)
MB3-GW	Area 1	26.1	2/12/2004	ND	-	ND	ND	ND	ND	ND	ND
MW5	Area 1	-	2/10/2004	ND	ND	ND	ND	ND	ND	3.4	ND
MB11-GW	Area 2	26.5	2/12/2004	ND	-	ND	ND	ND	ND	ND	Chloroform 1.5
MW3	Area 3	-	2/10/2004	ND	ND	ND	ND	ND	ND	ND	ND
MB31-GW	Area 4	26	2/12/2004	ND	-	ND	ND	ND	ND	ND	Chloroform 5
MB33-GW	Area 4	24	2/11/2004	ND	-	ND	ND	ND	ND	ND	ND

Historical Data

				EPA 8015M TPH-d (µg/L)	EPA 8015M TPH-g (µg/L)						EPA 602 VOCs (ug/L)
HP1	Area 3	24.58	7/28/1997	-	160,000	-	-	-	-	-	B:2900 T:8400 E:5400 X:26000 MTBE:27000
HP2	Area 3	24.73	7/28/1997	-	690	-	-	-	-	-	B:220 T:4 E:10 X:16 MTBE:380
HP3	Area 3	23.43	7/28/1997	-	ND	-	-	-	-	-	B:0.5 T:ND E:ND X:0.7 MTBE:ND
HP4	Area 3	23	7/28/1997	-	2,400	-	-	-	-	-	B:150 T:29 E:120 X:250 MTBE:1200
HP5	Area 3	23.92	7/28/1997	-	1,200	-	-	-	-	-	B:110 T:6.9 E:27 X:120 MTBE:830
CPT-1	Area 3	-	11/6/1995	1,500	1,100	-	-	-	-	-	B:83 T:69 E:24.2 X:101.6
CPT-2	Area 3	-	11/6/1995	ND	ND	-	-	-	-	-	B:7 T:0.5 E:0.7 X:4.0
CPT-6	Area 3	-	11/6/1995	ND	ND	-	-	-	-	-	B:7.7 T:1.5 E:0.7 X:3.0

Notes:
VOCs: Volatile organic compounds
ND: Not detected over reporting limit (RL)
TRPH: Total recoverable petroleum hydrocarbons
TPH-d: Total Petroleum Hydrocarbons as diesel fuel
TPH-g: Total Petroleum Hydrocarbons as gasoline
BTEX: B(benzene) T(toluene) E(ethylbenzene) X(total xylenes)
MTBE: Methyl tert-butyl ether
PAH: Poly aromatic hydrocarbons
PCB: Polychlorinated biphenyls
"-" - Sample not analyzed for that analyte
mg/L - milligrams per liter
µg/L - micrograms per liter
Historical data were collected by previous consultants

Table 5. Title 22 Metals Groundwater Analytical Results (mg/L)

Sample ID	Area	Date Collected	Matrix	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (Total)	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MB3-GW (Filt)	Area 1	2/12/2004	Water	0.0291	< 0.015	0.127	< 0.001	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.0005	< 0.005	< 0.005	< 0.015	< 0.005	< 0.015	< 0.005	< 0.01
MB3-GW (Total)	Area 1	2/12/2004	Water	0.0233	< 0.015	0.121	< 0.001	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.0005	0.00808	< 0.005	0.0255	< 0.005	< 0.015	< 0.005	< 0.01
MW05 (Filt)	Area 1	2/10/2004	Water	0.0238	< 0.015	0.0915	< 0.001	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.0005	0.00977	< 0.005	< 0.015	< 0.005	< 0.015	< 0.005	0.0316
MW05 (Total)	Area 1	2/10/2004	Water	0.0244	< 0.015	0.093	< 0.001	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.0005	0.00722	< 0.005	< 0.015	< 0.005	< 0.015	0.0069	0.0392
MB11-GW (Filt)	Area 2	2/12/2004	Water	0.0269	< 0.015	0.141	< 0.001	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.0005	0.012	< 0.005	< 0.015	< 0.005	< 0.015	< 0.005	< 0.01
MB11-GW (Total)	Area 2	2/12/2004	Water	0.0285	< 0.015	0.143	< 0.001	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.0005	0.0111	< 0.005	0.0278	< 0.005	< 0.015	< 0.005	< 0.01
MW03 (Filt)	Area 3	2/10/2004	Water	0.0228	< 0.015	0.087	< 0.001	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.0005	0.00746	< 0.005	< 0.015	< 0.005	< 0.015	< 0.005	0.0339
MW03 (Total)	Area 3	2/10/2004	Water	0.0247	< 0.015	0.0944	< 0.001	< 0.01	< 0.005	< 0.005	0.0065	0.0219	< 0.0005	0.00762	< 0.005	< 0.015	< 0.005	< 0.015	0.005	0.033
MB31-GW (Filt)	Area 4	2/12/2004	Water	0.0273	< 0.015	0.162	< 0.001	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.0005	0.0129	< 0.005	< 0.015	< 0.005	< 0.015	< 0.005	< 0.01
MB31-GW (Total)	Area 4	2/12/2004	Water	0.0241	< 0.015	0.2163	< 0.001	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.0005	0.0165	0.00527	0.0224	< 0.005	< 0.015	< 0.005	< 0.01
MB33-GW (Filt)	Area 4	2/11/2004	Water	< 0.015	< 0.015	0.153	< 0.001	< 0.01	< 0.005	0.00719	< 0.005	< 0.01	< 0.0005	0.0478	0.0135	< 0.015	< 0.005	< 0.015	< 0.005	< 0.01
MB33-GW (Total)	Area 4	2/11/2004	Water	< 0.015	0.03	0.901	0.00384	< 0.01	0.167	0.0617	0.149	0.0857	0.00081	0.0436	0.0996	< 0.015	< 0.005	< 0.015	0.094	0.423
California Maximum Contaminant Levels (mg/L)				0.006	0.05	1	0.004	0.01	0.05	NA	1	NA	0.002	NA	0.1	0.05	0.1	0.002	NA	5

Notes:

mg/L - milligrams per liter

NA - Not available

Table 6. Historical Soil Data

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 453.2 Oil and Grease (ppm)	EPA 7421 Lead (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8015M TPH-g (mg/kg)	EPA 8020 (mg/kg)					Acetone (µg/kg)	Tetrachloroethene (µg/kg)
									Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
T1-N	Area 3	15	2/23/1998	-	-	302	-	390	ND	85	46.4	665	ND	-	-
T1-S	Area 3	15	2/23/1998	-	-	45.8	-	16.3	ND	0.374	ND	2.68	0.912	-	-
T2-N	Area 3	15	2/23/1998	23,600	-	56.8	-	-	ND	342	138	978	46.8	-	-
T2-S	Area 3	15	2/23/1998	472	-	52.7	-	-	ND	1.35	0.509	3.67	0.562	-	-
T3-N	Area 3	15	2/23/1998	-	-	73	ND	-	ND	ND	ND	ND	ND	-	-
T3-S	Area 3	15	2/23/1998	-	-	259	1740	-	ND	ND	ND	0.241	0.492	-	-
T4-N	Area 3	15	2/23/1998	-	-	67.4	ND	-	ND	ND	ND	ND	ND	-	-
T4-S	Area 3	15	2/23/1998	-	-	185	5000	-	ND	ND	ND	ND	ND	-	-
D-1	Area 3	9	3/18/1998	-	-	-	ND	-	ND	ND	ND	ND	ND	-	-
WO-1	Area 3	12	3/18/1998	ND	-	-	-	-	ND	ND	ND	ND	ND	-	-
WOTP-1	Area 3	10.5	6/30/1998	145	-	175	ND	ND	-	-	-	-	-	-	-
CPT1	Area 1	15	11/7/1995	ND	-	-	ND	ND	ND	ND	ND	ND	-	-	-
CPT1	Area 1	25	11/7/1995	80	-	-	189	1690	4.2	66	27.6	152.8	-	-	-
CPT2	Area 1	20	11/7/1995	ND	-	-	ND	ND	0.006	0.029	0.016	0.089	-	-	-
CPT2	Area 1	25	11/7/1995	340	-	-	ND	ND	0.006	0.008	ND	0.017	-	-	-
CPT6	Area 1	15	11/7/1995	ND	-	-	25	ND	ND	ND	ND	ND	-	-	-
CPT6	Area 1	20	11/7/1995	ND	-	-	ND	ND	ND	0.006	ND	0.045	-	-	-
CPT6	Area 1	25	11/7/1995	63	-	-	ND	ND	0.076	0.04	0.061	0.296	-	-	-
CPT7	Area 1	15	11/7/1995	ND	-	-	ND	ND	ND	0.007	ND	0.02	-	-	-
CPT7	Area 1	25	11/7/1995	3,500	-	-	4040	864	1.5	2.6	1.5	4.8	-	-	-
CPT9	Area 1	15	11/7/1995	ND	-	-	ND	ND	ND	0.019	0.017	0.082	-	-	-
CPT9	Area 1	25	11/7/1995	ND	-	-	ND	ND	ND	ND	ND	ND	-	-	-
CPT10	Area 1	15	11/8/1995	830	-	-	16	37	0.026	0.514	0.428	2.5	-	-	-
CPT10	Area 1	20	11/8/1995	480	-	-	1330	929	1.2	28.7	13.2	77.8	-	-	-
CPT10	Area 1	25	11/8/1995	ND	-	-	ND	ND	ND	0.009	ND	0.017	-	-	-
CPT11	Area 1	10	11/8/1995	520	-	-	ND	ND	ND	0.01	ND	0.039	-	-	-
CPT16	Area 1	10	11/8/1995	ND	-	-	ND	ND	ND	ND	ND	ND	-	-	-
CPT4	Area 2	10	11/8/1995	ND	-	-	-	-	ND	ND	ND	ND	-	-	-
CPT4	Area 2	20	11/8/1995	ND	-	-	-	-	ND	0.011	ND	0.015	-	-	-
CPT12	Area 2	5	11/8/1995	ND	-	-	-	-	ND	0.037	ND	0.07	-	-	-
CPT12	Area 2	15	11/8/1995	ND	-	-	-	-	ND	0.007	ND	ND	-	-	-
CPT13	Area 2	5	11/8/1995	ND	-	-	-	-	ND	ND	ND	ND	-	-	-
CPT13	Area 2	15	11/8/1995	ND	-	-	-	-	ND	0.008	ND	ND	-	-	-
CPT15	Area 2	5	11/8/1995	-	-	-	ND	-	ND	0.005	ND	0.021	-	-	-
CPT15	Area 2	10	11/8/1995	-	-	-	ND	-	ND	0.012	ND	0.045	-	-	-
CPT5	Area 3	5	11/9/1995	ND	-	-	-	-	ND	0.007	ND	ND	-	-	-
CPT5	Area 3	15	11/9/1995	11	-	-	-	-	ND	ND	ND	ND	-	-	-
CPT14	Area 3	5	11/8/1995	ND	-	-	-	-	ND	0.01	ND	0.022	-	-	-
CPT14	Area 3	15	11/8/1995	ND	-	-	-	-	ND	ND	ND	ND	-	-	-

Table 6. Historical Soil Data

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 453.2 Oil and Grease (ppm)	EPA 7421 Lead (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8015M TPH-g (mg/kg)	EPA 8020 (mg/kg) Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Acetone (µg/kg)	Tetrachloroethene (µg/kg)
							TPH (ppm)		EPA 8015M (ppm)						
BH1 S(1-5)	Area 3	5-25	3/1/1988	-	-	-	<5**		<1	<1	-	<1	-	-	-
BH2 S(1-5)	Area 3	5-25	3/1/1988	-	-	-	<5**		<1	<1	-	<1	-	-	-
BH3 S(1-4)	Area 3	5-20	3/2/1988	-	350	-	-		-	-	-	-	-	-	-
BH3 S(5-8)	Area 3	25-40	3/2/1988	-	<10	-	-		-	-	-	-	-	-	-
BH3 S1	Area 3	5	3/2/1988	-	160	-	-		-	-	-	-	-	-	-
BH3 S2	Area 3	10	3/2/1988	-	160	-	-		-	-	-	-	-	-	-
BH3 S3	Area 3	15	3/2/1988	-	2600	-	-		-	-	-	-	-	-	-
BH3 S4	Area 3	20	3/2/1988	-	310	-	-		-	-	-	-	-	-	-
BH4 S(1-3)	Area 3	5-15	3/2/1988	25	-	-	-		-	-	-	-	-	-	-
BH4 S(4-6)	Area 3	20-30	3/2/1988	960	-	-	-		-	-	-	-	-	-	-
BH4 S4	Area 3	20	3/2/1988	9,000	-	-	-		-	-	-	-	-	-	-
BH4 S5	Area 3	25	3/2/1988	12,000	-	-	-		-	-	-	-	-	-	-
BH4 S6	Area 3	30	3/2/1988	<10	-	-	-		-	-	-	-	-	-	-
BH5 S(1-3)	Area 3	5-15	3/1/1988	160	-	-	-		-	-	-	-	-	-	-
BH5 S(4-6)	Area 3	20-30	3/1/1988	<10	-	-	-		-	-	-	-	-	-	-
BH5 S1	Area 3	5	3/1/1988	<10	-	-	-		-	-	-	-	-	-	-
BH5 S2	Area 3	10	3/1/1988	300	-	-	-		-	-	-	-	-	-	-
BH5 S3	Area 3	15	3/1/1988	<10	-	-	-		-	-	-	-	-	-	-
BH6 S(1-3)	Area 3	5-15	3/1/1988	90	-	-	-		-	-	-	-	-	-	-
BH6 S(4-6)	Area 3	20-30	3/1/1988	<10	-	-	-		-	-	-	-	-	-	-
BH7 S(1-3)	Area 3	5-15	2/29/1988	110	-	-	-		-	-	-	-	-	-	-
BH7 S(4-6)	Area 3	20-30	2/29/1988	<10	-	-	-		-	-	-	-	-	-	-
BH7 S1	Area 3	5	2/29/1988	270	-	-	-		-	-	-	-	-	-	-
BH7 S2	Area 3	10	2/29/1988	<10	-	-	-		-	-	-	-	-	-	-
BH7 S3	Area 3	15	2/29/1988	<10	-	-	-		-	-	-	-	-	-	-
BH8 S(1-3)	Area 3	5-15	2/29/1988	-	<10	-	-		-	-	-	-	-	-	-
BH8 S(4-6)	Area 3	20-30	2/29/1988	-	<10	-	-		-	-	-	-	-	-	-
BH9 S(1-4)	Area 3	5-20	3/2/1988	-	38	-	-		-	-	-	-	-	-	-
BH9 S(5-8)	Area 3	25-40	3/2/1988	-	<10	-	-		-	-	-	-	-	-	-
BH10 S(1-2)	Area 3	5-10	3/1/1988	9,100	9100	-	1100**		<1	<1	-	2	-	-	-
BH10 S1	Area 3	5	3/1/1988	2,700	2700	-	91**		<1	<1	-	<1	-	-	-
BH10 S2	Area 3	10	3/1/1988	3,500	3500	-	140**		<1	<1	-	<1	-	-	-
BH11 S(1-2)	Area 3	5-10	3/1/1988	5,400	5500	-	1900**		<1	<1	-	4	-	-	-
BH11 S1	Area 3	5	3/1/1988	5,600	5600	-	230**		<1	<1	-	<1	-	-	-
BH11 S2	Area 3	10	3/1/1988	130	140	-	100**		<1	<1	-	<1	-	-	-
									(ug/kg)						
MW-5	Area 1	10	2/25/2002	94	-	5.68	200*	ND	ND	ND	ND	ND	ND	47	ND
MW-5	Area 1	15	2/25/2002	ND	-	2.29	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	Area 1	20	2/25/2002	ND	-	1.88	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	Area 1	25	2/25/2002	ND	-	1.04	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	Off-site N	10	2/26/2002	ND	-	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	Off-site N	15	2/26/2002	38	-	3.02	41*	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	Off-site N	20	2/26/2002	10	-	1.36	ND	ND	ND	ND	ND	ND	ND	ND	1.3

Table 6. Historical Soil Data

Soil Boring #	Area	Sample depth (ft)	Date	EPA 418.1 TRPH (mg/kg)	EPA 453.2 Oil and Grease (ppm)	EPA 7421 Lead (mg/kg)	EPA 8015M TPH-d (mg/kg)	EPA 8015M TPH-g (mg/kg)	EPA 8020 (mg/kg)					Acetone (µg/kg)	Tetrachloroethene (µg/kg)
									Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
MW1	Area 3	10	May, 2002	-	-	-	2500	790	-	-	-	-	ND	-	-
MW1	Area 3	15	May, 2002	-	-	-	ND	ND	-	-	-	-	0.027	-	-
MW1	Area 3	20	May, 2002	-	-	-	ND	ND	-	-	-	-	0.032	-	-
MW1	Area 3	22	May, 2002	-	-	-	ND	ND	-	-	-	-	0.017	-	-
MW2	Area 3	10	May, 2002	-	-	-	930	ND	-	-	-	-	ND	-	-
MW2	Area 3	15	May, 2002	-	-	-	ND	ND	-	-	-	-	ND	-	-
MW2	Area 3	20	May, 2002	-	-	-	ND	ND	-	-	-	-	ND	-	-
MW2	Area 3	22	May, 2002	-	-	-	ND	ND	-	-	-	-	ND	-	-
MW3	Area 5	10	May, 2002	-	-	-	ND	ND	-	-	-	-	ND	-	-
MW3	Area 5	15	May, 2002	-	-	-	ND	ND	-	-	-	-	ND	-	-
MW3	Area 5	20	May, 2002	-	-	-	ND	ND	-	-	-	-	ND	-	-
MW3	Area 5	22	May, 2002	-	-	-	ND	ND	-	-	-	-	ND	-	-
MW4	Area 3	10	May, 2002	-	-	-	ND	ND	-	-	-	-	0.0095	-	-
MW4	Area 3	15	May, 2002	-	-	-	ND	ND	-	-	-	-	0.0065	-	-
MW4	Area 3	20	May, 2002	-	-	-	ND	ND	-	-	-	-	ND	-	-
MW4	Area 3	22	May, 2002	-	-	-	ND	ND	-	-	-	-	ND	-	-

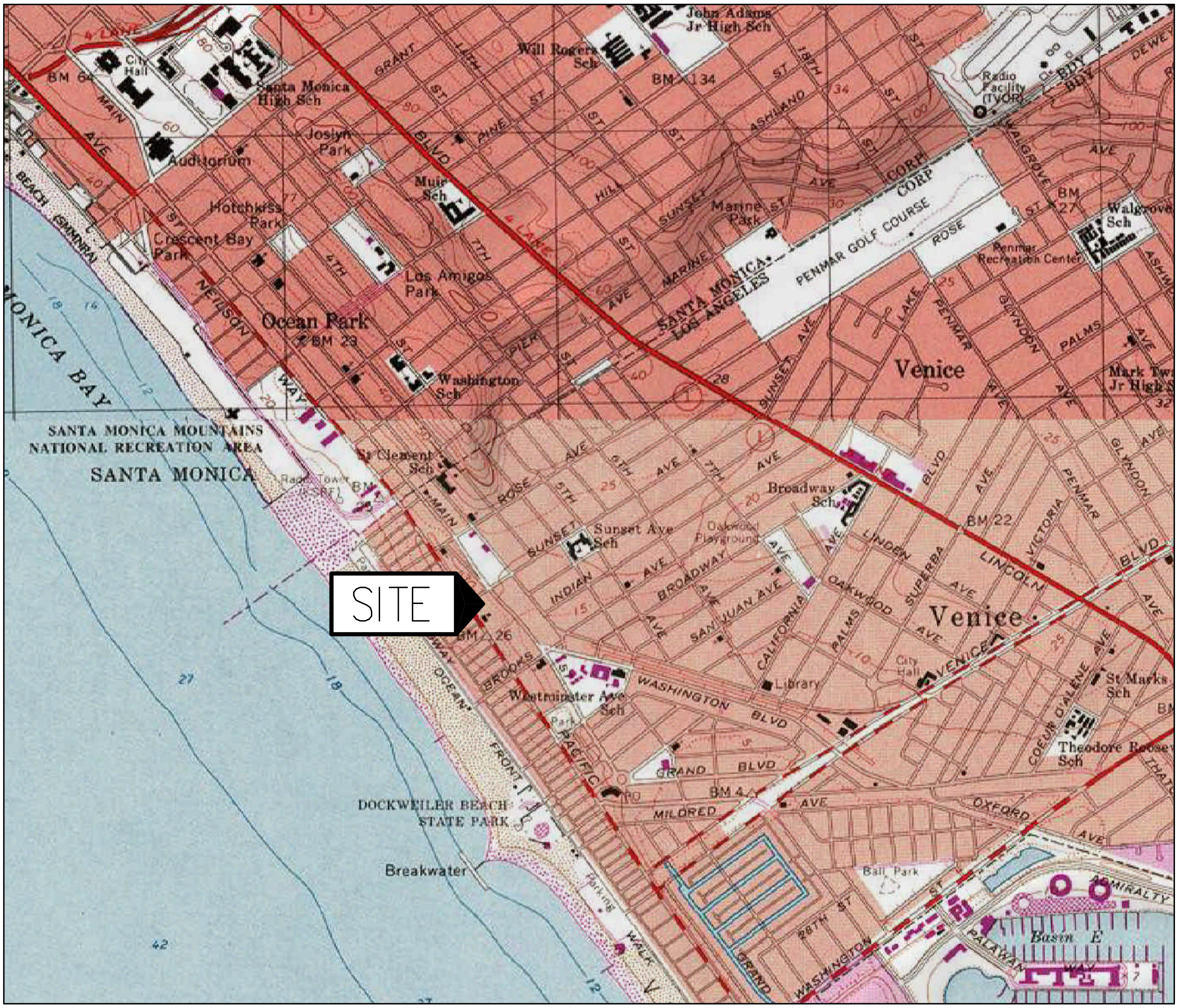
Notes:
VOCs: Volatile organic compounds
ND: Not detected over reporting limit (RL)
TRPH: Total recoverable petroleum hydrocarbons
TPH-d: Total Petroleum Hydrocarbons as Diesel
TPH-g: Total Petroleum Hydrocarbons as gasoline
BTEX: B(benzene) T(toluene) E(ethylbenzene) X(total xylenes)
MTBE: Methyl tert-butyl ether
PAH: Poly aromatic hydrocarbons
PCB: Polychlorinated biphenyls
"-" - Sample Not analyzed for that analyte
mg/kg - milligrams per kilogram
mg/L - milligrams per liter
µg/kg - micrograms per kilogram
µg/L - micrograms per liter
ppm: parts per million
* Lab reported this value with the following comment: "The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard."
** Lab reported these results without specifying them for TPH-g or TPH-d

Table 7: Soil Carbon Range Analytical Results

				EPA 418.1	EPA 3550B, TPH Carbon Range (mg/kg)																			
					Carbon Range (C7-C12)				Carbon Range (C13-C22)					Carbon Range (C23-C44)										
Sample ID	Area	Depth	Date	TRPH (mg/kg)	C7	C8	C9-C10	C11-C12	C13-C14	C15-C16	C17-C18	C19-C20	C21-C22	C23-24	C25-C28	C29-C32	C33-C36	C37-C40	C41-C44	C7-C44 Total	C7-C12 Total	C13-C22 Total	C23-C44 Total
MB4	Area 1	1	2/13/2004	6300	ND	ND	ND	ND	ND	ND	0.96	3.9	7.4	15	60	94	91	100	93	470	ND	12	453
MB4	Area 1	5	2/13/2004	5000	ND	ND	ND	ND	ND	0.77	10	19	35	47	150	220	190	170	150	1,000	ND	65	927
MB5	Area 1	5	2/13/2004	390	ND	ND	ND	ND	ND	ND	0.042	0.76	1.7	3.2	13	28	24	29	26	130	ND	3	123
MB6	Area 1	1	2/13/2004	5600	ND	ND	ND	ND	ND	ND	ND	ND	3.3	7.2	40	89	76	83	79	380	ND	3	374
GS1	Area 2	5.5	2/11/2004	220	ND	ND	ND	ND	ND	ND	0.078	0.49	1.1	2.1	8.9	19	19	25	26	100	ND	2	100
MB7	Area 2	1.5	2/10/2004	1200	ND	ND	ND	ND	ND	ND	13	44	78	160	630	1,100	810	750	620	4,200	ND	135	4,070
MB7	Area 2	15	2/13/2004	370	ND	ND	ND	ND	ND	ND	0.75	3.6	6.8	13	48	47	41	35	37	230	ND	11	221
MB8	Area 2	1.5	2/10/2004	4200	ND	ND	ND	ND	ND	ND	8.7	40	69	130	590	1,100	980	1,000	840	4,700	ND	118	4,640
MB9	Area 2	1.5	2/10/2004	300	ND	ND	ND	ND	ND	ND	2.7	9.7	23	33	150	300	270	340	250	1,400	ND	35	1,343
MB10	Area 2	1.5	2/10/2004	3300	ND	ND	ND	ND	ND	ND	ND	19	32	67	280	580	470	590	530	2,600	ND	51	2,517
MB11	Area 2	1.5	2/10/2004	2900	ND	ND	ND	ND	ND	ND	ND	33	46	92	300	570	500	540	580	2,700	ND	79	2,582
MB12	Area 2	1.5	2/10/2004	1600	ND	ND	ND	ND	ND	ND	3.9	44	69	91	290	730	670	730	550	3,200	ND	117	3,061
MB12	Area 2	5.5	2/10/2004	630	ND	ND	ND	ND	ND	ND	ND	4	7.9	13	63	150	160	150	140	690	ND	12	676
CO1	Area 3	5.5	2/11/2004	290	ND	ND	ND	ND	ND	ND	0.56	2.9	6.5	5.1	23	40	42	45	44	210	ND	10	199
OP1	Area 3	5.5	2/11/2004	230	ND	ND	ND	ND	ND	ND	0.37	2.6	7.3	14	47	81	66	64	55	340	ND	10	327
OP1	Area 3	10.5	2/11/2004	220	ND	ND	ND	ND	ND	ND	ND	0.22	0.61	0.97	2.7	5.7	1.9	2.3	3.4	18	ND	1	17
MB18	Area 4	1	2/13/2004	230	ND	ND	ND	ND	ND	ND	0.28	3.4	13	28	100	140	82	58	42	470	ND	17	450
MB18	Area 4	3	2/13/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MB28	Area 4	5.5	2/12/2004	340	ND	ND	ND	ND	ND	ND	1.4	11	27	53	210	320	170	120	77	990	ND	39	950
MB30	Area 4	1.5	2/11/2004	230	ND	ND	ND	ND	ND	ND	0.64	2.6	8.4	15	57	93	67	54	35	330	ND	12	321
MB30	Area 4	5.5	2/11/2004	100	ND	ND	ND	ND	ND	ND	0.31	2.4	7	13	54	91	62	58	36	320	ND	10	314
MB32	Area 4	3.5	2/11/2004	130	ND	ND	ND	ND	ND	ND	0.55	3.2	7.1	13	49	76	60	60	53	320	ND	11	311
CL1	Area 5	10.5	2/11/2004	150	ND	ND	ND	ND	ND	0.57	8.5	24	61	86	320	480	380	280	170	1,800	ND	94	1,716
CL2	Area 5	10.5	2/11/2004	1200	ND	ND	100	1200	1500	530	100	63	110	210	600	820	500	320	250	6,300	1,300	2,303	2,700
CL2	Area 5	15.5	2/11/2004	840	ND	ND	ND	ND	ND	0.27	2	5.2	8.3	11	32	44	34	35	30	200	ND	16	186
CL3	Area 5	10.5	2/11/2004	780	ND	ND	ND	ND	ND	2.9	28	60	68	58	170	210	170	150	160	1,100	ND	159	918
CL4	Area 5	1.5	2/10/2004	1000	ND	ND	ND	ND	ND	ND	3.9	21	46	95	330	470	360	310	200	1,800	ND	71	1,765
CL4	Area 5	5.5	2/10/2004	220	ND	ND	ND	ND	ND	ND	0.15	1.7	4.8	4.6	15	22	14	11	8.6	81	ND	7	75
CL5	Area 5	1.5	2/10/2004	470	ND	ND	ND	ND	ND	ND	2.4	14	37	90	350	530	390	280	190	1,900	ND	53	1,830
CL8	Area 5	14.5	2/13/2004	110	ND	ND	ND	ND	ND	0.36	2.3	6.7	18	42	110	130	72	37	21	440	ND	27	412

Notes:
VOCs - Volatile organic compounds
ND - Not detected over reporting limit (RL)
"-" - Sample not analyzed for that analyte
TPH - Total petroleum hydrocarbons
TRPH - Total recoverable petroleum hydrocarbons
mg/kg - milligrams per kilogram
µg/kg - micrograms per kilogram
denotes separation of data from different areas

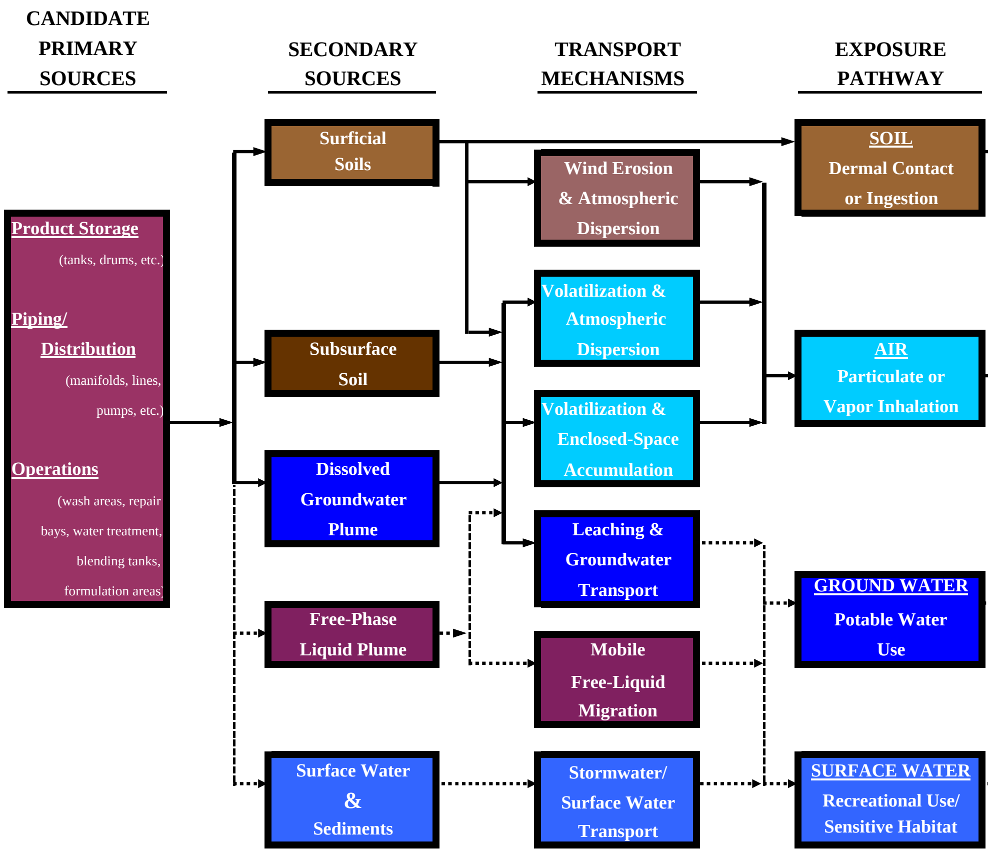
FIGURES



REFERENCE: USGS 7.5-MINUTE LOS ANGELES QUADRANGLE (JULY 1981).

MACTEC	DWG BY NMM DATE 2/04	SITE LOCATION MAP	FIGURE NO. 1
2171 CAMPUS DRIVE, SUITE 100 IRVINE, CA 92612	REV BY REVISED	Metropolitan Transportation Authority Division 6 Facility Plan 100 Sunset Avenue Venice, California	PROJECT NO. 4525030096-60.01.01

Figure 2. Conceptual Site Model
MTA Division 6 Site, 100 Sunset Avenue, Venice, California
MACTEC Project No. 4525030096



RECEPTORS: CURRENT AND FUTURE LAND USE

	HUMANS				BIOTA	
Exposure Route	**Future Residents on-Site**	**Current Workers**	**Future Workers**	**(Future) Construction Workers**	**Terrestrial**	**Aquatic**
Ingestion				■		
Dermal Contact				■		

The current land use and re-development plans for the property as multi-dwelling residential development involve complete ground cover by the footprint of the building; paved walk-ways, drive-ways, or activity areas; and landscaping based on clean backfill. On these bases, the pathways for exposure to future residents on-Site; current workers; and future workers, such as maintenance workers, via soil contact are incomplete.

Exposure Route	Future Residents on-Site	Current Workers	Future Workers	(Future) Construction Workers	Terrestrial	Aquatic
Inhalation				■		

The Phase II investigation indicates not-detected for all soil gas samples across the Site. On that basis, the inhalation pathway is incomplete. Fugitive dust is precluded by the complete development of the Site.

Exposure Route	Future Residents on-Site	Current Workers	Future Workers	(Future) Construction Workers	Terrestrial	Aquatic
Ingestion						
Inhalation						
Dermal Contact						

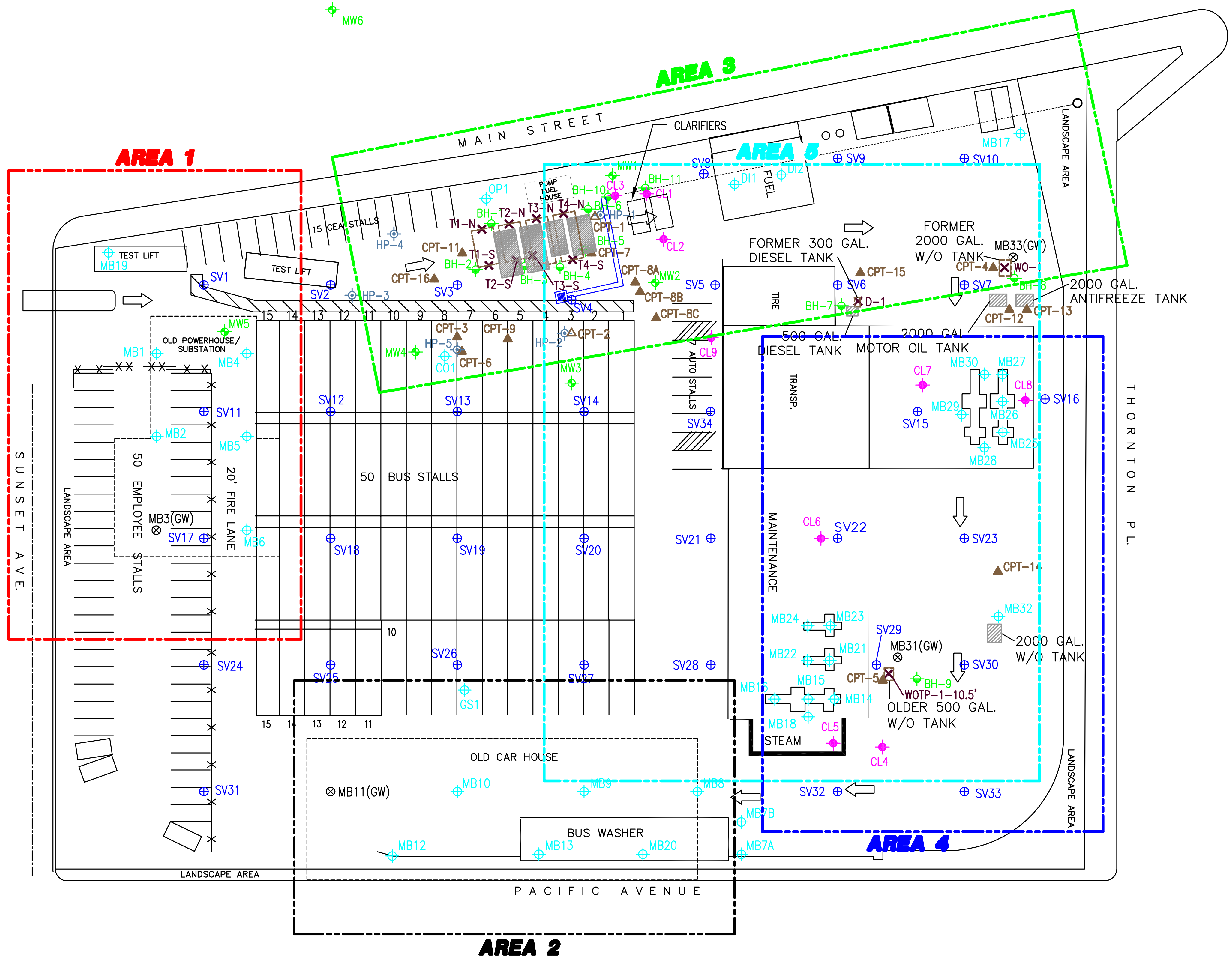
All uses of water on the Site are met by the municipal water supply. The Phase II investigation indicates that all analytes detected have concentrations that are less than the respective maximum contaminant level, lower than the risk-based concentration, or are part of the background.

Exposure Route	Future Residents on-Site	Current Workers	Future Workers	(Future) Construction Workers	Terrestrial	Aquatic
Ingestion						
Inhalation						
Dermal Contact						

Workers currently on the property do not use the groundwater and are protected from direct exposure to soil by the extensive paving and building construction over the soil. Residents are only on the property in a future land use (redevelopment) scenario. Future residents and workers associated with the development would be protected by the extensive paving and building construction over the soil. Groundwater is evaluated in the text only for purposes of protecting the groundwater resource. Residents will have a municipal potable water supply. The types of workers, current and future, are included in COPC selection based on comparison to residential soil PRGs (see Appendix C).

dotted line indicates incomplete pathway

(green)	= absent/insignificant exposure
●	= complete exposure pathway, current
■	= complete exposure pathway, future



EXPLANATION

- BH-11 — SOIL BORINGS BY CONVERSE (1988)
- CPT-8C — SOIL BORINGS BY BENTLEY (1995)
- CPT-2 — SOIL BORING/HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1995)
- HP-3 — HYDROPUNCH LOCATIONS BY HOLGUIN, FAHAN & ASSOCIATES, INC. (1997)
- T4-S — SAMPLE LOCATIONS BY THE TYREE ORGANIZATION, LTD. (1999)
- MW1 — GROUNDWATER MONITORING WELLS BY URS CORP. (MW1-MW4 INSTALLED IN 1999 AND MW5-MW6 INSTALLED IN 2002)
- SV31 — SOIL AND VAPOR SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB10 — SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- MB31(GW) — SOIL AND GROUNDWATER SAMPLE LOCATIONS BY MACTEC (FEBRUARY 2004)
- CL1 — AREA 5 SOIL BORING LOCATIONS BY MACTEC (FEBRUARY 2004)
- TANK LOCATION
- FORMER TANK LOCATION

NOTE:

THE LOCATIONS OF THE BORINGS BY PREVIOUS CONSULTANTS ARE ROUGH APPROXIMATIONS BASED ON REPORTS WITH DIFFERING INFORMATION.

Scale 0 25 50 feet

MACTEC

2171 CAMPUS DRIVE, SUITE 100
IRVINE, CA 92612

DWG BY	DATE	REV BY	REVISED
NMM	2/04	2/04	NMM

SITE PLAN

Metropolitan Transportation Authority – Division 6
Venice, California

FIGURE NO. 3

PROJECT NO. 4525030096-60.01.01

APPENDIX A

STREAMLINED RISK ASSESSMENT TECHNIQUES AND METHODOLOGY

APPENDIX A
STREAMLINED RISK ASSESSMENT TECHNIQUES AND METHODOLOGY

The usual approach for preparing a focused risk assessment is based on ASTM (ASTM, 1995, 2000) and EPA (EPA, 1989a, 1991b, 1996a,b) methodology, invoking a comparison of site-specific, representative COPC concentrations to appropriate risk-based concentrations (RBCs). That is the approach to be used in this case as well, but there are important distinctions to be made to demonstrate health-protective site conditions or the proper basis for remedial action.

The focused risk assessment is based on the human health risk assessment paradigm (model; NRC, 1983, 1994). Health risk assessment incorporates component assessments, including:

- Hazard Identification, including data collection and evaluation;
- Toxicity Assessment;
- Exposure Assessment, including the Conceptual Site Model; and
- Risk Characterization, including description of uncertainty.

The EPA paradigm is sometimes called the "forward" approach to risk assessment where exposure and toxicity are used to calculate estimates of incremental lifetime cancer risk (ILCR) and human health hazard (hazard index, HI) as part of risk characterization, as follows:

Concentration & Intake Factors
↓
EXPOSURE & TOXICITY → **<u>RISK / HAZARD</u>**

The risk assessment approach of EPA is intended to be conservative and to overestimate risk/hazard via conservative assessments in the exposure assessment (Burmaster and Harris, 1993) and safety margins in the toxicity assessment. This is because a one-in-a-million cancer risk, a criterion chosen through political and administrative means, is an unverifiable risk (Milloy, 1995; Seiler and Alvarez, 1994). Therefore, the methodology for evaluation of incremental risk from environmental exposure is overestimated to protect the general public and sensitive subpopulations, *i.e.*, the old, the infirm, and the young. EPA acknowledges that the "true risk" will not exceed the risk estimate derived through the use of risk assessment and is likely to be less than that predicted (EPA, 1989, page 8-6, column 2, paragraph 2).

To elaborate, the basis of the risk-based approach is consistent with the conservative approach of an *upper-bound* analysis. In an upper-bound analysis, the *upper-bound* concentrations of the chemicals of potential concern (COPCs) are evaluated for an initial, upper-bound estimate of cancer risk (risk) and health hazard (hazard) for the exposure conditions of a particular site.

The upper-bound concentration may be a *maximum* concentration when few data are available. When soil investigation data are numerous, a *representative* concentration, a 95 percent upper confidence limit (UCL), could be used to represent an upper-bound concentration, a *reasonable maximum exposure* (RME), for an area of exposure. If the upper-bound estimate is protective of human health, then other more refined determinations of risk/hazard (such as *average* COPC concentrations) will also be protective, and no further analysis is needed. If the upper-bound estimate exceeds human health protection criteria, then more detailed analysis of representative COPC concentrations (average concentrations) and exposure circumstances can serve to reduce uncertainties and necessary conservatism to yield a more realistic (and justifiably lower) evaluation of risk/hazard for decision making. In this way, only that effort necessary to assess health-protective criteria is expended until the basis for a technically defensible, consistent decision is established. If the most detailed analysis does not meet health-protective criteria, remedial action is warranted. For purposes of this project, focused risk assessment provides a valuable communication tool for showing the systematic evaluation of site-specific data, identifying areas of the site where attention should be focused, and indicating where conditions are protective for unrestricted land use. Where the focused risk assessment indicates question about protective conditions, aggressive remedial action, including removal, can be recommended in the focused risk assessment and addressed in the Remedial Action Plan (RAP).

Data Evaluation

The site characterization data are typically collected using a sampling rationale that is focused on determining the maximum concentrations of the COPCs. This kind of approach is *knowledge-based*, also called *biased*, *authoritative*, *judgmental*, or *purposive*. Then additional borings may be added to determine the extent of COPC occurrence. The borings with detected COPCs will be used to define an area of concern (AOC; EPA, 1992, page 55, section 3.2.8). Risk-based decision making is developed for each AOC and may be different for each, often presenting economic advantage. Descriptive statistics, maximum concentration or upper confidence limit, using the data from the borings in the AOC, are representative of the AOC.[3] Soil gas or groundwater data may be used for the same purpose.

Role of Toxicity and Exposure Assessments in Focused Risk Assessment

In the focused risk assessment approach, acceptable (target) standards for risk/hazard are incorporated with toxicity values and standard default exposure (intake) factors in a "back-calculation" to yield acceptable RBCs of the COPCs in appropriate environmental media. The process may be pictured as follows:

Risk-Based Concentration ← Intake
Factors
↑
EXPOSURE & TOXICITY & RISK / HAZARD

Because of the time-frame required for the project, it is recommended that calculation of site-specific RBCs not be conducted. Rather, it is important to rapid review of the focused risk assessment by the administering agency that the RBCs be well-established and readily acceptable. For this reason, preliminary remediation goals (PRGs; EPA, 1991b, 2002) are used.

Toxicity Assessment

RBCs are based on established toxicity standards compiled by the California EPA Office of Environmental Health Hazard Assessment (OEHHA) in its Toxicity Criterion Database (OEHHA, 2004) and by EPA in its Integrated Risk Information System (IRIS; EPA, 2004) database. The PRGs may also be based on toxicity values from the Health Effects Assessment Summary Tables (HEAST; EPA, 1997) or from the National Center for Environmental Assessment (NCEA, http://www.epa.gov/ncea) provisional values. The PRGs for residential soil were calculated by

[3] Statistics obtained from an AOC determined from biased/authoritative/judgmental/purposive data, even with step-out borings, are not based on random sampling, so they are not statistically representative of a true mean concentration for each COPC. Rather, statistics obtained in the fashion described above are biased high

EPA using the toxicity values compiled from all the above sources, and nothing further will be done to modify those values that already have conservative safety/uncertainty factors included because it could affect the acceptability of the focused risk assessment and the time required for acceptance.

Exposure Assessment

The PRGs are based on two standard exposure scenarios, namely, a residential land use scenario with human activities (adult and child) and a commercial-industrial land use scenario with human activities (adult). The residential scenario applies to future land use of the Division 6 property. The choice of a standard exposure scenario carries with it the use of standard default exposure factors (EPA, 1991a), denoted as "Intake Factors" in the above depiction, in calculating the RBC. Those factors pertain to both adults and children, and a focused risk assessment meeting risk-based criteria would indicate protection of both adults and children on the properties. The specific default exposure factors and the equations used to calculate the RBCs may be found in the PRG table (EPA, 2002). When PRGs are used for purposes of focused risk assessment, the default exposure factors (EPA, 1991a) and appropriate equations (EPA, 1991b) have been involved in the calculation of that RBC. It can be said that the PRG incorporates all the elements of the "forward" risk assessment simply applied in "reverse" fashion for risk-based evaluation.

Conceptual Site Model

Risk-based evaluation is based on a conceptual site model (CSM; EPA, 1988, 1996a; Cal/EPA, 1999) to indicate the exposure pathways to be characterized in the site characterization and evaluated in the exposure assessment and risk characterization. The CSM serves as the "roadmap" for the risk-based evaluation of the site. The risk assessment must include all the complete pathways of the CSM. Complete exposure pathways may be traced from left to right on the figure. Beginning at the left in the CSM, sources, pathways, and receptors are identified as boxes and may be thought of as the concentration of the COPC at each reference point (box) as it disperses and attenuates along its pathway. The arrows may be thought of as the equation, algorithm, model, or concentration reduction factor that estimates the COPC concentration in the box to the right based on the initial concentration in the box to the left. Where environmental sampling data are available, the concentrations in each

---

compared to the true (population) mean. This technique insures that type I error is favored and risk is overestimated for health protection, as intended in the NRC risk assessment paradigm (NRC, 1983, 1994).

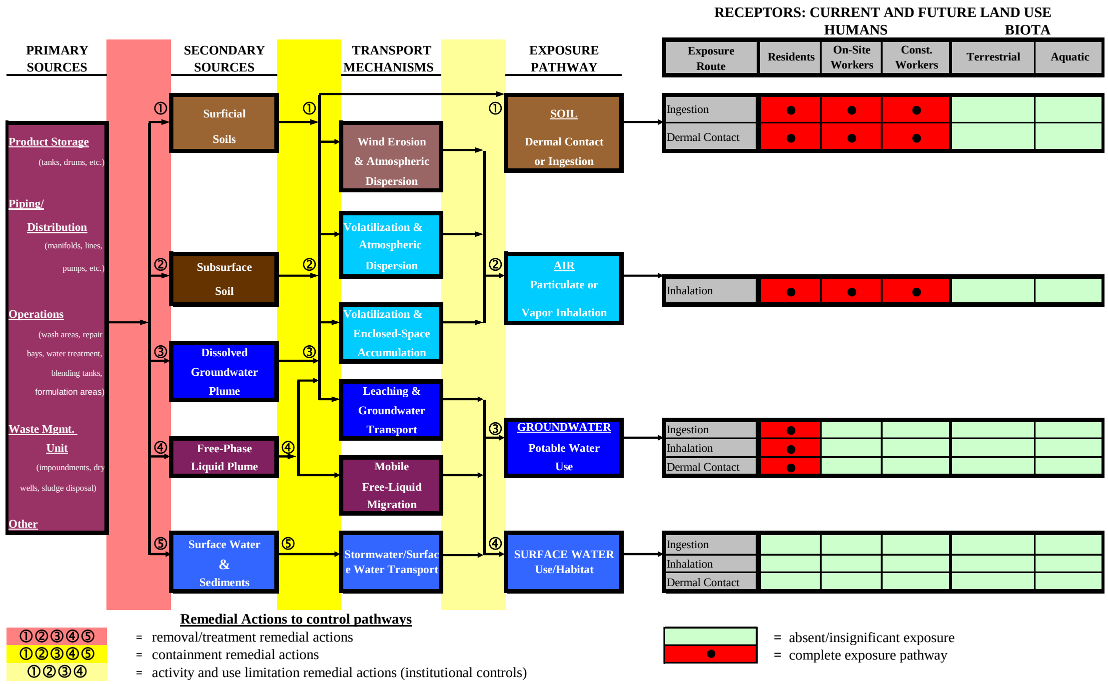
box are known specifically. Where the data are not known or are not available, modeling or other estimation techniques are employed, as needed, to permit the quantitative estimation of the exposure intake for the designated receptors. Where a pathway is assessed as being incomplete or broken, the arrow between the boxes has a dashed line. Consistent with standard practice, risk/hazard is only assessed for complete pathways (ASTM, 1995, 1998; 1999; Cal/EPA, 1999; EPA, 1989, 1996a,b). For purposes of streamlined risk assessment, historical environmental releases are included in the current land use. Current land use for MTA Division 6 is considered commercial-industrial land use, and future land use for the redeveloped property is considered to be as a residential (unlimited land use) exposure scenario. Land use designation, both currently and in the future, leads to the assignment of potential receptors as adults and children for focused risk assessment. Decision making is based on streamlined risk assessment of identified areas of concern (AOCs) corresponding to environmental releases or, at least, contiguous detections of COPCs indicating a potential source of exposure.

For the MTA Division 6 property, there is at least 1 AOC corresponding to residuals of the former UST installation in groundwater. Other areas of soil were investigated for potential AOCs The soil gas monitoring results for the Site could have indicated additional areas of concern, but the results obtained for 34 samples collected across the Site outside the building footprint were all non-detect. Other detections of COPCs across the Site and in the groundwater were scattered or isolated so that they do not represent COPC concentrations consistent with an exposure scenario extending over a lifetime. If soil-related AOCs had been identified in the Phase II investigation, they could be addressed separately from the groundwater AOC for redevelopment of the property.

Potential exposure pathways for soil are based on a residential exposure scenario. Therefore, evaluation for focused risk assessment will include incidental ingestion, inhalation of fugitive dust and volatilized COPCs, and dermal contact with soil is sufficient to describe pathways for interaction with the soil.

Evaluation of groundwater is based on MCLs (California and federal), as available. Where there are no MCLs, *i.e.*, TBA, risk-based concentrations for groundwater use in a residential exposure scenario have been used. NFA for groundwater depends on evaluation of current groundwater concentrations in a natural attenuation scenario (ASTM, 1998; EPA, 1998) using site-specific data and incorporating modeling to support the assessment of a stable or receding plume and/or insignificant impact on critical receptors, *i.e.*, the nearest down-gradient production well.

An example CSM, not necessarily representing the MTA Division 6 property is shown in the following figure.



Methodology

A phased approach using only that detail of evaluation necessary to support decision making is used in the focused risk assessment. By a phased approach, it is meant that maximum COPC concentrations are used first for a rapid comparison to the risk/hazard standards. If the standards are exceeded, then statistical average and upper-bound concentrations could be used (with more time and effort) to more fully represent the environmental data set and to obtain a justifiably lower risk for comparison to the risk/hazard standards.

This is similar to the approach of the American Society for Testing and Materials (ASTM) Standard Guides E-1739-95, *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* (ASTM, 1995) and E 2081-00, *Guide for Risk-Based Corrective Action* (for all chemical releases) (ASTM, 2000). It is consistent with applicable regulatory guidance of the EPA (2002) and the Cal/EPA (1994).

The methodology for evaluating the site characterization data for the properties is based on a risk-based corrective action approach using EPA Region IX PRGs (EPA, 2002), RWQCB RBSLs (Cal/EPA, 2004), and perhaps even the coming (January, 2004) OEHHA SB32 concentrations (40 chemicals) as RBCs. The chemical-specific RBCs are compared directly to concentrations from the site characterization data.

It is important that in addition to comparison to RBCs the cumulative risk/hazard be determined and compared to appropriate risk/hazard exposure standards (EPA, 1990; Cal/EPA, 1996). To calculate risk/hazard, just as in a "forward" risk assessment, the ratio of the measured to the risk-based concentration is multiplied by the appropriate target risk or hazard quotient to yield the respective risk or hazard for the evaluation. For incremental lifetime cancer risk, the applicable equation is

$$\text{Risk} \quad = \quad \left[\left(\frac{\text{conc}_\text{a}}{\text{RBC(ca)}_\text{a}}\right) + \ldots\ldots + \left(\frac{\text{conc}_\text{z}}{\text{RBC(ca)}_\text{z}}\right)\right] \quad \text{x} \quad 10^{-6} \quad = \quad \text{ILCR}$$

The target risk in the above equation is 10^{-6} ILCR. If the risk-based concentrations were based on a different target risk, e.g. 10^{-5} ILCR, then that target risk would be used in the equation. The above risk calculation may be carried out chemical by chemical to obtain chemical-specific ILCRs, or it can be carried out for all chemicals concurrently to obtain the cumulative ILCR. Of course, the individual chemical-specific ILCRs could also be summed to obtain the cumulative ILCR when appropriate.

The applicable equation for health hazard (hazard index) is

$$\text{Hazard Index} \quad = \quad \left[\left(\frac{\text{conc}_\text{a}}{\text{RBC(nc)}_a}\right) + \ldots\ldots + \left(\frac{\text{conc}_\text{z}}{\text{RBC(nc)}_z}\right)\right] \quad \text{x} \quad 1.0 \quad = \quad \text{HI}$$

The above hazard index calculation may be carried out chemical by chemical to obtain chemical-specific hazard quotients (HQs), or it can be carried out for all chemicals concurrently to obtain the cumulative hazard, called the hazard index, HI. Of course, the individual chemical-specific HQs could also be summed to obtain an HI when appropriate.[4]

For purposes of this report, the term

$$\left[\left(\frac{\text{conc}_x}{\text{RBC (ca or nc)}_x}\right)\right]$$

is called an "RBC index". If the RBC is based on cancer toxicity, then multiplying the index by the target risk[5] (10^{-6}) yields the chemical-specific ILCR. If the RBC is based on non-cancer toxicity, then multiplying the index by the target hazard quotient[3] (1.0) yields the chemical-specific hazard quotient, HQ. By common practice, the sum of HQs is called the hazard index (HI). The equations shown above support the approach of the focused risk assessment.

The endpoint of the evaluation is that each likely exposure pathway is evaluated for health-protective conditions. An *example* of how this evaluation can be presented is shown in the following table:

---

[4] Different chemicals may not impact the same target organs significantly at the levels of chronic exposure typically associated with an environmental release. EPA specifically admonishes against adding HQs unless there is commonality of organ(s) impacted by exposure (EPA, 1989, Chapter 8). Where there is commonality among some chemicals of exposure, those chemical-specific HQs may be summed to yield a target organ-specific HI. Evaluation of the exposure to petroleum hydrocarbons is problematic because petroleum, such as crude oil, contains over 250 known hydrocarbons, each with potential toxic effects that are likely to be associated with different target organs and different concentrations of significant exposure (together referred to as *the critical effect*). Table A-2 in the appendix lists the critical effects for the indicator and surrogate chemicals used to designate toxicity values for the various carbon ranges of petroleum. By common practice and for convenience in screening, petroleum hydrocarbons are evaluated using one risk-based concentration for petroleum hydrocarbons.

[5] The target risk may be other than 10^{-6}, and the target hazard quotient/index may be other than 1. The appropriate target risk and target hazard quotient/index to use in calculating risk/hazard is that used in the original calculation of the RBC.

Analyte	Max. Conc.	Units	PQL	Risk-Based Conc.	Comment	PRG Index	Toxicity Endpoint	ILCR	HQ
TPH	400	mg/kg	95	8,000	RBC for "fresh crude oil" via ingestion, inhalation of fugitive dust and surface soil vapor, and dermal contact absorption (Vorhees, 1999, Figure 12a, Page 34.); the carbon-fractions of TPH-g are contained in the carbon fractions constituting TPH, so the	0.05	nc	NA	0.05
TPH-g	31	mg/kg	5						
Benzene	0.14	mg/kg	0.005	0.65	Residential soil PRG - cancer (EPA, 2000)	0.22	ca	2.E-07	NA
Toluene	0.73	mg/kg	0.005	520	Residential soil PRG - noncancer (EPA, 2000)	0.00	nc	NA	0.001
Ethyl Benzene	0.18	mg/kg	0.005	230	Residential soil PRG - noncancer (EPA, 2000)	0.00	nc	NA	0.0008
Total Xylenes	1.0	mg/kg	0.005	210	Residential soil PRG - noncancer (EPA, 2000)	0.00	nc	NA	0.005
Phenanthrene*	210	**µg/kg**	200	22,000,000	Surrogate residential soil PRG - noncancer for structurally-similar Anthracene used for evaluation; Phenanthrene has no listed toxicity reference values (EPA, 2001)	0.00001	nc	NA	0.00001
Fluorene*	120	**µg/kg**	40	2,600,000	Residential soil PRG - noncancer (EPA, 2000)	0.00005	nc	NA	0.00005
								ΣILCR **2.E-07**	ΣHQs = HI **0.1**
								ILCR Std. 10^{-4} - 10^{-6}	HI Std. 1.0

If necessary, this area of the table can be used for breaking out the Hazard Index by target organ.

Note in the table above that Total Petroleum Hydrocarbons (TPH) is addressed by risk-based concentrations for TPH-g and TPH-d as determined by the Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG; Vorhees, et al., 1999). Risk-based results obtained using the representative concentrations of the COPCs indicate adherence to health standards or an opportunity for remedial action. For remedial action, the risk-based evaluation provides important information about which environmental media and COPCs should be targeted for the most effective results in achieving protection of human health and the environment.

Ecological Assessment

The MTA Division 6 property has been fully developed for over 50 years, before the passing of the National Environmental Policy Act, 1969, and the California Environmental Quality Act, 1970. The site is completely paved, and there is virtually no habitat available for common, threatened, endangered, or special-status species of regulatory interest. Whether there may be COPCs present on the site or not, there are no terrestrial or aquatic biota on the site, and the characterization of ecological risk/hazard is not warranted.

REFERENCES

American Society for Testing and Materials, 1995, Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites, E 1739-95, West Conshohocken, PA 19428, November 1995, with editorial corrections in December 1996 as version 1739-95$^{\varepsilon 1}$.

American Society for Testing and Materials, 2000, Standard Guide for Risk-Based Corrective Action, E 2081-00, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

ASTM, see American Society for Testing and Materials.

Burmaster, D.E. and R.H. Harris, 1993, "The Magnitude of Compounding Conservatisms in Superfund Risk Assessments," Risk Analysis, Vol. 13, No. 2, pp. 131-134.

Cal/EPA, see California Environmental Protection Agency.

California Environmental Protection Agency, 1996, Interim Site Assessment & Cleanup Guidebook, State of California Environmental Protection Agency, California Regional Water Quality Control Board, Los Angeles and Ventura Counties, Region 4, May.

California Environmental Protection Agency Department of Toxic Substance Control, 1999, Preliminary Endangerment Assessment Guidance Manual, Sacramento, California, January 1994, Second Printing, June 1999.

California Environmental Protection Agency Office of Environmental Health Hazard Assessment, Toxicity Criteria Database, 2004, *http://www.oehha.ca.gov/risk/chemicalDB/index.asp?error=Unknown+Chemical&chemname=&casnum=*.

Edwards, D.A., M.D. Andriot, M.A. Amoruso, A.C. Tummey, C.J. Bevan, A. Tveit, L.A. Hayes, S.H. Youngren, and D.V. Nakles, 1997, Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 4, Development of Fraction-Specific Reference Doses (RfDs) and Reference Concentrations (RfCs) for Total Petroleum Hydrocarbons (TPH), Amherst Scientific Publishers, Amherst, Massachusetts, http://www.aehs.com.

EPA, see United States Environmental Protection Agency.

Leadspread, 2003, Internet URL: *http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html.*

Milloy, Steven J., 1995, Science-Based Risk Assessment, A Piece of the Superfund Puzzle, National Environmental Policy Institute, ISBN 0-9647463-0-1, Washington D.C.; *ibid*, 1994, Choices in Risk Assessment, The Role of Science Policy in the Environmental Risk Management Process, prepared for Sandia National Laboratories, sponsored by the U.S. Department of Energy, Office of Environmental Management and Office of Environment, Safety and Health.

RWQCB, see California Environmental Protection Agency.

Seiler, Fritz A. and Alvarez, Joseph L., 1994, "Definition of a Minimum Significant Risk," Technology: Journal of the Franklin Institute, Vol. 331A, pp. 83-95.

United States Environmental Protection Agency, 1989, Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002, Office of Emergency and Remedial Response, Washington, DC 20460, December.

United States Environmental Protection Agency, 1990, National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300; Federal Register, Volume 55, No. 46, pp. 8666-8865, Washington, DC, Thursday, March 8.

United States Environmental Protection Agency, 1991a, Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors," OSWER Directive 9285.6-03, NTIS PB92-963333, Office of Solid Waste and Emergency Response, Washington, DC 20460, March 25.

United States Environmental Protection Agency, 1991b, Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals), OSWER Directive 9285.7-01B, NTIS PB92-963333, Office of Emergency and Remedial Response, Washington, DC 20460, December 13.

United States Environmental Protection Agency, 1991c, Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part C, Risk Evaluation of Remedial Alternatives), Publication 9285.7-01C, Office of Emergency and Remedial Response, Washington, DC 20460, December 13.

United States Environmental Protection Agency, 1996a, Soil Screening Guidance: Technical Background Document, Second Edition, EPA/540/R-95/128, Office of Solid Waste and Emergency Response; OSWER Directive 9355.4-17A, Office of Emergency and Remedial Response, Washington, DC 20460, May.

United States Environmental Protection Agency, 1996b, Soil Screening Guidance: User's Guide, EPA/540/R-96/018, OSWER Directive 9355.4-23, Office of Solid Waste and Emergency Response, Washington, DC 20460, July.

United States Environmental Protection Agency, 1997, Health Effects Assessment Summary Tables, FY-1997 Update, EPA 540/R-97-036, 9200.6-303(97-1), PB97-921199, National Center for Environmental Assessment, Cincinnati, OH; Office of Research and Development; Office of Emergency and Remedial Response; Solid Waste and Emergency Response, Office of Research and Development, Washington, DC 20460, July 31, 420 pp.

United States Environmental Protection Agency, 2000, Risk Characterization Handbook, EPA 100-B-00-002, Science Policy Council, Washington, DC 20460, December, http://epa.gov/osp/spc/rchandbk.pdf.

United States Environmental Protection Agency, 2002, "Region 9 Preliminary Remediation Goals (PRGs) 2002," Stanford J. Smucker, Ph.D., Regional Toxicologist, San Francisco, CA 94105-3901, URL: http://www.epa.gov/region09/ waste/sfund/prg/, October 1.

United States Environmental Protection Agency, 2004, Integrated Risk Information System, IRIS, http://www.epa.gov/iris.

Vorhees, D.J., W.H. Weisman, and J.B. Gustafson, 1999, Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 5, Human Health Risk-Based Evaluation of Petroleum Release Sites: Implementing the Working Group Approach, Amherst Scientific Publishers, Amherst, Massachusetts, June, http://www.aehs.com.

APPENDIX B

TOTAL PETROLEUM HYDROCARBON CHEMICALS OF POTENTIAL CONCERN

APPENDIX B
TOTAL PETROLEUM HYDROCARBON CHEMICALS OF POTENTIAL CONCERN

The chemicals of potential concern (COPCs) associated with petroleum hydrocarbons for potentially contaminated sites are based on the specific chemicals making up the mixture, often measured analytically as total petroleum hydrocarbons (TPH). The risk assessment of TPH for protection of human health requires identification of specific chemical species, measurement of their respective concentrations, and determination of a chemical-specific toxicity standard. This has been accomplished for TPH through an exhaustive study by the Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG).[1]

Until 1997, there was no consistent strategy across the United States for assessing human health risk at petroleum sites. To address this need, the TPHCWG convened beginning in 1993 to address the large disparity among cleanup requirements used by states at sites contaminated with fuels, lubricating oils, crude oils and other petroleum hydrocarbons. These requirements usually focus on TPH, with numerical standards ranging from tens to thousands of milligrams of TPH per kilogram of soil. Recognizing that these standards are not based on a scientific assessment of human health risk, the TPHCWG developed a sound, flexible approach for establishing soil cleanup levels that are protective of human health at those sites. The TPHCWG's approach, culminating in the derivation of fate-and-transport-fraction-specific toxicity criteria, represents a scientifically sound technical basis for corrective action at petroleum sites. While the approach does not address ecological risk nor aesthetic criteria, the strategy for developing the TPHCWG approach can be modified to deal with ecological concerns.

---

[1] The TPHCWG was guided by a steering committee consisting of representatives from industry, government, and academia. Some of the active participants, among the more than 400 involved, include the Gas Research Institute, the Petroleum Environmental Research Forum; several major petroleum companies including Chevron, Exxon, British Petroleum, and Shell; the American Petroleum Institute; the Association of American Railroads; several state governments (Washington, Texas, Colorado, Hawaii, Louisiana, New Mexico, Massachusetts); the U.S. Environmental Protection Agency; the Department of Defense; the University of Massachusetts; and private consulting firms including EA Engineering, Science & Technology.

The TPHCWG has compiled its data collection and evaluation efforts into five volumes, *http://www.AEHS.com* (ASP Publications; Browse the On-Line Books Catalog; TPH Working Group Series, Volumes 1-5.):

Volume 1. Petroleum Hydrocarbon Analysis of Soil and Water in the Environment (Weisman, 1998a)
Volume 2. Composition of Petroleum Mixtures (Potter and Simmons, 1998)
Volume 3. Selection of Representative Total Petroleum Hydrocarbon (TPH) Fractions Based on Fate and Transport Considerations (Gustafson, Tell, and Orem, 1997)
Volume 4. Development of Fraction-Specific Reference Doses (RfDs) and Reference Concentrations (RfCs) for Total Petroleum Hydrocarbons (TPH) (Edwards et al., 1997)
Volume 5. Application of the TPHCWG Methodology within the ASTM Risk Based Corrective Action Framework (Vorhees, Weisman, and Gustafson, 1999)

TPH Composition

TPH may consist of hundreds or even thousands of individual constituents, of which about 250 have been identified. The TPHCWG collected and evaluated data regarding the composition of petroleum products, including gasoline, crude oil, jet fuels, kerosene, diesel fuel, home heating oil, and lubricating oils. With these data, the TPHCWG quantified how much of the 250 constituents are found in each product and has summarized this information in Volume 2 (Potter and Simmons, 1998) of the TPHCWG reports. Compilation of this composition data was essential before the TPHCWG could identify which TPH constituents or fractions should be the focus of human health risk-based cleanup goals.

Selection of TPH Fraction and Indicator Compound Approach

It is not practical to analyze soil samples collected from petroleum sites for all TPH constituents. Analytical and computational requirements would be excessive and cost-prohibitive. Even if concentration data were obtained for all TPH constituents, the toxicity data and fate and transport data needed for assessing human health risk are not available for each constituent. The TPHCWG considered whether human health toxicity associated with petroleum contamination should be evaluated on the basis of whole products, by grouping similar compounds into fractions, or by using the toxicity of indicator compounds. With the *whole product approach*, toxicity criteria for unweathered whole products are applied to the petroleum mixture found at a contaminated site. With the *indicator approach*, the toxicity of the petroleum mixture is described by the toxicity of one or more of the more potent constituents. This approach is often used to assess the carcinogenic potential of complex mixtures. The *fraction approach* involves resolving petroleum constituents into fractions based on chemical and physical properties and then assigning representative toxicity criteria to each fraction.

The TPHCWG decided that the whole product approach would be worthwhile in the case of very fresh spills, but that releases of weathered petroleum would be addressed best using a combination of the *fraction approach* and the *indicator approach*. For cancer risk from volatile petroleum hydrocarbons, benzene should be used as the indicator chemical. For cancer risk from heavy petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs) should be used as indicator chemicals. To address non-cancer health hazard, the TPHCWG identified 13 TPH fractions.

Identification of TPH Fractions with Similar Fate and Transport Characteristics

Exposure considerations are often the overwhelming factor in determining the risk to health associated with petroleum contamination in the environment. Fate and transport of TPH constituents varies as a function of their individual chemical and physical properties. To choose TPH fractions, the TPHCWG modeled the fate and transport of each carbon congener group, *e.g.*, C5, C6, C7, for leaching to groundwater and volatilization to air. The carbon congener groups were combined based on their modeled results being within one order of magnitude of one another. Once fractions were defined, appropriate fate and transport parameter values were assigned to each fraction based on average values of the individual constituents within each fraction. These values can be used to determine exposure to each fraction. The fate and transport fractions and associated critical parameters are presented in Table B-1. Aliphatic and aromatic components are considered separately because these two groups vary greatly in their environmental behavior.

Table B-1
TPH Fractions Derived from Fate and Transport Characteristics and Associated Properties (Based on an Equivalent Carbon Number[1])

	Solubility (mg/L)	Vapor Press. (atm)	Log Koc (c/c)	PF[2] (soil/water)	PF[2] (soil/vapor)
Aliphatic Fractions					
C5-C6	3.6E+01	3.5E-01	2.9E+00	1E+01	3E-01
>C6-C8	5.4E+00	6.3E-02	3.6E+00	4E+01	9E-01
>C8-C10	4.3E-01	6.3E-03	4.5E+00	3E+02	6E+00
>C10-C12	3.4E-02	6.3E-04	5.4E+00	3E+03	5E+01
>C12-C16	7.6E-04	4.8E-05	6.7E+00	7E+04	1E+03
>C16-C35	1.3E-06	7.6E-06	9.0E+00	1E+07	1E+05
Aromatic Fraction					
C6-C7	1.8E+03	1.3E-01	1.9E+00	9E-01	4E+00
>C7-C8	5.2E+02	3.8E-02	2.4E+00	2E+00	9E+00
>C8-C10	6.5E+01	6.3E-03	3.2E+00	2E+01	5E+01
>C10-C12	2.5E+01	6.3E-04	3.4E+00	2E+01	2E+02
>C12-C16	5.8E+00	4.8E-05	3.7E+00	5E+01	2E+03
>C16-C21	5.1E-01	7.6E-06	4.2E+00	1E+02	4E+04
>C21-C35	6.6E-03	4.4E-09	5.1E+00	1E+03	3E+07

Note: Table extracted in part from Gustafson et al., 1997, Table 7

[1]Equivalent carbon number as defined in Gustafson et al., 1997

[2]PF – partition factors for soil-to-water and soil-to-vapor concentrations at equilibrium

Each of the groups in Table B-1 is further subdivided on the basis of equivalent carbon number index. This index is related to the boiling point of individual constituents and is equivalent to the retention time of the compounds in a boiling point gas chromatography (GC) column, normalized to the n-alkanes. The relationship between equivalent carbon number and boiling point was empirically determined. Therefore, if the boiling point of a chemical is known, its equivalent carbon number can be calculated. The detailed derivation of the fate and transport and the equivalent carbon numbers are found in TPHCWG Volume 3 (Gustafson et al., 1997). Separating TPH constituents into these fate and transport fractions simplifies environmental modeling conducted in support of human health risk assessment for petroleum sites. These fractions can be used in fate and transport models using the physical parameters listed in Table B-1 to estimate partitioning in the soil-water-air system. In this way, the fraction is treated like a single chemical for modeling purposes.

Analytical Methods for Characterizing Petroleum Contaminated Soils and Water

The TPHCWG identified and evaluated available analytical methods for hydrocarbons at petroleum contaminated sites (TPHCWG Volume 1, Weisman, 1998a). Because the chemical composition of residuals at petroleum sites is complex and varies over time and distance from the source, selection of an appropriate analytical method is critical.

The TPHCWG analytical method is called the "DIRECT" method *(http://www.AEHS.com)*. At least one laboratory in Santa Barbara County can run this analysis. The technique is based on SW-846 EPA Method 3611 (Alumina Column Cleanup and Separation of Petroleum Wastes) and SW-846 EPA Method 3630 (Silica Gel Cleanup), which are used to fractionate petroleum-derived mixtures into aliphatic, aromatic, and polar fractions.[2] Gas chromatography equipped with a

[2] The DIRECT method involves extraction of a soil or a water sample with n-pentane and analysis of a portion of the extract using gas chromatography with a flame ionization detector (GC-FID). For additional characterization, fractionation of the petroleum hydrocarbon extract is accomplished by solid-phase separation of another portion of the extract using alumina (similar to EPA Method 3611) and eluting with n-pentane to obtain an aliphatic fraction followed by elution with dichloromethane to obtain an aromatic fraction. Alternatively, fractionation may also be done using silica gel (similar to EPA Method 3630). Silica gel may be more suitable for samples with a wide boiling point distribution of hydrocarbons. Silica gel may also be better for the fractionation of the higher molecular weight PAHs. In the silica gel procedure, a 1:1 mixture of acetone:methylene chloride is used to elute the aromatic compounds. Other fractionation procedures, such as automated high-pressure liquid chromatography (HPLC) methods, may also be used. The fractions are also analyzed using GC-FID. The extract as well as the fractions can be further characterized by subdividing the chromatographic data into approximate boiling point/carbon number ranges with respect to n-alkane markers. This method allows choices of standards for calibration. Either mixtures of single hydrocarbon components, petroleum products (such as gasoline or diesel), or mixtures of petroleum products can be used. It is strongly encouraged that petroleum products similar to those present as contaminants in the samples be used if possible.

boiling point column (nonpolar capillary column) is used to analyze whole soil samples as well as to resolve and quantify the aliphatic and aromatic fate and transport fractions. The method is versatile and performance-based and therefore can be modified to accommodate data quality objectives. The method may not be needed to analyze all soil samples collected at a petroleum site, but only enough samples necessary to identify the contaminants present at the site. Once petroleum contamination has been fully characterized and the TPH fingerprint is similar across the site, additional sampling can rely on traditional, less expensive TPH analysis rather than the new, more complex method.

Development of Toxicity Criteria for Fate and Transport Fractions

The TPHCWG had to establish toxicity criteria for the carbon fractions appropriate for quantifying human health risk. By relying on the fate and transport fractions, human health risk can be evaluated using toxicity criteria that approximate the mixtures as they occur in the environment. To assign toxicity criteria to the fate and transport fractions, toxicity data for individual TPH constituents within each fraction were reviewed. From these data, either the toxicity factors for the most stringent member of each fraction or a surrogate chemical representing an upper-bound value of the toxicity for the fraction was used. The values chosen are summarized in Table B-2.

Table B-2. TPHCWG Toxicity Criteria for TPH Fractions[1]

Carbon Range[2]	Aromatic Oral RfD (mg/kg-day)	Aromatic Inhalation RfC (mg/m^3)	Critical Effect	Aliphatic Oral RfD (mg/kg-day)	Aliphatic Inhalation RfC (mg/m^3)	Critical Effect
Aliphatic C5-C6 >C6-C8 Aromatic C5-C7[3] >C7-C8	0.2	0.4	Hepatotoxicity Nephrotoxicity	5.0	18.4	nephrotoxicity
>C8-C10 >C10-C12 >C12-C16	0.04	0.2		0.1	1.0	hepatic and hematological changes
>C16-C21 >C21-C35	0.03	NA	Nephrotoxicity	2.0	NA	hepatic (foreign body reaction) granuloma

[1]This table is excerpted from TPHCWG Volume 4 (Edwards et al., 1997).
[2]Carbon range = equivalent carbon number range as defined in TPHCWG Volume 3 (Gustafson et al., 1997).
[3]Benzene is the only compound in this fraction. (Carcinogenic toxicity is evaluated independently.)
NA = Not available

For different fractions where toxicity findings were similar or there were limitations in the available toxicity data, the same toxicity criterion was assigned to be conservative. (The numerical values in Table B-2 also apply to the blank cells immediately below them.) In such case, it is important that the fractions remain differentiated so that the exposure potential can be estimated appropriately. The toxicity criteria developed by the TPHCWG for each fate and transport fraction are based on toxicity data for individual constituents and mixtures, which provide a representative and conservative estimate of each fraction's toxicity.

These toxicity criteria can then be used within a risk-based decision framework to calculate noncancer human health risk-based concentrations for petroleum-contaminated sites. Because carcinogens tend to drive cleanup requirements at most petroleum-contaminated sites when they are present, both the carcinogenic indicator compounds (evaluated using published slope factor values) and the fate and transport fractions need to be taken into consideration when trying to assess the risks to human health associated with hydrocarbon contamination at a site.

Petroleum Chemicals of Concern—Risk-Based Evaluation of TPH Constituents in Soil and Water

The methodology of the TPHCWG, described above, provides the basis for identifying copcs from environmental samples for petroleum-contaminated sites and for conducting a risk-based evaluation that is conservative for the protection of human health.

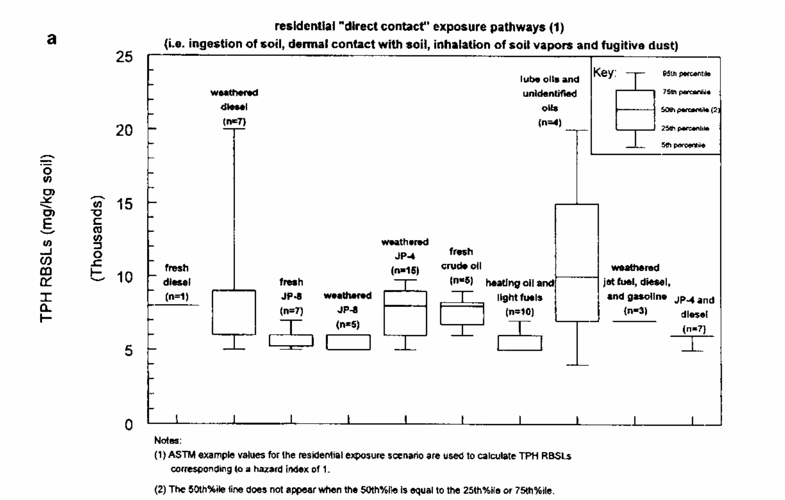
Choice of a Screening Concentration for TPH in Obstructed Tank Battery and Drilling Sump Sites

The risk-based evaluation for all detected analytes is based on a comparison of residential PRGs to the representative concentrations of the chemicals found in the property assessment. Cancer-based PRGs are used to estimate upper-bound incremental lifetime cancer risk (ILCR) for each carcinogen and for all carcinogens together (cumulative risk). Non-cancer PRGs were used to estimate chemical-specific hazard quotients (HQs) and the hazard index (HI) of all the non-cancer chemical HQs summed together. TPH is included in the non-carcinogens because TPH is evaluated for cancer risk via benzene and benzo(a)pyrene as indicator chemicals. The many other TPH component chemicals are considered to be non-carcinogenic.

Residential Land Use Setting

The evaluation for TPH is additionally conservative because direct exposure is assumed to be occurring. By regulatory "guidance", any sample from 0-10 feet below ground surface (bgs) is in surface soil. On a practical basis, especially when there is grass, concrete, or surface appurtenance, the opportunity for direct exposure is precluded. Nonetheless, the risk-based evaluation of TPH is conducted for direct exposure to surface soil of 0-10 ft. bgs. This is useful for selected residential properties where there may be no cleanup. It is assumed for the evaluation that the soil from 0-10 feet below ground surface will be excavated to sunlight for the next 30 years, and the family elects to spend a total of 30 years on the property.

The operative pathways for potential residential soil exposure remain as incidental ingestion of soil, inhalation of fugitive dust and vapors from surface soil, and dermal contact with surface soil. TPHCWG, Volume 5 (Vorhees et al, 1999, Figure 12a, page 34) presents the results of calculating risk-based TPH concentrations for a variety of petroleum products, including “fresh crude oil” (type or location, not specified). The average value for fresh crude oil (5 samples) is 8,000 mg/kg (maximum value, 9,000 mg/kg; minimum value, 6,000 mg/kg).



It can be argued that using a risk-based value for “fresh crude oil” is not applicable because the various sumps have been inactive for tens of years dating to the 1930s, and significant weathering of crude oil deposits has surely occurred. However, 8,000 mg/kg for fresh crude oil is a useful and conservative screening concentration pending site-specific TPH carbon-fraction analysis and calculation of a risk-based TPH concentration for a residential setting.

REFERENCES

Edwards, D.A., M.D. Andriot, M.A. Amoruso, A.C. Tummey, C.J. Bevan, A. Tveit, L.A. Hayes, S.H. Youngren, and D.V. Nakles, 1997, Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 4, Development of Fraction-Specific Reference Doses (RfDs) and Reference Concentrations (RfCs) for Total Petroleum Hydrocarbons (TPH), Amherst Scientific Publishers, Amherst, Massachusetts, *http://www.AEHS.com*.

Gustafson, J.B., J.G. Tell, and D. Orem, 1997, Selection of Representative TPH Fractions Based on Fate and Transport Considerations, Total Petroleum Hydrocarbon Criteria Working Group Fate and Transport Technical Action Group, Volume III in a series from the TPH Criteria Working Group, Amherst Scientific Publishers, Amherst, Massachusetts, July, *http://www.AEHS.com*.

Potter, T.L., and K.E. Simmons, 1998, Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2, Composition of Petroleum Mixtures, Amherst Scientific Publishers, Amherst, Massachusetts, May, *http://www.AEHS.com*.

Vorhees, D.J., W.H. Weisman, and J.B. Gustafson, 1999, "Human Health Risk-Based Evaluation of Petroleum Release Sites: Implementing the Working Group Approach," Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 5, Amherst Scientific Publishers, Amherst, Massachusetts, June, *http://www.AEHS.com*.

Weisman, W., 1998a, Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 1, Analysis of Petroleum Hydrocarbons in Environmental Media, Amherst Scientific Publishers, Amherst, Massachusetts, March, *http://www.AEHS.com*.

Weisman, W., 1998b, "Total Petroleum Hydrocarbon Criteria Working Group: A Risk-Based Approach for the Management of Total Petroleum Hydrocarbons in Soil," Journal of Soil Contamination, Vol. 7, No. 1, pp. 1-15.

APPENDIX C

COMPARISON OF EXPOSURE SCENARIOS IN STREAMLINED RISK ASSESSMENT

COMPARISON OF EXPOSURE SCENARIOS IN STEAMLINED RISK ASSESSMENT

Included herein is Table C-1, Example "SUBSETS" of Environmental Exposure Scenarios, showing the Intake Rate equation used in human health risk assessment, at the top, for calculating incremental cancer risk and non-cancer health hazard. The body of the table is the listing of exposure factors that correspond to the terms of the Intake Rate equation for nine different exposure scenarios. Several of these apply to job functions performed on the MTA Division 6 facility site. These parameters were obtained from the EPA and Cal/EPA documents: *Risk Man – Default Factors.doc* (DTSC, 1995) and *EPA Default Exposure Factors.pdf* (EPA, 1991) In the rows below the table of exposure parameters are PEFs, Pathway Exposure Factors, calculated using the Intake Rate equation format and the appropriate exposure parameters. The concentration of the analyte is not included; it is assumed to be 1 as a means to compare the exposure scenarios, not the chemical-specific concentration. For the PEF for groundwater ingestion, PEF-GW ingestion (ILCR), some of the results are "#VALUE!" because the groundwater ingestion rate for that particular exposure scenario was NA, not applicable, *i.e.*, ground water is not used for drinking. As an example, no "IR-GW" (ingestion rate-groundwater) is listed for the Park User exposure scenario because park users either do not drink water there, or the water that they do drink is provided by a municipal delivery system that is regulated under the Safe Drinking Water Act.

Only PEF's for incremental lifetime cancer risk (ILCR), and not non-cancer health hazard PEF's, are listed because cancer risk predominantly drives risk-based decision-making, compared to the non-cancer hazard index (HI), for each scenario and, therefore should be used to compare scenarios.

The PEF's provide a straightforward basis to compare exposure scenarios. The larger the PEF, the greater the risk to be calculated for that scenario compared to the other scenarios. As an example comparison of the two most common exposure scenarios: residential and commercial-industrial land use, the PEF's for the residential exposure scenario and the commercial-industrial scenario were compared by taking a ratio of the residential PEF over the commercial-industrial PEF. In all cases of comparison, the residential PEF was larger than the recreational PEF, and the ratios were all greater than 1. Therefore, a risk-based screening or a screening of Phase II site-specific chemical concentrations in soil that indicates protective conditions based on a residential scenario is also protective for the commercial-industrial scenario.

With regard to a construction worker exposure scenario (Heavy Industrial – Construction Worker (CA) in the table, the ratios of the residential PEFs to the construction scenario PEFs are as follows:

Comparison of Pathway Exposure Factors		
	Residential Adult	**Residential Child**
Construction Worker		
Soil ingestion	5.9E-7/6.7E-8 = **8.8**	1.1E-6/6.7E-8 = **16.4**
Air inhalation	1.2E-1/2.8E-3 = **42.8**	8.2E-2/2.8E-3 = **29.3**
Groundwater ingestion	1.2E-2/1.4E-4 = **85.7**	5.5E-3/1.4E-4 = **39.3**

Note that in every case the ratio of the PEF's is greater than one. This indicates that in every case, the residential scenario would yield a greater risk compared to the construction scenario. Accordingly, a screening that yielded acceptable exposure based on the residential exposure scenario would also yield acceptable exposure by about an order of magnitude compared to the construction worker exposure scenario. Therefore, a screening risk assessment based on residential exposure conditions does protect for the construction worker scenario. Similarly, this exercise can be conducted to compare the residential scenario to each of the other exposure scenarios with similar results. This indicates that when site-specific chemical concentrations are compared to preliminary remediation goals (PRGs) for residential soil (EPA, 2002) as a method of screening chemicals of potential concern (COPCs) for the Divison 6 site, the comparison will be conservative for all the other exposure scenarios. Therefore, screening site-specific chemical concentrations from the Phase II investigation against residential soil PRGs, as specified in EPA guidance (EPA, 1989, Exhibit 5-1), for the selection or exclusion of COPCs for risk assessment is a conservative process for the other exposure scenarios as well.

One additional aspect of this evaluation deserves description. The pathway exposure factor evaluation above is fine as far as it goes. However, it might be criticized that a pathway exposure factor comparison might not be sufficient as a surrogate to comparing actual calculated risks because the basis of the toxicity values that would be applied to the pathway exposure factor and intake in Table C-1 to calculate risk/hazard in risk assessment are different. A residential scenario occurs over 30 years; the toxicity values that apply to that exposure are chronic values. A construction scenario lasts weeks to months, and maybe as long as a year or two for a large construction job. The toxicity values applicable to such a scenario are based on sub-chronic or even acute toxicity values in some instances. Might this mean that the evaluation of pathway exposure factors described above would be mitigated or even reversed by the inclusion of chronic vs. sub-chronic toxicity factors? Fortunately, sub-chronic toxicity factors are almost always less stringent than those for chronic exposures. So, the relative ranking of pathway exposure factors for residential and other construction worker scenarios are still conservative if the calculation for risk/hazard were carried to completion, and the application of the toxicity factors in the calculations would be likely to even increase the relative comparison of risk/hazard between scenarios because of the additional comparison of chronic and sub-chronic toxicity factors.

REFERENCES

California Environmental Protection Agency, 1995, Risk Management Policy and Procedure, Expedited Remedial Action Program, Department of Toxic Substances Control, File Name: RISKMAN.P&P, Cal/EPA Access, June 30.

DTSC, see California Environmental Protection Agency.

EPA, see United States Environmental Protection Agency.

United States Environmental Protection Agency, 1989, Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002, Office of Emergency and Remedial Response, Washington, DC 20460, December.

United States Environmental Protection Agency, 1991, Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors," OSWER Directive 9285.6-03, NTIS PB92-963333, Office of Solid Waste and Emergency Response, Washington, DC 20460, March 25.

United States Environmental Protection Agency, 2002, “Region 9 Preliminary Remediation Goals (PRGs) 2002,” Stanford J. Smucker, Ph.D., Regional Toxicologist, San Francisco, CA 94105-3901, October 1.

Table C-1. *Example* "SUBSETS"of Environmental Exposure Scenarios

Estimates of Sets of Exposure Parameters for Various Scenarios

Intake Rate = [(Cm x CR x CF x FI x EF x ED) / (BW x AT)] ---> Intake Rate = Cm x PEF ---> PEF = [(IR x CF x FI x EF x ED) / (BW x AT)]

Exposure Parameter	Units	Residential - Adult US & CA	Residential - Child US & CA	Park User - Adult (CA) [4-hr day]	Park User - Child (CA) [4-hr day]	Agricultural - Adult (US)	Agricultural - Child (US)	Light Commercial (Comm-Industrial, US & CA)	Maintenance Worker/-Groundskeeper (CA)	Office Worker - CA	Visitor/Trespasser (Adult)	Visitor/Trespasser (Child)	Landscaper (CA)	Heavy Industrial - Construction Worker (CA)
C_M		Chemical-Specific/ Environmental Medium-Specific -- Same Value for Each of Soil (mg/kg), Air (µg/^{3}), GW (µg/L) for All Scenarios												
IR - soil	**mg/day**	100	200	100	200	100	200	50	480	**NA**	100	200	480	480
IR - air	**m^3/day**	20	15	6.4	4.4	20	20		20	8	20	20	20	20
IR - GW	**L/day**	2	1	**NA**	**NA**	2	2	1	1	1	**NA**	**NA**	1	1
SSA	**cm^2/day**	5800	3200	5800	3200	5800	3200	5800	5800	**NA**	5800	3200	5800	5800
SA	**mg/cm^2**	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**NA**	1.0	1.0	1.0	1.0
ABS	**unitless**	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CF	**kg/mg**	1E-6	1E-6	1E-6	1E-6	1E-6	1E-6	1E-6	1E-6	**NA**	1E-6	1E-6	1E-6	1E-6
FI	**unitless**	1	1	1	1	1	1	1	1	1	1	1	1	1
EF	**days/year**	350	350	250	250	350	350	250	250	250	350	350	250	250
ED	**years**	30	6	24	6	24	6	25	25	25	24	6	25	1
BW	**kg**	70	15	70	15	70	15	70	70	70	70	70	70	70
AT_{NC}	**days**	365 x ED	365 x ED	8760	2190	9125	365 x ED	9125	9125	9125	365 x ED	365xED	365 x ED	365
AT_C	**days**	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550	25,550
PEF - soil ingestion (ILCR)		5.9E-7	1.1E-6	3.4E-7	7.8E-7	4.7E-7	1.1E-6	1.7E-7	1.7E-6	*#VALUE!*	4.7E-7	2.3E-7	1.7E-6	6.7E-8
PEF - air inhalation(ILCR)		1.2E-1	8.2E-2	2.1E-2	1.7E-2	9.4E-2	1.1E-1	0.0E+0	7.0E-2	2.8E-2	9.4E-2	2.3E-2	7.0E-2	2.8E-3
PEF - GW ingestion (ILCR)		1.2E-2	5.5E-3	*#VALUE!*	*#VALUE!*	9.4E-3	1.1E-2	3.5E-3	3.5E-3	3.5E-3	*#VALUE!*	*#VALUE!*	3.5E-3	1.4E-4

C_M Concentration in environmental medium [mg/kg (soil); mg/L (groundwater); mg/m^3 (air)]

IR - soil Ingestion Rate for incidental ingestion of soil [mg/day]

IR - air Inhalation Rate [m^3/day]

IR - GW Ingestion Rate [liters/day]

SSA Skin Surface Area [cm^2/day]

SA Soil Adherence Factor [mg/cm^2]

ABS Absorption fraction of chemical from soil

CF Units Conversion Factor - kg to mg [10^{6} kg/mg]

FI Fraction Ingested [unitless, 0-1]

EF Exposure Frequency [days/year]

ED Exposure Duration [years]

BW Body Weight [kg]

AT_{NC} Averaging Time - noncancer [days, ED x 365]

PEF **Pathway Exposure Factor (also called, "Bunch of Factors")**

PEF - soil (ILCR) **Pathway Exposure Factor - incidental soil ingestion exposure evaluation for ILCR**
[units: kg(soil)/kg(body weight)-day]

PEF - air (ILCR) **Pathway Exposure Factor - inhalation exposure evaluation for ILCR**
[units: m^3/kg-day]

PEF - GW (ILCR) **Pathway Exposure Factor - groundwater ingestion exposure evaluation for ILCR**
[units: liters(groundwater)/kg(body weight)-day]

AT_C Averaging Time - cancer [days, 70 x 365]

D9 – California Regional Water Quality Control Board–Los Angeles Region, Underground Storage Tank Program Case Closure Division 6, 100 Sunset Avenue, Venice (ID#902910152), August 10, 2004.

Terry Tamminen
Secretary for Environmental Protection

California Regional Water Quality Control Board

Los Angeles Region

Over 51 Years Serving Coastal Los Angeles and Ventura Counties
Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.swrcb.ca.gov/rwqcb4

Arnold Schwarzenegger
Governor

August 10, 2004

Mr. Cris B. Liban, D.Env.
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952

UNDERGROUND STORAGE TANK PROGRAM CASE CLOSURE
DIVISION 6
100 SUNSET AVENUE, VENICE (ID# 902910152)

Dear Mr. Liban:

This letter confirms the completion of the site investigation and remedial action for the underground storage tank(s) formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the underground storage tanks is greatly appreciated.

Based on the available information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of section 25296.10 of the Heath and Safety Code and with corrective action regulations adopted pursuant to section 25299.3 of the Health and Safety Code and that no further action related to the underground storage tank release is required.

This notice is issued pursuant to subdivision (g) of section 25296.10 of the Heath and Safety Code.

If you have groundwater monitoring wells and/or vapor extraction wells at the subject property, you must comply with the following:

1. All wells must be properly located and abandoned.

2. Well abandonment permits must be obtained from Los Angeles County Department of Health Services (LACDHS), Water Well Permits, and all other necessary permits must be obtained from the appropriate agencies prior to the start of work. Any wells <u>not</u> abandoned must be maintained in accordance with LACDHS requirements.

3. You must submit a report on the abandonment of the wells to this office by **October 29, 2004.** This report must include, at a minimum, a site map, a description of the well abandonment process, and copies of all signed permits. For wells not abandoned, please provide the rationale for keeping the wells in place.

Please contact Dr. Yue Rong at (213) 576-6710 or Mrs. Mercedes Hsu at (213) 576-6712 if you have any questions regarding this matter.

Sincerely,

Jonathan Bishop
Interim Executive Officer

cc: Ms. Yvonne Shanks, State Water Resources Control Board, Underground Storage Tank Cleanup Fund
Mr. Patrick Nejadian, Water Well Permits, Los Angeles County Department of Health
Capt. Frank Comfort, Los Angeles City Fire Department, Underground Tanks
Ms. Valerie Toney, Los Angeles City Fire Department, Underground Tanks
Mr. Gregory Sena, MACTEC Engineering and Consulting, Inc.

Appendix E – Noise:

West Los Angeles Transportation Facility

E1 – Noise Analysis Data Sheets

Sunset Avenue Project

E2 – Noise Analysis Data Sheets

West Los Angeles Transportation Facility

E1 – Noise Analysis Data Sheets

Appendix E-1

West Los Angeles Transportation Facility Printout Sheets

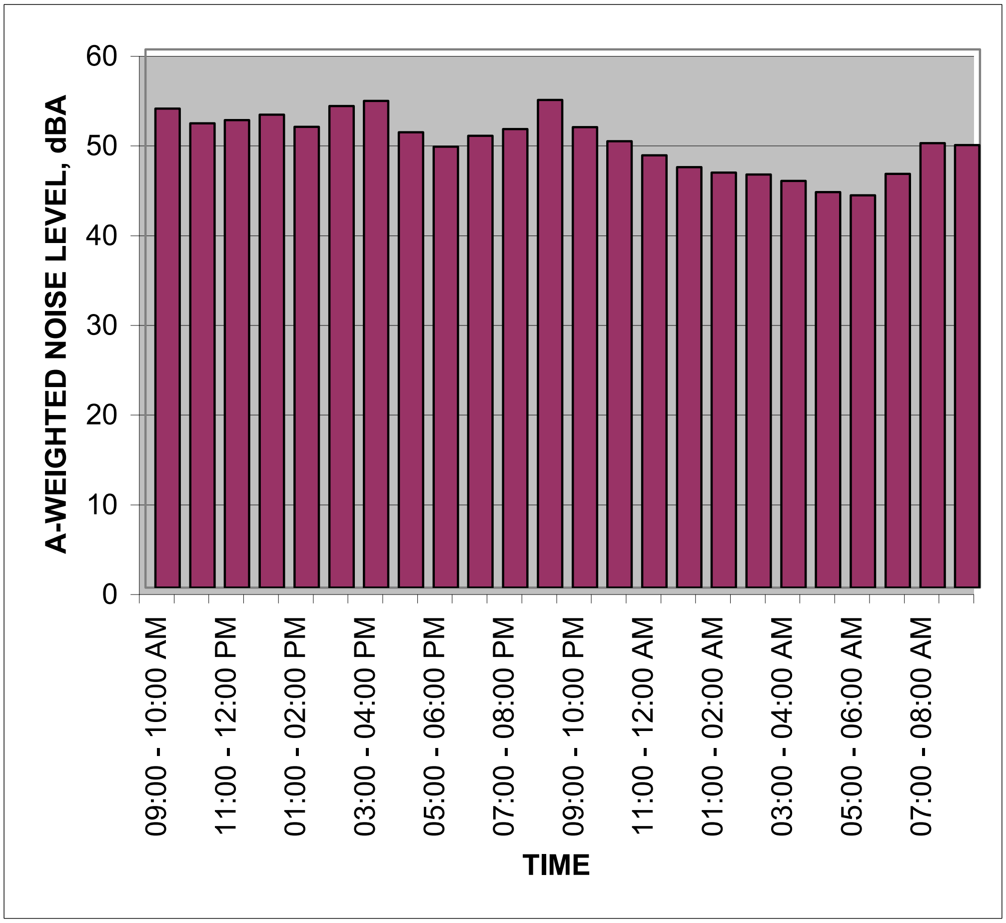
- Existing Noise Levels (CNEL)
- Construction-period Noise Impact Evaluation
- Roadway Noise Impact Evaluation
- Roadway plus LRT Alignment Noise Impact Evaluation

Community Noise Equivalent Level, CNEL.

Project: WLATC (Jefferson)
Location: Blair Hills Residential Community
Sources: Distant Traffic Volumes

Date: July 25-28, 2003

TIME	HNL, dB(A)
09:00 - 10:00 AM	53.41
10:00 - 11:00 AM	51.76
11:00 - 12:00 PM	52.12
12:00 - 01:00 PM	52.73
01:00 - 02:00 PM	51.37
02:00 - 03:00 PM	53.68
03:00 - 04:00 PM	54.27
04:00 - 05:00 PM	50.76
05:00 - 06:00 PM	49.16
06:00 - 07:00 PM	50.37
07:00 - 08:00 PM	51.11
08:00 - 09:00 PM	54.36
09:00 - 10:00 PM	51.32
10:00 - 11:00 PM	49.76
11:00 - 12:00 AM	48.18
12:00 - 01:00 AM	46.87
01:00 - 02:00 AM	46.27
02:00 - 03:00 AM	46.05
03:00 - 04:00 AM	45.34
04:00 - 05:00 AM	44.1
05:00 - 06:00 AM	43.75
06:00 - 07:00 AM	46.13
07:00 - 08:00 AM	49.55
08:00 - 09:00 AM	49.34
CNEL, dB(A):	**55.1**



NOTES:

fieldcnel.xls

WLATC (Jefferson)
Noise Data
(Residential)

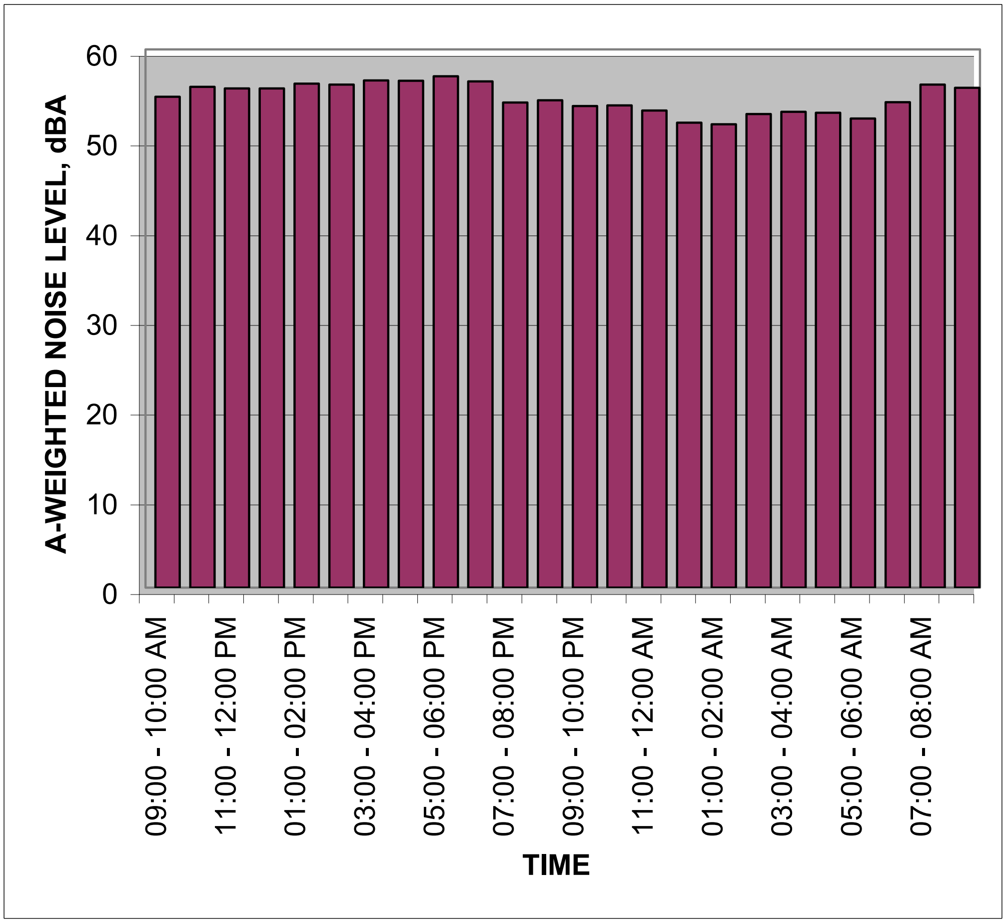
Interval data
Translated: 29-Jul-2003 11:37:03
Translated File: A:\MTA Noise\48hrdata.SLMDL
SLM: 820A1049
Firmware Rev.: 1.500 18Sep1998
Software: SlmUtility v2.01
PCR Services Corporation
233 Wilshire Blvd., Suite 130
(310) 451-4488

Rec #	Date	Time	Duration	Leq	Lmax	Lmin	SEL	Peak	UwPeak	L(1.00)	L(10.00)	L(25.00)	L(50.00)	L(90.00)	L(99.00)
1	25-Jul-03	10:34:47	25:12.9	53.57	69.14	46.2	85.38	99.59	97.7	64.57	55.16	52.72	51.08	48.44	47.07
2	25-Jul-03	11:00:00	00:00.0	52.73	66.75	46.19	88.3	80.27	101.13	61.68	54.55	52.56	51.35	48.27	46.99
3	25-Jul-03	12:00:00	00:00.0	52.24	66.91	45.61	87.82	80.11	99.18	62.69	54.09	51.62	49.3	47.21	46.1
4	25-Jul-03	13:00:00	00:00.0	50.94	65.21	46.37	86.52	87.56	109.05	60.25	52.34	50.28	48.94	47.47	46.51
5	25-Jul-03	14:00:00	00:00.0	51.73	69.27	45.41	87.3	83.45	107.77	61	53.8	51.23	48.99	46.91	46.02
6	25-Jul-03	15:00:00	00:00.0	51.48	65.13	45.6	87.05	78.27	108.73	60.39	54.13	50.95	49.33	47.52	46.48
7	25-Jul-03	16:00:00	00:00.0	52.08	68.12	45.72	87.66	90.85	106	60.93	54.7	51.13	49.12	47.27	46.17
8	25-Jul-03	17:00:00	00:00.0	50.49	64.81	45.44	86.06	77.37	105.51	59.91	52.4	49.63	48.38	46.96	46.06
9	25-Jul-03	18:00:00	00:00.0	51.05	69.28	45.09	86.63	91.09	108.54	60.77	52.62	49.81	48.25	46.6	46.01
10	25-Jul-03	19:00:00	00:00.0	51.2	65.81	44.78	86.77	77.91	102.33	61.48	53.84	49.44	47.64	46.12	45.12
11	25-Jul-03	20:00:00	00:00.0	52.62	68.25	43.12	88.2	81.24	97.37	64.22	55.73	50.63	47.5	45.24	44.01
12	25-Jul-03	21:00:00	00:00.0	57.96	75.5	43	93.54	93.23	98.59	72.13	58.23	49.25	46.39	44.44	43.35
13	25-Jul-03	22:00:00	00:00.0	49.48	63	41.87	85.05	78.17	94.22	60.63	52.24	47.09	45.44	43.65	42.93
14	25-Jul-03	23:00:00	00:00.0	48.09	63.37	42.74	83.66	83.73	87.14	56.64	48.98	48.27	47.27	44.65	43.5
15	26-Jul-03	0:00:00	00:00.0	49.09	66.62	45.59	84.66	79.73	90.66	56.06	49.22	48.33	47.53	46.34	46.01
16	26-Jul-03	1:00:00	00:00.0	47.04	53.97	45.22	82.62	68.09	84.65	48.98	47.92	47.5	46.86	46.05	45.22
17	26-Jul-03	2:00:00	00:00.0	49.31	71.72	44.97	84.89	86.71	93.16	52.08	47.41	46.83	46.45	45.49	45.04
18	26-Jul-03	3:00:00	00:00.0	46.42	58.34	44.46	81.99	76.58	84.65	49.45	47.13	46.7	46.19	45.21	44.73
19	26-Jul-03	4:00:00	00:00.0	48.09	68.33	44.95	83.66	81.45	89.09	53.66	47.86	46.87	46.35	45.3	45.02
20	26-Jul-03	5:00:00	00:00.0	47.08	53.95	45.44	82.66	69.06	999	50.08	48.18	47.5	46.79	46.05	45.44
21	26-Jul-03	6:00:00	00:00.0	49.66	64.81	45.81	85.24	79.57	95.94	58.99	50.41	48.95	47.98	46.54	46.03
22	26-Jul-03	7:00:00	00:00.0	50.97	71.85	45	86.55	100.59	105.51	58.96	53.22	50.62	48.9	47.09	46.05
23	26-Jul-03	8:00:00	00:00.0	51.5	68.26	44.94	87.08	91.49	90.66	63.76	51.55	49.65	48.2	46.36	45.3
24	26-Jul-03	9:00:00	00:00.0	53.41	65.61	45.6	88.98	87.85	97.37	62.58	57.82	52.23	49.39	47.06	46.06
25	26-Jul-03	10:00:00	00:00.0	51.76	64.48	45.72	87.34	77.09	104.61	60.81	55.55	50.52	48.63	46.92	46.07
26	26-Jul-03	11:00:00	00:00.0	52.12	67.9	45.66	87.7	80.09	104.89	63.52	53.8	50.65	48.67	47.03	46.1
27	26-Jul-03	12:00:00	00:00.0	52.73	70.03	45.89	88.31	85.98	106.94	61.25	55.94	52.39	49.11	47.08	46.12
28	26-Jul-03	13:00:00	00:00.0	51.37	66.19	45.1	86.95	81.87	109.24	60.32	54.14	51	48.81	46.87	45.61
29	26-Jul-03	14:00:00	00:00.0	53.68	73.48	44.98	89.25	91.41	107.36	63.63	56.55	50.85	48.02	46.09	45.12
30	26-Jul-03	15:00:00	00:00.0	54.27	67.75	44.81	89.84	81.62	105.2	63.2	59.35	53.56	48.67	46.13	45.11
31	26-Jul-03	16:00:00	00:00.0	50.76	63.87	44.66	86.34	78.55	106	59.74	53.55	49.96	48.21	46.24	45.12
32	26-Jul-03	17:00:00	00:00.0	49.16	63.84	44.48	84.73	90.61	105.77	57.48	50.67	48.8	47.64	45.84	45
33	26-Jul-03	18:00:00	00:00.0	50.37	64.76	46.26	85.95	89.21	105.2	58.02	53.32	50.01	48.55	47.2	46.27
34	26-Jul-03	19:00:00	00:00.0	51.11	70.83	45.73	86.69	82.3	97.37	60.65	52.05	48.96	47.91	46.72	46.06
35	26-Jul-03	20:00:00	00:00.0	54.36	70.81	45.8	89.94	82.53	95.11	65.92	56.96	51.48	48.62	47.03	46.1
36	26-Jul-03	21:00:00	00:00.0	51.32	69.29	45.27	86.9	82.52	91.98	62.05	50.97	48.2	47.39	46.19	45.27
37	26-Jul-03	22:00:00	00:00.0	49.76	63.38	45.39	85.34	75.74	94.22	60.32	50.66	47.94	47.19	46.19	45.48
38	26-Jul-03	23:00:00	00:00.0	48.18	59.37	45.25	83.76	73.48	93.16	55.9	48.89	47.98	47.48	46.36	46.01
39	27-Jul-03	0:00:00	00:00.0	46.87	51.62	45.21	82.45	65.78	91.98	49.52	47.89	47.2	46.64	45.84	45.21
40	27-Jul-03	1:00:00	00:00.0	46.27	54.45	44.19	81.85	75.56	93.16	52.41	46.91	46.44	45.8	45.09	44.24
41	27-Jul-03	2:00:00	00:00.0	46.05	58.67	43.29	81.63	71.3	84.65	50.52	46.97	46.27	45.64	44.62	44.02
42	27-Jul-03	3:00:00	00:00.0	45.34	48.78	42.65	80.91	65.17	999	47.83	46.46	45.8	45.27	44.22	43.46
43	27-Jul-03	4:00:00	00:00.0	44.1	58.9	39.15	79.68	71.16	93.16	53.52	44.84	43.94	42.98	41.13	40.05
44	27-Jul-03	5:00:00	00:00.0	43.75	50.64	41.39	79.32	67.16	94.22	47.72	44.98	44.19	43.46	42.25	41.39
45	27-Jul-03	6:00:00	00:00.0	46.13	55.55	42.52	81.71	73.16	90.66	51.18	47.69	46.73	45.76	43.98	43.04
46	27-Jul-03	7:00:00	00:00.0	49.55	64.31	45.05	85.12	81.19	90.66	57.64	51.66	49.3	47.87	46.27	45.24
47	27-Jul-03	8:00:00	00:00.0	49.34	63.79	44.16	84.91	84.8	96.69	59.73	50.58	48.41	47.04	45.44	44.41
48	27-Jul-03	9:00:00	00:00.0	51.05	64.52	43.45	86.63	86.49	93.16	61.98	53.84	50.02	47.72	45.35	44.1
49	27-Jul-03	10:00:00	00:00.0	50.61	67.01	42.3	86.18	82.4	101.95	62.57	51.51	48.58	46.91	44.55	43.16
50	27-Jul-03	11:00:00	00:00.0	53.31	70.03	43.62	88.89	86.46	107.77	65.24	55.36	51.07	47.62	45.02	44.09
51	27-Jul-03	12:00:00	00:00.0	48.99	66.66	43.79	84.57	88.61	103.04	59.61	50.27	47.72	46.32	44.87	44.07
52	27-Jul-03	13:00:00	00:00.0	52.69	70.7	43.79	88.27	86.88	110.49	64.59	54.5	50.42	47.82	45.44	44.2
53	27-Jul-03	14:00:00	00:00.0	52.11	71.07	44.45	87.69	83.38	115.01	62.09	54.45	50.57	47.96	45.63	45
54	27-Jul-03	15:00:00	00:00.0	50.48	66.05	44.17	86.05	80.37	108.89	61.11	52.62	49.16	47.4	45.52	44.61
55	27-Jul-03	16:00:00	00:00.0	50.35	65.19	44.27	85.92	84.57	111.52	60.03	53.09	49.55	47.53	45.44	44.39
56	27-Jul-03	17:00:00	00:00.0	50.8	63.23	44.8	86.38	77.25	109.05	57.82	53.05	50.66	49.62	47.84	46.02
57	27-Jul-03	18:00:00	00:00.0	52.98	71.43	47.66	88.56	83.82	108.16	63.5	54.07	51.23	49.76	48.39	48.02
58	27-Jul-03	19:00:00	00:00.0	50.98	64.44	47.55	86.56	77.41	103.04	59.36	52.69	49.92	49.23	48.2	47.55
59	27-Jul-03	20:00:00	00:00.0	52.57	64.77	47.38	88.15	79.37	95.11	61.85	56.03	51.7	49.48	48.2	47.46
60	27-Jul-03	21:00:00	00:00.0	51.55	67.61	47.09	87.12	80.48	91.98	61.7	53.16	49.97	48.94	47.95	47.09
61	27-Jul-03	22:00:00	00:00.0	50.29	65.34	47.09	85.87	79.39	95.11	58.93	50.95	49.05	48.5	47.4	47.09
62	27-Jul-03	23:00:00	00:00.0	76.84	107.57	39.07	112.41	136.95	135.27	66.86	51.23	48.74	47.55	43.6	41.09
63	28-Jul-03	0:00:00	00:00.0	48.22	66.19	45.43	83.8	79.31	91.98	55.96	47.78	46.97	46.61	46.03	45.43
64	28-Jul-03	1:00:00	00:00.0	45.87	51.05	44.67	81.44	65.56	89.09	48.86	46.72	46.04	45.66	45.11	44.67
65	28-Jul-03	2:00:00	00:00.0	45.27	51.68	44.18	80.84	64.19	89.09	46.95	45.91	45.69	45.32	44.35	44.18
66	28-Jul-03	3:00:00	00:00.0	45.2	47.79	44.16	80.78	67.92	95.94	46.88	45.92	45.68	45.27	44.3	44.16
67	28-Jul-03	4:00:00	00:00.0	46.47	53.17	44.05	82.04	78.43	109.05	48.76	47.5	46.86	46.4	45.3	44.59
68	28-Jul-03	5:00:00	00:00.0	48.83	55.84	46.16	84.41	76.04	87.14	51.8	50.05	49.5	48.71	47.2	46.16
69	28-Jul-03	6:00:00	00:00.0	49.99	64.41	46.02	85.57	78.41	108.89	59.56	50.53	49.41	48.6	47.29	46.26
70	28-Jul-03	7:00:00	00:00.0	52.25	64.08	47.18	87.83	90.8	125.35	58.7	54.52	52.65	51.19	49.23	48.03
71	28-Jul-03	8:00:00	00:00.0	51.84	63.66	47.49	87.41	83.95	93.16	58.68	53.55	51.94	50.95	49.28	48.12
72	28-Jul-03	9:00:00	20:45.5	51.7	60.35	48.17	82.66	86.39	95.11	58.12	53.41	52.2	50.92	49.25	48.19

Community Noise Equivalent Level, CNEL.

Project:	WLATC (Jefferson)
Location:	Project Site, 320 feet east of Jefferson Boulevard and 780 feet south of National Boulevard
Sources:	Traffic along Jefferson Boulevard
Date:	August 5-6, 2003

TIME	*HNL, dB(A)*
09:00 - 10:00 AM	54.71
10:00 - 11:00 AM	55.84
11:00 - 12:00 PM	55.66
12:00 - 01:00 PM	55.66
01:00 - 02:00 PM	56.2
02:00 - 03:00 PM	56.09
03:00 - 04:00 PM	56.55
04:00 - 05:00 PM	56.52
05:00 - 06:00 PM	57.01
06:00 - 07:00 PM	56.45
07:00 - 08:00 PM	54.08
08:00 - 09:00 PM	54.32
09:00 - 10:00 PM	53.68
10:00 - 11:00 PM	53.75
11:00 - 12:00 AM	53.18
12:00 - 01:00 AM	51.83
01:00 - 02:00 AM	51.66
02:00 - 03:00 AM	52.8
03:00 - 04:00 AM	53.05
04:00 - 05:00 AM	52.95
05:00 - 06:00 AM	52.29
06:00 - 07:00 AM	54.1
07:00 - 08:00 AM	56.09
08:00 - 09:00 AM	55.73
CNEL, dB(A):	**60.2**



NOTES:

fieldcnel.xls

WLATC (Jefferson)
Noise Data
(Project Site)

Interval data
Translated: 07-Aug-2003 07:22:02
Translated File: C:\Program Files\LARDAV\SLMUTIL\05Aug2003_12-16-12.SLMDL
SLM: 820A1049
Firmware Rev.: 1.500 18Sep1998
Software: SlmUtility v2.01
PCR Services Corporation
233 Wilshire Blvd., Suite 130
(310) 451-4488
MTA SITE

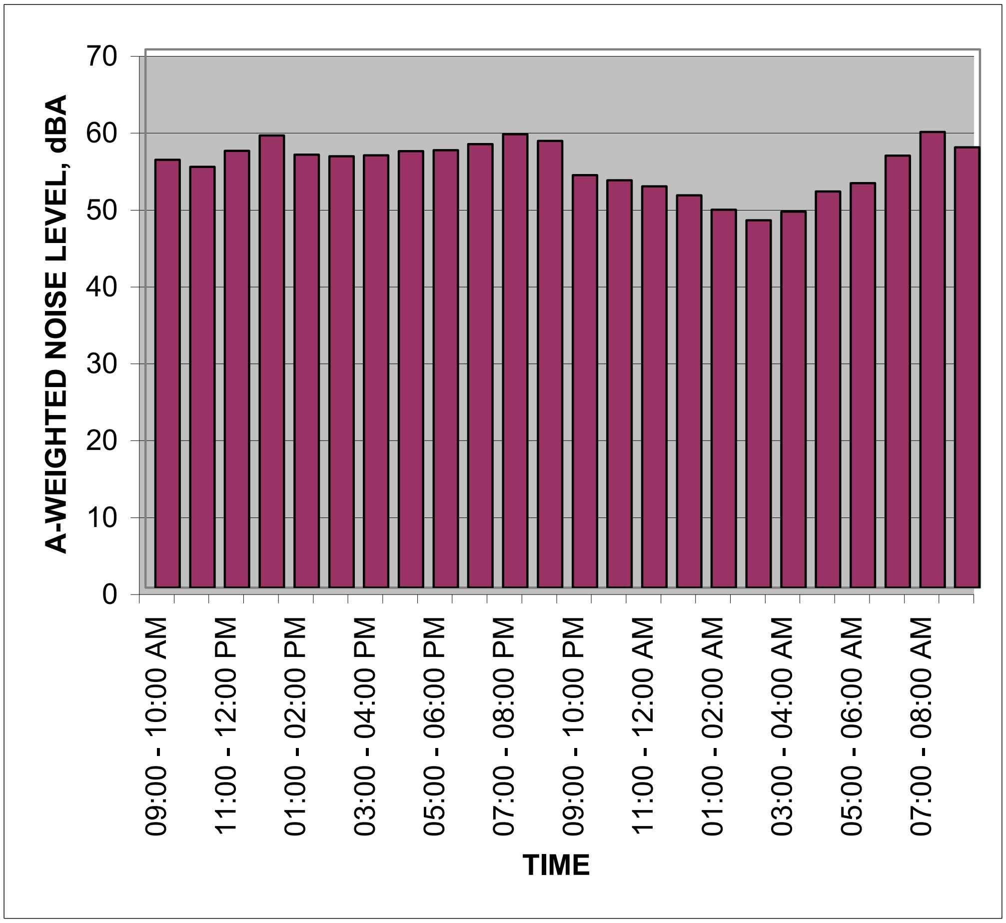
Rec #	Date	Time	Duration	Leq	Lmax	Lmin	SEL	Peak	UwPeak	L(1.00)	L(10.00)	L(25.00)	L(50.00)	L(90.00)	L(99.00)
1	5-Aug-03	12:16:12	43:47.6	60.02	79.14	51.66	94.23	102.95	104.89	73.31	58.83	56.91	55.79	54.02	52.51
2	5-Aug-03	13:00:00	00:00.0	56.69	68.01	52.38	92.27	80.8	108.35	61.41	58.21	57.28	56.34	54.57	53.29
3	5-Aug-03	14:00:00	00:00.0	56.9	70.66	51.43	92.48	88.83	109.24	62.67	58.75	57.52	56.25	53.95	52.34
4	5-Aug-03	15:00:00	00:00.0	56.55	66.66	50.16	92.12	89.45	105.2	62.28	58.59	57.25	55.95	53.45	51.52
5	5-Aug-03	16:00:00	00:00.0	56.52	63.05	50.98	92.1	81.33	108.35	60.9	58.63	57.49	56.08	53.52	52.01
6	5-Aug-03	17:00:00	00:00.0	57.01	70.72	50.33	92.59	89.27	109.24	62.98	58.95	57.83	56.19	53.16	51.27
7	5-Aug-03	18:00:00	00:00.0	56.45	66.77	50.3	92.03	86.45	106	61.82	58.77	57.4	55.83	53.03	51.34
8	5-Aug-03	19:00:00	00:00.0	54.08	61.87	48.2	89.66	80.61	108.54	59.06	56.25	54.82	53.41	51.11	49.3
9	5-Aug-03	20:00:00	00:00.0	54.32	66.12	49.84	89.9	84.77	93.16	59.04	55.97	54.89	53.85	52.09	50.87
10	5-Aug-03	21:00:00	00:00.0	53.68	60.69	49.3	89.25	79.47	89.09	57.41	55.33	54.35	53.35	51.56	50.24
11	5-Aug-03	22:00:00	00:00.0	53.75	61.05	48.8	89.32	74.33	93.16	58.66	55.71	54.48	53.23	51.15	49.67
12	5-Aug-03	23:00:00	00:00.0	53.18	68.66	47.78	88.76	87.95	90.66	57.95	55.2	53.94	52.59	50.3	48.78
13	6-Aug-03	0:00:00	00:00.0	51.83	58.91	47.05	87.41	77.46	91.98	55.98	53.8	52.65	51.41	49.11	47.7
14	6-Aug-03	1:00:00	00:00.0	51.66	61.8	46.3	87.24	84.34	93.16	56.2	53.79	52.51	51.15	48.65	47.14
15	6-Aug-03	2:00:00	00:00.0	52.8	60.66	47.17	88.37	72.77	93.16	57.51	54.73	53.58	52.37	50.13	48.25
16	6-Aug-03	3:00:00	00:00.0	53.05	58.88	48.01	88.63	81.68	95.94	56.63	54.84	53.96	52.95	50.26	48.73
17	6-Aug-03	4:00:00	00:00.0	52.95	62.37	48.23	88.52	79.29	97.37	56.92	54.73	53.63	52.46	50.68	49.12
18	6-Aug-03	5:00:00	00:00.0	52.29	66.23	48.6	87.87	89.91	93.16	57.23	53.84	52.65	51.64	50.21	49.15
19	6-Aug-03	6:00:00	00:00.0	54.1	66.36	48.73	89.68	84.93	93.16	59.73	56.34	54.72	53.18	51.16	49.34
20	6-Aug-03	7:00:00	00:00.0	56.09	68.15	51.02	91.66	91.3	94.22	61.79	57.7	56.46	55.24	53.64	52.49
21	6-Aug-03	8:00:00	00:00.0	55.73	72.33	51.67	91.3	89.07	95.94	61.86	57.41	55.93	54.8	53.27	52.22
22	6-Aug-03	9:00:00	00:00.0	54.84	69.44	49.79	90.41	83.73	94.22	61.82	56.56	55.13	53.81	52.08	50.33
23	6-Aug-03	10:00:00	00:00.0	54.71	63.8	50.6	90.29	86.95	93.16	60.45	56.55	55.16	54.01	52.28	51.16
24	6-Aug-03	11:00:00	00:00.0	55.84	64.82	51.44	91.41	85.6	101.95	61.82	57.7	56.11	55.07	53.25	52.05
25	6-Aug-03	12:00:00	00:00.0	55.66	64.55	50.65	91.24	82.7	104.02	61.32	57.37	56.1	55.08	53.35	52.08
26	6-Aug-03	13:00:00	00:00.0	56.2	73.29	52.27	91.78	90.2	104.02	62.62	57.74	56.45	55.44	54	53.04
27	6-Aug-03	14:00:00	00:00.0	56.09	63.42	51.36	91.66	78.34	105.77	60.91	57.84	56.59	55.56	53.99	52.78
28	6-Aug-03	15:00:00	00:00.0	56.55	66.93	50.05	92.12	87.72	108.89	63.41	58.61	57.05	55.66	53.12	51.08
29	6-Aug-03	16:00:00	09:49.1	58.25	78.44	49.68	85.96	104.47	107.15	70.17	57.62	56.02	54.8	52.23	50.02

Community Noise Equivalent Level, CNEL.

Project: WLATC (Jefferson)
Location: Syd Kronenthal Park, 200 feet north of National Boulevard along Ballona Creek
Sources: Traffic along National Boulevard and and Park Activities

Date: August 5-6, 2003

TIME	HNL, dB(A)
09:00 - 10:00 AM	55.64
10:00 - 11:00 AM	54.72
11:00 - 12:00 PM	56.8
12:00 - 01:00 PM	58.82
01:00 - 02:00 PM	56.3
02:00 - 03:00 PM	56.08
03:00 - 04:00 PM	56.23
04:00 - 05:00 PM	56.77
05:00 - 06:00 PM	56.87
06:00 - 07:00 PM	57.68
07:00 - 08:00 PM	58.97
08:00 - 09:00 PM	58.09
09:00 - 10:00 PM	53.65
10:00 - 11:00 PM	52.96
11:00 - 12:00 AM	52.19
12:00 - 01:00 AM	51.01
01:00 - 02:00 AM	49.15
02:00 - 03:00 AM	47.77
03:00 - 04:00 AM	48.9
04:00 - 05:00 AM	51.51
05:00 - 06:00 AM	52.62
06:00 - 07:00 AM	56.17
07:00 - 08:00 AM	59.26
08:00 - 09:00 AM	57.26
CNEL, dB(A):	**60.3**



NOTES:

WLATC (Jefferson)
Noise Data
(Park)

Interval data
Translated: 07-Aug-2003 07:22:59
Translated File: C:\Program Files\LARDAV\SLMUTIL\05Aug2003_11-15-12.SLMDL
SLM: 820A1065
Firmware Rev.: 1.500 18Sep1998
Software: SlmUtility v2.01
PCR Services Corporation
233 Wilshire Blvd., Suite 130
(310) 451-4488
MTA PARK

Rec #	Date	Time	Leq	Lmax	Lmin	SEL	Peak	UwPeak	L(1.00)	L(10.00)	L(25.00)	L(50.00)	L(90.00)	L(99.00)
1	5-Aug-03	11:15:12	57.33	79.15	46.54	91.63	105.94	105.47	66.8	59.39	56.79	54.15	49.56	47.32
2	5-Aug-03	12:00:00	58.82	72.49	49	94.4	97.18	101.51	67.53	61.74	58.88	56.64	52.82	50.65
3	5-Aug-03	13:00:00	56.3	71.04	49.1	91.87	89.66	110.73	62.65	58.66	57.16	55.27	52.08	50.21
4	5-Aug-03	14:00:00	56.08	70.22	48.59	91.65	90.04	104.29	61.5	58.58	56.9	55.14	52	49.57
5	5-Aug-03	15:00:00	56.23	70.67	48.52	91.8	87.58	106.45	63.78	58.54	56.72	54.61	51.95	50.25
6	5-Aug-03	16:00:00	56.77	72.64	49.62	92.35	87.78	105.72	63.49	59.06	57.19	55.46	53.1	51.48
7	5-Aug-03	17:00:00	56.87	70.06	49.94	92.45	92.3	103.98	63.47	59.08	57.29	55.63	53.41	52.01
8	5-Aug-03	18:00:00	57.68	80.4	51.83	93.26	97.77	100.65	63.02	59.37	57.71	56.15	54.06	52.87
9	5-Aug-03	19:00:00	58.97	74.37	52.58	94.54	108.59	106.45	65.68	61.47	59.58	57.74	55.12	53.58
10	5-Aug-03	20:00:00	58.09	80.31	49.05	93.66	97.94	99.7	67.32	59.37	56.86	54.9	51.98	50.2
11	5-Aug-03	21:00:00	53.65	68.42	47.41	89.23	88.05	90.62	60.22	56.31	54.21	52.33	49.69	48.01
12	5-Aug-03	22:00:00	52.96	62.29	48.04	88.54	85.86	87.1	58.86	55.32	53.58	51.97	49.93	48.33
13	5-Aug-03	23:00:00	52.19	68.04	47.41	87.77	81.17	89.05	58.54	54.04	52.29	50.97	49.4	48.41
14	6-Aug-03	0:00:00	51.01	68.41	45.04	86.58	85.04	95.07	59.41	52.4	50.54	49.32	47.15	45.7
15	6-Aug-03	1:00:00	49.15	65.16	44.03	84.72	80.79	87.1	56.09	51.2	49.24	48.01	45.76	44.41
16	6-Aug-03	2:00:00	47.77	62.01	42.27	83.35	75.34	89.05	55.51	51.03	47.57	45.77	44.07	42.47
17	6-Aug-03	3:00:00	48.9	62.48	43.61	84.47	78.89	91.94	56.5	50.94	48.97	47.49	45.43	44.12
18	6-Aug-03	4:00:00	51.51	63.58	43.72	87.08	79.74	89.05	58.6	53.97	52.24	50.16	47.34	45.2
19	6-Aug-03	5:00:00	52.62	64.82	46.2	88.19	81.87	94.18	59.55	55.58	53.1	50.9	48.29	46.54
20	6-Aug-03	6:00:00	56.17	72.83	47.31	91.75	90.22	96.65	63.47	59.02	56.92	53.79	50.04	48.51
21	6-Aug-03	7:00:00	59.26	72.34	48.48	94.83	100.43	100.19	68.44	61.81	60.01	57.25	52.9	50.85
22	6-Aug-03	8:00:00	57.26	66.82	46.55	92.84	83.07	90.62	63.24	60.4	58.56	55.94	51.62	48.97
23	6-Aug-03	9:00:00	55.64	71.59	45.2	91.22	91.59	96.65	63.75	58.62	56.35	53.52	49.16	47.06
24	6-Aug-03	10:00:00	54.72	69.6	46.01	90.3	88.91	91.94	62.62	57.76	55.51	52.83	49.04	47.14
25	6-Aug-03	11:00:00	56.8	77.26	46.84	92.38	91.3	100.65	65.52	58.9	56.69	54.25	50.19	47.76
26	6-Aug-03	12:00:00	70.42	105.54	47.54	105.99	126.24	124.87	63.68	58.7	56.62	54.37	50.87	49.13
27	6-Aug-03	13:00:00	55.5	65.9	48.21	91.08	83.77	102.83	62.61	58.4	56.37	53.94	50.65	49.17
28	6-Aug-03	14:00:00	55.24	66.46	48.31	90.82	86.65	103.98	60.92	57.94	56.23	54.1	50.69	49.11
29	6-Aug-03	15:00:00	55.7	69.59	49.32	89.71	95.49	106.45	62.85	58.12	56.27	54.37	51.58	50.15

Receptor ID							
R1 - Syd Kronenthal Park							
R2 - Cameo Woods Condominium Property							
R3 - Residential East of La Cienega Boulevard							
R4 - Residential Adjacent to Syd Kronenthal Park							
R5 - Residential Northeast of La Cienega/Jefferson							
R6 - Blair Hills Community							
		Noise Level at Receptor Location (L_{eq})					
		R1	**R2**	**R3**	**R4**	**R5**	**R6**
Ambient Leq (without construction activity):		60 dBA	60 dBA	60 dBA	60 dBA	60 dBA	52 dBA
Distance to Construction Activity Centroid:		750 ft	800 ft	1000 ft	1050 ft	1200 ft	2500 ft
Distance Attenuation Adjustment: [a]		-24 dBA	-24 dBA	-26 dBA	-26 dBA	-28 dBA	-34 dBA
Barrier Insertion Loss: [b]		-5 dBA	-10 dBA	-10 dBA	-10 dBA	-10 dBA	0 dBA
Construction Stage (With Mufflers) [c]	**Reference Noise Level at 50 Feet (L_{eq})**	**Distance Attenuation and Barrier Insertion Loss Adjusted Construction Noise Level by Phase**					
Ground Clearing	82 dBA	53 dBA	48 dBA	46 dBA	46 dBA	44 dBA	48 dBA
Grading/Excavation	86 dBA	57 dBA	52 dBA	50 dBA	50 dBA	48 dBA	52 dBA
Foundations	77 dBA	48 dBA	43 dBA	41 dBA	41 dBA	39 dBA	43 dBA
Structural	83 dBA	54 dBA	49 dBA	47 dBA	47 dBA	45 dBA	49 dBA
Finishing	86 dBA	57 dBA	52 dBA	50 dBA	50 dBA	48 dBA	52 dBA
Construction Stage (With Mufflers) [c]		**Composite Noise Level (Construction Noise + Ambient Noise)**					
Ground Clearing		61 dBA	60 dBA	60 dBA	60 dBA	60 dBA	53 dBA
Grading/Excavation		62 dBA	61 dBA	60 dBA	60 dBA	60 dBA	55 dBA
Foundations		60 dBA	60 dBA	60 dBA	60 dBA	60 dBA	53 dBA
Structural		61 dBA	60 dBA	60 dBA	60 dBA	60 dBA	54 dBA
Finishing		62 dBA	61 dBA	60 dBA	60 dBA	60 dBA	55 dBA
Construction Stage (With Mufflers) [c]		**Noise Level Increase by Phase**					
Ground Clearing		0.9 dBA	0.3 dBA	0.2 dBA	0.2 dBA	0.1 dBA	1.5 dBA
Grading/Excavation		1.9 dBA	0.6 dBA	0.4 dBA	0.4 dBA	0.3 dBA	3.0 dBA
Foundations		0.3 dBA	0.1 dBA	0.1 dBA	0.0 dBA	0.0 dBA	0.5 dBA
Structural		1.1 dBA	0.3 dBA	0.2 dBA	0.2 dBA	0.1 dBA	1.8 dBA
Finishing		1.9 dBA	0.6 dBA	0.4 dBA	0.4 dBA	0.3 dBA	3.0 dBA

Notes:

[a] Calculation based on standard point-source sound attenuation formula over hard surface propagation path (i.e., 6-dB per doubling of distance).

[b] When applied, assumes that barrier fully (10-dB reduction) or partially (5-dB reduction) penetrates the line-of-sight between noise source and receptor location.

[c] EPA, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.

Transportation Center Project
Sound 2000 Input Data

Phase	Jefferson South of National			Jefferson west of La Cienega			La Cienega at Jefferson		
	LDA	MDT	HDT	LDA	MDT	HDT	LDA	MDT	HDT
Existing	1707	40.4	8.78	1707	40.4	8.78	6555	155	33.7
Future No Project	1775	42.0	9.13	1775	42.0	9.13	6818	161	35.1
Future With Project	1858	42.0	51.03	1858	42.0	51.0	6900	161	77.0

Fleet Mix		
LDA	**MDT**	**HDT**
0.972	0.023	0.005

ROADWAY TRAFFIC VOLUMES (24-Hr Temporal Analysis of Equivalent Vehicles) - WLATC

Jefferson Boulevard S/O National Boulevard

	Existing Traffic Volumes				Future No Project					Future With Project					Eq. Veh.
Hour	Northbound	Southbound	Total	Eq. Veh.	Auto	MDT	HDT	Total	Eq. Veh.	Auto	MDT	HDT	Total	Eq. Veh.	Ratio
0:00	31	41	72	97	72.8	1.7	0.4	75	101	72.8	1.7	0.4	75	101	1.00
1:00	15	21	36	48	35.9	0.8	0.2	37	50	35.9	0.8	0.2	37	50	1.00
2:00	15	19	34	45	33.9	0.8	0.2	35	47	33.9	0.8	0.2	35	47	1.00
3:00	7	19	25	34	25.3	0.6	0.1	26	35	25.3	0.6	0.1	26	35	1.00
4:00	10	31	41	55	41.4	1.0	0.2	43	57	83.4	1.0	26.2	111	903	15.77
5:00	64	188	252	338	254.2	6.0	1.3	262	351	331.2	6.0	45.3	383	1788	5.09
6:00	209	363	572	767	577.7	13.7	3.0	594	798	630.7	13.7	48.0	692	2242	2.81
7:00	507	810	1317	1768	1330.8	31.5	6.8	1369	1838	1362.8	31.5	20.8	1415	2303	1.25
8:00	603	786	1389	1864	1403.6	33.2	7.2	1444	1939	1425.6	33.2	29.2	1488	2641	1.36
9:00	417	617	1034	1388	1044.7	24.7	5.4	1075	1443	1095.7	24.7	33.4	1154	2359	1.63
10:00	364	486	849	1140	858.2	20.3	4.4	883	1186	909.2	20.3	18.4	948	1669	1.41
11:00	376	467	843	1131	851.7	20.2	4.4	876	1176	904.7	20.2	16.4	941	1600	1.36
12:00	426	519	945	1268	954.8	22.6	4.9	982	1319	1024.8	22.6	28.9	1076	2131	1.62
13:00	444	527	971	1304	981.6	23.2	5.0	1010	1356	1059.6	23.2	27.0	1110	2114	1.56
14:00	497	593	1090	1463	1101.4	26.1	5.7	1133	1521	1172.4	26.1	34.7	1233	2488	1.64
15:00	564	618	1182	1586	1194.4	28.3	6.1	1229	1650	1225.4	28.3	19.1	1273	2083	1.26
16:00	745	670	1415	1899	1429.9	33.8	7.4	1471	1975	1453.9	33.8	13.4	1501	2185	1.11
17:00	842	806	1647	2211	1664.9	39.4	8.6	1713	2300	1699.9	39.4	23.6	1763	2798	1.22
18:00	698	739	1437	1929	1452.1	34.4	7.5	1494	2006	1483.1	34.4	43.5	1561	3149	1.57
19:00	412	474	886	1189	895.1	21.2	4.6	921	1237	942.1	21.2	45.6	1009	2550	2.06
20:00	302	288	589	791	595.4	14.1	3.1	613	822	631.4	14.1	23.1	669	1476	1.80
21:00	238	219	457	613	461.5	10.9	2.4	475	637	486.5	10.9	10.4	508	910	1.43
22:00	154	172	326	437	329.0	7.8	1.7	339	455	329.0	7.8	1.7	339	455	1.00
23:00	68	93	161	216	162.8	3.9	0.8	167	225	162.8	3.9	0.8	167	225	1.00
TOTAL	8001	9562	17562	23580				18264	24524				19512	38300	
			Day	18952	0.80			Day	19710	0.80			Day	27520.1	0.72
			Evening	2593	0.11			Evening	2696	0.11			Evening	4936.6	0.13
			Night	2036	0.09			Night	2118	0.09			Night	5843.2	0.15
		Existing CNEL Adjustment Factor:		**-0.39**		No Project CNEL Adjustment Factor:			**-0.39**		Project CNEL Adjustment Factor:			**0.76**	

La Cienga Boulevard at Jefferson

	Existing Traffic Volumes				Future No Project					Future With Project					Eq. Veh.
Hour	Northbound	Southbound	Total	Eq. Veh.	Auto	MDT	HDT	Total	Eq. Veh.	Auto	MDT	HDT	Total	Eq. Veh.	Ratio
0:00	398	350	748	1004	756.1	17.9	3.9	778	1045	756.1	17.9	3.9	778	1045	1.00
1:00	205	163	368	494	372.0	8.8	1.9	383	514	372.0	8.8	1.9	383	514	1.00
2:00	159	153	312	419	315.4	7.5	1.6	324	436	315.4	7.5	1.6	324	436	1.00
3:00	126	125	251	337	253.7	6.0	1.3	261	350	253.7	6.0	1.3	261	350	1.00
4:00	215	290	505	678	510.5	12.1	2.6	525	705	552.5	12.1	28.6	593	1551	2.20
5:00	500	563	1063	1427	1074.6	25.4	5.5	1106	1484	1151.6	25.4	49.5	1227	2921	1.97
6:00	1550	1122	2672	3588	2701.1	63.9	13.9	2779	3731	2754.1	63.9	58.9	2877	5175	1.39
7:00	2307	2151	4458	5986	4506.5	106.6	23.2	4636	6225	4538.5	106.6	37.2	4682	6690	1.07
8:00	2540	2295	4835	6492	4887.6	115.7	25.1	5028	6752	4909.6	115.7	47.1	5072	7453	1.10
9:00	2402	1813	4215	5659	4260.9	100.8	21.9	4384	5886	4311.9	100.8	49.9	4463	6802	1.16
10:00	2121	1522	3643	4891	3682.6	87.1	18.9	3789	5087	3733.6	87.1	32.9	3854	5571	1.10
11:00	1936	1578	3514	4718	3552.2	84.1	18.3	3655	4907	3605.2	84.1	30.3	3720	5331	1.09
12:00	2037	1568	3605	4840	3644.2	86.2	18.7	3749	5034	3714.2	86.2	42.7	3843	5846	1.16
13:00	1878	1736	3614	4853	3653.3	86.4	18.8	3759	5047	3731.3	86.4	40.8	3859	5804	1.15
14:00	1987	1944	3931	5278	3973.8	94.0	20.4	4088	5489	4044.8	94.0	49.4	4188	6456	1.18
15:00	2015	2298	4313	5791	4359.9	103.2	22.4	4486	6023	4390.9	103.2	35.4	4530	6455	1.07
16:00	2058	2414	4472	6005	4520.7	107.0	23.3	4651	6245	4544.7	107.0	29.3	4681	6454	1.03
17:00	2167	2349	4516	6064	4565.1	108.0	23.5	4697	6306	4600.1	108.0	38.5	4747	6805	1.08
18:00	2171	2337	4508	6053	4557.0	107.8	23.4	4688	6295	4588.0	107.8	59.4	4755	7438	1.18
19:00	1836	1891	3727	5004	3767.5	89.1	19.4	3876	5204	3814.5	89.1	60.4	3964	6518	1.25
20:00	1455	1326	2781	3734	2811.3	66.5	14.5	2892	3883	2847.3	66.5	34.5	2948	4537	1.17
21:00	1234	1066	2300	3088	2325.0	55.0	12.0	2392	3212	2350.0	55.0	20.0	2425	3484	1.08
22:00	1070	799	1869	2510	1889.3	44.7	9.7	1944	2610	1889.3	44.7	9.7	1944	2610	1.00
23:00	657	565	1222	1641	1235.3	29.2	6.4	1271	1706	1235.3	29.2	6.4	1271	1706	1.00
TOTAL	35024	32418	67442	90554					94177					107953	
			Day	66630	0.74			Day	69295.4	0.74			Day	77105.9	0.71
			Evening	11827	0.13			Evening	12299.6	0.13			Evening	14539.7	0.13
			Night	12098	0.13			Night	12581.6	0.13			Night	16307.1	0.15
		Existing CNEL Adjustment Factor:		**0.51**		No Project CNEL Adjustment Factor:			**0.51**		Project CNEL Adjustment Factor:			**0.78**	

	Project Trips		% of Total	Equivalent
Hour	Employee	Bus	per Hour	Vehicles
0:00	0	0	0.00	0
1:00	0	0	0.00	0
2:00	0	0	0.00	0
3:00	0	0	0.00	0
4:00	42	26	0.02	845
5:00	77	44	0.04	1437
6:00	53	45	0.04	1444
7:00	32	14	0.01	465
8:00	22	22	0.02	702
9:00	51	28	0.02	916
10:00	51	14	0.01	484
11:00	53	12	0.01	424
12:00	70	24	0.02	812
13:00	78	22	0.02	758
14:00	71	29	0.02	967
15:00	31	13	0.01	433
16:00	24	6	0.00	209
17:00	35	15	0.01	499
18:00	31	36	0.03	1143
19:00	47	41	0.03	1314
20:00	36	20	0.02	654
21:00	25	8	0.01	272
22:00	0	0	0.00	0
23:00	0	0	0.00	0
Total:	**829**	**419**	**1248**	**1667**

Transportation Center Project
TENS Analysis

Existing						
	Leq			CNEL		
Roadway/Segment	ROW	50 Feet	100 Feet	ROW	50 Feet	100 Feet
La Cienega Boulevard, North of Jefferson Boulevard	72.3	61.3	59.1	72.8	61.8	59.6
Jefferson Boulevard, South of National Boulevard	71.1	66.4	64.1	70.7	66.0	63.7
Jefferson Boulevard, West of La Cienega Boulevard	71.1	66.4	64.1	70.7	66.0	63.7
Future No Project						
	Leq			CNEL		
Roadway/Segment	ROW	50 Feet	100 Feet	ROW	50 Feet	100 Feet
La Cienega Boulevard, North of Jefferson Boulevard	75.4	61.8	59.5	75.9	62.3	60.0
Jefferson Boulevard, South of National Boulevard	71.3	66.5	64.3	70.9	66.1	63.9
Jefferson Boulevard, West of La Cienega Boulevard	71.3	66.5	64.3	70.9	66.1	63.9
Future With Project						
	Leq			CNEL		
Roadway/Segment	ROW	50 Feet	100 Feet	ROW	50 Feet	100 Feet
La Cienega Boulevard, North of Jefferson Boulevard	76.0	62.6	60.5	76.8	63.4	61.3
Jefferson Boulevard, South of National Boulevard	73.2	68.5	66.2	74.0	69.3	67.0
Jefferson Boulevard, West of La Cienega Boulevard	73.2	68.5	66.2	74.0	69.3	67.0

Summary		
Roadway/Segment	Project Increment	Cumulative Increment
La Cienega Boulevard, North of Jefferson Boulevard	1.1	1.6
Jefferson Boulevard, South of National Boulevard	3.2	3.3
Jefferson Boulevard, West of La Cienega Boulevard	3.2	3.3

Analysis of Residental and Park Uses Northwest of the intersection of Jefferson Boulevard and National Boulevard						
	Leq			CNEL		
Land Use	Existing	Future No	Future w/	Existing	Future No	Future w/
Kronenthal Park	58.9	59.1	61.0	58.5	58.7	61.8
Residential northwest of Park	54.5	54.7	56.6	54.1	54.3	57.4

Summary	Project Increment	Cumulative Increment
Land Use		
Kronenthal Park	3.1	3.3
Residential northwest of Park	3.1	3.1

Leq Analysis of 4:00 AM	Nighttime Ambient	Project	Amb + Project	Impact
Residential northwest of Park	51.6	50.4	54.1	2.5
La Cienega Boulevard, North of Jefferson Boulevard	52.9	56.1	57.8	4.9

ROADWAY PLUS LRT ALIGNMENT NOISE IMPACTS
ALONG JEFFERSON BOULEVARD

NOISE FROM LRT ALIGNMENT			
Receiver Location	CNEL (dBA)	Distance (feet)	
LRT Alignment Reference Noise Level [a]	60.0	100	
LRT Noise Level at Syd Kronenthal Park [b]	56.0	250	
LRT Noise Level at Adjacent Industrial Uses [b]	65.2	30	
ROADWAY PLUS LRT NOISE LEVELS			
	Noise Level in CNEL		
Environmental Setting	Park Location	Adjacent Industrial	
Existing Conditions [c]	58.5	66.0	
Future "No Project" Conditions [c]	58.7	66.1	
Future "With Project" Conditions [c]	61.8	69.3	
Future "With Project plus LRT" Conditions [d]	62.8	70.7	
NOISE LEVEL INCREASES			
	Noise Level in CNEL		
Project Impact	Park Location	Adjacent Industrial	
Project Only	3.1	3.2	
Project + Related Projects + Ambient Growth (Cumulative No LRT)	3.3	3.3	
Cumulative + LRT	4.3	4.7	
Notes:			
[a] Extrapolated from LRT Alignment noise data published in the Mid-City/Westside Transit Draft EIS/EIR.			
[b] Reference noise level adjusted for distance using the FHWA RD-77-108 calculation method.			
[c] Predicted noise levels based on traffic volume data provided in the project traffic study.			
[d] Based on noise level addition using the FHWA RD-77-108 calculation method.			

Sunset Avenue Project

E2 – Noise Analysis Data Sheets

Appendix E-2

Sunset Avenue Site Printout Sheets

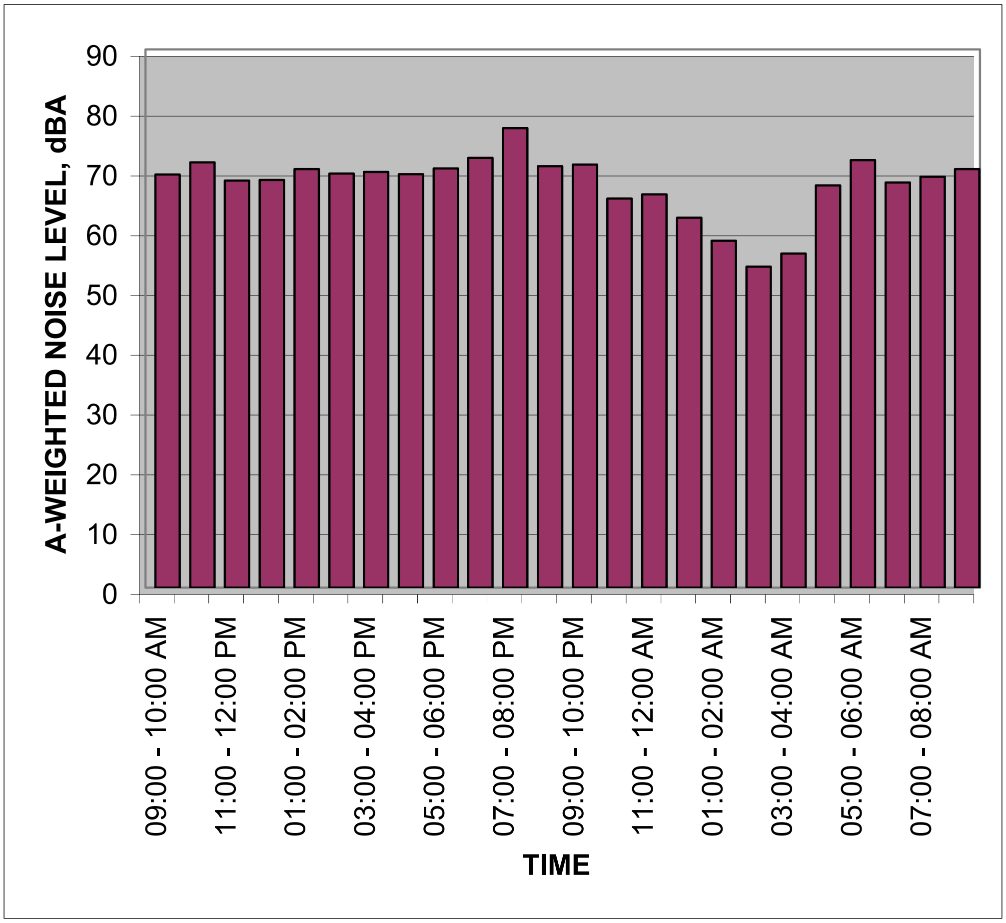
- Existing Noise Levels (CNEL)
- Construction-period Noise Impact Evaluation
- Roadway Noise Impact Evaluation

Community Noise Equivalent Level, CNEL.

Project: MTA Division 6 Bus Depot (Sunset Avenue Project)
Location: Eastern Side
Sources:

Date: April 29, 2004

TIME	HNL, dB(A)
09:00 - 10:00 AM	69.07
10:00 - 11:00 AM	71.13
11:00 - 12:00 PM	68.06
12:00 - 01:00 PM	68.18
01:00 - 02:00 PM	70.01
02:00 - 03:00 PM	69.25
03:00 - 04:00 PM	69.50
04:00 - 05:00 PM	69.15
05:00 - 06:00 PM	70.08
06:00 - 07:00 PM	71.84
07:00 - 08:00 PM	76.82
08:00 - 09:00 PM	70.46
09:00 - 10:00 PM	70.76
10:00 - 11:00 PM	65.04
11:00 - 12:00 AM	65.74
12:00 - 01:00 AM	61.86
01:00 - 02:00 AM	58.01
02:00 - 03:00 AM	53.68
03:00 - 04:00 AM	55.85
04:00 - 05:00 AM	67.28
05:00 - 06:00 AM	71.46
06:00 - 07:00 AM	67.76
07:00 - 08:00 AM	68.68
08:00 - 09:00 AM	69.97
CNEL, dB(A):	**74.6**



NOTES:

fieldcnel.xls

Sunset Avenue Project
Noise Data - East

Interval data
Translated: 03-May-2004 13:31:30
Translated File: P:\Software\Noise Programs\LARDAV\SLMUTIL\MTA Venice East Site.SLMDL
SLM: 820A1049
Firmware Rev.: 1.500 18Sep1998
Software: SlmUtility v2.01
PCR Services Corporation
233 Wilshire Blvd, Suite 130
Santa Monica, CA 90401
Tustin Marine On Base

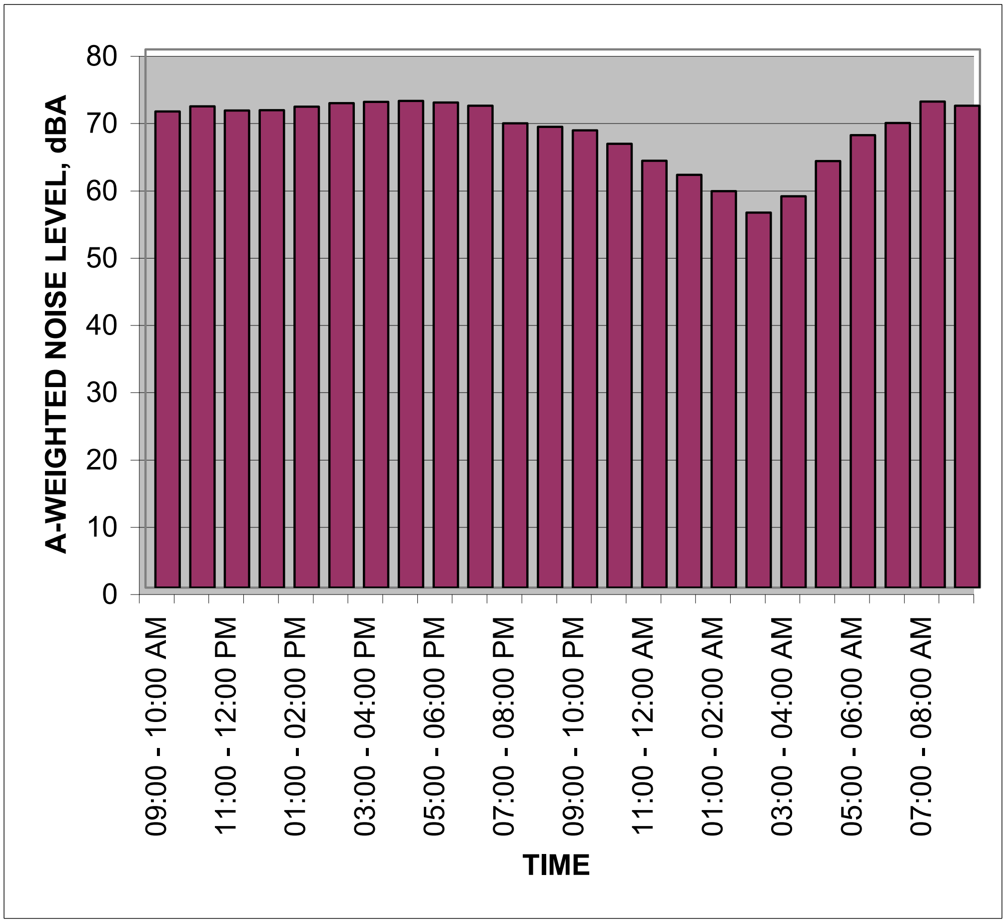
Rec #	Date	Time	Duration	Leq	Lmax	Lmin	SEL	Peak	UwPeak	L(1.00)	L(10.00)	L(25.00)	L(50.00)	L(90.00)	L(99.00)
1	28-Apr-04	16:59:24	00:35.5	73	84.44	62.82	88.5	96.43	101.79	83.57	74.11	72	70.62	66.23	63.2
2	28-Apr-04	17:00:00	00:00.0	69.65	86.11	54.32	105.22	101.5	106.22	78.36	72	69.96	67.91	63.22	59.3
3	28-Apr-04	18:00:00	00:00.0	69.74	87.66	56.79	105.32	103.83	108.43	77.94	72.45	70.3	67.93	62.32	58.4
4	28-Apr-04	19:00:00	00:00.0	75.97	90.27	58	111.55	107.55	110.94	82.5	78.09	77	75.43	69.16	64.06
5	28-Apr-04	20:00:00	00:00.0	71.75	87.12	54.5	107.32	103.9	106.71	77.96	76.43	73.63	68	60.5	56.53
6	28-Apr-04	21:00:00	00:00.0	70.44	87.37	47.49	106.02	101.29	108.43	78.88	74.86	71.24	66.72	55.61	51.04
7	28-Apr-04	22:00:00	00:00.0	65.72	91.11	45.41	101.3	103.65	106.94	74.94	68.76	65.53	59.93	50.59	47.01
8	28-Apr-04	23:00:00	00:00.0	63.18	85.23	42.47	98.76	96.52	104.17	72.76	67.24	63.15	55.94	47.65	44.46
9	29-Apr-04	0:00:00	00:00.0	61.86	92.84	40.97	97.43	104.25	106.22	70.92	64.44	57.62	50.53	44.17	42.26
10	29-Apr-04	1:00:00	00:00.0	58.01	79.07	40.18	93.58	90.99	101.58	69.9	61.61	53.22	47.45	42.67	41.25
11	29-Apr-04	2:00:00	00:00.0	53.68	75.44	39.82	89.25	87	97.14	67.2	53.47	46.81	43.33	41.22	40.22
12	29-Apr-04	3:00:00	00:00.0	55.85	80.81	39.43	91.42	93.61	101.58	69.12	55.76	47.17	43.68	41.05	40.07
13	29-Apr-04	4:00:00	00:00.0	67.28	82.81	40.06	102.86	97.24	104.17	73.87	72.04	70.8	51.37	41.56	40.75
14	29-Apr-04	5:00:00	00:00.0	71.46	100.55	61.99	107.04	108.86	109.18	77.9	70.79	69.35	68.04	65.33	64.1
15	29-Apr-04	6:00:00	00:00.0	67.76	83.79	55.68	103.34	93.85	103.15	75.69	70.35	68.18	66.25	61.43	59.11
16	29-Apr-04	7:00:00	00:00.0	68.68	90.5	49.69	104.25	103.29	106.22	77.46	71.6	69.32	66.29	58.09	52.77
17	29-Apr-04	8:00:00	00:00.0	69.97	86.93	53.57	105.54	100.02	106.45	79.26	72.75	70.29	67.75	61.59	57.12
18	29-Apr-04	9:00:00	00:00.0	69.07	86.83	50.45	104.65	99.1	104.78	77.62	72.02	69.61	66.9	59.96	53.89
19	29-Apr-04	10:00:00	00:00.0	71.13	87.98	51.83	106.7	107	107.81	82.68	73.47	69.69	66.52	58.72	54.17
20	29-Apr-04	11:00:00	00:00.0	68.06	85.68	52.07	103.63	97.79	105.06	76.83	71.07	69.04	65.95	58.31	54.34
21	29-Apr-04	12:00:00	00:00.0	68.18	84.15	52.22	103.76	98.23	111.81	75.88	71.78	69.03	66.03	58.35	54.42
22	29-Apr-04	13:00:00	00:00.0	70.01	88.06	52.55	105.58	104.89	111.36	82.89	71.59	68.9	66.27	59.62	55.9
23	29-Apr-04	14:00:00	00:00.0	69.25	86.01	56	104.83	98.89	107.81	77.98	71.86	69.73	67.39	62.15	58.29
24	29-Apr-04	15:00:00	00:00.0	69.5	93.79	55.8	105.08	107.72	108.22	78.67	71.88	69.79	67.36	61.7	58.07
25	29-Apr-04	16:00:00	00:00.0	69.15	84.68	55.57	104.72	100.12	104.78	78.06	71.78	69.61	67.27	61.09	57.32
26	29-Apr-04	17:00:00	00:00.0	70.08	86.51	54.62	105.65	99.29	105.06	78.11	72.82	70.65	68.34	62.47	58.4
27	29-Apr-04	18:00:00	00:00.0	71.84	88.5	55.67	107.42	103.38	105.96	78.74	74.27	72.76	70.94	65.66	60.42
28	29-Apr-04	19:00:00	00:00.0	76.82	91.54	56.13	112.4	107.55	109.69	82.27	80.17	78.07	75.66	68.49	60.77
29	29-Apr-04	20:00:00	00:00.0	70.46	87.58	51.22	106.04	100.41	105.65	77.1	73.92	72.24	68.05	59.46	53.79
30	29-Apr-04	21:00:00	00:00.0	70.76	89.32	50.56	106.34	101.87	106.94	78.62	74.76	71.69	67.47	57.11	53.04
31	29-Apr-04	22:00:00	00:00.0	65.04	81.93	43.31	100.61	95.24	105.06	73.47	68.87	66.32	61.29	51.9	46.68
32	29-Apr-04	23:00:00	00:00.0	65.74	94.07	41.06	101.32	108.61	114.04	74.44	68.43	64.93	58.15	47.49	42.75
33	30-Apr-04	0:00:00	00:00.0	62.36	83.03	40.78	97.93	95.48	102	72.22	67.29	62.01	53.5	44.74	42.06
34	30-Apr-04	1:00:00	00:00.0	59.55	84.14	41.28	95.13	94.7	102.78	70.25	64.36	55.86	47.98	43.81	42.32
35	30-Apr-04	2:00:00	00:00.0	58.56	86.5	40.25	94.14	96.43	106.71	70.49	59.68	50.52	46.1	43.13	41.18
36	30-Apr-04	3:00:00	00:00.0	56.3	83.72	40.1	91.88	94.04	103.49	68.86	55.81	47.44	43.28	41.26	40.36
37	30-Apr-04	4:00:00	00:00.0	64.86	84.7	40.22	100.43	95.9	105.65	74.32	71.72	61.54	49.61	42.18	41.08
38	30-Apr-04	5:00:00	00:00.0	71.06	86.08	61.72	106.63	100.04	104.47	77.09	72.85	71.82	70.86	65.31	63.48
39	30-Apr-04	6:00:00	00:00.0	68.25	87.47	60.35	103.83	104.79	106.71	77.85	70.75	68.28	65.2	62.22	60.84
40	30-Apr-04	7:00:00	00:00.0	70.11	89.11	59.86	105.69	100.79	105.96	79.4	72.61	70.28	67.9	63.06	60.81
41	30-Apr-04	8:00:00	00:00.0	70.74	86.69	60.85	106.32	105.4	107.6	78.85	73.32	71.22	69.04	64.61	62.3
42	30-Apr-04	9:00:00	00:00.0	69.74	84.5	53.7	105.32	95.15	105.34	78.71	72.64	70.29	67.62	61.23	57.39
43	30-Apr-04	10:00:00	00:00.0	69.04	89.18	53.51	104.62	103.32	104.78	78.45	71.72	69.41	66.51	60.09	56.45
44	30-Apr-04	11:00:00	00:00.0	69.29	99.29	52.11	104.86	114.91	116.75	78.32	71.42	68.95	66.11	58.95	54.91
45	30-Apr-04	12:00:00	00:00.0	68.56	86.7	52.82	104.14	98.31	106.22	77.52	71.36	69.19	66.25	59.35	55.4
46	30-Apr-04	13:00:00	00:00.0	69.15	91.92	55.96	104.72	106.21	109.34	77.74	71.67	69.54	67.14	61.57	58.54
47	30-Apr-04	14:00:00	00:00.0	70.06	88.61	57.61	105.63	100.47	110.02	78.74	72.47	70.45	68.18	63.56	60.18
48	30-Apr-04	15:00:00	00:00.0	70.69	86.98	60.33	106.27	103.72	105.34	78.93	73.13	71.26	69.2	64.36	62
49	30-Apr-04	16:00:00	00:00.0	70.88	91.06	55.2	106.46	104.98	106.45	78.83	73.07	71.26	69.24	63.18	58.49
50	30-Apr-04	17:00:00	00:00.0	70.63	87	56.05	106.21	104.23	107.39	79.15	73.49	71.09	68.91	63.43	58.6
51	30-Apr-04	18:00:00	00:00.0	71.28	90.7	55.61	106.86	102.31	105.34	77.97	75.42	71.77	69.14	63.52	59.15
52	30-Apr-04	19:00:00	00:00.0	73.7	90.33	55.5	109.28	104.5	106.71	80.47	76.31	75.28	72.85	65.09	58.36
53	30-Apr-04	20:00:00	00:00.0	69.72	89.58	51.65	105.29	101.88	106.22	76.44	73.29	71.25	67.21	59.91	54.91
54	30-Apr-04	21:00:00	00:00.0	74.3	94.32	52.18	109.88	106.62	107.15	79.82	77.54	76.32	72.78	63.47	56.67
55	30-Apr-04	22:00:00	00:00.0	67.13	84.43	48.93	102.7	100.98	104.17	75.05	70.45	68.03	65.04	55.65	51.68
56	30-Apr-04	23:00:00	00:00.0	66.61	89.78	46.04	102.18	103.34	108.22	74.91	69.79	67.01	62.58	53.3	49.08
57	1-May-04	0:00:00	00:00.0	65.62	88.4	44.76	101.2	99.71	105.65	75.5	68.85	65.4	59.73	49.91	46.43
58	1-May-04	1:00:00	00:00.0	63.58	83.98	42.73	99.16	102.18	106.71	73.38	67.75	62.78	55.17	45.96	43.43
59	1-May-04	2:00:00	00:00.0	61.04	80.84	42.09	96.62	93.91	101.14	72.11	65.63	57.82	49.89	44.1	43
60	1-May-04	3:00:00	00:00.0	56.9	75.44	41.38	92.47	87.53	97.14	69.85	58.55	49.57	44.65	42.69	42.05
61	1-May-04	4:00:00	00:00.0	54.58	77.18	42.07	90.16	89.51	101.58	67.7	54.43	47.7	45.11	43.51	42.86
62	1-May-04	5:00:00	00:00.0	60.47	83.3	43.93	96.04	94.14	108.22	72.4	61.51	58	49.44	46.08	44.86
63	1-May-04	6:00:00	00:00.0	63.44	84.91	46.35	99.02	95.4	106.22	73.86	67.05	60.8	54.28	49.34	47.57
64	1-May-04	7:00:00	00:00.0	64.77	84.67	46.09	100.35	100.37	104.78	74.97	68.54	64.32	57.81	49.78	47.13
65	1-May-04	8:00:00	00:00.0	66.27	84.67	47.9	101.84	96.52	107.15	75.72	69.78	66.81	62.43	53.59	49.56
66	1-May-04	9:00:00	00:00.0	67.83	93.18	48.19	103.41	110.46	112.23	76.4	70.72	68.2	65.07	57.21	51.93
67	1-May-04	10:00:00	00:00.0	67.9	84.97	49.99	103.47	99.49	104.78	77.2	70.86	68.57	65.42	57.06	52.36
68	1-May-04	11:00:00	00:00.0	68.35	86.75	50.06	103.93	102.04	109.86	77.97	71.12	68.68	65.64	57.16	52.47
69	1-May-04	12:00:00	00:00.0	68.97	95.28	51.07	104.54	111.62	112.56	77.9	71.07	68.84	66.01	58.49	53.35
70	1-May-04	13:00:00	00:00.0	68.18	92.82	51.22	103.75	108.15	113.83	76.93	70.57	68.37	65.68	58.37	53.5
71	1-May-04	14:00:00	00:00.0	67.51	87.86	51.65	103.09	105.3	109.5	76.96	70.25	67.67	64.65	56.52	53.29
72	1-May-04	15:00:00	00:00.0	67.6	87.7	50.08	103.18	102	107.81	77.11	70.56	67.79	64.56	57.23	53.03
73	1-May-04	16:00:00	00:00.0	70.47	100.83	51.22	106.04	113.63	114.63	78.04	71.15	68.9	66.17	58.47	53.7

Community Noise Equivalent Level, CNEL.

Project: MTA Division 6 Bus Depot (Sunset Avenue Project)
Location: Western Side
Sources:

Date: April 29, 2004

TIME	***HNL, dB(A)***
09:00 - 10:00 AM	70.78
10:00 - 11:00 AM	71.52
11:00 - 12:00 PM	70.91
12:00 - 01:00 PM	70.94
01:00 - 02:00 PM	71.49
02:00 - 03:00 PM	72.02
03:00 - 04:00 PM	72.19
04:00 - 05:00 PM	72.35
05:00 - 06:00 PM	72.12
06:00 - 07:00 PM	71.62
07:00 - 08:00 PM	69.00
08:00 - 09:00 PM	68.47
09:00 - 10:00 PM	67.98
10:00 - 11:00 PM	65.98
11:00 - 12:00 AM	63.43
12:00 - 01:00 AM	61.37
01:00 - 02:00 AM	58.91
02:00 - 03:00 AM	55.73
03:00 - 04:00 AM	58.19
04:00 - 05:00 AM	63.42
05:00 - 06:00 AM	67.24
06:00 - 07:00 AM	69.07
07:00 - 08:00 AM	72.24
08:00 - 09:00 AM	71.61
CNEL, dB(A):	**73.1**



NOTES:

Sunset Avenue Project
Noise Data - West

Interval data
Translated: 03-May-2004 12:48:34
Translated File: P:\Software\Noise Programs\LARDAV\SLMUTIL\MTA Venice West Site.SLMDL
SLM: 820A1065
Firmware Rev.: 1.500 18Sep1998
Software: SlmUtility v2.01
PCR Services Corporation
233 Wilshire Blvd, Suite 130
Santa Monica, CA 90401
Tustin Marine Off Base

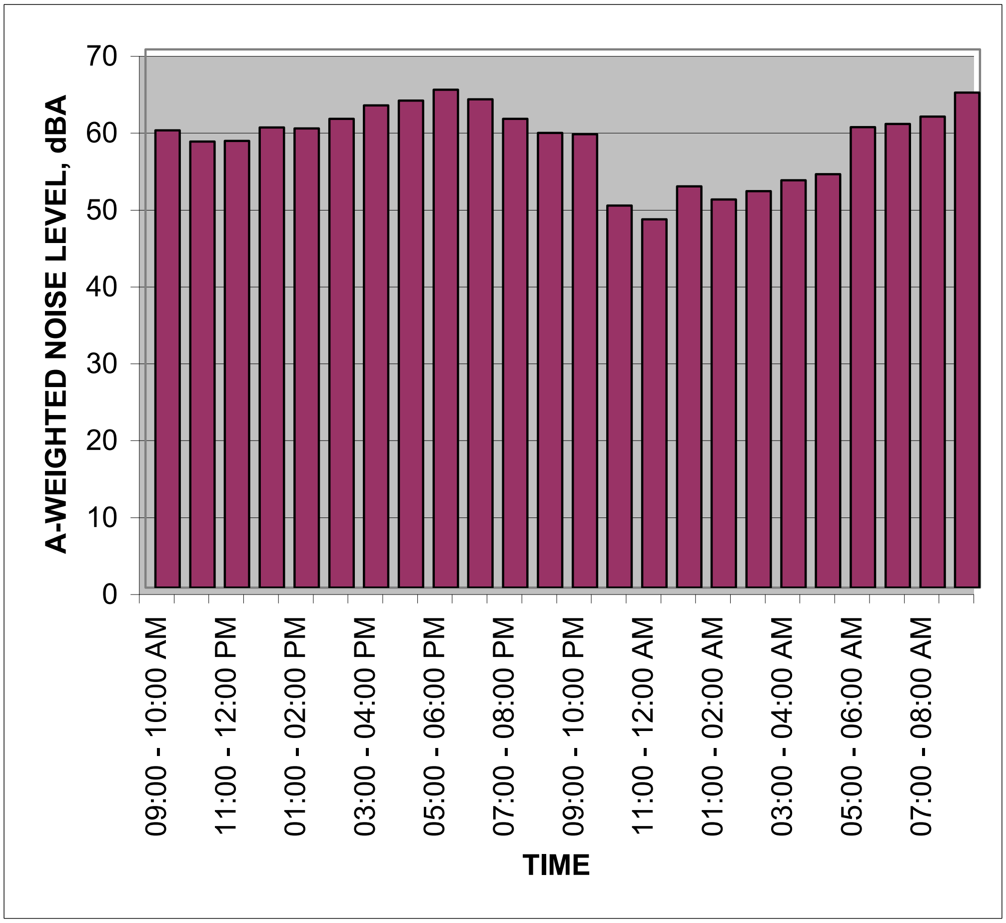
Rec #	Date	Time	Duration	Leq	Lmax	Lmin	SEL	Peak	UwPeak	L(1.00)	L(10.00)	L(25.00)	L(50.00)	L(90.00)	L(99.00)
1	28-Apr-04	16:50:27	09:32.1	72.71	84.67	61.18	100.29	101.66	106.69	80.27	74.84	73.64	72	66.66	62.23
2	28-Apr-04	17:00:00	00:00.0	72.35	86.41	58.65	107.92	99.9	106.69	77.96	74.86	73.48	71.7	66.54	61.55
3	28-Apr-04	18:00:00	00:00.0	71.31	83.6	59.34	106.89	100.09	106.69	77.19	74.08	72.52	70.52	64.45	60.8
4	28-Apr-04	19:00:00	00:00.0	69.55	91.44	48.19	105.12	115.9	116.63	74.8	72.09	70.49	68.43	61.56	52.91
5	28-Apr-04	20:00:00	00:00.0	68.36	85.19	47.3	103.94	100.14	105.26	75.76	71.48	69.66	66.8	59.52	52.7
6	28-Apr-04	21:00:00	00:00.0	67.86	83.16	44.04	103.43	96.81	107.73	75.39	71.27	69.34	66.3	54.26	47.81
7	28-Apr-04	22:00:00	00:00.0	65.43	80.41	39.78	101.01	93.05	104.95	73.94	69.81	66.92	60.06	45.48	41.23
8	28-Apr-04	23:00:00	00:00.0	62.28	75.65	35.27	97.85	91.12	103.47	71.98	67.51	62.48	52.66	40.85	37.2
9	29-Apr-04	0:00:00	00:00.0	61.37	83.26	33.87	96.94	96.03	103.14	72.41	65.91	57.26	47.41	39.08	34.66
10	29-Apr-04	1:00:00	00:00.0	58.91	79.5	33.01	94.48	95.28	102.08	70.93	62.42	51.91	42.9	34.98	33.33
11	29-Apr-04	2:00:00	00:00.0	55.73	75.5	32.62	91.31	88.91	97.76	69.5	55.51	44.44	37.34	33.95	33.06
12	29-Apr-04	3:00:00	00:00.0	58.19	74.73	34.11	93.77	91.14	101.3	70.66	60.59	53.9	46.95	35.37	34.16
13	29-Apr-04	4:00:00	00:00.0	63.42	77.48	56.6	99	93.89	97.76	72.5	67.76	61.8	59.15	57.57	57.03
14	29-Apr-04	5:00:00	00:00.0	67.24	83.85	49.59	102.82	99.14	104.08	75.37	71.19	68.73	63.18	56.62	52.91
15	29-Apr-04	6:00:00	00:00.0	69.07	79.48	47.48	104.64	94.9	106.69	75.87	72.37	70.42	67.8	59.37	51.91
16	29-Apr-04	7:00:00	00:00.0	72.24	85.93	54.51	107.82	101.56	108.29	79.49	75.33	73.37	71.11	63.63	57.91
17	29-Apr-04	8:00:00	00:00.0	71.61	84.62	50.1	107.19	103.47	106.9	77.83	74.8	73.09	70.5	61.16	53.67
18	29-Apr-04	9:00:00	00:00.0	70.78	82.51	49.65	106.36	97.51	107.11	77.62	73.99	72.21	69.64	60.98	54.38
19	29-Apr-04	10:00:00	00:00.0	71.52	94.23	54.22	107.1	115.7	118.73	78.84	74.08	72.3	69.85	61.62	56.41
20	29-Apr-04	11:00:00	00:00.0	70.91	87.99	52.09	106.49	106.17	111.76	78.82	73.77	71.81	69.38	61.13	55.16
21	29-Apr-04	12:00:00	00:00.0	70.94	87.74	52.98	106.51	103.52	111.86	77.74	73.87	72.09	69.63	61.19	55.55
22	29-Apr-04	13:00:00	00:00.0	71.49	85.11	53.36	107.07	105.27	108.29	78.77	74.34	72.51	70.25	63.5	57.08
23	29-Apr-04	14:00:00	00:00.0	72.02	84.66	53.39	107.59	100.93	107.11	79.35	74.87	73.05	71.04	64.44	57.69
24	29-Apr-04	15:00:00	00:00.0	72.19	88.64	51.9	107.76	106.3	111.27	78.78	74.75	73.16	71.3	64.89	55.64
25	29-Apr-04	16:00:00	00:00.0	72.35	83.95	53.87	107.92	99.28	110.52	78.08	74.79	73.44	71.74	66.73	60.87
26	29-Apr-04	17:00:00	00:00.0	72.12	84.94	57.33	107.7	99.67	108.64	77.81	74.68	73.25	71.61	65.87	60.3
27	29-Apr-04	18:00:00	00:00.0	71.62	84.3	58.73	107.19	98.6	106.45	77.8	74.31	72.69	70.76	64.71	60.52
28	29-Apr-04	19:00:00	00:00.0	69	78.94	48.18	104.57	95.58	102.45	75.01	71.96	70.47	68.27	60.58	53.14
29	29-Apr-04	20:00:00	00:00.0	68.47	78.9	55.89	104.05	94.05	103.14	74.22	71.65	69.95	67.68	60.45	57.37
30	29-Apr-04	21:00:00	00:00.0	67.98	92	43.75	103.55	108.97	114.49	75.05	70.76	68.94	65.5	52.87	46.28
31	29-Apr-04	22:00:00	00:00.0	65.98	83.87	38.12	101.56	101.16	103.47	74.06	70.36	67.56	61.84	46.87	39.58
32	29-Apr-04	23:00:00	00:00.0	63.43	76.74	35.97	99.01	91.77	99.98	72.38	68.57	64.28	55.47	42.44	36.83
33	30-Apr-04	0:00:00	00:00.0	61.78	78.21	35.72	97.36	93.31	97.76	72.08	67.14	60.04	49.14	39.73	36.66
34	30-Apr-04	1:00:00	00:00.0	59.45	74.94	34.44	95.03	92.49	96.44	70.94	64.24	54.15	44.88	38.1	35.23
35	30-Apr-04	2:00:00	00:00.0	55.71	75.17	33.8	91.29	91.98	102.45	69.47	55.66	45.62	39.02	35.47	34.19
36	30-Apr-04	3:00:00	00:00.0	57.77	77.28	33.55	93.35	95.33	95.69	70.74	59.52	51.91	46.09	37.58	34.37
37	30-Apr-04	4:00:00	00:00.0	63.48	81.02	50.65	99.05	96.58	100.88	73.11	67.79	62.73	59.33	52.83	51.45
38	30-Apr-04	5:00:00	00:00.0	67.15	80.27	52.27	102.73	94.83	102.08	75.29	71.45	68.8	62.85	56.33	53.01
39	30-Apr-04	6:00:00	00:00.0	70.1	81.55	53.41	105.68	97.91	106.01	77.04	73.3	71.38	69	59.79	54.48
40	30-Apr-04	7:00:00	00:00.0	71.96	84.95	52.08	107.54	99.37	107.32	77.89	74.91	73.3	71.13	63.33	56.07
41	30-Apr-04	8:00:00	00:00.0	71.87	83.88	53.15	107.44	99.54	106.69	78.04	75.08	73.3	70.95	62.31	55.72
42	30-Apr-04	9:00:00	00:00.0	71.17	84.26	49.82	106.75	99.25	106.45	78.24	74.2	72.46	70.17	60.91	53.33
43	30-Apr-04	10:00:00	00:00.0	70.94	83.04	49.55	106.51	105.28	106.24	77.44	73.99	72.37	69.9	60.82	53.41
44	30-Apr-04	11:00:00	00:00.0	71.29	86.08	50.65	106.87	99.62	108.29	77.89	74.16	72.44	70.32	62.48	54.63
45	30-Apr-04	12:00:00	00:00.0	72.75	95.71	51.56	108.33	116.62	118.19	80.97	74.92	73.01	70.83	63.07	54.74
46	30-Apr-04	13:00:00	00:00.0	71.88	82.8	53.18	107.45	98.35	109.16	78.6	74.73	72.99	71.04	64.09	57.12
47	30-Apr-04	14:00:00	00:00.0	72.41	87.12	55.75	107.98	103.77	111.62	78.92	74.77	73.29	71.6	66.28	60.42
48	30-Apr-04	15:00:00	00:00.0	72.1	81.53	56.62	107.68	98.64	107.11	77.99	74.69	73.19	71.41	66.34	59.97
49	30-Apr-04	16:00:00	00:00.0	72.35	84.76	55.1	107.92	99.01	106.01	78.26	74.91	73.46	71.67	66.58	59.51
50	30-Apr-04	17:00:00	00:00.0	72.41	85.79	58.27	107.98	99.28	108.64	78.56	74.98	73.41	71.58	66.03	60.88
51	30-Apr-04	18:00:00	00:00.0	71.76	85.45	59.75	107.33	100.62	108.48	78.17	74.44	72.92	70.87	65.19	61.38
52	30-Apr-04	19:00:00	00:00.0	69.52	81.41	52.22	105.1	95.68	104.36	75.35	72.25	70.76	68.85	62.94	56.95
53	30-Apr-04	20:00:00	00:00.0	69.17	86.12	58.37	104.75	99.66	110.38	75.57	71.8	70.3	68.35	62.08	59.13
54	30-Apr-04	21:00:00	00:00.0	70.12	99.24	47.6	105.69	111.77	111.37	76.05	71.06	69.37	66.67	56.57	50.86
55	30-Apr-04	22:00:00	00:00.0	67.88	86.72	44.84	103.45	103.88	110.1	74.66	70.94	69.16	66.32	56.11	47.56

Community Noise Equivalent Level, CNEL.

Project: MTA Division 6 Bus Depot (Sunset Avenue Project)
Location: Southern Side
Sources:

Date: April 27, 2004

TIME	HNL, dB(A)
09:00 - 10:00 AM	59.48
10:00 - 11:00 AM	58.00
11:00 - 12:00 PM	58.10
12:00 - 01:00 PM	59.83
01:00 - 02:00 PM	59.73
02:00 - 03:00 PM	60.98
03:00 - 04:00 PM	62.71
04:00 - 05:00 PM	63.33
05:00 - 06:00 PM	64.75
06:00 - 07:00 PM	63.51
07:00 - 08:00 PM	60.95
08:00 - 09:00 PM	59.14
09:00 - 10:00 PM	58.96
10:00 - 11:00 PM	49.69
11:00 - 12:00 AM	47.89
12:00 - 01:00 AM	52.17
01:00 - 02:00 AM	50.50
02:00 - 03:00 AM	51.56
03:00 - 04:00 AM	52.98
04:00 - 05:00 AM	53.78
05:00 - 06:00 AM	59.87
06:00 - 07:00 AM	60.29
07:00 - 08:00 AM	61.26
08:00 - 09:00 AM	64.37
CNEL, dB(A):	**63.8**



NOTES:

fieldcnel.xls

Sunset Avenue Project
Noise Data - South

Interval data
Translated: 28-Apr-2004 17:28:10
Translated File: C:\Program Files\LARDAV\SLMUTIL\MTA-Venice South 26Apr2004_17-49-44.SLMDL
SLM: 820A1065
Firmware Rev.: 1.500 18Sep1998
Software: SlmUtility v2.01
PCR Services Corporation
233 Wilshire Blvd, Suite 130
Santa Monica, CA 90401
Tustin Marine Off Base

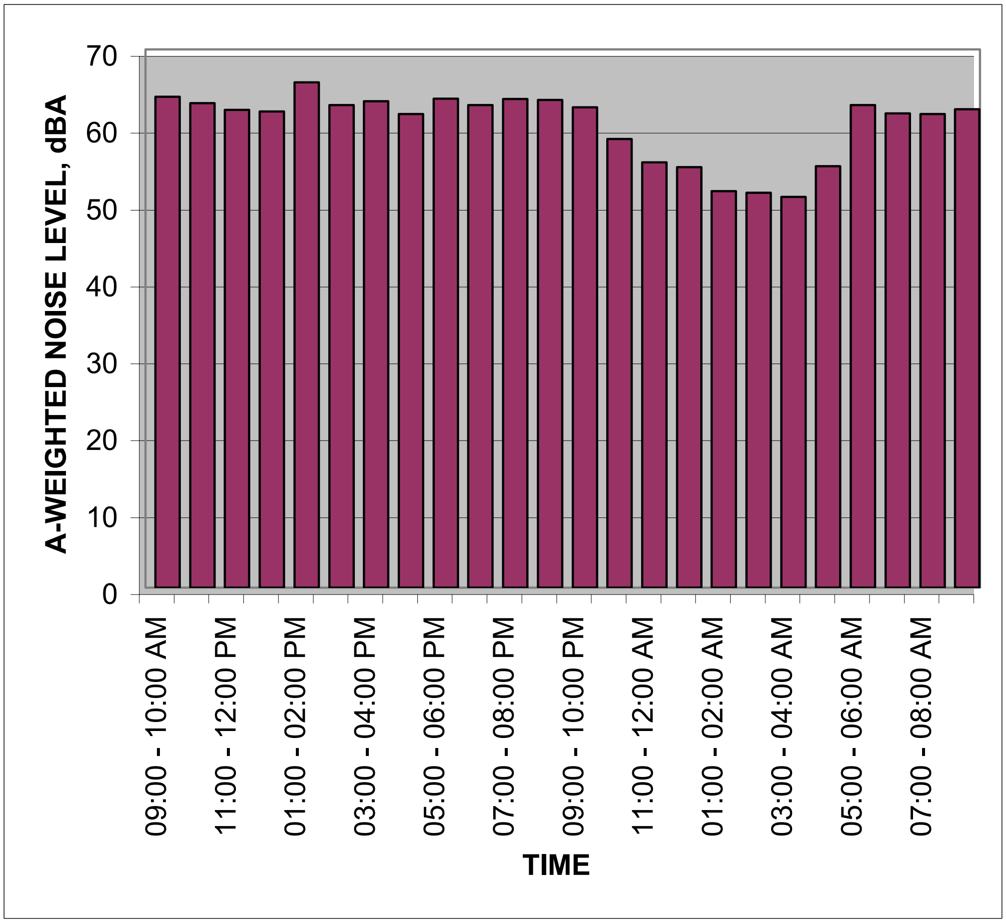
Rec #	Date	Time	Duration	Leq	Lmax	Lmin	SEL	Peak	UwPeak	L(1.00)	L(10.00)	L(25.00)	L(50.00)	L(90.00)	L(99.00)
1	26-Apr-04	17:49:44	10:15.1	64.15	85.12	55.62	92.05	104.21	106.45	74.33	66.58	62.53	59.07	57.1	56.04
2	26-Apr-04	18:00:00	00:00.0	59.09	75.2	53.68	94.66	101.44	104.64	67.71	60.58	58.87	57.46	55.48	54.23
3	26-Apr-04	19:00:00	00:00.0	57.95	76.66	49.27	93.52	90.78	95.69	67.39	59.21	57.06	55.29	52.48	50.4
4	26-Apr-04	20:00:00	00:00.0	57.71	67.88	52.51	93.29	92.37	94.41	63.26	59.14	58.07	57.21	55.31	53.8
5	26-Apr-04	21:00:00	00:00.0	55.84	75.97	49.71	91.42	88.6	97.12	62.24	57.63	55.59	54.05	52.19	50.73
6	26-Apr-04	22:00:00	00:00.0	51.23	62.96	44.58	86.8	84.09	96.44	58	53.91	51.93	49.83	47.05	45.21
7	26-Apr-04	23:00:00	00:00.0	48.81	66.95	43.57	84.38	95.2	93.97	57.12	50.41	48.71	47.14	45.07	44.08
8	27-Apr-04	0:00:00	00:00.0	52.17	69.29	44.79	87.75	88.19	91.73	59.45	54.83	52.76	50.16	47.21	45.32
9	27-Apr-04	1:00:00	00:00.0	50.5	59.41	45.78	86.08	76.8	92.32	55.19	52.62	51.25	49.91	47.76	46.43
10	27-Apr-04	2:00:00	00:00.0	51.56	61.38	46.39	87.14	79.41	90.41	56.58	53.66	52.31	50.99	48.8	47.29
11	27-Apr-04	3:00:00	00:00.0	52.98	64.62	47.12	88.55	79.66	88.84	59.47	54.83	53.33	51.93	49.49	48.12
12	27-Apr-04	4:00:00	00:00.0	53.78	64.22	50.23	89.36	85.44	95.69	59.21	55.03	54.13	53.22	51.75	50.41
13	27-Apr-04	5:00:00	00:00.0	59.87	73.96	50.28	95.44	88	96.44	67.89	65.51	57.68	55.34	51.98	50.89
14	27-Apr-04	6:00:00	00:00.0	60.29	82.01	51.22	95.87	96.76	104.95	70.65	61.29	58.8	57.16	54.21	52.73
15	27-Apr-04	7:00:00	00:00.0	61.26	82.03	52.28	96.83	110.73	110.1	71.72	62.76	60.22	58.33	55.44	53.57
16	27-Apr-04	8:00:00	00:00.0	64.37	94.09	49.83	99.94	112.85	115.65	73.48	62.8	59.94	57.96	54.02	51.61
17	27-Apr-04	9:00:00	00:00.0	59.48	76.16	49.86	95.05	92.48	101.3	69.75	61.8	58.63	56.3	53.03	51.13
18	27-Apr-04	10:00:00	00:00.0	58	77.17	49.45	93.57	97.78	98.34	69.51	59.14	56.73	54.71	52.01	50.19
19	27-Apr-04	11:00:00	00:00.0	58.1	76.2	49.88	93.68	89.94	99.49	67.84	59.7	56.87	55.02	52.57	51.09
20	27-Apr-04	12:00:00	00:00.0	59.83	78.78	48.64	95.41	104.2	102.08	70.97	61.83	58.05	55.17	51.99	50.06
21	27-Apr-04	13:00:00	00:00.0	59.73	76.29	49.08	95.3	88.71	97.12	71.38	61.71	58.55	55.71	52.34	50.24
22	27-Apr-04	14:00:00	00:00.0	60.98	80.71	50.82	96.56	101.25	100.44	71.37	62.87	60.34	57.89	54.16	52.3
23	27-Apr-04	15:00:00	00:00.0	62.71	81.28	49.62	98.29	101.68	106.69	75.86	63.67	58.73	56.62	53.79	51.58
24	27-Apr-04	16:00:00	00:00.0	63.33	84.89	50.37	98.91	100.64	103.77	70.92	65.74	64.42	59.61	55.18	52.21
25	27-Apr-04	17:00:00	00:00.0	64.75	78.94	54.76	100.33	96.55	99.49	70.48	66.92	65.66	63.96	59.8	57.05
26	27-Apr-04	18:00:00	00:00.0	63.51	75.9	58.69	99.09	102.83	107.11	68.3	64.98	64.06	63.1	60.66	59.18
27	27-Apr-04	19:00:00	00:00.0	60.95	76.65	53.26	96.52	93.23	95.69	70.73	62.98	61.22	58.65	54.69	53.45
28	27-Apr-04	20:00:00	00:00.0	59.14	76.31	52.26	94.71	89.3	97.76	68.01	60.09	58.69	57.55	55.33	53.55
29	27-Apr-04	21:00:00	00:00.0	58.96	76.25	44.36	94.54	92.37	100.44	68.05	62.91	59.4	55.23	47.47	45.19
30	27-Apr-04	22:00:00	00:00.0	49.69	68.35	42.73	85.26	86.48	98.93	58.62	51.83	49.36	47.45	44.63	43.3
31	27-Apr-04	23:00:00	00:00.0	47.89	66.19	41.8	83.47	83.45	95.69	56.74	49.69	47.86	45.87	43.21	42.13
32	28-Apr-04	0:00:00	00:00.0	46.7	65.17	41.66	82.28	78.31	92.91	55.65	48.18	46.01	44.18	42.38	42
33	28-Apr-04	1:00:00	00:00.0	46.66	65.53	41.28	82.24	79.43	92.91	58.51	47.01	44.34	42.94	42.07	41.28
34	28-Apr-04	2:00:00	00:00.0	45.75	63.14	40.9	81.33	76.42	90.41	56.51	46.99	44.04	42.79	41.58	41.05
35	28-Apr-04	3:00:00	00:00.0	46.4	59.87	41.01	81.98	71.78	91.73	52.73	49.98	47.73	43.66	42.19	41.35
36	28-Apr-04	4:00:00	00:00.0	54.12	67.98	45.61	89.69	84.89	97.76	61.5	59.18	53.23	50.07	47.08	46.02
37	28-Apr-04	5:00:00	00:00.0	57.05	72.1	45.73	92.62	85.64	96.44	65.12	60.88	58.04	52.99	49.02	47.12
38	28-Apr-04	6:00:00	00:00.0	57.19	71.86	46.48	92.77	85.52	100.88	64.72	60.36	58.33	54.9	50.25	47.73
39	28-Apr-04	7:00:00	00:00.0	58.23	76.27	49.4	93.8	92.67	104.95	67.79	60.75	58.01	55.84	52.71	50.58
40	28-Apr-04	8:00:00	00:00.0	59.8	80.17	48.33	95.38	99.58	101.3	70.37	61.04	58.48	56.32	53.37	50.37
41	28-Apr-04	9:00:00	00:00.0	59.96	77.83	47.59	95.54	91.59	97.12	73	60.5	56.91	54.55	51.05	48.81
42	28-Apr-04	10:00:00	00:00.0	62.12	79.24	49.75	97.7	91.62	103.14	75.01	62.69	59.19	57.3	54.84	51.83
43	28-Apr-04	11:00:00	00:00.0	60.84	76.41	53.16	96.42	89.76	97.12	72.66	61.48	58.79	57.37	55.31	54.16
44	28-Apr-04	12:00:00	00:00.0	60.38	78.41	52.92	95.96	93.42	98.34	69.8	62.19	59.07	57.38	55.17	53.87
45	28-Apr-04	13:00:00	00:00.0	61.22	80.18	48.56	96.8	95.88	100.44	72.83	63.59	58.44	55.8	52.35	49.85
46	28-Apr-04	14:00:00	00:00.0	59.54	79.3	48.26	95.12	96.51	98.34	71.53	60.57	57.33	55.12	52.34	49.91
47	28-Apr-04	15:00:00	00:00.0	58.36	76.57	46.77	93.94	90.44	105.75	70.23	58.93	56.05	54.42	51.6	49.12
48	28-Apr-04	16:00:00	22:31.8	59.52	76.55	50.18	90.84	93.9	101.3	69.71	61.69	57.94	55.87	53.42	51.63

Community Noise Equivalent Level, CNEL.

Project: MTA Division 6 Bus Depot (Sunset Avenue Project)
Location: Northern Side
Sources:

Date: April 27, 2004

TIME	HNL, dB(A)
09:00 - 10:00 AM	63.86
10:00 - 11:00 AM	62.99
11:00 - 12:00 PM	62.15
12:00 - 01:00 PM	61.94
01:00 - 02:00 PM	65.70
02:00 - 03:00 PM	62.77
03:00 - 04:00 PM	63.25
04:00 - 05:00 PM	61.58
05:00 - 06:00 PM	63.58
06:00 - 07:00 PM	62.77
07:00 - 08:00 PM	63.54
08:00 - 09:00 PM	63.42
09:00 - 10:00 PM	62.48
10:00 - 11:00 PM	58.35
11:00 - 12:00 AM	55.30
12:00 - 01:00 AM	54.68
01:00 - 02:00 AM	51.57
02:00 - 03:00 AM	51.37
03:00 - 04:00 AM	50.82
04:00 - 05:00 AM	54.80
05:00 - 06:00 AM	62.75
06:00 - 07:00 AM	61.67
07:00 - 08:00 AM	61.58
08:00 - 09:00 AM	62.20
CNEL, dB(A):	**66.1**



NOTES:

fieldcnel.xls

Sunset Avenue Project
Noise Data - North

Interval data
Translated: 28-Apr-2004 16:50:43
Translated File: C:\Program Files\LARDAV\SLMUTIL\MTA-Venice North 26Apr2004.SLMDL
SLM: 820A1049
Firmware Rev.: 1.500 18Sep1998
Software: SlmUtility v2.01
PCR Services Corporation
233 Wilshire Blvd, Suite 130
Santa Monica, CA 90401
Tustin Marine On Base

Rec #	Date	Time	Duration	Leq	Lmax	Lmin	SEL	Peak	UwPeak	L(1.00)	L(10.00)	L(25.00)	L(50.00)	L(90.00)	L(99.00)
1	26-Apr-04	16:01:36	58:23.2	63.81	83.98	53.61	99.27	105.36	127.33	72.11	66.97	63.06	60.9	57.34	55.07
2	26-Apr-04	17:00:00	00:00.0	63.37	82.95	52.98	98.95	94.56	104.47	71.75	65.65	62.93	61.09	57.91	55.4
3	26-Apr-04	18:00:00	00:00.0	62.44	77.04	55.29	98.02	91.08	100.68	69.66	64.71	62.71	61.25	58.67	57.08
4	26-Apr-04	19:00:00	00:00.0	62.02	77.22	54.84	97.6	90.36	97.82	68.97	63.95	62.15	60.82	58.32	56.22
5	26-Apr-04	20:00:00	00:00.0	62.11	78.33	54.08	97.68	89.85	99.63	69.83	63.69	62.36	61.06	58.1	56.06
6	26-Apr-04	21:00:00	00:00.0	61.29	75.94	49.93	96.86	89.58	100.19	68.19	63.54	62.07	60.5	55.72	51.95
7	26-Apr-04	22:00:00	00:00.0	57.77	78.16	48.91	93.35	90.07	95.56	65.72	59.89	57.86	55.81	52.9	50.9
8	26-Apr-04	23:00:00	00:00.0	55.3	72.4	45.15	90.88	85.56	95.56	63.82	57.94	55.68	53.2	49.65	47.53
9	27-Apr-04	0:00:00	00:00.0	54.68	82.27	43.02	90.25	90.05	103.49	64.36	56.53	53.35	50.63	46.9	45.07
10	27-Apr-04	1:00:00	00:00.0	51.57	71.75	42.07	87.15	91.67	97.82	59.82	54.07	51.41	49.57	46.37	44.07
11	27-Apr-04	2:00:00	00:00.0	51.37	67.72	43.85	86.95	79.02	91.11	59.01	53.81	51.51	49.7	46.9	45.12
12	27-Apr-04	3:00:00	00:00.0	50.82	67.95	43.96	86.4	81.12	91.11	58.6	52.62	50.93	49.54	47.3	45.49
13	27-Apr-04	4:00:00	00:00.0	54.8	74.93	46.39	90.37	94.61	97.82	61.89	58.15	55.18	52.43	49.39	47.6
14	27-Apr-04	5:00:00	00:00.0	62.75	76.18	57.68	98.32	88.11	103.49	68.6	64.75	62.92	61.88	60.35	59.11
15	27-Apr-04	6:00:00	00:00.0	61.67	79.79	53.93	97.25	93.47	97.82	68.57	64.13	61.89	60.19	57.36	55.36
16	27-Apr-04	7:00:00	00:00.0	61.58	81.07	50.8	97.16	92.02	101.58	71.84	63.46	60.78	58.75	55.24	53.04
17	27-Apr-04	8:00:00	00:00.0	62.2	78.54	52.65	97.77	92.08	103.15	70.2	64.61	62.29	60.44	57.3	54.62
18	27-Apr-04	9:00:00	00:00.0	63.86	87.86	50.98	99.43	103.43	105.34	73.86	66.17	62.26	59.61	55.6	53.2
19	27-Apr-04	10:00:00	00:00.0	62.99	86.68	52.11	98.56	101.01	106.71	71.15	64.39	61.69	59.62	56.02	53.57
20	27-Apr-04	11:00:00	00:00.0	62.15	88.45	50.07	97.72	97.78	106.22	72.81	63.16	60.86	58.71	55.28	52.69
21	27-Apr-04	12:00:00	00:00.0	61.94	80.47	50.63	97.51	94.05	102.4	71.82	63.97	61.54	59.38	55.83	52.63
22	27-Apr-04	13:00:00	00:00.0	65.7	90.88	53.6	101.28	106.16	107.6	76.47	66.78	63.83	61.3	58.19	55.74
23	27-Apr-04	14:00:00	00:00.0	62.77	86.34	54.99	98.35	92.34	101.14	71.46	65.05	62.75	60.64	57.69	56.15
24	27-Apr-04	15:00:00	00:00.0	63.25	81.18	55.42	98.83	93.76	100.68	70.9	66.11	63.4	61.43	58.74	57.16
25	27-Apr-04	16:00:00	00:00.0	61.58	78.32	51.68	97.16	92.04	102.4	69.84	63.94	61.54	59.71	56.38	53.75
26	27-Apr-04	17:00:00	00:00.0	63.58	86.11	51.53	99.16	98.43	103.15	71.27	65.33	63.14	61.43	58.54	55.7
27	27-Apr-04	18:00:00	00:00.0	62.77	81.57	53.93	98.35	92.78	103.84	70.63	64.97	62.7	60.92	58.02	55.98
28	27-Apr-04	19:00:00	00:00.0	63.54	82.6	53.41	99.11	87.7	100.19	70.58	65.49	63.69	62.36	60.11	56.57
29	27-Apr-04	20:00:00	00:00.0	63.42	80.7	53.82	99	90.57	103.84	71.2	65.32	63.56	62.18	59	56.28
30	27-Apr-04	21:00:00	00:00.0	62.48	82.2	54.46	98.06	96.11	103.15	70.9	63.68	62.14	60.93	58.38	56.18
31	27-Apr-04	22:00:00	00:00.0	58.35	79.3	43.55	93.93	91.57	100.19	66.4	61.34	58.87	56.37	51.32	46.85
32	27-Apr-04	23:00:00	00:00.0	55.3	75.04	41.79	90.88	88.32	98.46	64	58.74	55.91	52.15	46.03	43.24
33	28-Apr-04	0:00:00	00:00.0	53.58	70.79	39.27	89.16	85.3	97.14	62.72	57.49	54.15	49.96	43.75	41.22
34	28-Apr-04	1:00:00	00:00.0	51.11	69.75	38.61	86.68	83.28	93.61	61.11	54.9	50.58	46.23	41.87	39.87
35	28-Apr-04	2:00:00	00:00.0	48.94	69.74	37.86	84.51	80.34	93.61	59.4	51.96	46.56	43.09	39.62	38.35
36	28-Apr-04	3:00:00	00:00.0	48.14	67.61	37.59	83.72	78.76	93.61	58.69	51.53	46.09	42.63	39.25	38.15
37	28-Apr-04	4:00:00	00:00.0	54.21	76.09	38.33	89.79	88.2	97.82	62.23	58.81	54.79	45.21	40.53	39.2
38	28-Apr-04	5:00:00	00:00.0	61.15	73.93	53.43	96.72	88.36	99.63	68.75	63.94	61.3	59.4	57.04	55.25
39	28-Apr-04	6:00:00	00:00.0	61.92	77.79	53.8	97.49	89.73	103.84	69.37	64.47	62.35	60.44	57.12	54.68
40	28-Apr-04	7:00:00	00:00.0	59.63	80.95	47.68	95.21	93.5	102	67.86	61.82	59.68	57.67	53.32	50.42
41	28-Apr-04	8:00:00	00:00.0	62.36	76.9	51.4	97.93	91.71	99.04	70.62	64.95	62.55	60.76	57.56	54.25
42	28-Apr-04	9:00:00	00:00.0	62.04	81.19	48.63	97.62	93.71	99.04	71.25	64.51	61.48	59.04	54.72	51.42
43	28-Apr-04	10:00:00	00:00.0	62.55	80.98	48.73	98.13	97.24	100.19	73.15	65.44	61.33	59.15	54.31	50.7
44	28-Apr-04	11:00:00	00:00.0	63.25	87.88	49.69	98.83	99	99.63	73.89	64.23	61.4	59.14	55.16	51.96
45	28-Apr-04	12:00:00	00:00.0	60.11	80.76	49.39	95.68	92.7	104.47	69.75	62.46	59.91	57.58	53.75	51.36
46	28-Apr-04	13:00:00	00:00.0	62.11	79.55	53.14	97.69	91.39	104.17	69.97	64.87	62.11	60.05	57.26	55.16
47	28-Apr-04	14:00:00	00:00.0	62.47	78.83	52.82	98.04	91.32	104.47	71.18	65.02	62.68	60.56	57.18	55
48	28-Apr-04	15:00:00	00:00.0	63.41	81.84	54.32	98.99	97.32	104.17	71.47	65.84	63.35	61.37	58.56	56.41
49	28-Apr-04	16:00:00	40:48.0	62.63	92.29	51.06	96.54	104.41	107.15	71.24	64.54	62.14	59.94	56.34	53.29

Receptor ID						
R1 - North of Project Site across Sunset Avenue						
R2 - East of Project Site across Main Street						
R3 - South of Project Site across Thornton Place						
R4 - West of Project Site across Pacific Avenue						
R5 - South of Project Site along Royal Court						
		Noise Level at Receptor Location (L_{eq})				
		R1	**R2**	**R3**	**R4**	**R5**
Ambient Leq (without construction activity):		63 dBA	71 dBA	62 dBA	71 dBA	57 dBA
Distance to Construction Activity Centroid:		100 ft	100 ft	100 ft	100 ft	250 ft
Distance Attenuation Adjustment: [a]		-6 dBA	-6 dBA	-6 dBA	-6 dBA	-14 dBA
Barrier Insertion Loss: [b]		0 dBA	0 dBA	0 dBA	0 dBA	-10 dBA
Construction Stage (With Mufflers) [c]	**Reference Noise Level at 50 Feet (L_{eq})**	**Distance Attenuation and Barrier Insertion Loss Adjusted Construction Noise Level by Phase**				
Ground Clearing	82 dBA	76 dBA	76 dBA	76 dBA	76 dBA	58 dBA
Grading/Excavation	86 dBA	80 dBA	80 dBA	80 dBA	80 dBA	62 dBA
Foundations	77 dBA	71 dBA	71 dBA	71 dBA	71 dBA	53 dBA
Structural	83 dBA	77 dBA	77 dBA	77 dBA	77 dBA	59 dBA
Finishing	86 dBA	80 dBA	80 dBA	80 dBA	80 dBA	62 dBA
Construction Stage (With Mufflers) [c]		**Composite Noise Level (Construction Noise + Ambient Noise)**				
Ground Clearing		76 dBA	77 dBA	76 dBA	77 dBA	61 dBA
Grading/Excavation		80 dBA	80 dBA	80 dBA	80 dBA	63 dBA
Foundations		72 dBA	74 dBA	71 dBA	74 dBA	58 dBA
Structural		77 dBA	78 dBA	77 dBA	78 dBA	61 dBA
Finishing		80 dBA	80 dBA	80 dBA	80 dBA	63 dBA
Construction Stage (With Mufflers) [c]		**Noise Level Increase by Phase**				
Ground Clearing		13.2 dBA	6.2 dBA	14.1 dBA	6.2 dBA	3.6 dBA
Grading/Excavation		17.1 dBA	9.5 dBA	18.0 dBA	9.5 dBA	6.2 dBA
Foundations		8.6 dBA	3.0 dBA	9.5 dBA	3.0 dBA	1.5 dBA
Structural		14.1 dBA	7.0 dBA	15.1 dBA	7.0 dBA	4.1 dBA
Finishing		17.1 dBA	9.5 dBA	18.0 dBA	9.5 dBA	6.2 dBA

Notes:

[a] Calculation based on standard point-source sound attenuation formula over hard surface propagation path (i.e., 6-dB per doubling of distance).

[b] When applied, assumes that sound barrier fully penetrates the line-of-sight between noise source and receptor location.

[c] EPA, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.

Existing

Roadway/Segment	Traffic Volumes AM	Traffic Volumes PM	Leq ROW	Leq 50 Feet	Leq 100 Feet	CNEL ROW	CNEL 50 Feet	CNEL 100 Feet
Sunset Ave, Between Main St and Pacific Ave	39	31	59.7	54.3	52.0	58.9	53.6	51.2
Main St, between Sunset Ave and Thornton Pl	1221	1577	69.6	65.6	63.5	68.8	64.8	62.8
Main St, between Thornton Pl and Abbot Kinney Blvd	1206	1850	70.3	66.3	64.2	69.5	65.5	63.5
Abbot Kinney Blvd, between Main St and Venice Blvd	996	811	68.7	64.0	61.8	68.0	63.3	61.1
Pacific Ave, between Sunset Ave and Windward Ave	1429	1774	71.7	66.7	64.4	71.0	65.9	63.6

Future No Project

Roadway/Segment	Traffic Volumes AM	Traffic Volumes PM	Leq ROW	Leq 50 Feet	Leq 100 Feet	CNEL ROW	CNEL 50 Feet	CNEL 100 Feet
Sunset Ave, Between Main St and Pacific Ave	40	33	59.7	54.3	52.0	58.9	53.6	51.2
Main St, between Sunset Ave and Thornton Pl	1330	1723	70.0	66.0	63.9	69.2	65.2	63.2
Main St, between Thornton Pl and Abbot Kinney Blvd	1301	1996	70.6	66.6	64.5	69.8	65.8	63.8
Abbot Kinney Blvd, between Main St and Venice Blvd	1057	876	68.9	64.2	62.0	68.2	63.5	61.3
Pacific Ave, between Sunset Ave and Windward Ave	1516	1880	71.9	66.9	64.6	71.2	66.1	63.8

Future With Project

Roadway/Segment	Traffic Volumes AM	Traffic Volumes PM	Leq ROW	Leq 50 Feet	Leq 100 Feet	CNEL ROW	CNEL 50 Feet	CNEL 100 Feet
Sunset Ave, Between Main St and Pacific Ave	59	95	59.7	54.3	52.0	58.9	53.6	51.2
Main St, between Sunset Ave and Thornton Pl	1411	1814	70.2	66.2	64.1	69.4	65.4	63.4
Main St, between Thornton Pl and Abbot Kinney Blvd	1368	2081	70.8	66.8	64.7	70.0	66.0	64.0
Abbot Kinney Blvd, between Main St and Venice Blvd	1103	936	69.1	64.4	62.2	68.4	63.7	61.5
Pacific Ave, between Sunset Ave and Windward Ave	1542	1922	72.0	67.0	64.7	71.3	66.2	63.9

CNEL

Summary Roadway/Segment	50 ft. from ROW Project Increment	50 ft. from ROW Cumulative Increment	At ROW Project Increment	At ROW Cumulative Increment
Sunset Ave, Between Main St and Pacific Ave	0.0	0.0	0.0	0.0
Main St, between Sunset Ave and Thornton Pl	0.2	0.6	0.2	0.6
Main St, between Thornton Pl and Abbot Kinney Blvd	0.2	0.5	0.2	0.5
Abbot Kinney Blvd, between Main St and Venice Blvd	0.2	0.4	0.2	0.4
Pacific Ave, between Sunset Ave and Windward Ave	0.1	0.3	0.1	0.3

	Exisiting	Future NP	Future WP	Project Increment	Cumulative Increment
Sunset Ave, Between Main St and Pacific Ave	53.6	53.6	53.6	0.0	0.0
Main St, between Sunset Ave and Thornton Pl	64.8	65.2	65.4	0.2	0.6
Main St, between Thornton Pl and Abbot Kinney Blvd	65.5	65.8	66.0	0.2	0.5
Abbot Kinney Blvd, between Main St and Venice Blvd	63.3	63.5	63.7	0.2	0.4
Pacific Ave, between Sunset Ave and Windward Ave	65.9	66.1	66.2	0.1	0.3

Existing								
	Traffic Volumes		Leq			CNEL		
Roadway/Segment	AM	PM	ROW	50 Feet	100 Feet	ROW	50 Feet	100 Feet
Pacific Ave, between Windward Ave and Venice Blvd (North)	812	1121	69.2	64.5	62.3	68.5	63.8	61.6
Venice Blvd (North), between Abbot Kinney Blvd and Pacific Ave	187	311	63.6	58.9	56.7	62.9	58.2	56.0
Venice Blvd (South) between Abbot Kinney Blvd and Pacific Ave	246	400	64.7	60.0	57.8	64.0	59.3	57.1
Pacific Ave, between Rose Ave and Sunset Ave	1778	2305	72.8	67.8	65.5	72.1	67.0	64.7
Future No Project								
	Traffic Volumes		Leq			CNEL		
Roadway/Segment	AM	PM	ROW	50 Feet	100 Feet	ROW	50 Feet	100 Feet
Pacific Ave, between Windward Ave and Venice Blvd (North)	874	1187	69.4	64.7	62.5	68.7	64.0	61.8
Venice Blvd (North), between Abbot Kinney Blvd and Pacific Ave	203	336	64.0	59.3	57.1	63.3	58.6	56.4
Venice Blvd (South) between Abbot Kinney Blvd and Pacific Ave	266	434	65.1	60.4	58.2	64.4	59.7	57.5
Pacific Ave, between Rose Ave and Sunset Ave	1903	2434	73.1	68.1	65.8	72.4	67.3	65.0
Future With Project								
	Traffic Volumes		Leq			CNEL		
Roadway/Segment	AM	PM	ROW	50 Feet	100 Feet	ROW	50 Feet	100 Feet
Pacific Ave, between Windward Ave and Venice Blvd (North)	884	1210	69.5	64.8	62.6	68.8	64.1	61.9
Venice Blvd (North), between Abbot Kinney Blvd and Pacific Ave	203	336	64.0	59.3	57.1	63.3	58.6	56.4
Venice Blvd (South) between Abbot Kinney Blvd and Pacific Ave	266	434	65.1	60.4	58.2	64.4	59.7	57.5
Pacific Ave, between Rose Ave and Sunset Ave	1916	2480	73.1	68.1	65.8	72.4	67.3	65.0

	CNEL			
Summary	50 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Pacific Ave, between Windward Ave and Venice Blvd (North)	0.1	0.3	0.1	0.3
Venice Blvd (North), between Abbot Kinney Blvd and Pacific Ave	0.0	0.4	0.0	0.4
Venice Blvd (South) between Abbot Kinney Blvd and Pacific Ave	0.0	0.4	0.0	0.4
Pacific Ave, between Rose Ave and Sunset Ave	0.0	0.3	0.0	0.3

	Exisiting	Future NP	Future WP	Project Increment	Cumulative Increment
Pacific Ave, between Windward Ave and Venice Blvd (North)	63.8	64.0	64.1	0.1	0.3
Venice Blvd (North), between Abbot Kinney Blvd and Pacific Ave	58.2	58.6	58.6	0.0	0.4
Venice Blvd (South) between Abbot Kinney Blvd and Pacific Ave	59.3	59.7	59.7	0.0	0.4
Pacific Ave, between Rose Ave and Sunset Ave	67.0	67.3	67.3	0.0	0.3

Existing								
	Traffic Volumes		Leq			CNEL		
Roadway/Segment	AM	PM	ROW	50 Feet	100 Feet	ROW	50 Feet	100 Feet
Main St, between Ocean Park Blvd and Rose Ave	1324	1544	69.5	65.5	63.4	68.7	64.7	62.7
Main St, between Rose Ave and Sunset Ave	1336	1564	69.5	65.5	63.4	68.7	64.7	62.7
Nielson Wy/Pacific Ave, between Ocean Park Blvd and Rose Ave	1951	2410	73.0	68.0	65.7	72.3	67.2	64.9
Rose Ave, between Main St and Lincoln Blvd	649	756	67.5	62.8	60.6	66.8	62.1	59.9
Future No Project								
	Traffic Volumes		Leq			CNEL		
Roadway/Segment	AM	PM	ROW	50 Feet	100 Feet	ROW	50 Feet	100 Feet
Main St, between Ocean Park Blvd and Rose Ave	1458	1720	70.0	66.0	63.9	69.2	65.2	63.2
Main St, between Rose Ave and Sunset Ave	1457	1726	70.0	66.0	63.9	69.2	65.2	63.2
Nielson Wy/Pacific Ave, between Ocean Park Blvd and Rose Ave	2084	2564	73.3	68.3	66.0	72.6	67.5	65.2
Rose Ave, between Main St and Lincoln Blvd	699	823	67.9	63.2	61.0	67.2	62.5	60.3
Future With Project								
	Traffic Volumes		Leq			CNEL		
Roadway/Segment	AM	PM	ROW	50 Feet	100 Feet	ROW	50 Feet	100 Feet
Main St, between Ocean Park Blvd and Rose Ave	1491	1772	70.1	66.1	64.0	69.3	65.3	63.3
Main St, between Rose Ave and Sunset Ave	1508	1806	70.2	66.2	64.1	69.4	65.4	63.4
Nielson Wy/Pacific Ave, between Ocean Park Blvd and Rose Ave	2118	2623	73.4	68.4	66.1	72.7	67.6	65.3
Rose Ave, between Main St and Lincoln Blvd	726	866	68.1	63.4	61.2	67.4	62.7	60.5

	CNEL			
Summary	50 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Main St, between Ocean Park Blvd and Rose Ave	0.1	0.6	0.1	0.6
Main St, between Rose Ave and Sunset Ave	0.2	0.7	0.2	0.7
Nielson Wy/Pacific Ave, between Ocean Park Blvd and Rose Ave	0.1	0.4	0.1	0.4
Rose Ave, between Main St and Lincoln Blvd	0.2	0.6	0.2	0.6

	Exisiting	Future NP	Future WP	Project Increment	Cumulative Increment
Main St, between Ocean Park Blvd and Rose Ave	64.7	65.2	65.3	0.1	0.6
Main St, between Rose Ave and Sunset Ave	64.7	65.2	65.4	0.2	0.7
Nielson Wy/Pacific Ave, between Ocean Park Blvd and Rose Ave	67.2	67.5	67.6	0.1	0.4
Rose Ave, between Main St and Lincoln Blvd	62.1	62.5	62.7	0.2	0.6

Appendix F – Transportation:

West Los Angeles Transportation Facility

F1 – Traffic Impact Analysis for a Proposed
Bus Maintenance Facility,
Overland Traffic Consultants, Inc.,
August 2003,
Revised July 2004.

Sunset Avenue Project

F2 – Traffic Impact Analysis for a Mixed-Use Residential
& Commercial Development,
Overland Traffic Consultants, Inc.,
July 2004.

West Los Angeles Transportation Facility

F1 – Traffic Impact Analysis for a Proposed Bus Maintenance Facility, Overland Traffic Consultants, Inc., August 2003, Revised July 2004.

Overland Traffic Consultants, Inc.

TRAFFIC IMPACT ANALYSIS FOR A PROPOSED BUS MAINTENANCE FACILITY

Located on Jefferson Boulevard South of National Boulevard in the City of Los Angeles

Prepared for:
RAD Jefferson, LLC

Prepared by:
Overland Traffic Consultants, Inc.
25876 The Old Road #307
Santa Clarita, California 91381
(661) 799-8423

August 2003
Revised July 2004

TRAFFIC IMPACT ANALYSIS FOR A PROPOSED BUS MAINTENANCE FACILITY

Located on Jefferson Boulevard South of National Boulevard
In the City of Los Angeles

Prepared for:

RAD Jefferson LLC
615 Hampton Drive, Suite A108
Venice, CA 90291

Prepared by:

Overland Traffic Consultants, Inc.
25876 The Old Road # 307
Santa Clarita, California 91381
(661) 799 – 8423

July 2004

EXECUTIVE SUMMARY

The project under consideration is the construction of a bus maintenance facility to service approximately 175 buses. The project site is situated on a vacant industrial parcel of approximately 4.65 acres along the east side of Jefferson Boulevard south of National Boulevard in the City of Los Angeles, as shown in the following photograph.

This new facility will replace the existing Division 6 bus maintenance facility located in the Venice community at Main Street and Sunset Avenue which will be redeveloped with a mixed – use project. A separate traffic study has been prepared for the Venice mixed-use project because that site is located approximately 6 miles west of the proposed Jefferson maintenance facility. The potential traffic impacts created by each project have been identified separately in each study area, which do not overlap.

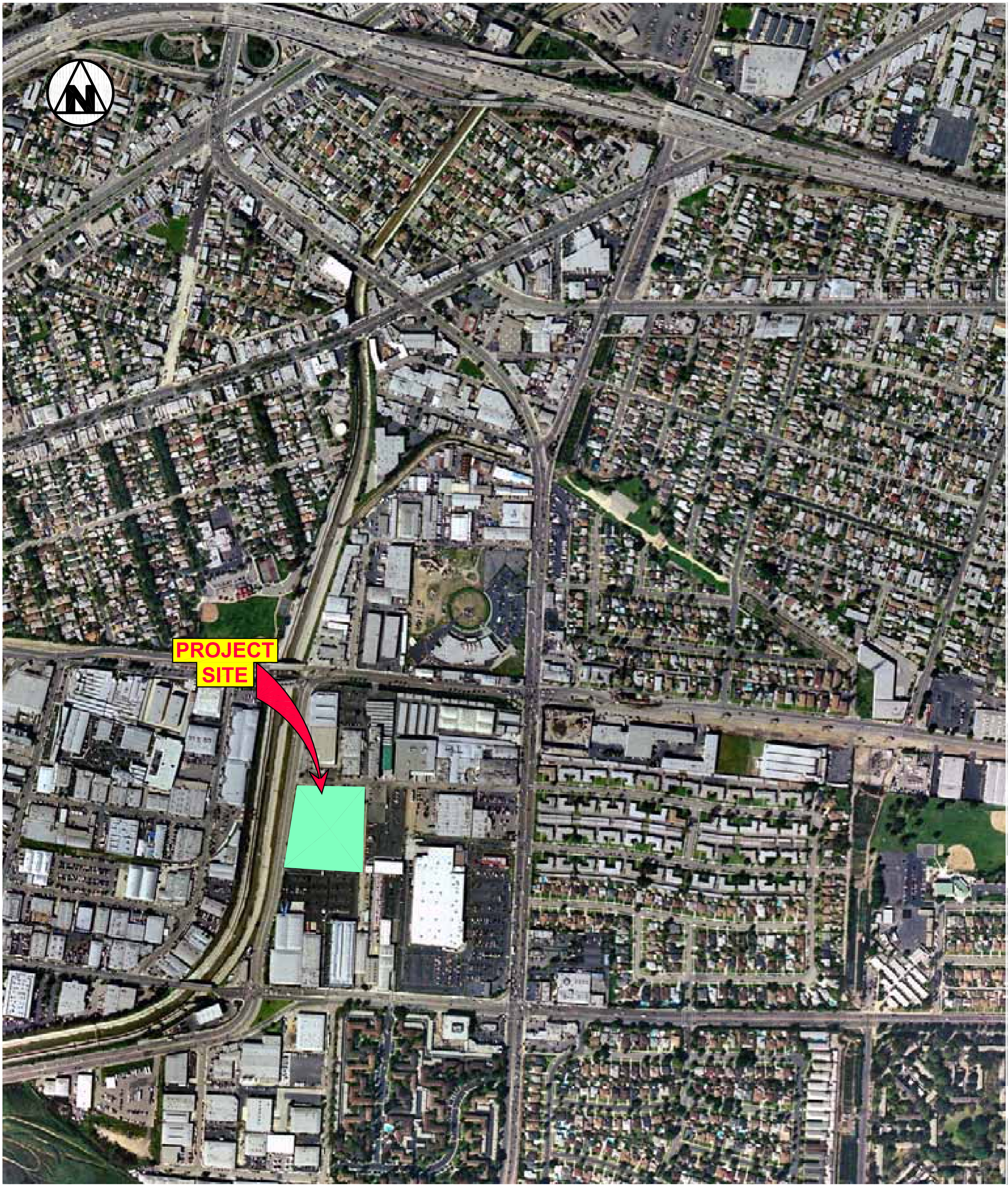
The focus of this traffic study is to evaluate the potential traffic impact created by the maintenance center during the peak traffic hours on the adjacent streets and nearby intersections. Based on traffic surveys of similar facilities, it has been determined that the bus maintenance facility generates its peak traffic flows earlier and later that the peak hours of traffic on the adjacent streets. Therefore, the proposed bus maintenance facility will not significantly impact the peak traffic flow during the peak hours.

It is estimated that the project would generate 1,247 daily trips with 79 and 67 trips occurring during the morning and afternoon commute hours, respectively. To account for the effect of large vehicles on the nearby intersections and adjacent streets, the bus traffic volume has been increased by applying a passenger car equivalency (PCE) factor of 2. Using the adjusted traffic volume to account for bus traffic, the traffic impacts have been evaluated based on a trip generation of 1,666 daily trips with 107 and 103 morning and afternoon peak hour trips, respectively.

A potential bus routing impact has been identified, however, at the intersection of Jefferson Boulevard and La Cienega Boulevard due to the physical roadway constraints at this intersection. Inbound buses traveling southbound on La Cienega Boulevard will have a difficult right - turn to westbound Jefferson Boulevard. It appears that the travel path of the southbound bus will need to encroach into the adjacent through lane to negotiate this southbound right - turn.

Test runs have been made by the MTA and it has been determined that the bus can negotiate the turn but it is a tight turn. The tight right - turn can be mitigated by the implementation of intersection modifications such as street widening and restriping of the intersection. This street widening is within the Exposition right-of-way and should be coordinated with the design of the Exposition LRT project to avoid potential design issues between the aerial column placement and widening of Jefferson Boulevard.

In addition to the potential busing routing impacts, traffic generated by the proposed project will add to the eastbound vehicle queue turning left from Jefferson Boulevard to northbound La Cienega Boulevard. Due to the large volume of vehicles currently turning left from Jefferson Boulevard to La Cienega Boulevard, the left-turn vehicle queue may at times exceed the left-turn storage capacity provided at the intersection, which is approximately 600 feet of storage. However, the eastbound left-turn storage area can be increased as part of the Jefferson Boulevard intersection modifications discussed above that would accommodate the added project traffic. The proposed street widening on Jefferson Boulevard would allow for the implementation of longer eastbound left-turn lanes that would fully mitigate these potential queuing impacts from the project added traffic.



8/4/2003

PROJECT SETTING

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

TABLE OF CONTENTS

Chapter 1 - Introduction 1

Chapter 2 - Project Description 3

Chapter 3 - Environmental Setting 5

Freeway and Street Characteristics 7

Chapter 4 - Project Traffic 9

Traffic Generation 9

Traffic Assignment 13

Chapter 5 - Traffic Conditions Analysis 18

Existing Peak Hour Traffic Volumes 18

Analysis of Existing Traffic Conditions 18

Analysis of Future Traffic Conditions 22

Impacts on Regional Transportation System 32

Construction Impacts 32

Chapter 6 – Mitigation Measures 36

Appendix A – Community Plan Land Use and Circulation Maps
Appendix B – Exposition Boulevard Rail Project Information
Appendix C – Street Plans & Street Standards
Appendix D – Traffic Generation Data
Appendix E – Traffic Volume Data
Appendix F – Level of Service Worksheets

LIST OF FIGURES

Project Location 2
Project Site Plan 4
Study Intersections Characteristics.......... 6
Employee and Bus Traffic Flow Data 10
Total PCE Adjusted Traffic Flow Data 12
Site Access Route 14
Employee Traffic Volume - Peak Hours 15
Bus (PCE) Traffic Volume - Peak Hours 16
Total Site Traffic Volume - Peak Hours 17
Existing Traffic Volume - AM Peak Hour 19
Existing Traffic Volume - PM Peak Hour 20
Related Project Location Map 25
Future (2006 Traffic Volume (Without Project) – AM Peak Hour 26
Future (2006) Traffic Volume (Without Project) - PM Peak Hour 27
Future (2006) Traffic Volume (With Project) - AM Peak Hour 30
Future (2006) Traffic Volume (With Project) - PM Peak Hour 31
Potential Right – Turn Impact 38
Jefferson Boulevard Street Widening Mitigation 39
Potential Right – Turn Impact (Articulated Bus) 40
Jefferson Boulevard Widening (Articulated Bus) 41

LIST OF TABLES

Non-adjusted Project Trip Generation 11

Adjusted PCE Project Traffic Generation 13

Level of Service Definitions 21

Existing Traffic Conditions Summary... 22

Related Project Listing 23

Estimated Related Project Traffic.. 24

Future Traffic Conditions Without Project... 28

Future Traffic Conditions With Project 29

CHAPTER 1 INTRODUCTION

The applicant, RAD Jefferson LLC plans to develop a bus maintenance facility for the Metropolitan Transportation Authority (MTA) that would support up to 175 buses. The site is located on the east side of Jefferson Boulevard south of National Boulevard in the City of Los Angeles as shown on Figure 1. The City of Culver City is located immediately west of Jefferson Boulevard.

As part of the process for the project's environmental approval, the applicant has contracted with Overland Traffic Consultants Inc. to evaluate the potential traffic impact of the proposed development. A detailed analysis of the project's traffic flow during peak traffic periods has been conducted at the three intersections listed below. These intersections are located on bus/employee routes to and from the project site that are expected to handle the majority of the new project traffic.

- Jefferson Boulevard and National Boulevard
- Jefferson Boulevard and La Cienega Boulevard
- Jefferson Boulevard and Rodeo Road/Higuera Street

The procedures used in this study are consistent with the City of Los Angeles guidelines for preparing and analyzing traffic impacts. Furthermore, the proposed bus routing assignments within the study area associated with the facility have been reviewed and approved by MTA for use in this study.

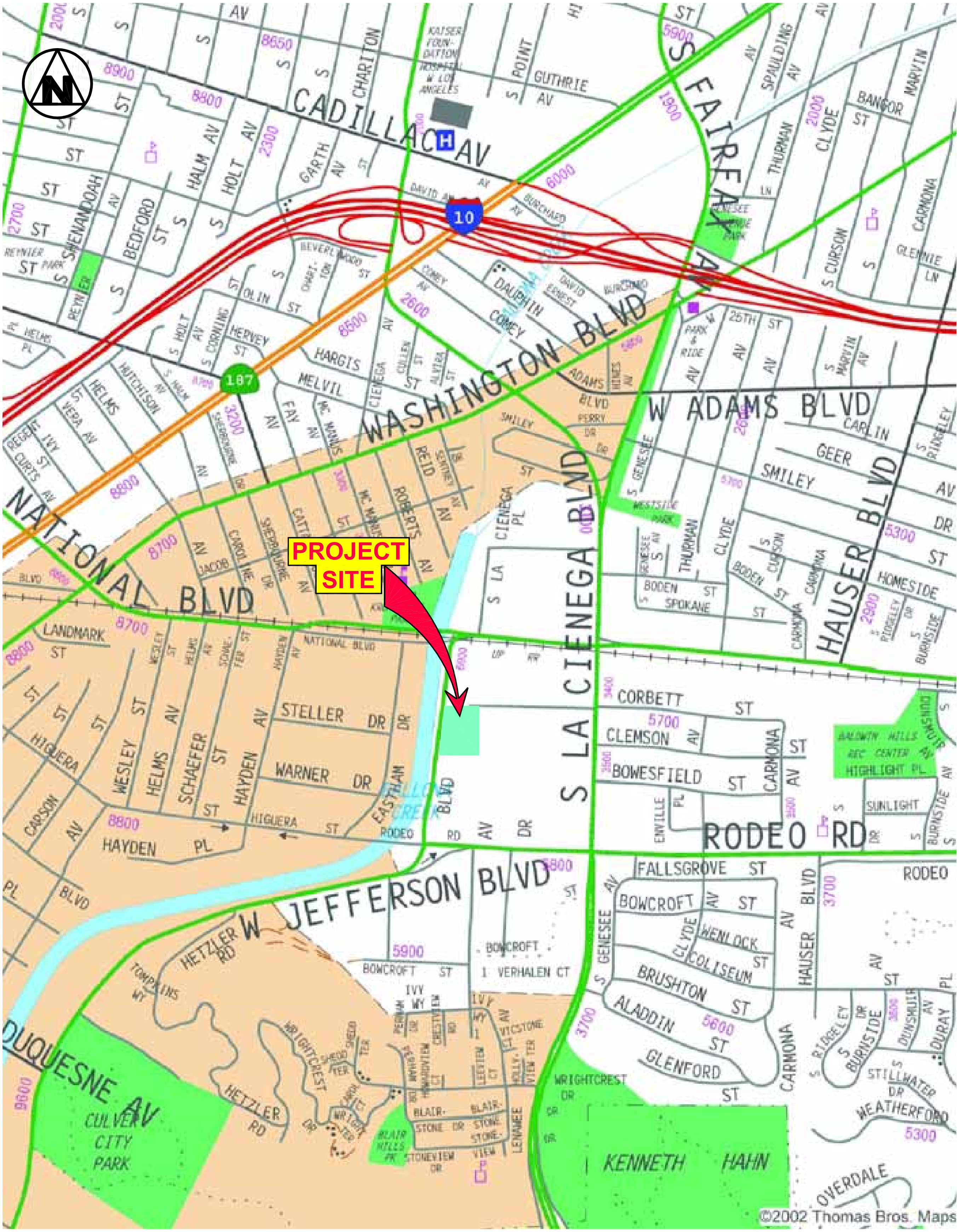


FIGURE 1

8/4/2003

PROJECT SITE LOCATION

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

CHAPTER 2 PROJECT DESCRIPTION

The project being proposed is the construction of a transit maintenance center serving up to 175 buses. The facility will provide an administrative building, a tire shop, a fare retrieval vault house, and a cleaning and maintenance building. The center will operate 7 days per week 24 hours per day with 3 work shifts (early morning, mid-day and night shift). Buses will undergo routine maintenance, refueling and cleaning at the proposed facility.

Vehicular access to the site will be provided by one driveway located on Jefferson Boulevard. An employee (auto) access will be located on the north end of the site providing access to approximately 240 roof top parking spaces. Access to and from the bus parking bays and maintenance facilities is also planned from the northerly driveway. The concept site plan is illustrated in Figure 2.

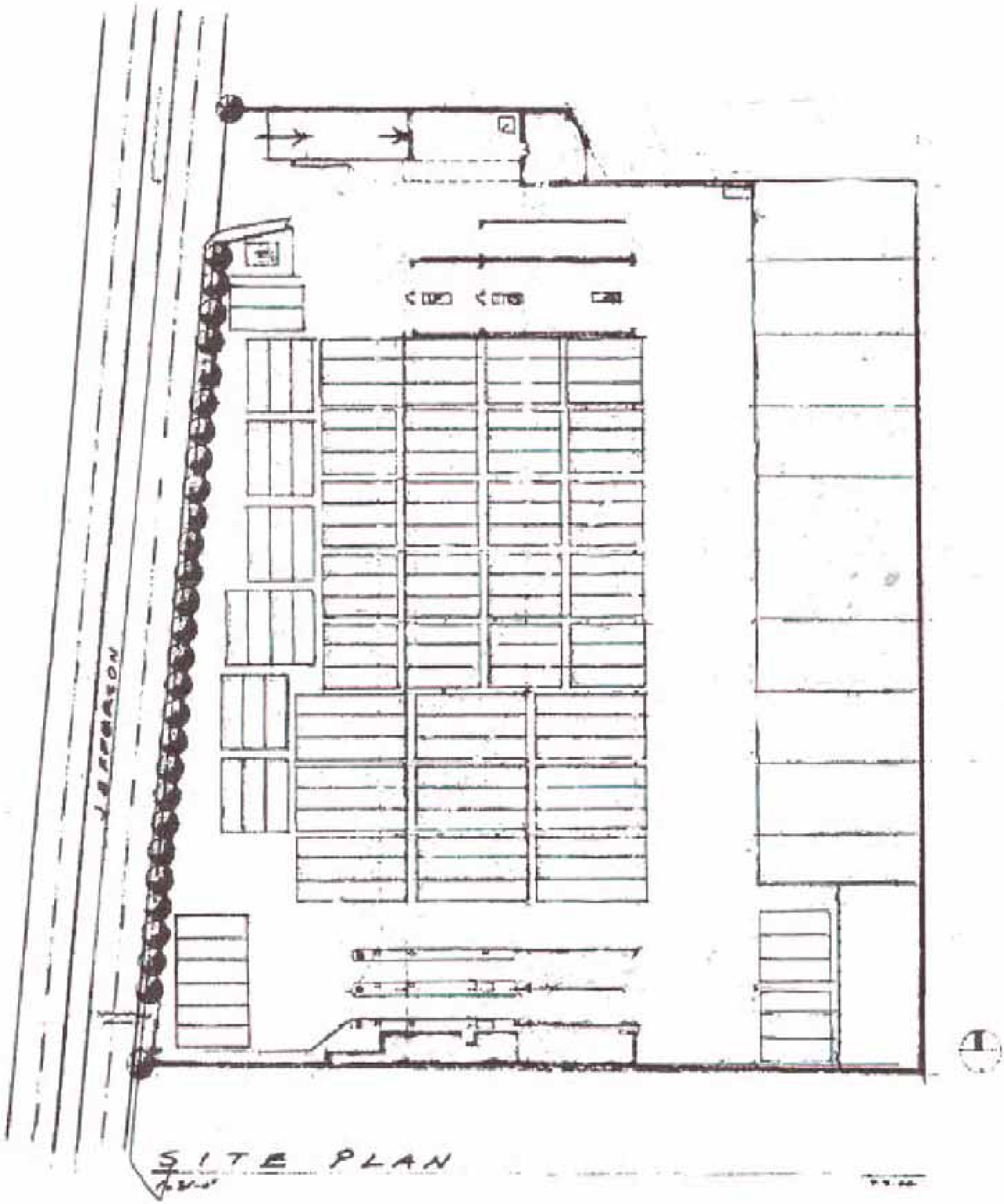


FIGURE 2

7/25/2004

PROJECT SITE LAYOUT

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

CHAPTER 3 ENVIRONMENTAL SETTING

The project is located in the West Adams - Baldwin Hills - Leimert Community Plan area located approximately 7 miles southwest of Downtown Los Angeles. The land uses surrounding the site are industrial. Ballona Creek is located to the west of Jefferson Boulevard. The Community Plan land use map and the Culver City General Plan Land Use Element are included in Appendix A of this report for general reference.

The principal transit lines proposed in this Community are along the Exposition Right-of-Way and the Crenshaw-Prairie Corridor. The Exposition Light Rail Transit project is a proposed 9.6 mile long line extending along the MTA-owned Exposition right-or-way from the existing Metro Rail station at 7^{th}/Metro Center in downtown Los Angeles to Venice/Washington in Culver City. Ground breaking is planned to occur in 2007 with completion to Culver City by year 2012. Seven new stations plus upgrades to three existing station s are planned. Three of the stations on the proposed alignment are within the Plan Area, namely: (1) Exposition/Crenshaw Boulevards; (2) La Brea Avenue/Exposition Boulevard; and (3) La Cienega/Jefferson Boulevards. Additional information on the Exposition project from the Mid-City/Exposition LRT Project Final EIS/EIR is provided in Appendix B.

In addition to collecting traffic volume data, field surveys were conducted to determine the roadway and intersection geometry and traffic signal operations. All study intersections are controlled by traffic signals. Figure 3 illustrates the study locations, type of intersection traffic control and lane configurations. Street plans for the study area roadways and the Los Angeles street standards are provided in Appendix C.

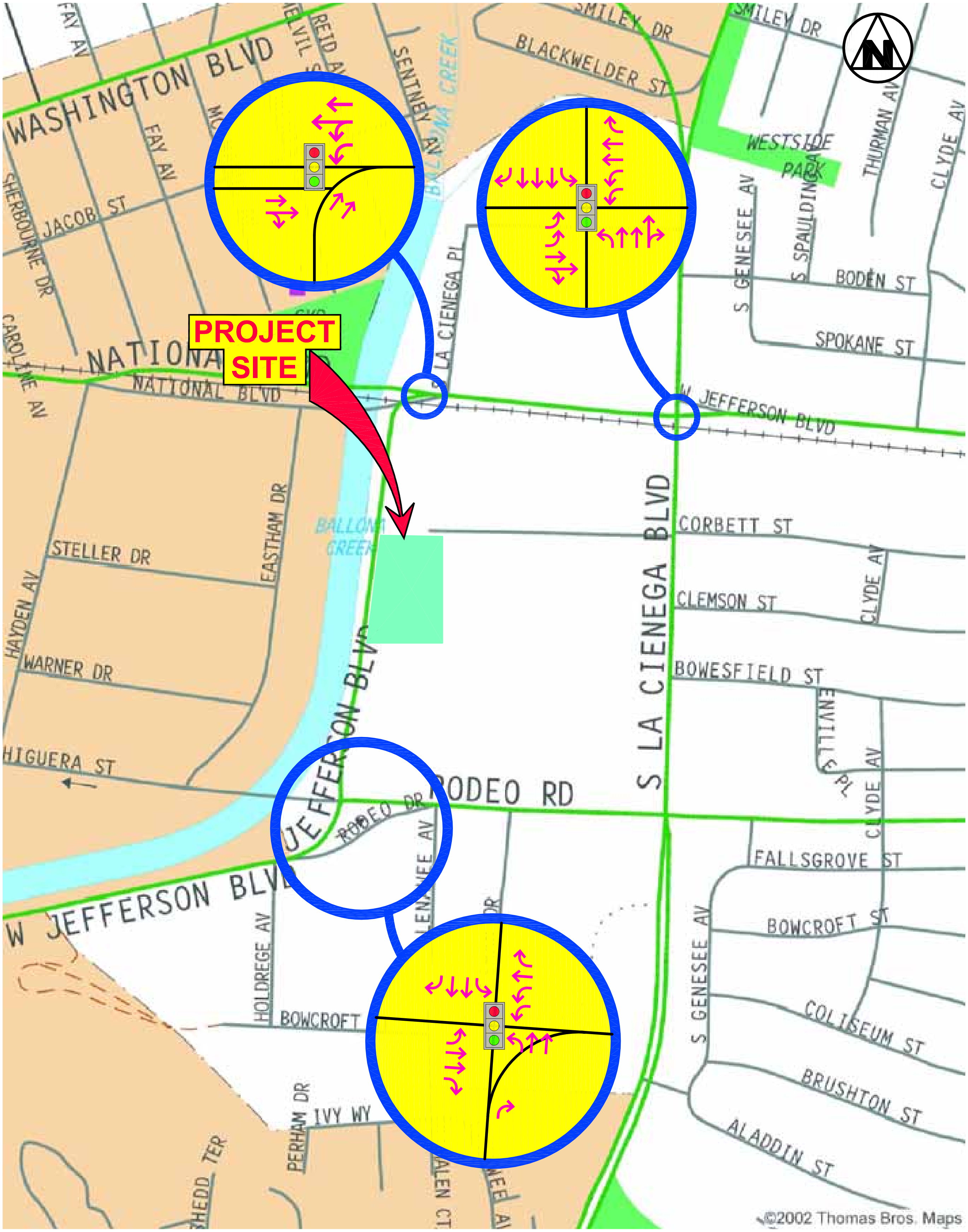


FIGURE 3

8/18/2003

STUDY INTERSECTION CHARACTERISTICS

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

Freeway and Street Characteristics

Santa Monica Freeway (Interstate 10) is located north of the project site. This east -west freeway provides four mixed-flow lanes plus auxiliary lanes between ramp connections in each direction in the vicinity of study area. Freeway access is provided from Washington Boulevard, Fairfax Avenue, Venice Boulevard and La Cienega Boulevard. Average daily traffic volume on the 10 Freeway at La Cienega Boulevard is approximately 280,000 vehicles per day (ADT). Freeway capacities are typically 2,000 vehicles per hour (VPH) per lane under free flow conditions. Using this capacity value, the 10 Interstate provides a theoretical free flow capacity of approximately 16,000 - 20,000 VPH. Current non-directional peak hour traffic volume on the Santa Monica Freeway is 18,000 – 19,000 VPH per Caltrans.

Jefferson Boulevard is a north-south secondary highway providing two lanes in the each direction plus a median left-turn lane adjacent to the project site. The roadway is developed to a 60-foot width curb to curb on 70 feet on right-of-way. On-street parking is not permitted on the west side of Jefferson Boulevard. Daily traffic volume on Jefferson Boulevard south of National Boulevard is approximately 17,500 ADT with directional peak hour flows between 600 – 900 vehicles per hour (vph).

The current designation of Jefferson Boulevard is a Secondary Highway which may require additional highway dedication (8 feet) and street widening (5 feet) to bring it up to its standard. Except where environmental issues and planning practices warrant alternate standards consistent with capacity requirements, street dedications shall be developed in accordance with standards and criteria contained in the Circulation Element of the General Plan and the City's Standard Street Dimensions. It should be noted that the added dedication and street widening would not provide for any additional traffic lanes or roadway capacity on Jefferson Boulevard.

La Cienega Boulevard is a north-south class II major highway. Three lanes in each direction plus left-turn lanes are provided. The roadway carries approximately 67,500 vehicles per day with peak hourly flows of 4,400 – 4,800 VPH. The street is constructed with 80 feet of roadway curb to curb on 100 feet of right-of-way. South of Rodeo Road, the right-of-way on La Cienega Boulevard increases to 120 feet in width to provide for a raised median and dual left-turn lanes. On-street parking is not permitted on La Cienega Boulevard.

Rodeo Road/Higuera Street is an east-west class II major highway between the City limits and Martin Luther King Jr. Boulevard. Three lane in each direction plus left-turn lanes are provided. The street is constructed with 78 feet curb to curb on 100 feet of right-of-way between Jefferson Boulevard and La Cienega Boulevard.

Traffic Generation

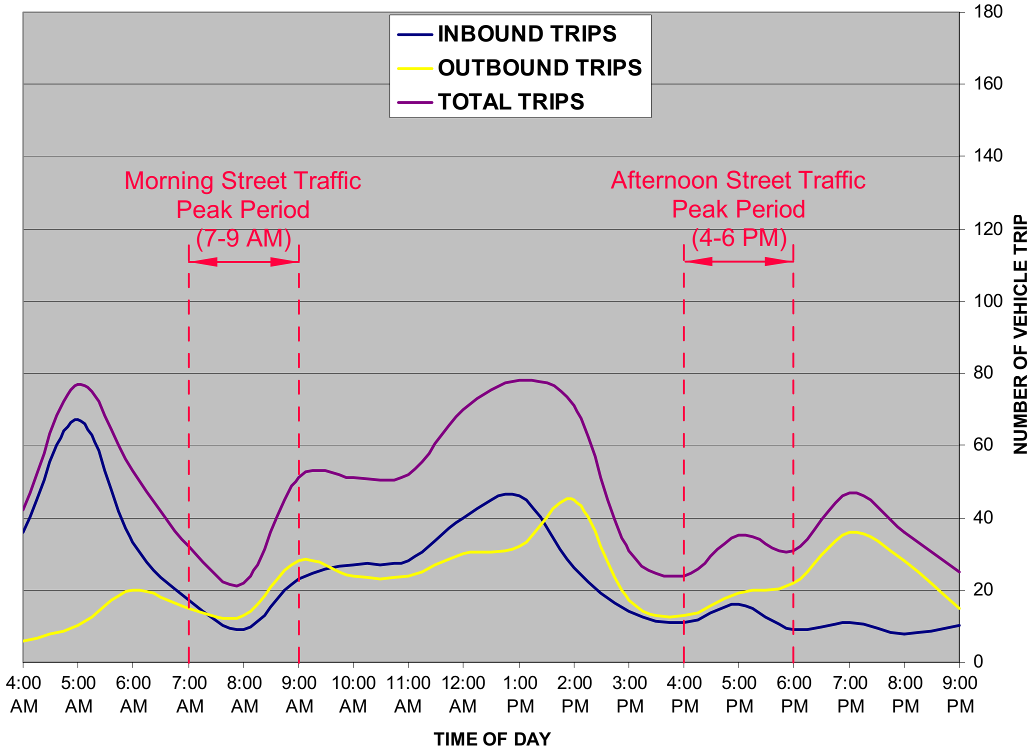
The database normally used to estimate traffic generation of a new land use is the ITE Trip Generation Handbook. Traffic-generating characteristics of the proposed bus maintenance facility, however, have not been surveyed by the Institute of Transportation Engineers (ITE). Therefore, site specific traffic generation studies have been conducted at a similar MTA bus maintenance facility and used as the basis for the traffic estimates of the proposed Jefferson Boulevard facility.

The traffic generation surveys were conducted at the Division 10 bus maintenance facility located at 742 North Mission Road in the City of Los Angeles. Traffic data was collected for three days between the hours of 4 AM and 9 PM. Directional employee trips and bus trips to and from the site were counted to determine the hourly traffic characteristics by trip type. The Division 10 data is presented in Appendix D.

The Division 10 survey data was then adjusted based on the number of buses serviced at the Division 10 facility and that proposed at the Jefferson Boulevard facility (adjustment factor 175/271). Figure 4 shows the estimated hourly trips generated by employees and buses expected at the Jefferson site. As shown in Figure 4, the peak traffic flows generated by the project fall outside the normal morning and afternoon peak traffic periods on the adjacent streets.

Table 1 contains the project traffic volume expected during the morning and afternoon peak hours. It is estimated that the project would generate an average of 1,247 vehicle trips per day with 79 morning trips and 67 afternoon trips at the project driveways.

NON-BUS TRIP GENERATION



BUS TRIP GENERATION

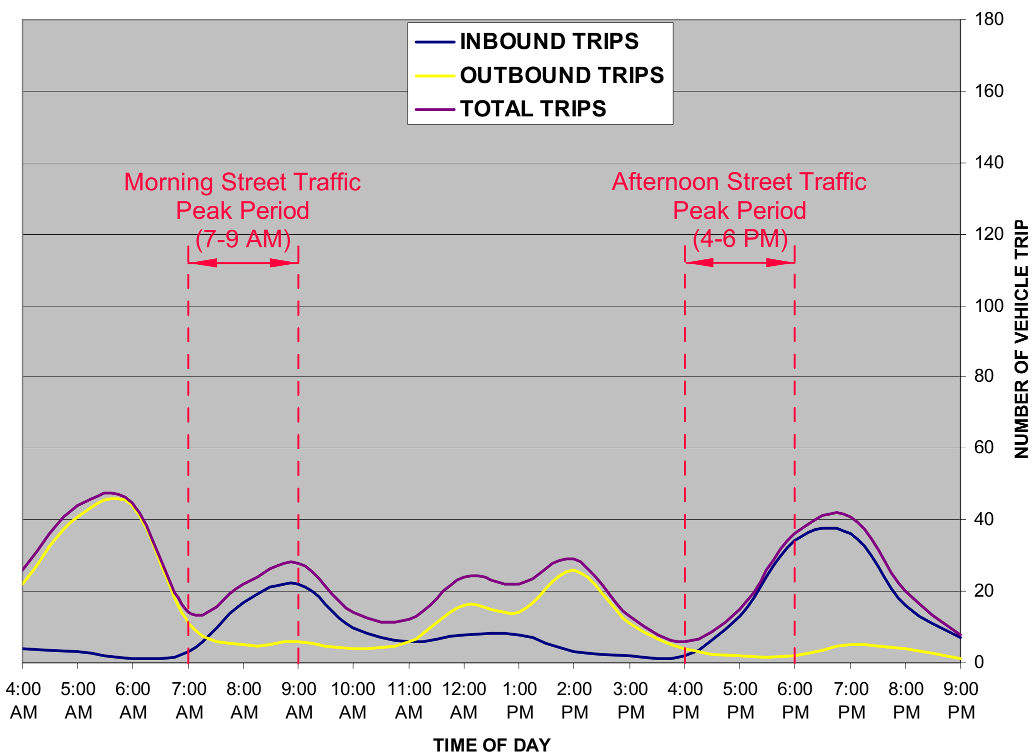


FIGURE 4

4/25/2004

HOURLY TREND LINE OF NON-BUS AND BUS TRAFFIC FLOW

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

Table 1

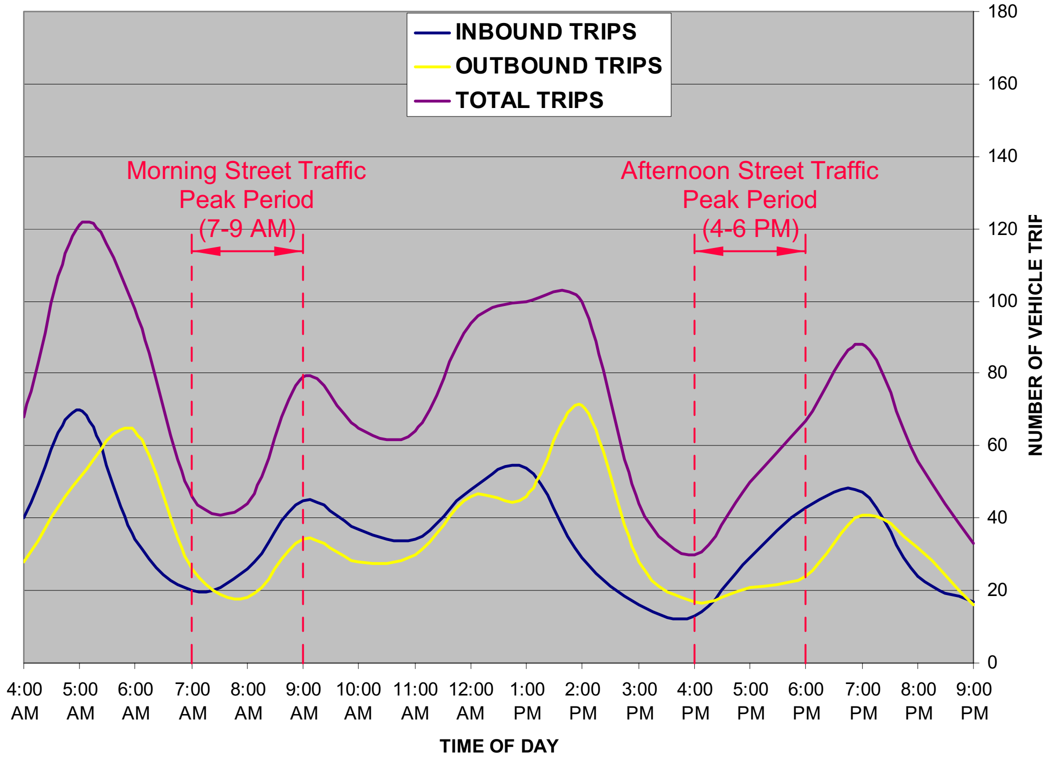
Estimated Project Traffic Generation
Non-adjusted Trips

Trip Type	Daily Traffic	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
Employee Trips	828	51	23	28	31	9	22
Bus Trips	419	28	22	6	36	34	2
Non-adjusted Site Trips	1,247	79	45	34	67	43	24

A main consideration for traffic impacts generated by the bus maintenance facility is the effect of heavy vehicles on the capacity of the streets and intersections. Heavy vehicles are those with more than four tires touching the pavement. Adjustments for heavy vehicles are necessary to account for the additional space occupied by these vehicles and for the difference in operating capabilities compared to passenger cars. To account for these effects, each bus (i.e., heavy vehicle) is converted to an equivalent number of passenger cars (PCE). The recommended average PCE value for converting heavy vehicles is 2.0.

Therefore, the estimated traffic volume generated by buses has been adjusted by the passenger car equivalent value (PCE) for the intersection traffic impact assessment. Figure 5 shows the total estimated hourly trips generated by employees and buses expected at the Jefferson site. Also shown in Figure 5, is the total traffic volume with the bus volume multiplied by the PCE factor of 2. The daily and peak hour PCE traffic flow generated by the project used for the traffic impact analysis is shown in Table 2. The trip generation worksheet for the project is contained in Appendix D.

TOTAL TRIP GENERATION



TOTAL TRIP GENERATION ADJUSTED FOR BUS TRAFFIC

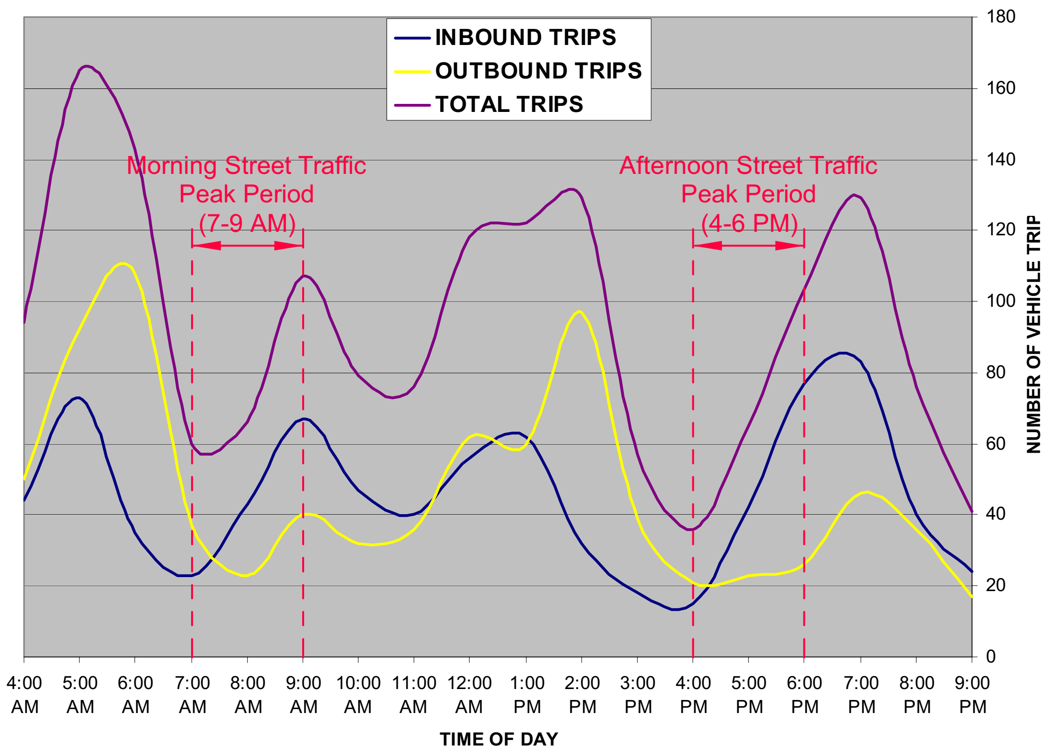


FIGURE 5

4/25/2004

HOURLY TREND LINE OF
TOTAL PROJECT TRAFFIC FLOW
(WITH & WITHOUT PCE ADJUSTMENT)

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

MTA JEFFERSON \ GRAPH-2

Table 2

Estimated Project Traffic Generation
PCE Adjusted Trips

Trip Type	Daily Traffic	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
Employee Trips	828	51	23	28	31	9	22
Bus PCE Trips	838	56	44	12	72	68	4
Adjusted PCE Site Trips	1,666	107	67	40	103	77	26

Traffic Assignment

The proposed route for the bus traffic flow has been provided by the MTA and is illustrated in Figure 6. As shown in Figure 6, vehicles entering the bus maintenance facility from Jefferson Boulevard will use the existing median left-turn lane which provides sufficient stacking area for the estimated project traffic demands into the facility. Buses exiting the site and turning left from Jefferson Boulevard at La Cienega Boulevard will queue in the existing dual left-turn lanes which provided approximately 600 feet of storage. However due to the high peak hour volume turning left from eastbound Jefferson Boulevard to northbound La Cienega Boulevard the left-turn vehicle queue may at times exceed the left-turn storage capacity.

Using the traffic volumes contained in Table 2, trip assignments to the study intersections were developed separately for the employee and bus (PCE) trip types. Figures 7, 8 and 9 illustrate the assignment of the employee trips, the bus PCE trips and the total PCE trips to the study area, respectively**.** This estimated assignment of the project traffic flow provides the necessary level of detail to analyze the potential peak hour traffic impacts generated by the project at the study locations.

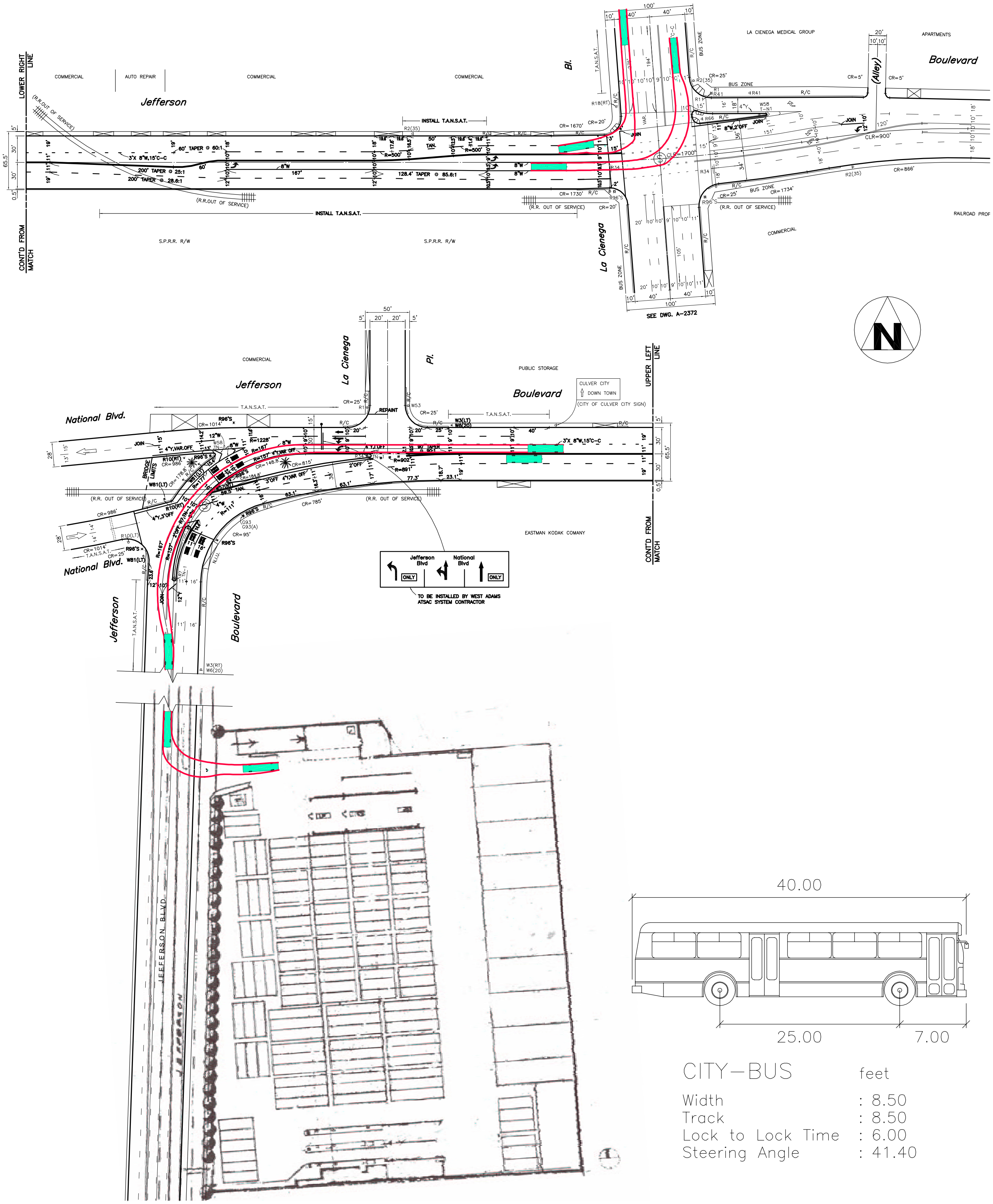


FIGURE 6

7/25/2004

BUS TRAVEL PATHS
TO AND FROM MAINTENANCE CENTER

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

MTA JEFFERSON \ BUS-ACCESS-2 (REVISED-SITE)

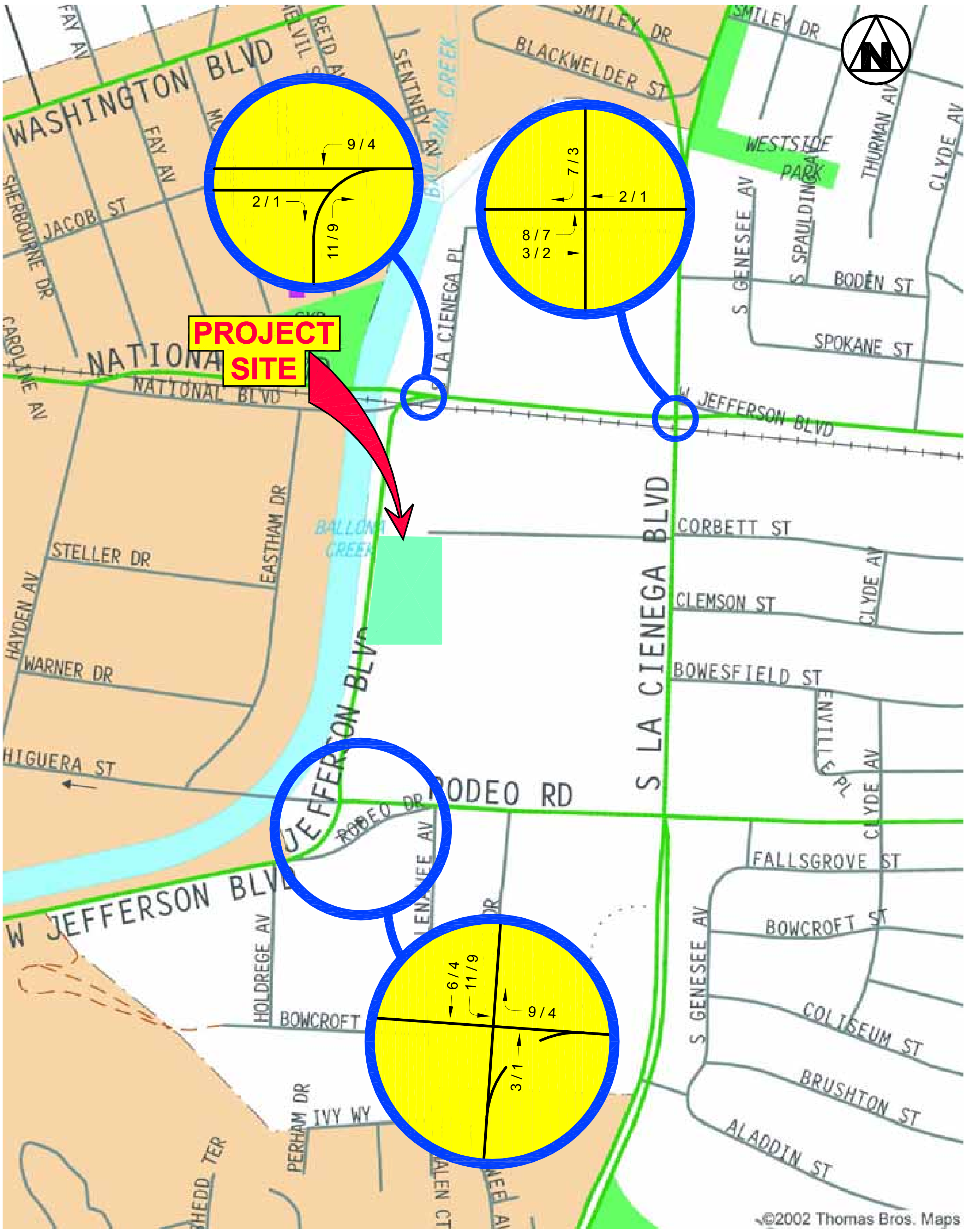


FIGURE 7

4/25/2004

EMPLOYEE TRAFFIC FLOW
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

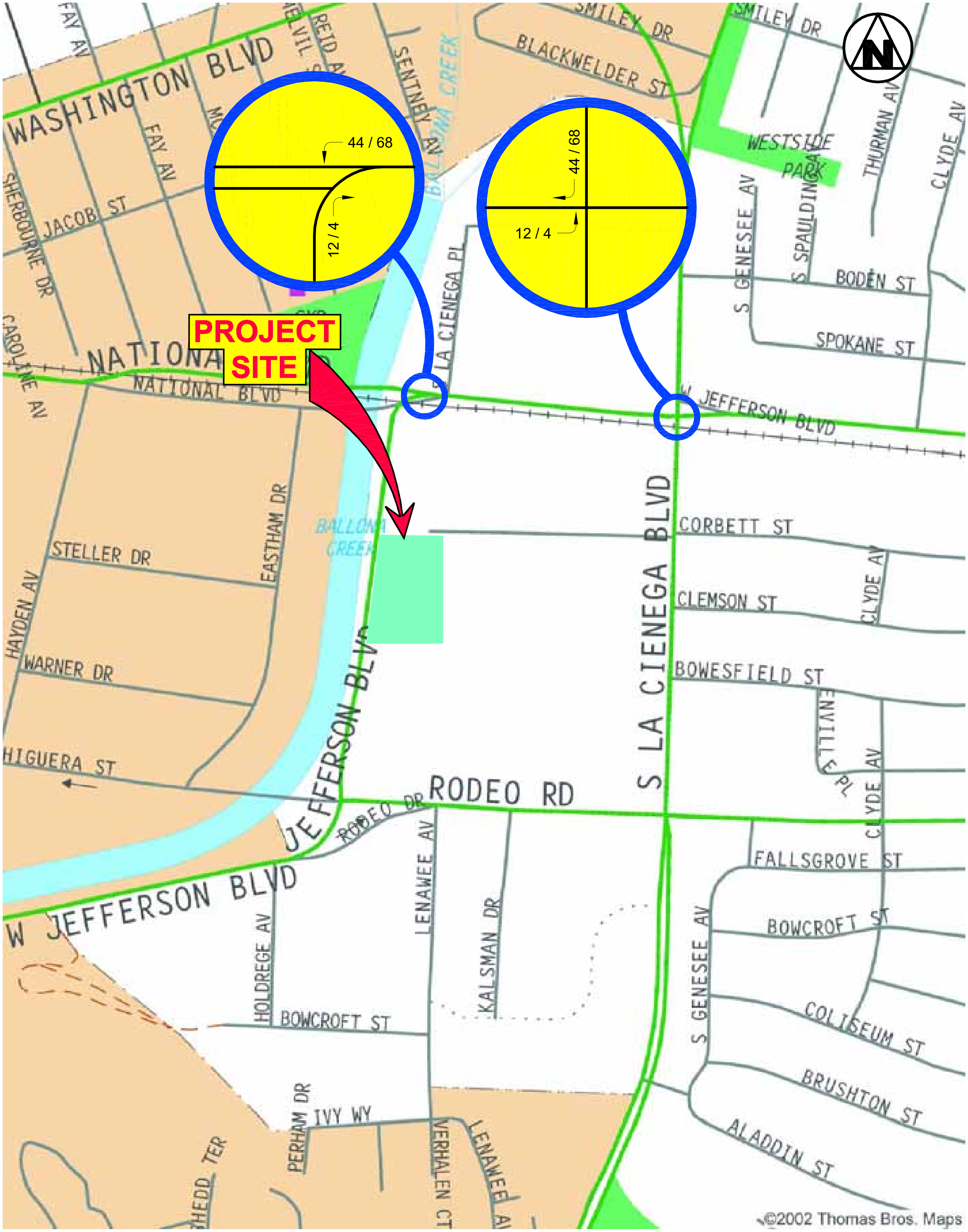


FIGURE 8

4/25/2004

BUS (PCE) TRAFFIC FLOW
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

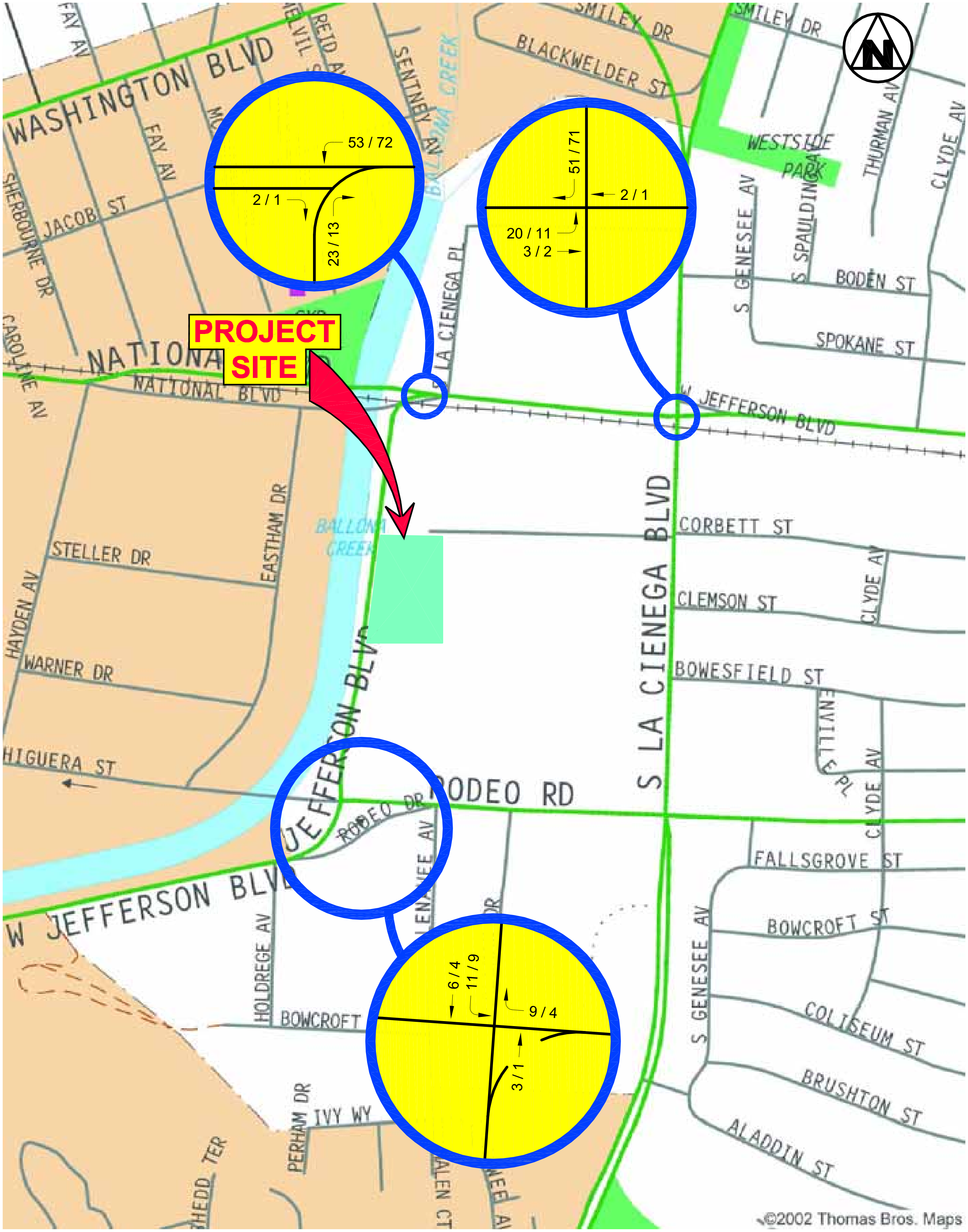


FIGURE 9

4/25/2004

TOTAL PROJECT TRAFFIC FLOW
PCE VOLUMES
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

MTA JEFFERSON \ AMPM-PCE

Existing Peak Hour Traffic Volumes

Traffic volume data used in the following peak hour intersectional analysis were based on traffic counts conducted by The Traffic Solution, an independent traffic data collection company. The AM and PM peak period counts were conducted manually from 7:00 AM to 10:00 AM and 4:00 PM to 7:00 PM in August 2003. All traffic counts were conducted by counting the number of vehicles at each of the 3 study intersections making each movement. The peak hour volume for each intersection was then determined by finding the four highest consecutive 15-minute volumes for all movements.

Existing peak hour traffic volume at each study intersection is illustrated in Figure 10 for the morning rush hour and Figure 11 for the afternoon rush hour. Data collection worksheets for the peak hour and daily counts are contained in Appendix E.

Analysis of Existing Traffic Conditions

The traffic conditions analysis was conducted using the Critical Movement Analysis (CMA) method. All study intersections were evaluated using this methodology pursuant to the criteria established by the City of Los Angeles Department of Transportation. The peak hour traffic counts were used along with current intersection geometrics and traffic controls to determine the intersection's operating condition.

The highest combinations of conflicting traffic volume (V) at an intersection are divided by the intersection capacity value. Intersection capacity (C) represents the maximum volume of vehicles which has a reasonable expectation of passing through an intersection in one hour under typical traffic flow conditions.

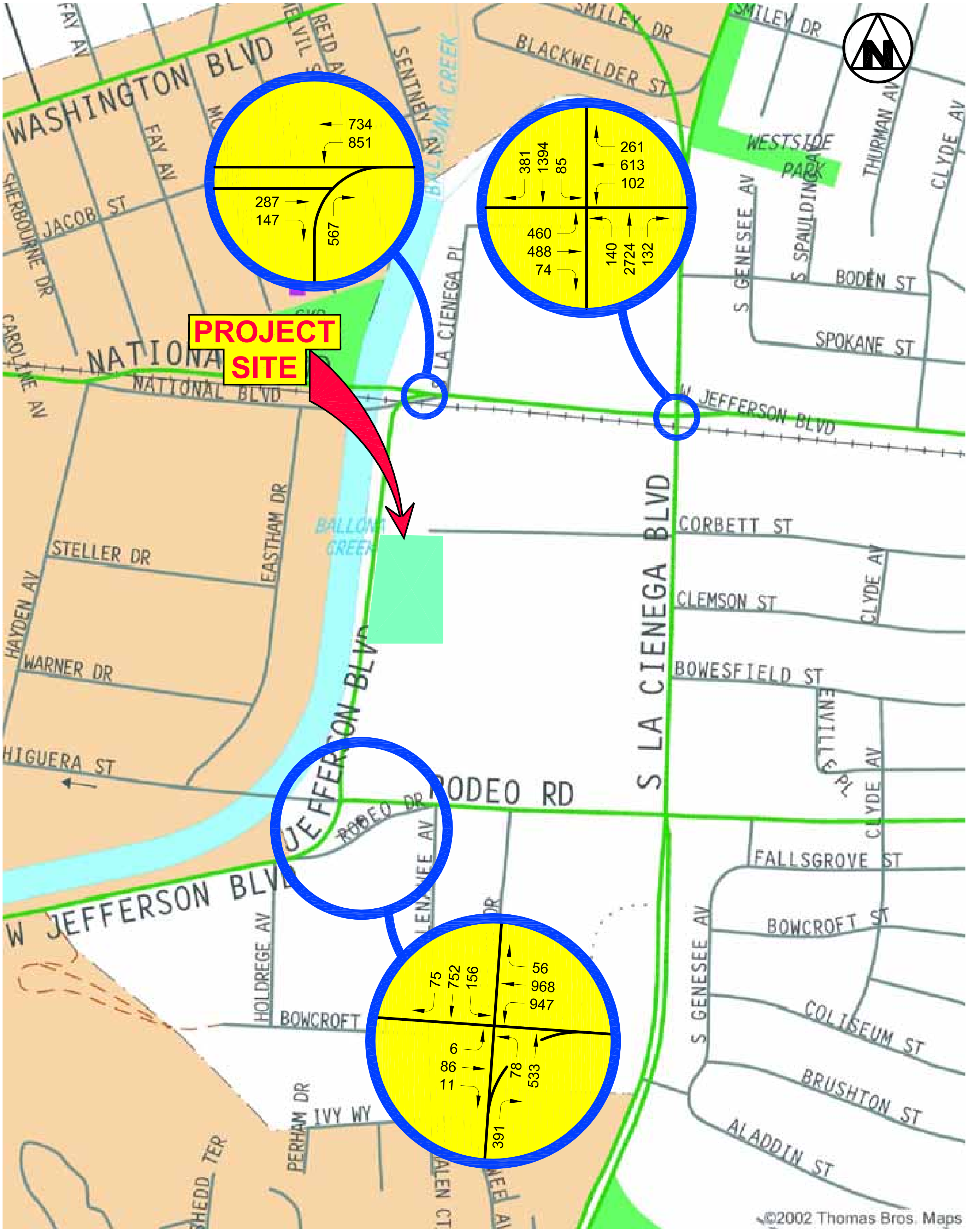


FIGURE 10

8/18/2003

EXISTING (2003) TRAFFIC VOLUMES
AM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

MTA JEFFERSON \ AM2003EX

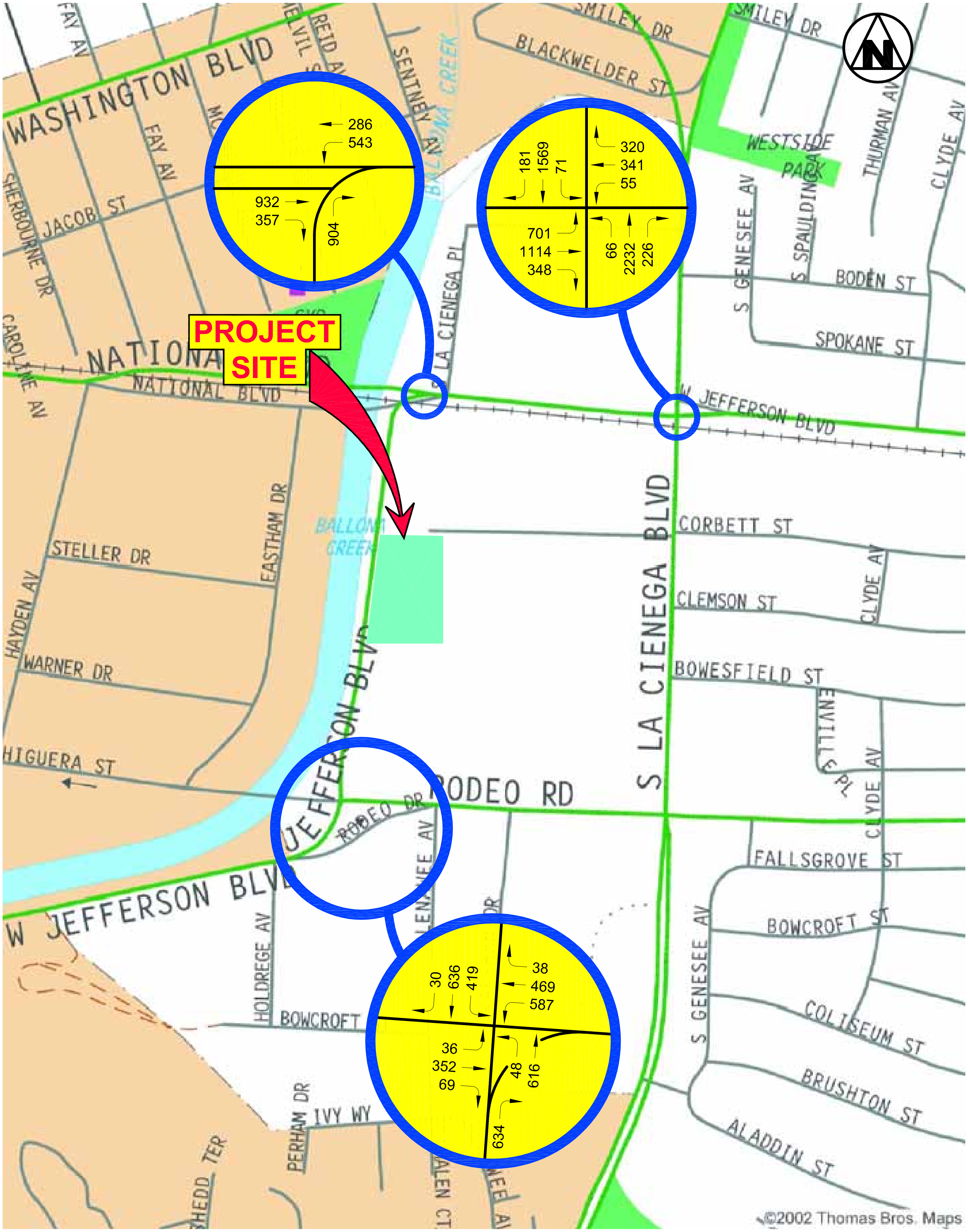


FIGURE 11

8/17/2003

EXISTING (2003) TRAFFIC VOLUMES
PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

The CMA procedure uses a ratio of the traffic volume to the capacity of an intersection. This volume-to-capacity (V/C) ratio defines the proportion of an hour necessary to accommodate all the traffic moving through the intersection assuming all approaches were operating at full capacity. CMA ratios provide an ideal means for quantifying intersection operating characteristics. For example, if an intersection has a CMA value of 0.70, the intersection is operating at 70% capacity with 30% unused capacity.

Once the volume-to-capacity ratio (i.e., CMA value) has been calculated, operating characteristics are assigned a level of service grade (A through F) to estimate the level of congestion and stability of the traffic flow. The term "Level of Service" (LOS) is used by traffic engineers to describe the quality of traffic flow. Definitions of the LOS grades are shown in Table 3.

Table 3
Level of Service Definitions

Level of Service	Description of Operating Characteristics	Equivalent CMA
A	Free flow conditions with low traffic density.	0.00 - 0.60
B	A stable flow of traffic	0.61 - 0.70
C	Light congestion but stable, occasional backups behind left-turning vehicles.	0.71 - 0.80
D	Approaching capacity, drivers are restricted in freely changing lanes. Vehicles may be required to wait more than one light cycle.	0.81 - 0.90
E	At or near capacity with some long lines for left-turning vehicles. Blockage of intersection may occur if traffic signal does not provide for protected turning movements.	0.91 - 1.00
F	Jammed conditions with stoppages of long duration.	> 1.00

By applying the CMA procedures to the intersection data, the capacity values and the corresponding Levels of Service (LOS) for existing traffic conditions were determined. The LOS values are summarized in Table 4. Supporting capacity worksheets are contained in Appendix F of this report.

Table 4
Level of Service for Existing Conditions

		AM Peak Hour		PM Peak Hour	
No.	Intersection	CMA	LOS	CMA	LOS
1.	Jefferson Bd. & La Cienega Bd.	1.050	F	1.089	F
2.	Jefferson Bd. & Rodeo Road	0.958	E	0.893	D
3.	Jefferson Bd. & National Bd.	0.427	A	0.661	B

Analysis of Future Traffic Conditions

Future traffic volume projections have been developed to analyze the traffic conditions after completion of other planned land developments including the proposed project. Pursuant to the City of Los Angeles traffic impact guidelines, the following steps have been taken to develop the future traffic volume estimate:

(a) Existing traffic plus ambient growth (4%) to 2006 study year;
(b) Traffic in (a) plus related projects (without project scenario);
(c) Traffic in (b) with the proposed project traffic (with project scenario);
(d) Traffic in (c) plus the proposed traffic mitigation, if necessary.

The future cumulative analysis includes other development projects located within the study area that are either under construction or planned. As part of this analysis, a development list was obtained from the City of Los Angles Department of Transportation and Culver City for use in this study. The records were reviewed and checked in the field to identify those projects that could produce additional traffic at the study intersections for study year 2006. It should be noted that this project, or any actions taken by the City regarding this project, does not have a direct bearing on these other proposed related projects. The locations of eleven related projects are described in Table 5.

Estimates of the peak hour trips generated by the other developments were calculated by applying ITE trip generation rates to evaluate future traffic conditions with the related projects. The potential net increase in traffic from the related projects is shown in Table 6. Figure 12 shows the location of the related projects.

The potential traffic impact of traffic growth has been calculated by adding the existing traffic volume, an ambient growth factor (an average of the CMP and DOT growth rates resulting in a 1.04 growth rate) and traffic from other development projects. Future cumulative "without project" peak hour traffic volume estimates are shown in Figures 13 and 14 for the morning and afternoon, respectively.

Table 5
Related Projects Descriptions

No.	Use	Size	Location	Status
1.	Apartment	8 units	4210 Duquesne Avenue	Planning
2.	Industrial	250,000 s.f.	10100 Jefferson Blvd.	Planning
3.	Office	27,000 s.f.	9050 Washington Blvd.	Planning
4.	Office/Condo	28 units	9599 Jefferson Blvd.	Planning
5.	Office/Apts.	25,969 s.f.	8601 Washington Blvd.	Planning
6.	Office	151,000 s.f.	3505 Hayden Ave.	Planning
7.	Live/Work	25' lot	8500 Washington Blvd.	Planning
8.	Live/work	11,000 s.f.	3525 Eastham Drive	Unknown
9.	College	Phase I	West LA College	Planning
10.	Mixed Use	-	9300 Culver Blvd.	Planning
11.	LRT Center	530 spaces	Jefferson/LaCienega.	Planning

Table 6
Related Projects Traffic Generation

Map No.	Project	Daily Traffic	AM Peak Hour IN	AM Peak Hour OUT	PM Peak Hour IN	PM Peak Hour OUT
1.	4210 Duquesne Avenue	53	1	3	3	2
2.	10100 Jefferson Blvd.	2,620	314	64	74	2
3.	9050 Washington Blvd.	297	37	5	7	2
4.	9599 Jefferson Blvd.	94	12	2	2	2
5.	8601 Washington Blvd.	339	37	8	10	2
6.	3505 Hayden Ave.	1,663	207	27	38	2
7.	8500 Washington Blvd.	7	-	-	-	-
8.	3525 Eastham Drive	64	1	4	4	2
9.	West LA College	10,078	627	65	462	205
10.	9300 Culver Blvd.	1,007	48	44	178	157
11.	Exposition LRT Center (2013)	N/A	194	41	69	276

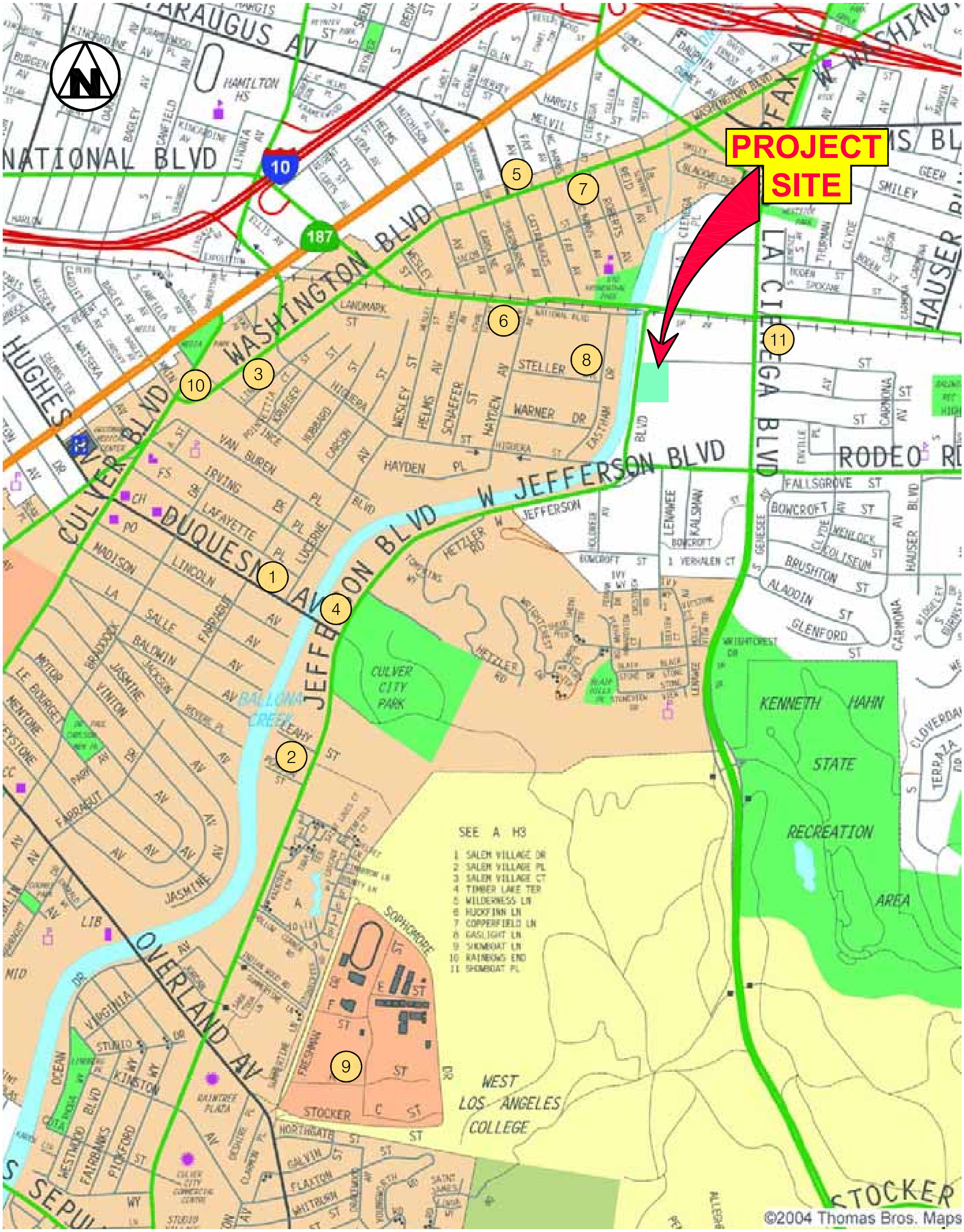


FIGURE 12

4/25/2004

RELATED PROJECT LOCATIONS

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

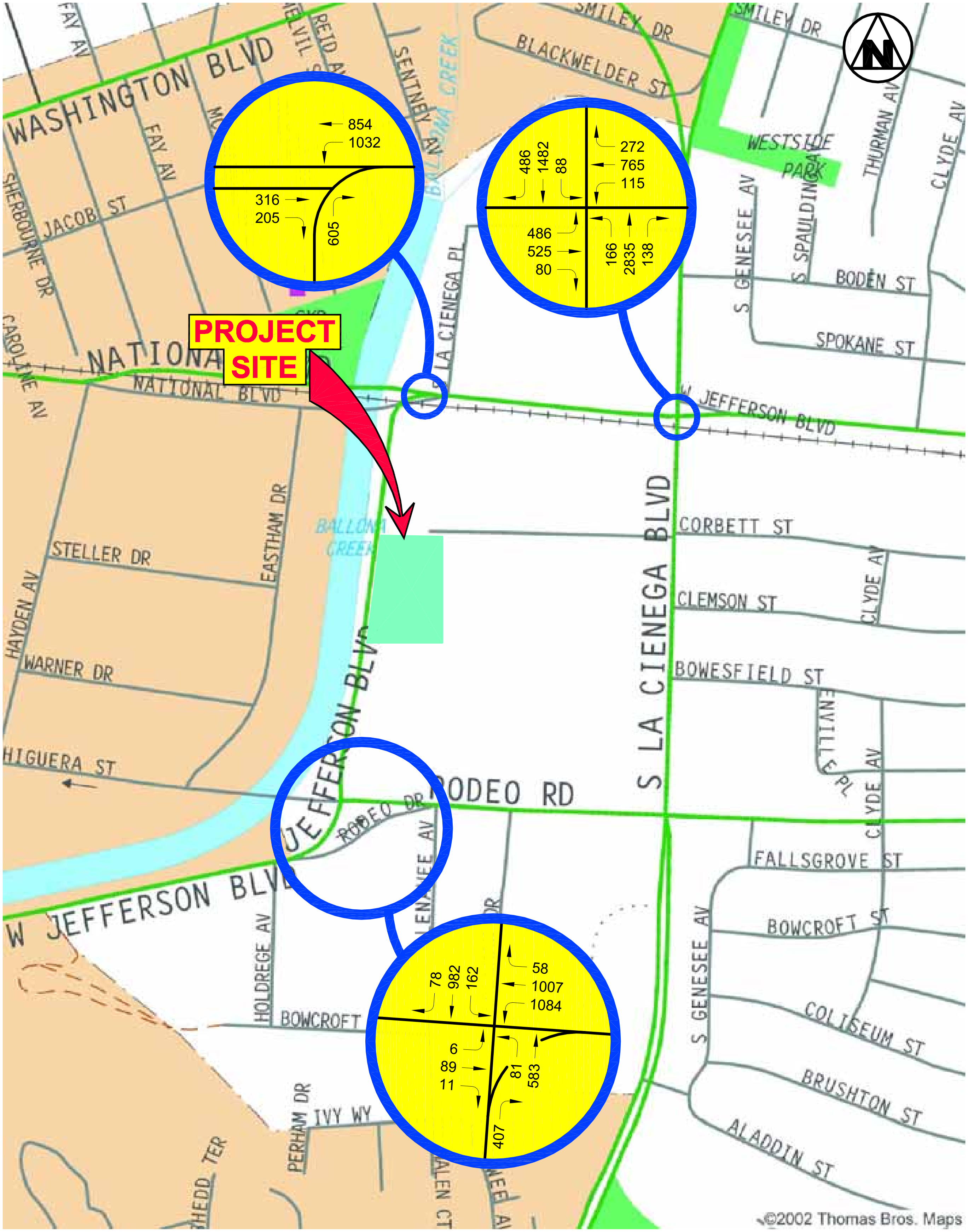


FIGURE 13

4/20/2004

FUTURE (2006) TRAFFIC VOLUMES
WITHOUT PROJECT
AM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

MTA JEFFERSON \ AM2005WO

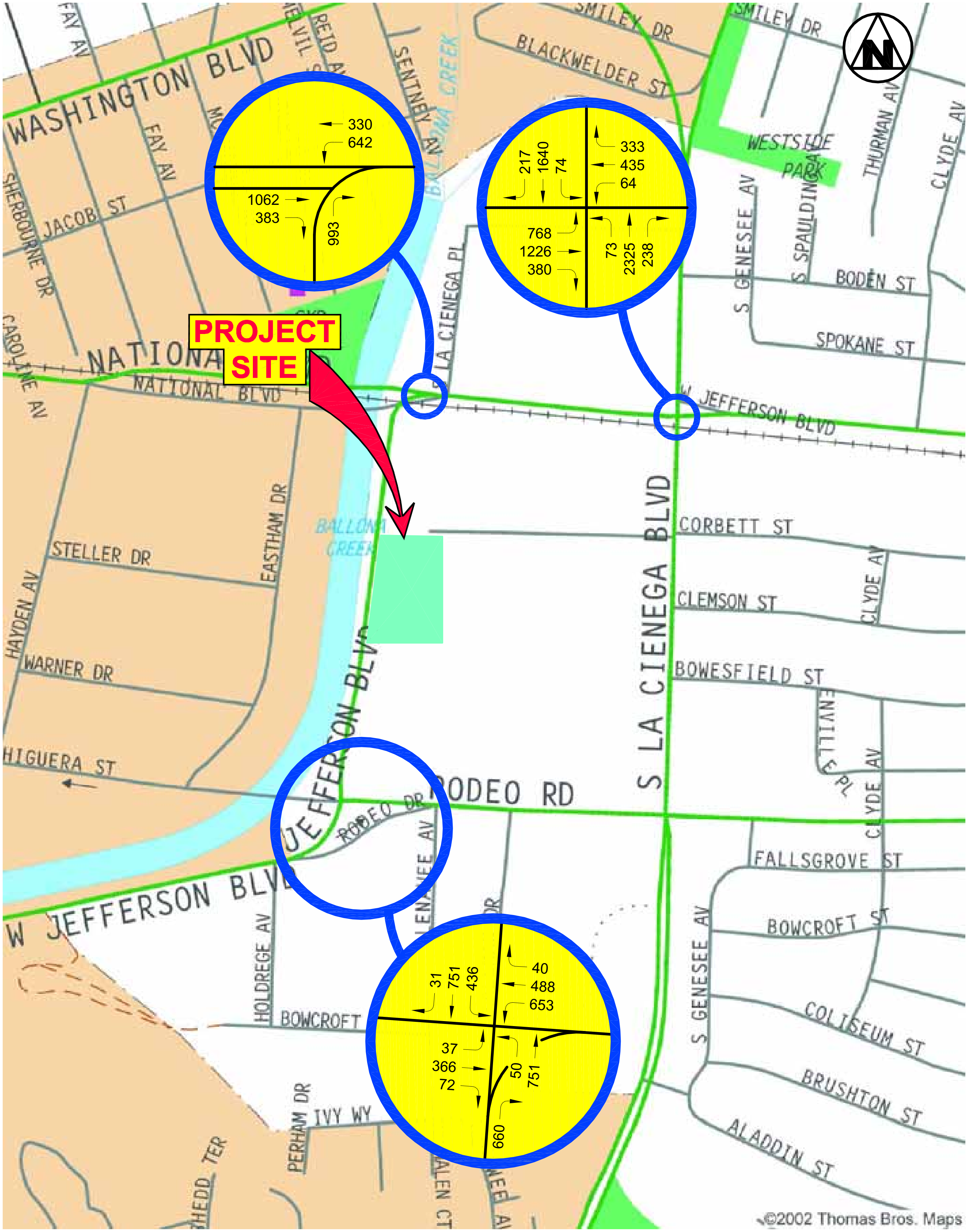


FIGURE 14

4/20/2004

FUTURE (2006) TRAFFIC VOLUMES
WITHOUT PROJECT
PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

The traffic impacts created by the traffic growth without the project are shown below in Table 7.

Table 7
Future Traffic Conditions
Without Project

No.	Intersection	Peak Hour	Existing CMA	Existing LOS	Future Without Project CMA	Future Without Project LOS	Future Without Project Growth
1.	Jefferson Bd. &	AM	1.050	F	1.143	F	+ 0.093
	La Cienega Bd.	PM	1.089	F	1.170	F	+ 0.081
2.	Jefferson Bd. &	AM	0.958	E	1.070	F	+ 0.112
	Rodeo Road	PM	0.893	D	0.970	E	+ 0.077
3.	Jefferson Bd. &	AM	0.427	A	0.523	A	+ 0.096
	National Bd.	PM	0.661	B	0.743	C	+ 0.082

The traffic impact of project's traffic volume has been calculated by adding the project volume to the future without project traffic. Future cumulative "with project" peak hour traffic volumes are shown in Figures 15 and 16 for the morning and afternoon, respectively. Table 8 contains the project impact values at the study intersections.

Comparing the changes in the traffic conditions between the different traffic growth scenarios provides the necessary information to determine if the traffic increases create a significant impact on the study intersections. According to the standards adopted by LADOT, a traffic impact is considered significant if the related increase in the CMA value equals or exceeds the thresholds shown below:

LOS	Final CMA Value	Increase in CMA Value
C	0.71 - 0.80	+ 0.04
D	0.81 - 0.90	+ 0.02
E, F	> 0.90	+ 0.01 or more

As shown below, none of the study intersections are impacted by project traffic volume using the significant impact criteria established by the City of Los Angeles Department of Transportation. It should be noted that the impact analysis does not consider any changes to the existing intersection configuration (i.e., future roadway improvements).

Table 6
Future Traffic Conditions
With Project (PCE Adjusted)

		Peak	Future Without Project		Future With Project		
No.	Intersection	Hour	CMA	LOS	CMA	LOS	Impact
1.	Jefferson Bd. &	AM	1.143	F	1.151	F	+ 0.008
	La Cienega Bd.	PM	1.170	F	1.170	F	+ 0.000
2.	Jefferson Bd. &	AM	1.070	F	1.072	F	+ 0.002
	Rodeo Road	PM	0.970	E	0.977	E	+ 0.007
3.	Jefferson Bd. &	AM	0.523	A	0.535	A	+ 0.012
	National Bd.	PM	0.743	C	0.747	C	+ 0.004

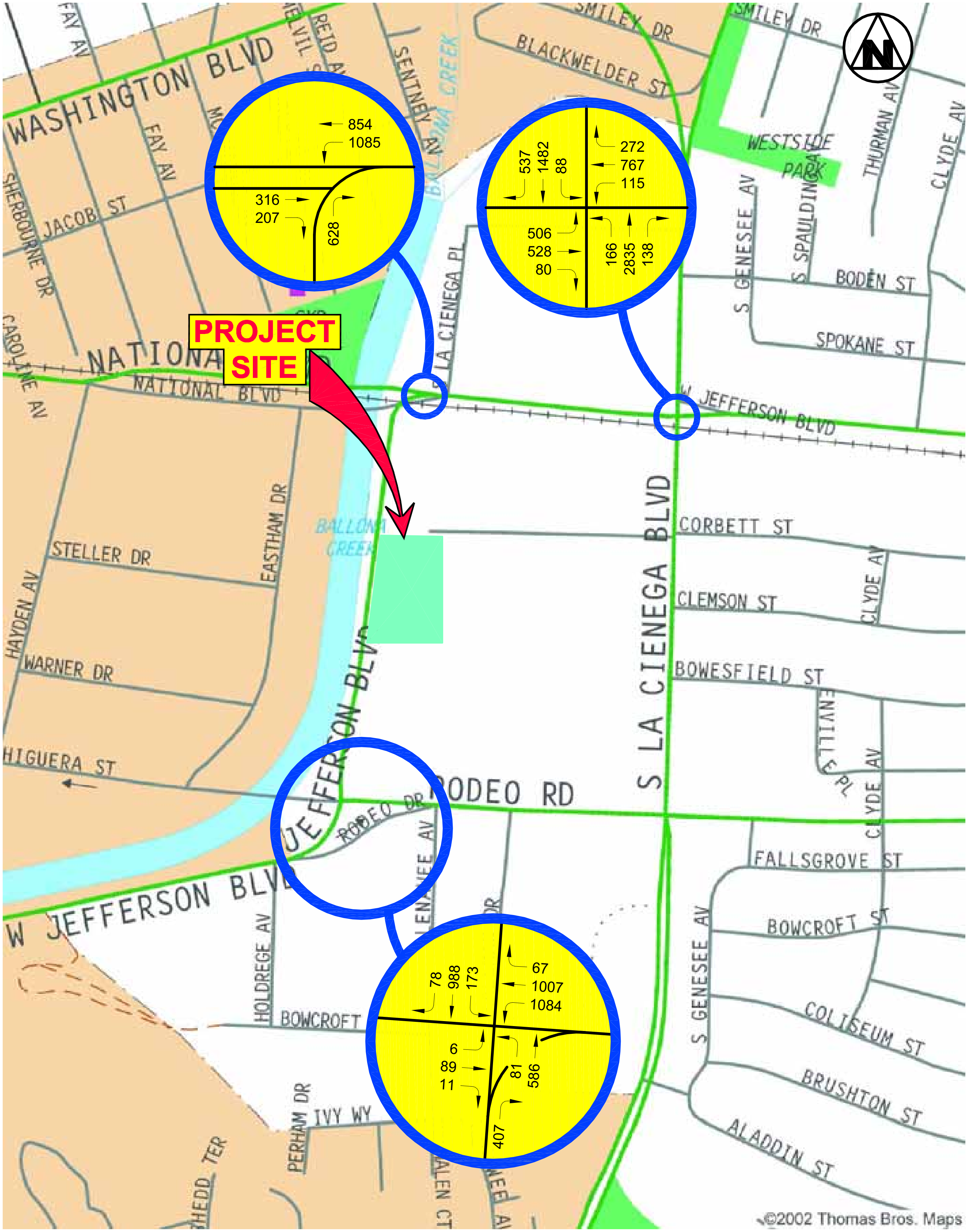


FIGURE 15

4/25/2004

FUTURE (2006) TRAFFIC VOLUMES
WITH PROJECT
AM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

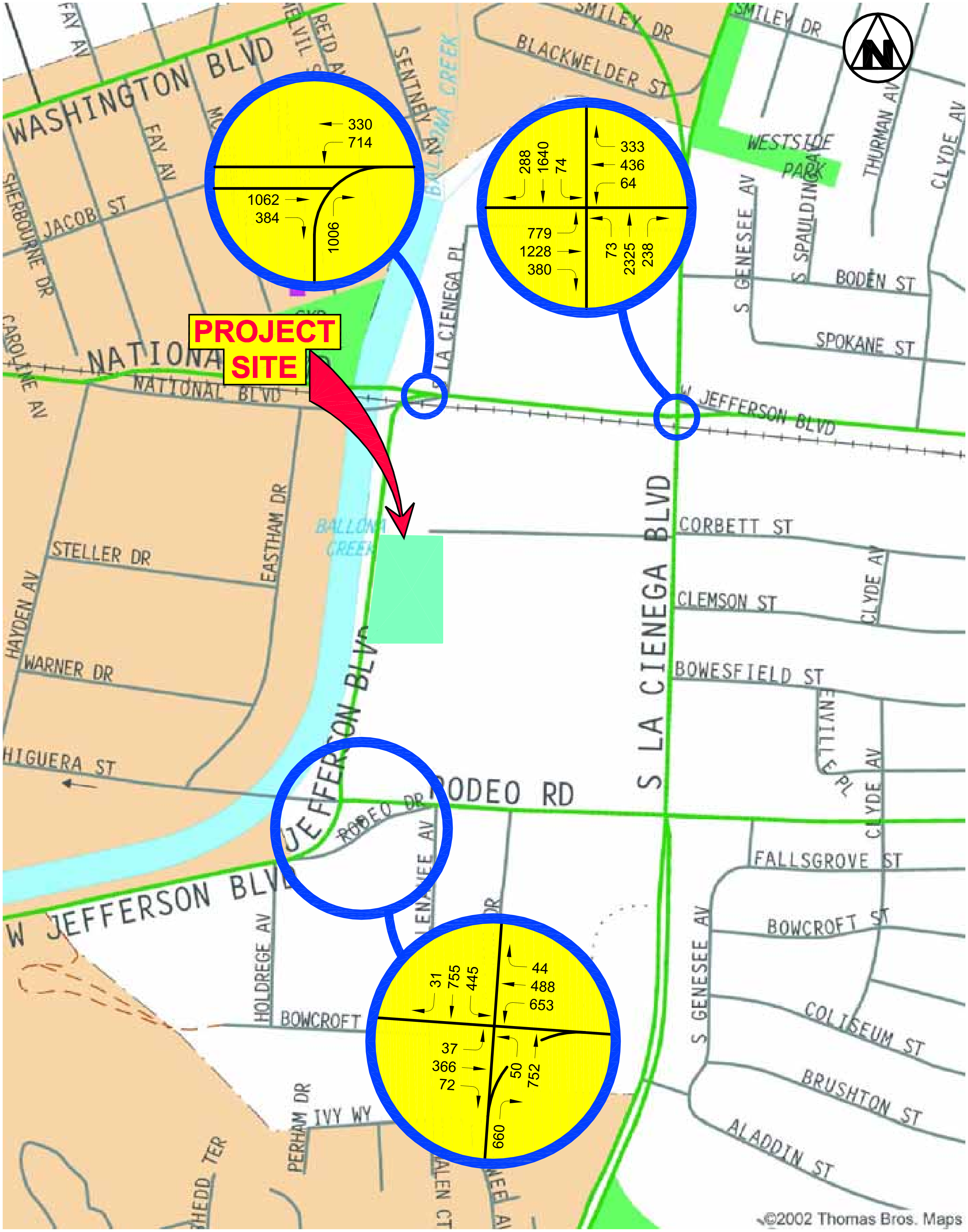


FIGURE 16

4/25/2004

FUTURE (2006) TRAFFIC VOLUMES
WITH PROJECT
PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

Impacts on Regional Transportation System

The Congestion Management program (CMP) was adopted to track regional traffic growth, building permits and transportation improvements. The CMP designated a transportation network including all state highways and some arterials within the County to be monitored by local jurisdictions. If the LOS standard deteriorates on the CMP network, then local jurisdictions must prepare a deficiency plan to be in conformance with the CMP program. Local jurisdictions found to be in nonconformance with the CMP risk the loss of state gas tax funding. Current changes to the CMP program being considered by local officials include adding a countywide trip fee to mitigate regional cumulative impacts.

For purposes of the CMP LOS analysis, a substantial change in freeway segments are defined as an increase or decrease of 0.10 in the demand to capacity ratio and a change in LOS. A CMP traffic impact analysis is required if a project will add 150 or more trips to a freeway segment in either direction during either the AM or PM weekday peak hour. The nearest CMP monitoring location is Jefferson Boulevard and La Cienega Boulevard. The traffic study shows that significant traffic impacts would not be exceeded at this location. Therefore, no additional CMP analysis is necessary.

Construction Impacts

Neither the Los Angeles Department of Transportation, nor the L.A CEQA Thresholds Guide has established a significance threshold for traffic impacts resulting from construction activity. For purposes of this Traffic Report] a short-term significant impact on traffic due to construction is conservatively identified if:

- Haul trucks and staging activities associated with excavation would cause substantial inconvenience to travelers, residents and commercial interests in the project area for a period of at least several months;

- The trips generated due to construction activities would exceed the thresholds established for project operations, as may be adjusted by LADOT to account for the relative short-term nature of construction activities as compared to the long-term impacts associated with indefinite project operations.

Construction of the project will require environmental clean up, demolition of all existing structures, grading, and construction of the new facility. Traffic during construction activities would be generated by construction equipment, crew vehicles, haul trucks and vehicles delivering building materials. The number of construction workers and construction equipment would vary throughout the construction process in order to maintain a reasonable schedule of completion.

The amount of export/import material at the site for the construction of the bus maintenance facility is estimated at less than 20,000 cubic yards. During the early stages of the grading operation it is estimated that moving this amount of material will generate up to approximately 50 truckloads per day, or 100 directional daily trips. This level of truck activity would generated approximately 6 peak hour truckloads an equivalent of 12 truck trips during each hour of an 8 hour work day. This volume of truck activity would not create significant traffic impacts.

All delivery trucks would be brought onto the project site and be stored within the perimeter fence of the construction site. No detours around the construction site are expected, however, flagmen would be used to control traffic movement during the ingress and egress of trucks and heavy equipment.

Construction hours and days are planned to occur from 7 am to 3 pm, Monday through Friday with overtime hours and some weekends as required. Since construction workers trips would occur outside of the morning and afternoon peak hours, construction impacts from this particular type of traffic activity would be less than significant.

Excavation activity at the project site would be limited. Further, site conditions, including site accessibility and the nature of surrounding uses, do not pose unusual or difficult conditions for removing excavated materials from the project site. The site preparation work is estimated to take approximately 1 month with site grading/excavation lasting an additional month in duration. The construction of the bus facility will take approximately 12 months to complete. Therefore, on-site construction impacts would be less then significant. Nonetheless, Work Area Traffic Control Plans are typically advised in construction projects, to minimize non-significant adverse impacts, and to assure that significant impacts do not occur. Therefore mitigation measures are proposed for construction activities.

The project developer would be required to submit formal construction staging and traffic control plans for review and approval by the local agency prior to the issuance of any construction permits. A Work Area Traffic Control Plan will be developed for use during the entire construction period. This plan will also incorporate safety measures around the construction site to reduce the risk to pedestrian traffic near the work area. The Work Area Traffic Control Plan will identify all traffic control measures, signs, delineators and work instructions to be implemented by the construction contractor through the duration of demolition and construction activity.

Based on current plans, the haul route identified for the site excavation and soil movement would direct traffic to travel east (north) on Jefferson Boulevard, north on La Cienega Boulevard to the I -10 Interstate Freeway. Return trips will travel the same route.

Construction equipment and worker cars will generally be contained onsite. At times when on-site staging and parking is not available, a secondary staging area is planned to occur in the parking lane on the east side of Jefferson Boulevard adjacent to the site.

The proposed mitigation measures listed below are recommended to minimize the potential conflicts between construction activities, street traffic and pedestrians. Mitigation measures may also include access restrictions, covered sidewalks, and designating alternative pedestrian routes.

Prior to the issuance of construction permits the developer shall prepare Work Area Traffic Control Plans that at a minimum should include:

- Identification of a designated haul route to be used by construction trucks;
- Provide an estimate of the number to trucks trips and anticipated trips;
- Identification of traffic control procedures, emergency access provisions, and construction alternative crew parking locations;
- Identification of the on-site location of vehicle and equipment staging;
- Provide a schedule of construction activities;
- Limitations on any potential lane closures to off-peak travel periods;
- Scheduling the delivery of construction materials during non-peak travel periods, to the extent possible;
- Coordinating deliveries to reduce the potential of trucks waiting to unload building materials;
- Prohibiting parking by construction workers on neighborhood streets as determined in conjunction with the City.

In summary, the traffic impacts associated with the construction activities will not be long-tem adverse impacts, and as such, will be less than significant. Nevertheless, it is necessary to develop and implement an approved Work Area Traffic Control plan including a designated haul route, staging area and traffic control procedures to mitigate any potential short-term adverse impacts during construction.

As determined in the preceding section, project traffic impacts are below the significance limits and therefore, the project does not need to implement traffic mitigation measures to offset the increase in traffic due to the project development.

Neither the Los Angeles Department of Transportation, nor the L.A CEQA Thresholds Guide has established a significance threshold for traffic impacts resulting from bus routing and bus operations in regard to intersection configurations. For purposes of this Traffic Report, a short-term significant impact on traffic due to bus routing is conservatively identified if bus operations at a studied intersection would encroach into adjacent traffic in a manner that could substantially interfere with traffic flow.

The analysis of operations at the studied intersections identified a potential project impact with regard to the routing of buses through the intersection of Jefferson Boulevard and La Cienega Boulevard, due to the physical roadway constraints at this intersection. Inbound buses traveling southbound on La Cienega Boulevard will have a difficult right - turn maneuver to westbound Jefferson Boulevard. The travel path of the southbound bus will need to encroach into the adjacent through lane to negotiate this southbound right - turn. Figures 17 and 19 were created to simulate the right - turn movement using the AutoTurn program. According to test runs, the program illustration is overly conservative with the encroachment area not as large as shown by the simulation program.

Test runs have been made by the MTA and it has been determined that buses can negotiate the turn but it is tight. At peak times this intersection is congested and a right - turning bus could encroach into adjacent traffic. In addition, longer articulated buses will also be using the maintenance facility and traveling on the routes to and from the site. Such potential encroachment is conservatively estimated to pose a potential for substantially affecting traffic flow at the intersection. This impact is considered significant, prior to mitigation. A mitigation measure is proposed below to reduce such impacts to less than significant.

The tight right - turn can be mitigated by the implementation of intersection modifications, such as street widening and restriping the intersection. One solution would be to widen Jefferson Boulevard along the south side west of La Cienega Boulevard and shift the traffic lanes southerly providing a wider westbound curb lane for the bus to turn into (see concept plan Figures 18 and 20). This street widening is within the Exposition right-of-way and should be coordinated with the design of the Exposition LRT project to avoid potential design issues between the aerial column placement and widening of Jefferson Boulevard.

Another solution is to reroute the inbound buses to Rodeo Road and make the southbound right-turn at that intersection with another right-turn from westbound Rodeo Road to northbound Jefferson Boulevard. This revised inbound route provides right-turn capacity that can accommodate the bus maneuvers but may create noise impacts to nearby residential units. However, because of an adopted Resolution by the LA County Board of Supervisors prohibiting this bus route, the re-routing is not being recommended at this time.

In addition to the potential busing routing impacts, traffic generated by the proposed project will add to the eastbound vehicle queue turning left from Jefferson Boulevard to northbound La Cienega Boulevard. Due to the large volume of vehicles currently turning left from Jefferson Boulevard to La Cienega Boulevard, the left-turn vehicle queue may at times exceed the left-turn storage capacity provided at the intersection, which is approximately 600 feet of storage. However, the eastbound left-turn storage area can be increased as part of the Jefferson Boulevard intersection modifications discussed above that would accommodate the added project traffic. The proposed street widening on Jefferson Boulevard would allow for the implementation of longer eastbound left-turn lanes that would fully mitigate these potential queuing impacts from the project added traffic.

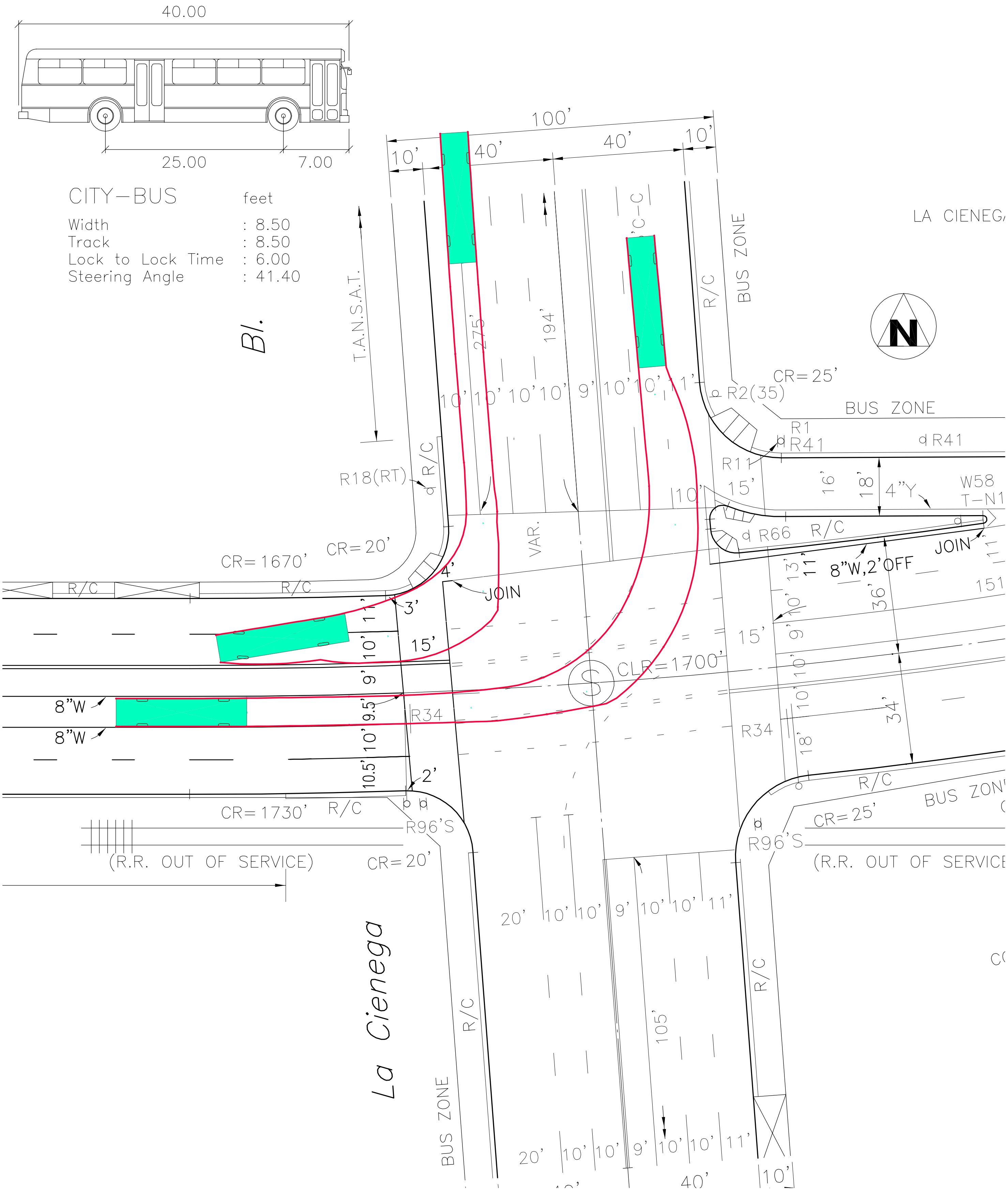


FIGURE 17

3/28/2004

POTENTIAL RIGHT-TURN IMPACT

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

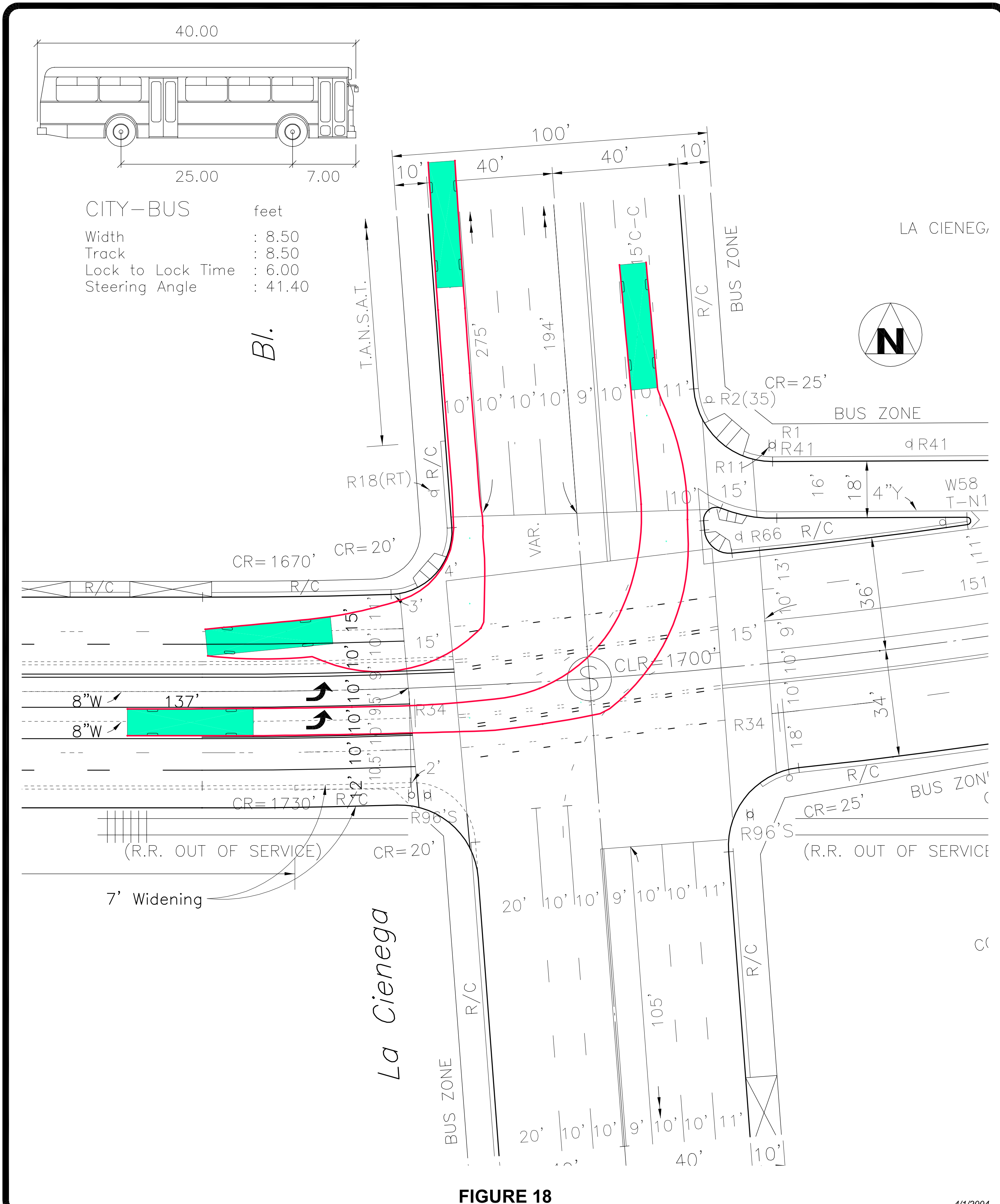


FIGURE 18

4/1/2004

JEFFERSON BOULEVARD STREET WIDENING MITIGATION

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

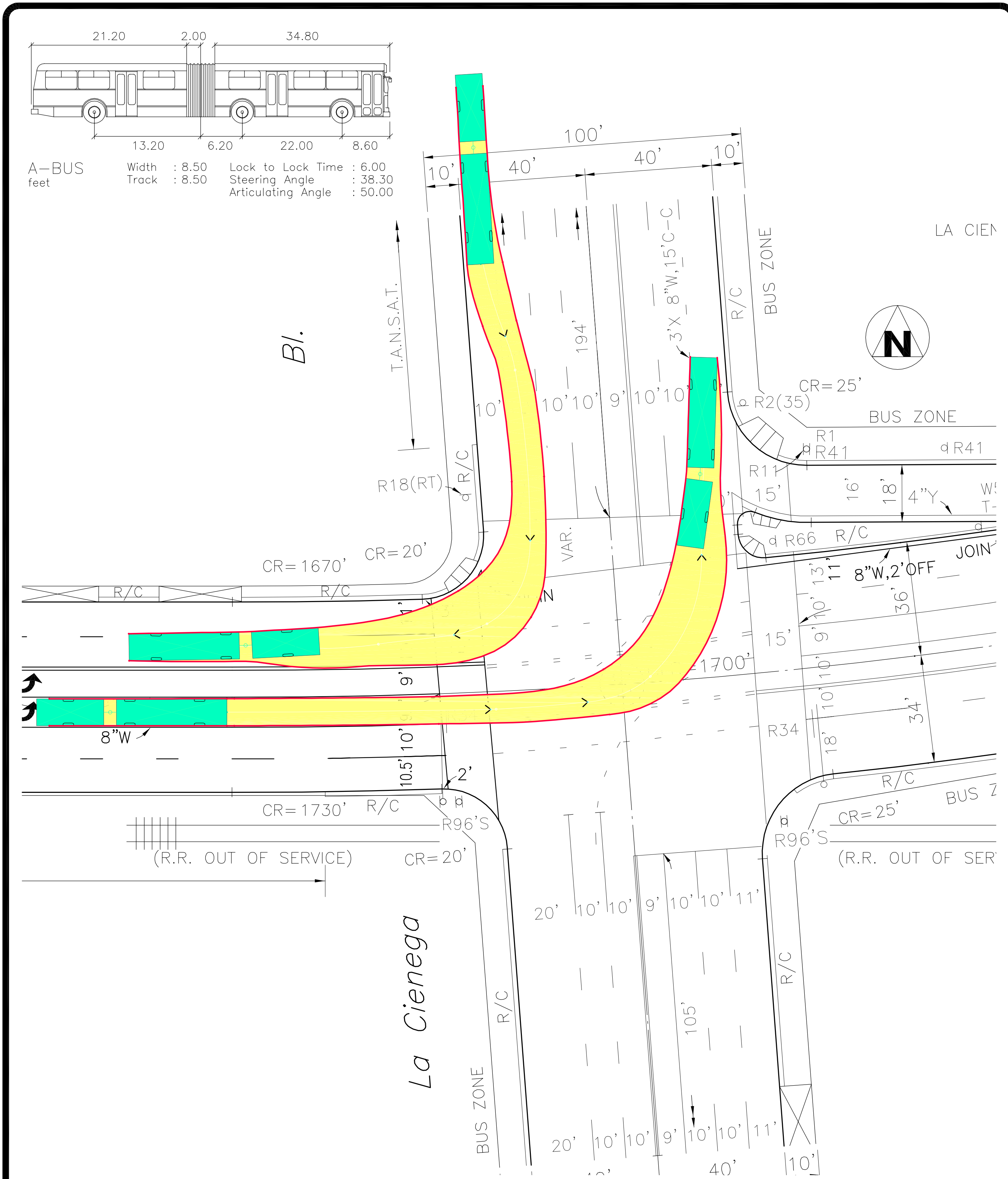


FIGURE 19

7/19/2004

POTENTIAL RIGHT-TURN IMPACT

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

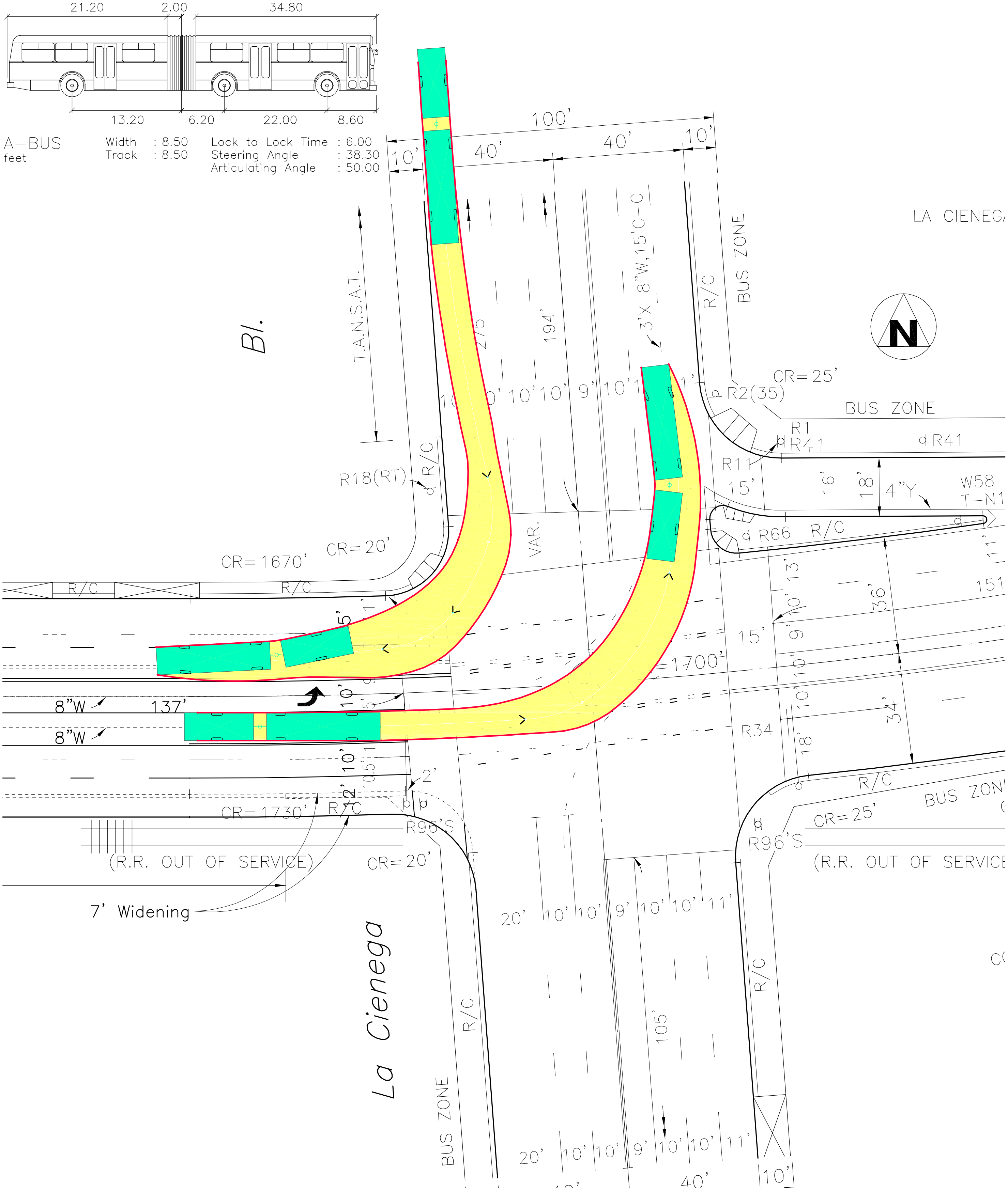


FIGURE 20

7/19/2004

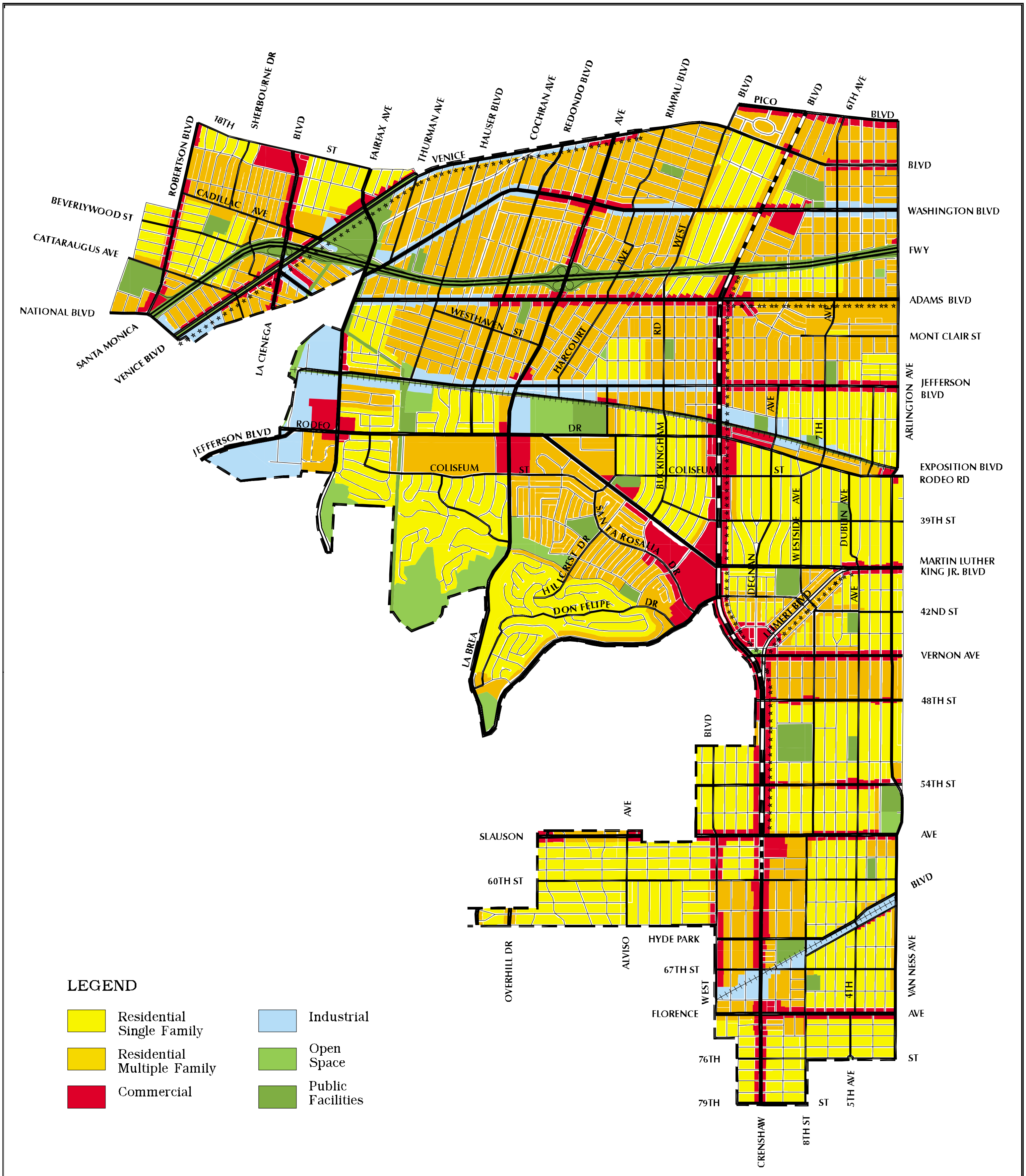
JEFFERSON BOULEVARD STREET WIDENING MITIGATION

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTCINC@attbi.com

MTA JEFFERSON \ BUS-ACCESS-3 (ARTICULATED)

APPENDIX A

COMMUNITY PLAN LAND USE & CIRCULATION MAPS

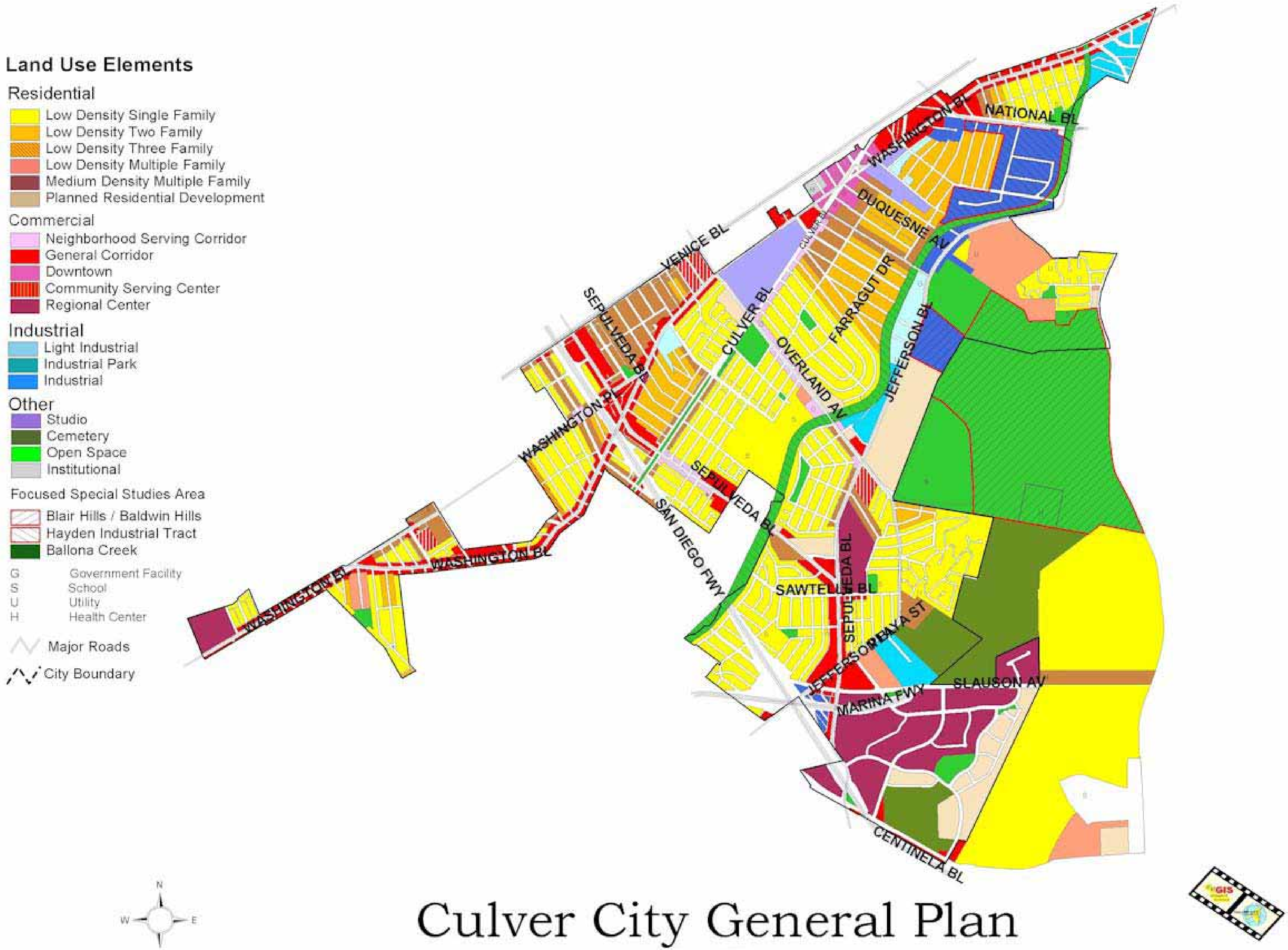


GENERALIZED LAND USE

WEST ADAMS - BALDWIN HILLS - LEIMERT

SUMMARY OF LAND USE

CATEGORY	LAND USE	CORRESPONDING ZONES	NET ACRES	% AREA	TOTAL NET ACRES	TOTAL % AREA
RESIDENTIAL						
Single Family					2,283	29.0
	Minimum	OS, A1, A2, RE40,	21.78	1.0		
	Low	RE9, RS, R1, RU, RD5, RD6				
Multiple Family					1,911	24.2
	Low Medium I	R2, RD3, RD4, RZ3, RZ4, RU, RW1	361.15	18.9		
	Low Medium II	RD1.5, RD2, RW2, RZ2.5	1,257.74	65.8		
	Medium	R3	648.66	34.0		
	High Medium	R4	4.23	0.2		
COMMERCIAL					597	7.6
	Neighborhood	C1, C1.5, C2, C4, P	80.00	13.3		
	General (F)	C1.5, C2, C4, P	299.04	50.1		
	Community	CR, C2, C4, P, PB	156.00	26.1		
	Regional	CR, C1.5, C2, C4, R3, R4,	62.00	10.4		
INDUSTRIAL					353	4.5
	Commercial	CM, P	171.51	48.7		
	Limited	CM, MR1, M1, P	181.00	51.3		
OPEN SPACE/PUBLIC FACILITIES					645	8.2
	Open Space	OS, A1	199.82	31.0		
	Public Facilities	PF	445.67	69.0		
STREETS						
	Private Street		2.02	0.1	2,092	26.5
	Public Street		2,089.85	99.9		
TOTAL					7,881	100.0



Culver City General Plan

Land Use Elements

Information Technology Department, Geographic Information Systems August 29, 2001

APPENDIX B

EXPOSITION BOULEVARD RAIL PROJECT INFORMATION

Exposition Light Rail Line West End Segment Information

The West End segment of the Light Rail line is defined as the alignment between La Cienega and Venice/Roberston Boulevards. The LRT would use an elevated bridge structure to cross over La Cienega Boulevard, with other options that extend the bridge over Jefferson Boulevard and Ballona Creek. The Jefferson/National Boulevard intersection would be realigned and reconfigured under the elevated bridge structure. The elevated LRT alignment would return to ground level at a point just east of La Cienega Place within the City of Los Angeles.

In this section, National Boulevard would be realigned and relocated so that both directions of travel are located to the south of the LRT right-of-way. A portion of the existing National Boulevard would be vacated as part of the project. A segment of National Boulevard from Washington Boulevard to Ballona Creek would be converted into an off-street bikeway.

Two stations are located in the West End segment of the proposed Light Rail Line, La Cienega Station and the Venice /Robertson Station. Both stations will be center platform station. The La Cienega Station will be a gateway station (an origin and destination to a major attraction or district) located atop an elevated structure that would bridge over La Cienega Boulevard. Vertical circulation would be provided on the east side of La Cienega Boulevard.

Approximately 530 parking spaces would be provided in a parking structure located in the southeast quadrant of the La Cienega Boulevard and Jefferson Boulevard intersection and on a surface lot on the MTA ROW east of La Cienega Boulevard.

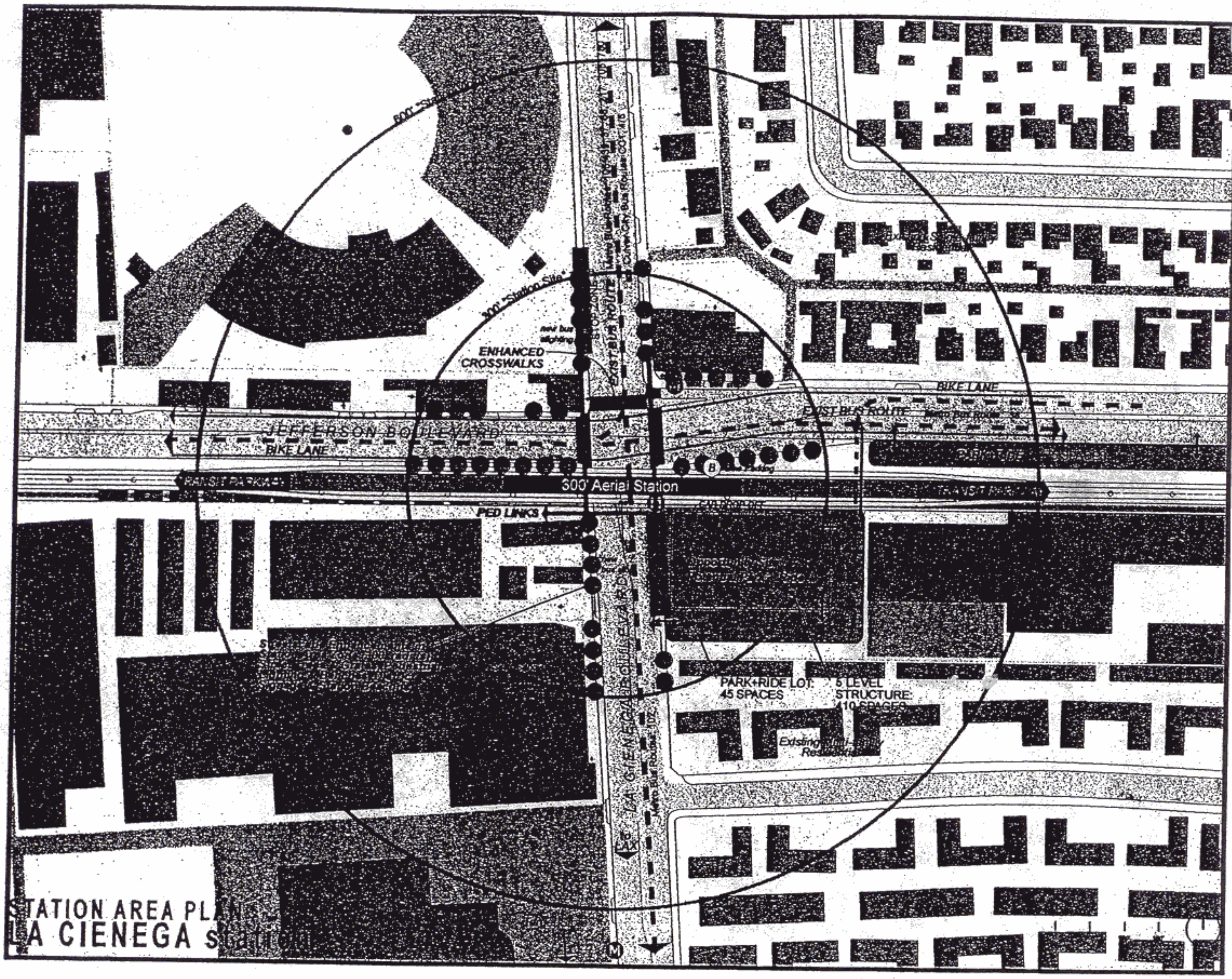
A detailed AM and PM peak hour analysis of existing and future traffic conditions was completed as part of the rail project environmental analysis. The Operations Analysis Method was used to estimate the average number of seconds of delay experienced by motorists traveling through the intersections. Based on these procedures, the threshold of significance is based on the amount of change in average vehicular delay incurred by vehicles through the intersection (as opposed to the change in the volume/capacity ratio used by the City of Los Angeles to quantify the level of service of an intersection).

To accommodate the mobility elements and to achieve an acceptable level of service by 2020, several changes were recommended at the intersection of Jefferson/National Boulevard, as follows: Convert Jefferson/National Boulevard southbound existing lane configuration to accommodate one exclusive right-turn lane, one shared through/right-turn lane and one exclusive through lane, add an exclusive left-turn land for northbound, and add an exclusive right-turn lane to eastbound.

No lane changes were recommended for La Cienega Boulevard and Jefferson Boulevard.

Based on the definition of significant traffic impact, the La Cienega Station will not significantly impact any study intersection. However, a new traffic signal will be installed at the project's new access road intersection with La Cienega Boulevard beneath the trackway located approximately 300 feet east of the La Cienega Boulevard/ Jefferson Boulevard intersection.

Source: Mid-City /Exposition LRT Project Final EIS/EIR, Section 3.1 Traffic and Circulation.



SOURCE: Zimmer Gunsul Frasca Partnership

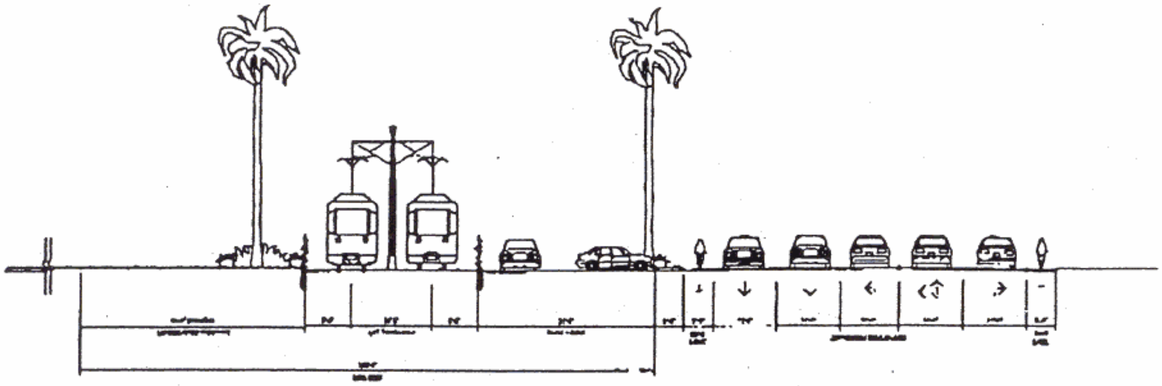
Metro

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

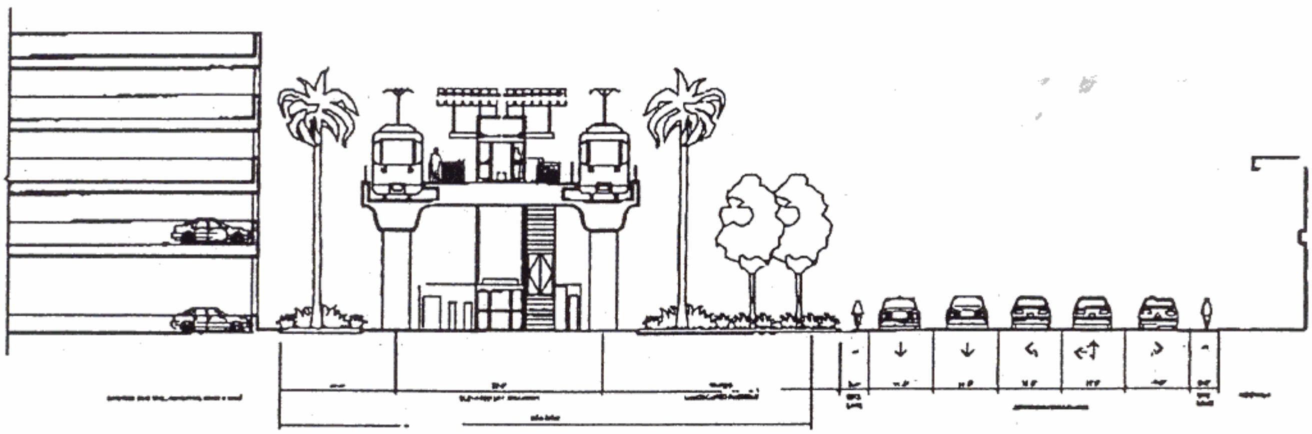
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 2-28

LA CIENEGA STATION AREA



Cross Section P: Carmona Avenue to La Cienega (Near Clyde)



Cross Section Q: La Cienega Station

Metro

SOURCE: DMJM Harris

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

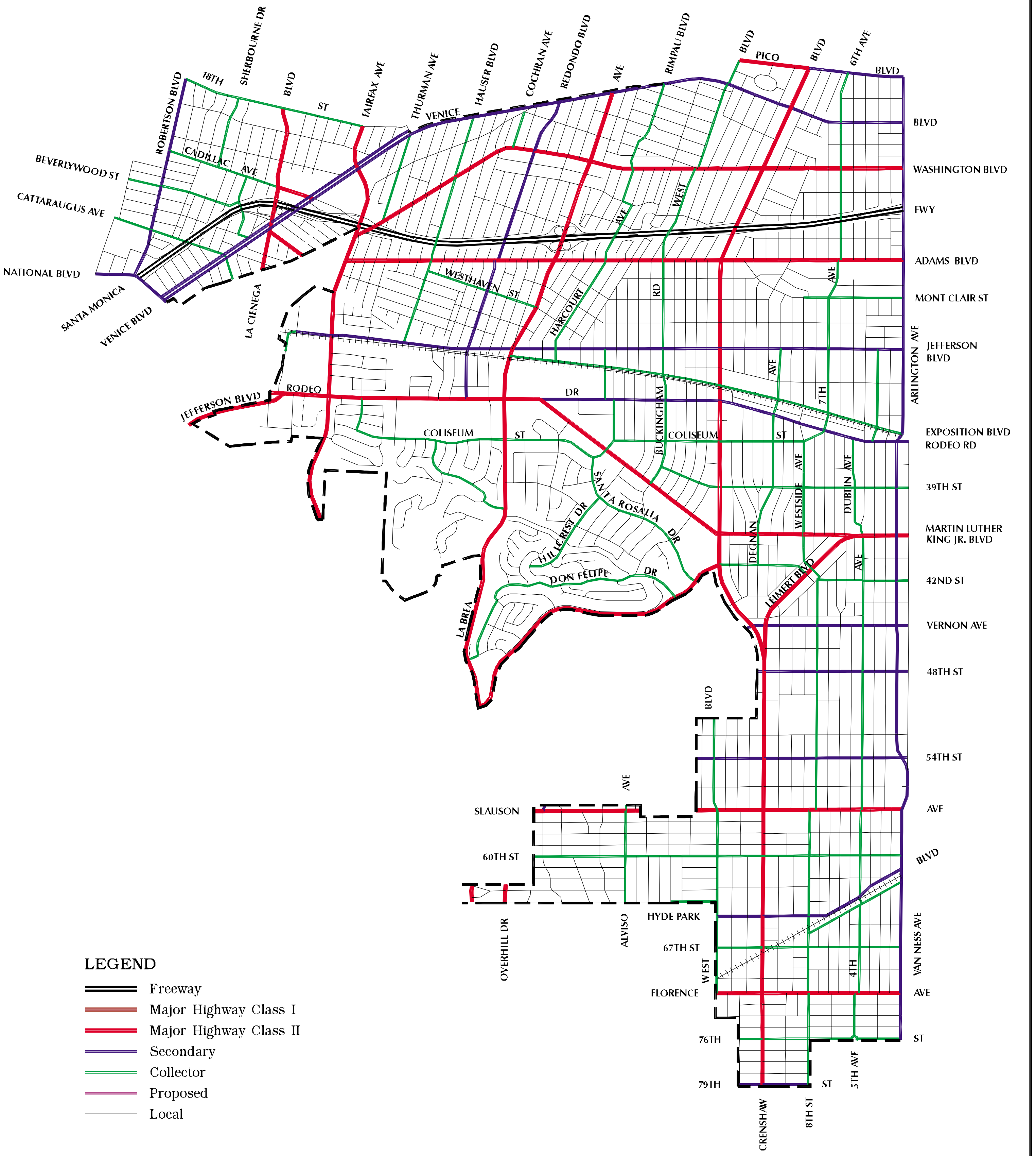
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 2-12

CROSS SECTIONS P & Q

APPENDIX C

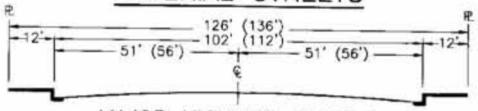
STREET PLANS & STREET STANDARDS



GENERALIZED CIRCULATION
WEST ADAMS - BALDWIN HILLS - LEIMERT

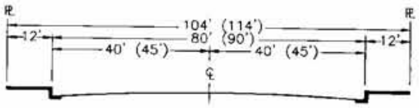
NORTH

ARTERIAL STREETS



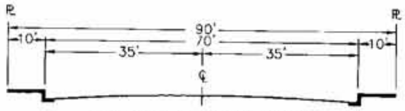
MAJOR HIGHWAY–CLASS I

At intersections with other Major Highways, the larger widths shown in parentheses should be provided, as determined by LADOT, utilizing a Standard Flare Section.



MAJOR HIGHWAY–CLASS II

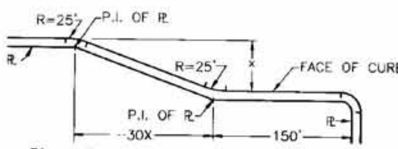
At intersections where LADOT has determined that dual left turn lanes are required, the larger widths shown in parentheses shall be provided, utilizing a Standard Flare Section.



SECONDARY HIGHWAY

TRANSITIONAL EXTENSIONS

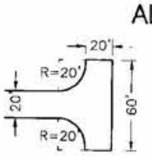
Where a designated Major Highway (Class I or II) or a Secondary Highway crosses another designated arterial street and then changes in designation to a street of lesser standard width, the street of lesser standard width shall be widened on both sides from the intersection to the width of the higher designation and tapered in a Standard Flare Section, as shown below, to provide an orderly transition.



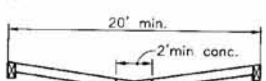
Dimensions shall be measured angle point to angle point.

STANDARD FLARE SECTION
(Plan View)

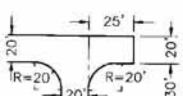
ALLEYS



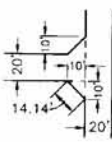
STANDARD TURNING AREA
(Plan View)



STANDARD CROSS–SECTION

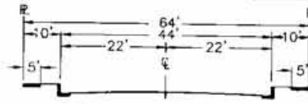


MINIMUM TURNING AREA
(Plan View)



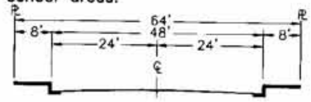
STANDARD CUT–CORNERS FOR 90° INTERSECTION
(Plan View)

NON–ARTERIAL STREETS



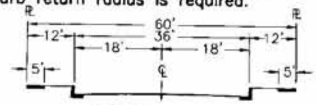
COLLECTOR STREET

For use in quarter mile streets and school areas.



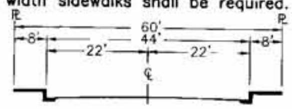
INDUSTRIAL COLLECTOR STREET

For use in industrial areas to assist the flow of local truck traffic within those areas to adjacent arterial streets. A 35' curb return radius is required.



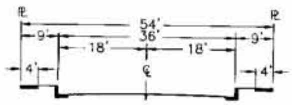
LOCAL STREET

In commercial and multiple residential areas, a 40–foot roadway with 10–foot parkways, and full–width sidewalks shall be required.



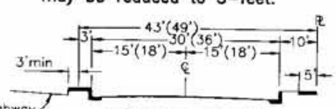
INDUSTRIAL LOCAL STREET

For use in industrial areas. A 35' curb return radius is required.



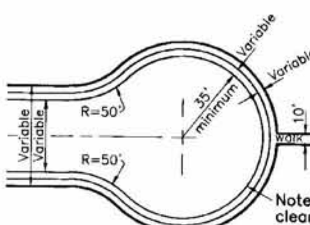
NONCONTINUOUS LOCAL STREET

May include cul–de–sac, loop streets and short connector streets. Where an approved internal pedestrian system is provided the parkway on one side may be reduced to 3–feet.



SERVICE ROAD

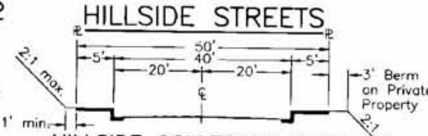
For use on adjoining major or secondary highways, except that the larger widths shown in parentheses shall be provided in multiple residential zones.



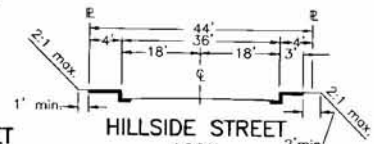
CUL–DE–SAC
(Plan View)
MAY BE UNSYMMETRICAL

Note: For fire truck clearance, no obstruction taller than 6" shall be permitted within 3 ft. of the curb. On–street parking shall be prohibited.

HILLSIDE STREETS

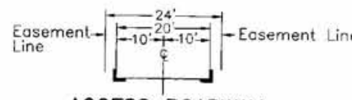


HILLSIDE COLLECTOR STREET



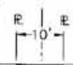
HILLSIDE STREET
LOCAL
2'min.

HILLSIDE STREET
LIMITED
2'min.
(Parking on one side only)



ACCESS ROADWAY
CONDITIONAL

(Limited to 4 dwelling units, and a maximum length of 300 feet. Private Street only)



STANDARD WALKWAY
CROSS – SECTION

BUREAU OF ENGINEERING OFFICIAL RECORD

NOTE: Dimensions shown hereon are not to scale.

PREPARED IN COOPERATION WITH THE DEPARTMENTS OF TRANSPORTATION AND CITY PLANNING

BUREAU OF ENGINEERING	DEPARTMENT OF PUBLIC WORKS	CITY OF LOS ANGELES
STANDARD STREET DIMENSIONS		STANDARD PLAN S–470–0

SUBMITTED March 25, 1999
Clark W. Robins
ENGINEER OF DESIGN
Rodney Haran
DEPUTY ENGINEER
APPROVED MARCH 31 1999
Thomas Conner
CITY ENGINEER

DESIGNED BY	DRAWN BY	CHECKED BY
M.F.D., D.L.F., J.E.F., A.D.R.	R. TANABE	L. GANAJA

REGISTERED PROFESSIONAL ENGINEER THOMAS K. CONNER NO. 23788 EXP. 12/31/2001 CIVIL STATE OF CALIFORNIA

APPROVED Frances Banerjee 4·6·99
GENERAL MANAGER, DEPT. OF TRANSPORTATION DATE

Con Howe 4/6/99
DIRECTOR OF PLANNING DATE

ADOPTED MAY 13, 1999
CITY PLANNING COMISSION DATE

SUPERSEDES	REFERENCES
D-22549	

VAULT INDEX NUMBER
B-4428

SHEET 1 OF 2 SHEETS

THIS STANDARD PLAN BECOMES EFFECTIVE ON NOVEMBER 10, 1999

STANDARD STREET CONDITIONS

1. City Council may, by ordinance, adopt specific standards for individual streets which differ from these official standard street dimensions. Community Plans should be reviewed for designation of Pedestrian Priority Street Segments of arterial streets which would require wider sidewalks than those indicated on this Standard Plan.

2. Sidewalk widths for non-arterial streets shall be the minimum shown hereon. Greater widths, up to full width between curb and property line, with tree wells, shall be required where commercial and multiple residential frontage, schools, areas of heavy pedestrian traffic or other special circumstances indicate the need.

3. Except for special conditions or as otherwise provided, sidewalk shall be placed as close to the property line as possible.

4. Where sidewalk is constructed adjacent to the curb it shall have a minimum width of 10 feet inclusive of curb thickness except for hillside streets, noncontinuous local streets and industrial streets.

5. Where sidewalk is constructed on the fill or low side of a hillside street, a berm may be required on private property.

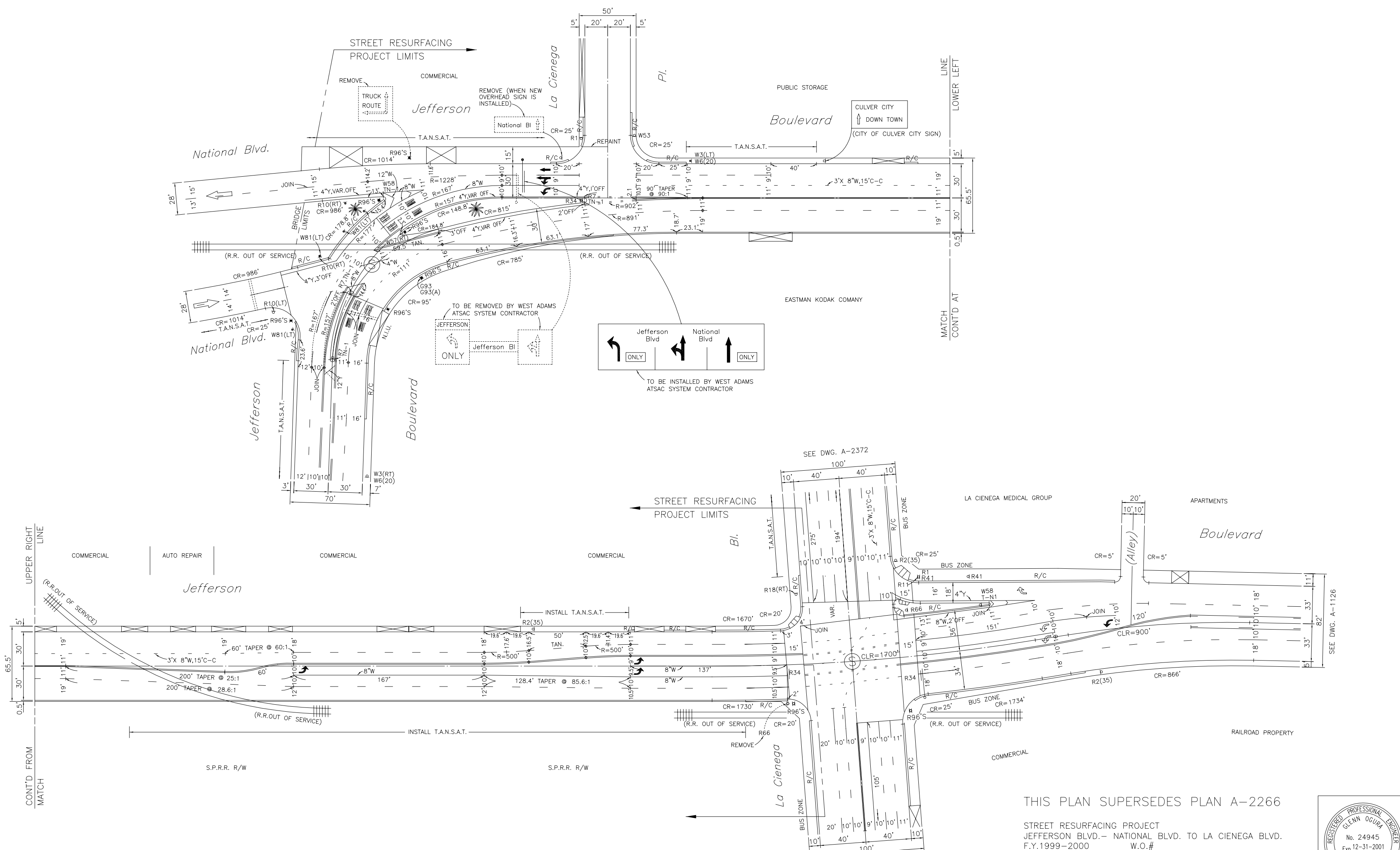
6. Easements may be required in addition to the widths shown hereon, where necessary for the installation of public utilities or for widened sidewalks (minimum 15-foot width) adjacent to transit stations.

7. Fifty-foot curb radii (instead of the standard 35' curb radii) shall be provided for cul-de-sacs in industrial areas.

8. Private street development should conform to the standard public street dimensions shown on this sheet, where appropriate. Variations may be approved on a case-by-case basis.

9. For intersections of streets the following dedications shall apply:
   a. Intersections of arterial streets with any other street: 15'x15' cut corner OR 20' curved corner radius.
   b. Intersections of non-arterial and/or hillside streets: 10'x10' cut corner OR 15' curved corner radius.

10. Hillside Collector Streets. In hillside areas where topography or other environmental considerations, documented to the satisfaction of the City Engineer, would render full street improvements infeasible, the roadway width of the hillside collector street may be reduced to no less than 32 feet, provided that parking is limited to one side only.



THIS PLAN SUPERSEDES PLAN A-2266

STREET RESURFACING PROJECT
JEFFERSON BLVD.– NATIONAL BLVD. TO LA CIENEGA BLVD.
F.Y.1999–2000 W.O.#

LEGEND

1. EXISTING STRIPING & MARKINGS TO REMAIN
   EXISTING STRIPING & MARKINGS TO BE REMOVED
   PROPOSED STRIPING & MARKINGS
2. EXISTING SIGNS • PROPOSED SIGNS
3. SIGNALIZED INTERSECTION
4. R/C EXISTING RED CURB
   R/C PROPOSED RED CURB

NOTES

1. LENGTH OF DESIGN : 1,410' ±
2. PAINT REMOVAL REQUIRED.

RECOMMENDED AUGUST 4 19 99 PATRICK A. TOMCHECK Transportation Engineer	APPROVED AUGUST 4 19 99 GLENN OGURA Principal Transportation Engineer

REGISTERED PROFESSIONAL ENGINEER GLENN OGURA No. 24945 Exp. 12-31-2001 CIVIL STATE OF CALIFORNIA

INSTALLATION DATES
MARKOUT BEGAN:
MARKOUT COMPLETED:
STRIPING COMPLETED:
References:
DWG.A-1126 P-21060
DWG.110-096 P-23114
DWG.010.012 P-26549

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
FRANCES T. BANERJEE, GENERAL MANAGER

JEFFERSON BOULEVARD
NATIONAL BLVD. TO LA CIENEGA BLVD.

Thomas Guide	District	PROJECT NO.	DRAWING NO.	
633,A7	H.W.	72311	A-2266A	1 / 1

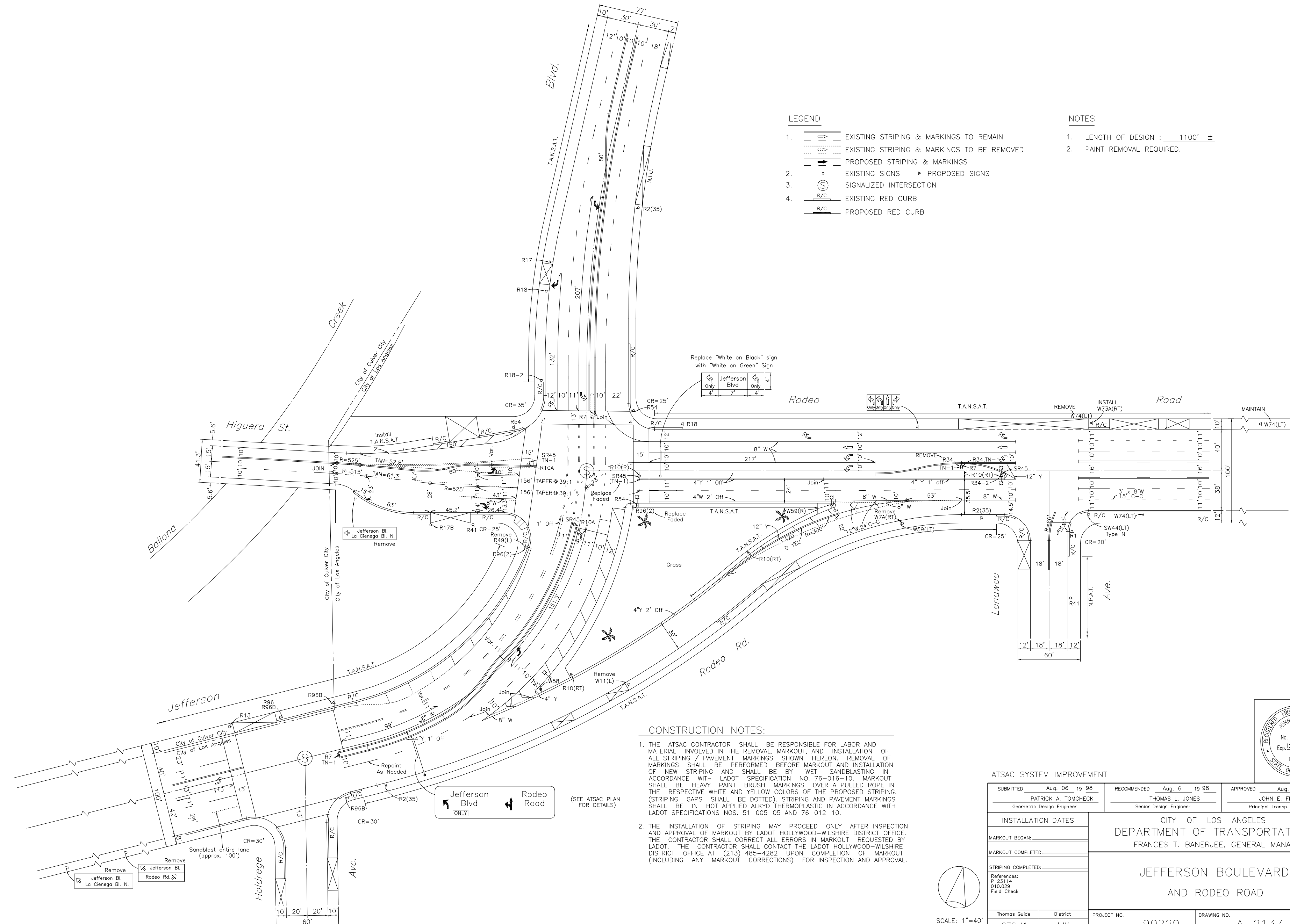
1"=20' ORIGINAL MAP SCALE 1"=40' — 20 10 0 20 40 60 80 100 FEET; 40 20 0 40 80 120 160 200 FEET

SCALES HORIZ. 1"= VERT. 1"= SHEET INDEX NUMBER

BASE	E.C.	10-14-98	SUPERVISOR		
FIELD	E.C.	10-6-98	S.T.A.R.		
DRAFTING	E.C.	7-23-99	DISTRICT	A.H.	8-3-99
CHECK			SIGNALS		
DESIGN	P.A.T.	7-15-99	BIKEWAYS		
	BY	DATE		BY	DATE

NO.	REVISION DESCRIPTION (NON CADD PLANS ONLY)	T.E.	SR. T.E.	PR. TRAN. ENGR.	DATE

CITY OF LOS ANGELES
VITALY B. TROYAN CITY ENGINEER
DATE ____ 19 ____
DIV./DIST. ENGR. R.E. NO.



LEGEND

1. EXISTING STRIPING & MARKINGS TO REMAIN
   EXISTING STRIPING & MARKINGS TO BE REMOVED
   PROPOSED STRIPING & MARKINGS
2. EXISTING SIGNS ▸ PROPOSED SIGNS
3. SIGNALIZED INTERSECTION
4. EXISTING RED CURB
   PROPOSED RED CURB

NOTES

1. LENGTH OF DESIGN : 1100' ±
2. PAINT REMOVAL REQUIRED.

CONSTRUCTION NOTES:

1. THE ATSAC CONTRACTOR SHALL BE RESPONSIBLE FOR LABOR AND MATERIAL INVOLVED IN THE REMOVAL, MARKOUT, AND INSTALLATION OF ALL STRIPING / PAVEMENT MARKINGS SHOWN HEREON. REMOVAL OF MARKINGS SHALL BE PERFORMED BEFORE MARKOUT AND INSTALLATION OF NEW STRIPING AND SHALL BE BY WET SANDBLASTING IN ACCORDANCE WITH LADOT SPECIFICATION NO. 76-016-10. MARKOUT SHALL BE HEAVY PAINT BRUSH MARKINGS OVER A PULLED ROPE IN THE RESPECTIVE WHITE AND YELLOW COLORS OF THE PROPOSED STRIPING. (STRIPING GAPS SHALL BE DOTTED). STRIPING AND PAVEMENT MARKINGS SHALL BE IN HOT APPLIED ALKYD THERMOPLASTIC IN ACCORDANCE WITH LADOT SPECIFICATIONS NOS. 51-005-05 AND 76-012-10.
2. THE INSTALLATION OF STRIPING MAY PROCEED ONLY AFTER INSPECTION AND APPROVAL OF MARKOUT BY LADOT HOLLYWOOD-WILSHIRE DISTRICT OFFICE. THE CONTRACTOR SHALL CORRECT ALL ERRORS IN MARKOUT REQUESTED BY LADOT. THE CONTRACTOR SHALL CONTACT THE LADOT HOLLYWOOD-WILSHIRE DISTRICT OFFICE AT (213) 485-4282 UPON COMPLETION OF MARKOUT (INCLUDING ANY MARKOUT CORRECTIONS) FOR INSPECTION AND APPROVAL.

ATSAC SYSTEM IMPROVEMENT

SUBMITTED Aug. 06 19 98	RECOMMENDED Aug. 6 19 98	APPROVED Aug. 6 19 98
PATRICK A. TOMCHECK, Geometric Design Engineer	THOMAS L. JONES, Senior Design Engineer	JOHN E. FISHER, Principal Transp. Engineer

REGISTERED PROFESSIONAL ENGINEER · JOHN E. FISHER · No. 25566 · Exp. 12-31-2001 · CIVIL · STATE OF CALIFORNIA

INSTALLATION DATES
MARKOUT BEGAN:
MARKOUT COMPLETED:
STRIPING COMPLETED:
References: P 23114, 010.029, Field Check

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
FRANCES T. BANERJEE, GENERAL MANAGER

JEFFERSON BOULEVARD AND RODEO ROAD

SCALE: 1"=40'

Thomas Guide	District	PROJECT NO.	DRAWING NO.	
672,J1	HW	90229	A-2137	1 / 1

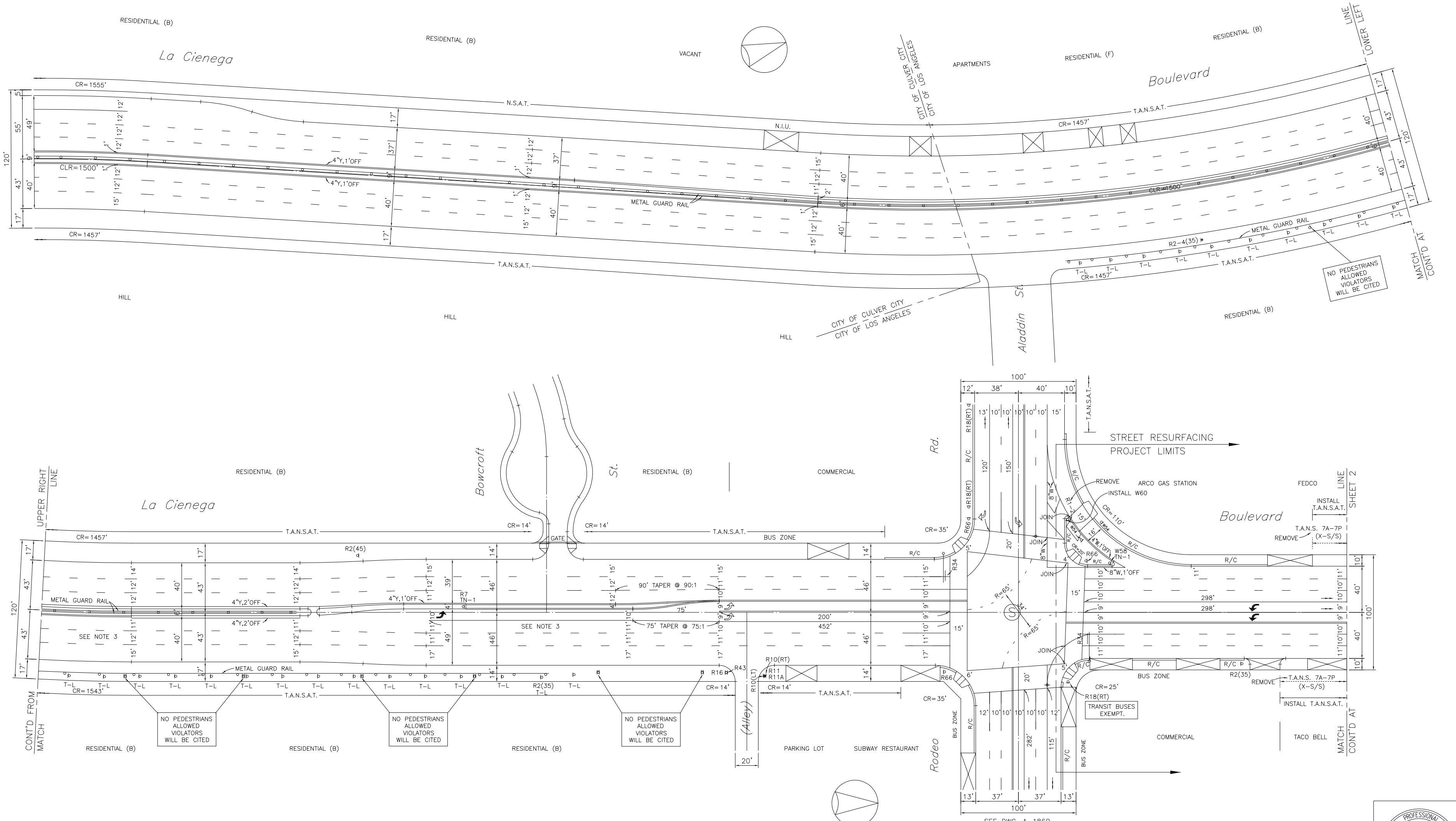
1"=20' ORIGINAL MAP SCALE 1"=40' — 20 10 0 20 40 60 80 100 FEET; 40 20 0 40 80 120 160 200 FEET

SCALES — HORIZ. 1"= ; VERT. 1"=
SHEET
INDEX NUMBER

	BY	DATE		
BASE	RGF	4-17-98	SUPERVISOR	
FIELD	RGF	4-19-98	S.T.A.R.	
DRAFTING			DISTRICT	
CHECK			SIGNALS	
DESIGN	MC		BIKEWAYS	
			BY	DATE

NO.	REVISION DESCRIPTION (NON CADD PLANS ONLY)	T.E.	SR. T.E.	PR. TRAN. ENGR.	DATE

CITY OF LOS ANGELES
THOMAS K. CONNER, CITY ENGINEER
DATE ______ 19__
DIV./DIST. ENGR. R.E. NO.



STREET RESURFACING PROJECT F.Y.1998-99
LA CIENEGA BL.- RODEO RD. TO FAIRFAX AV. W.O.298210

LEGEND

1. EXISTING STRIPING & MARKINGS TO REMAIN
   EXISTING STRIPING & MARKINGS TO BE REMOVED
   PROPOSED STRIPING & MARKINGS
2. EXISTING SIGNS * PROPOSED SIGNS
3. SIGNALIZED INTERSECTION
4. R/C EXISTING RED CURB
   R/C PROPOSED RED CURB

NOTES

1. LENGTH OF DESIGN : 3,020' ±
2. SIGNAL LOOP RELOCATIONS ARE NOT REQUIRED WITH THIS PLAN.
3. DISTRICT TO REPAINT FADED STRIPING.

BASE	E.C.	3-5-99	SUPERVISOR	P.A.T.	4-1-99
FIELD	E.C.	2-25-99	S.T.A.R.		
DRAFTING	E.C.	4-6-99	DISTRICT		
CHECK			SIGNALS		
DESIGN	P.A.T.	4-1-99	BIKEWAYS		

	BY	DATE		BY	DATE
BASE	E.C.	3-5-99	SUPERVISOR	P.A.T.	4-1-99
FIELD	E.C.	2-25-99	S.T.A.R.		
DRAFTING	E.C.	4-6-99	DISTRICT		
CHECK			SIGNALS		
DESIGN	P.A.T.	4-1-99	BIKEWAYS		

NO.	REVISION DESCRIPTION (NON CADD PLANS ONLY)	T.E.	SR. T.E.	PR. TRAN. ENGR.	DATE

REGISTERED PROFESSIONAL ENGINEER THOMAS L. JONES No. 19381 Exp. 09-30-2001 CIVIL STATE OF CALIFORNIA

SUBMITTED APRIL 14 19 99 PATRICK A. TOMCHECK Transportation Engineer

APPROVED APRIL 14 19 99 THOMAS L. JONES Senior Transportation Engineer

INSTALLATION DATES
MARKOUT BEGAN:
MARKOUT COMPLETED:
STRIPING COMPLETED:

References:

DWG.A-0967	P-26502
DWG.A-1860	P-30173
DWG.010.079	F.B.16710
DWG.110.031	F.B.21403
D-25833	F.B.117-173
P-17931	F.B.120-173
Thomas Guide	District
673,A1-A2	H.W.

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
FRANCES T. BANERJEE, GENERAL MANAGER

LA CIENEGA BOULEVARD
2030' S/O RODEO RD. TO FAIRFAX AVE.

PROJECT NO. 72303 DRAWING NO. A-2372 1 / 3

CITY OF LOS ANGELES
THOMAS K. CONNER CITY ENGINEER
DATE ____ 19__
DIV./DIST. ENGR. R.E. NO.

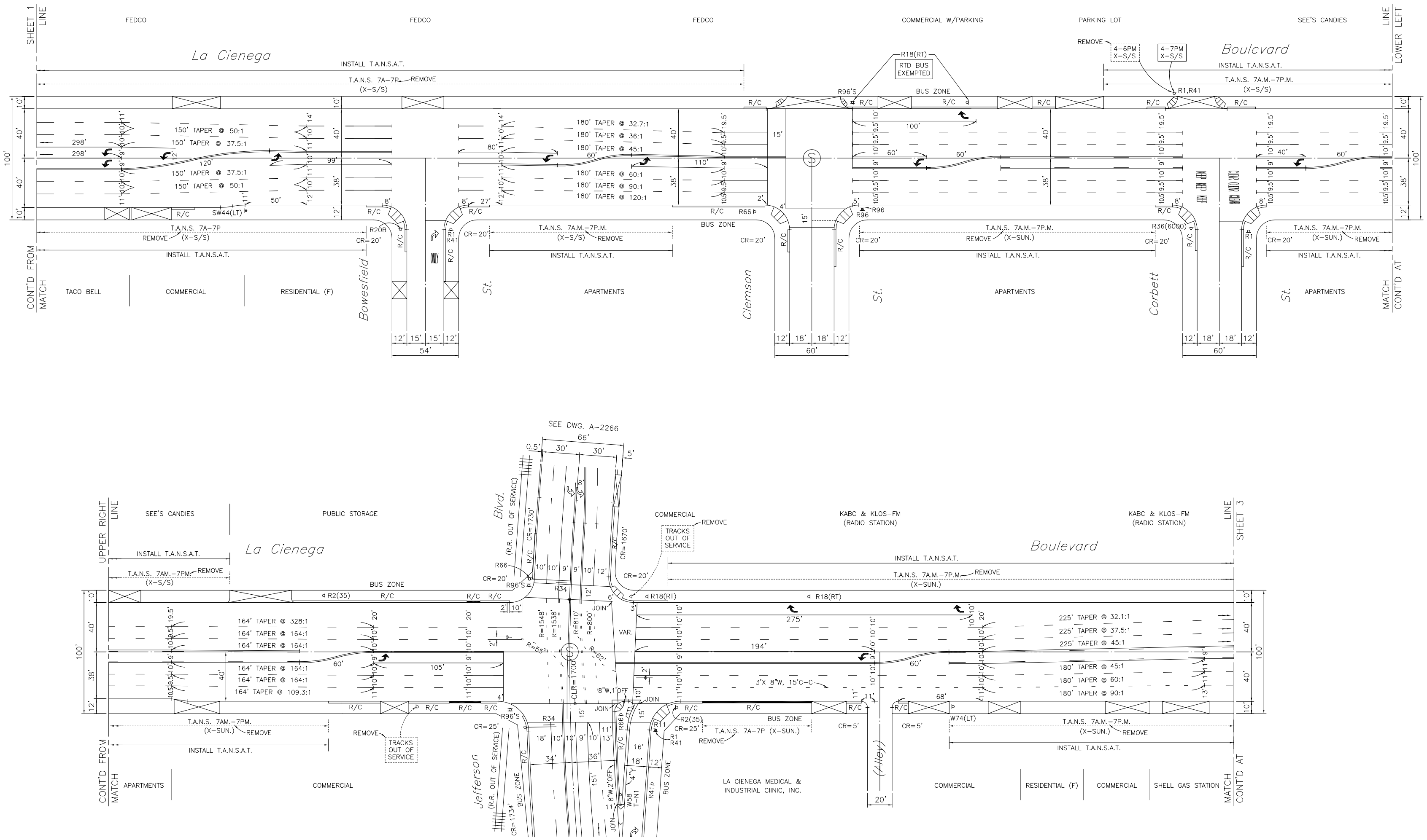
SCALE: 1"=40'

1"=20' ORIGINAL MAP SCALE 1"=40' 20 10 0 20 40 60 80 100 FEET / 40 20 0 40 80 120 160 200 FEET

SCALES HORIZ. 1"= VERT. 1"=

SHEET

INDEX NUMBER



INSTALLATION DATES	
MARKOUT BEGAN:	
MARKOUT COMPLETED:	
STRIPING COMPLETED:	
DWG.A–6062	P–26502
DWG.A–1860	P–30173
DWG.010.079	F.B.16710
DWG.110.031	F.B.21403
D–25833	F.B.117–173
P–17931	F.B.120–173
Thomas Guide	District
673,A1–A2	H.W.

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
FRANCES T. BANERJEE, GENERAL MANAGER

LA CIENEGA BOULEVARD
2030' S/O RODEO RD. TO FAIRFAX AVE.

PROJECT NO. 72303 — DRAWING NO. A–2372 — SHEET 2 / 3 — INDEX NUMBER

SCALES — HORIZ. 1"= — VERT. 1"=

	BY	DATE		BY	DATE
BASE	E.C.	3–5–99	SUPERVISOR	P.A.T.	4–1–99
FIELD	E.C.	2–25–99	S.T.A.R.		
DRAFTING	E.C.	4–6–99	DISTRICT		
CHECK			SIGNALS		
DESIGN	P.A.T.	4–1–99	BIKEWAYS		

NO.	REVISION DESCRIPTION (NON CADD PLANS ONLY)	T.E.	SR. T.E.	PR. TRAN. ENGR.	DATE

CITY OF LOS ANGELES
THOMAS K. CONNER, CITY ENGINEER
DATE ____ 19 ____
DIV./DIST. ENGR. R.E. NO.

APPENDIX D

TRAFFIC GENERATION DATA

DIVISION 10
742 North Mission Road
Los Angeles, California

A. SITE and YARD:

Division 10 is situated on a 20-acre site in East Los Angeles near the Los Angeles River channel. The facility is one of the most centrally located Divisions in the system. The Maintenance and Transportation buildings were constructed in 1984.

Surrounding Land Uses:

- North: Mission Road - Industrial Property
- South: Interstate 10 - Railway r/w
- East: Developed Property - Commercial Property
- West: San Vicente Blvd. - Commercial Property

Employee Parking (on-site):

Surface Parking:	293 spaces
Handicapped Parking:	2 spaces

Environmental:

Soil and groundwater contamination exists at the site as a result of the underground storage tank upgrade work in 1998. The contamination exists at two distinct locations, east of the maintenance storage shed and south of the fuel island. Metro is continuing to monitor and report to the Regional Water Quality Control Board on the quality of groundwater at the site. Natural attenuation and biodegradation of contaminants in groundwater is reported to be occurring.

B. FLEET ASSIGNMENT:

Parking Configuration:	In-Line, Tandem
Designed Capacity of Yard:	241 coaches
Current Storage Capacity:	259 coaches
Maximum Capacity:	276 coaches
Size of current fleet:	271 standard 40-ft. coaches
Type of current fleet:	250 CNG fueled 21 Diesel fueled

Employee and Bus
Trip Generation
Jefferson Boulevard
Los Angeles, California

Time of Day	EMPLOYEE TRIPS IN	EMPLOYEE TRIPS OUT	TOTAL EMPLOYEE TRIPS	BUS (PCE) TRIPS IN	BUS (PCE) TRIPS OUT	TOTAL BUS (PCE) TRIPS	TOTAL IN	TOTAL OUT	TOTAL
4:00 AM	36	6	42	8	44	52	44	50	94
5:00 AM	67	10	77	6	82	88	73	92	165
6:00 AM	33	20	53	2	88	90	35	108	143
7:00 AM	17	15	32	6	22	28	23	37	60
8:00 AM	9	13	22	34	10	44	43	23	66
9:00 AM	23	28	51	44	12	56	67	40	107
10:00 AM	27	24	51	20	8	28	47	32	79
11:00 AM	28	24	52	12	12	24	40	36	76
12:00 AM	40	30	70	16	32	48	56	62	118
1:00 PM	46	32	78	16	28	44	62	60	122
2:00 PM	26	45	71	6	52	58	32	97	129
3:00 PM	14	17	31	4	22	26	18	39	57
4:00 PM	11	13	24	4	8	12	15	21	36
5:00 PM	16	19	35	26	4	30	42	23	65
6:00 PM	9	22	31	68	4	72	77	26	103
7:00 PM	11	36	47	72	10	82	83	46	129
8:00 PM	8	28	36	32	8	40	40	36	76
9:00 PM	10	15	25	14	2	16	24	17	41
Total	431	397	828	390	448	838	821	845	1666

Time of Day	EMPLOYEE TRIPS IN	EMPLOYEE TRIPS OUT	TOTAL EMPLOYEE TRIPS	BUS TRIPS IN	BUS TRIPS OUT	TOTAL BUS TRIPS	TOTAL IN	TOTAL OUT	TOTAL
4:00 AM	36	6	42	4	22	26	40	28	68
5:00 AM	67	10	77	3	41	44	70	51	121
6:00 AM	33	20	53	1	44	45	34	64	98
7:00 AM	17	15	32	3	11	14	20	26	46
8:00 AM	9	13	22	17	5	22	26	18	44
9:00 AM	23	28	51	22	6	28	45	34	79
10:00 AM	27	24	51	10	4	14	37	28	65
11:00 AM	28	24	52	6	6	12	34	30	64
12:00 AM	40	30	70	8	16	24	48	46	94
1:00 PM	46	32	78	8	14	22	54	46	100
2:00 PM	26	45	71	3	26	29	29	71	100
3:00 PM	14	17	31	2	11	13	16	28	44
4:00 PM	11	13	24	2	4	6	13	17	30
5:00 PM	16	19	35	13	2	15	29	21	50
6:00 PM	9	22	31	34	2	36	43	24	67
7:00 PM	11	36	47	36	5	41	47	41	88
8:00 PM	8	28	36	16	4	20	24	32	56
9:00 PM	10	15	25	7	1	8	17	16	33
Total	431	397	828	195	224	419	626	621	1,247

APPENDIX E

TRAFFIC VOLUME DATA

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: CULVER CITY / LOS ANGELES
DATE: WEDNESDAY, AUGUST 06 , 2003
PERIOD:
INTERSECTION: N/S JEFFERSON BLVD.
E/W HIGUERA ST. / RODEO RD.
FILE NUMBER: 2

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	8	132	13	5	144	123	55	86	8	0	11	0
715-730	11	160	18	7	159	154	62	102	12	0	14	0
730-745	13	203	25	13	184	183	73	112	18	0	18	0
745-800	19	238	37	15	231	237	88	123	18	1	20	1
800-815	19	193	34	13	256	243	103	140	24	3	23	0
815-830	19	137	43	12	246	239	107	143	19	3	23	1
830-845	18	184	42	16	235	228	93	127	17	4	20	4
845-900	16	197	29	7	192	205	97	133	22	8	21	2
900-915	20	185	25	7	162	172	95	112	22	8	20	0
915-930	19	165	26	8	135	134	97	80	19	13	21	5
930-945	19	154	26	8	119	124	76	87	15	9	17	3
945-1000	18	127	27	7	108	116	64	77	11	10	12	2

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	51	733	93	40	718	697	278	423	56	1	63	1	3154
715-815	62	794	114	48	830	817	326	477	72	4	75	1	3620
730-830	70	771	139	53	917	902	371	518	79	7	84	2	3913
745-845	**75**	**752**	**156**	**56**	**968**	**947**	**391**	**533**	**78**	**11**	**86**	**6**	**4059**
800-900	72	711	148	48	929	915	400	543	82	18	87	7	3960
815-915	73	703	139	42	835	844	392	515	80	23	84	7	3737
830-930	73	731	122	38	724	739	382	452	80	33	82	11	3467
845-945	74	701	106	30	608	635	365	412	78	38	79	10	3136
900-1000	76	631	104	30	524	546	332	356	67	40	70	10	2786

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	7	134	86	8	90	113	150	137	11	13	70	2
415-430	7	133	93	9	93	122	158	136	13	14	70	3
430-445	8	142	94	10	93	130	159	141	17	11	64	4
445-500	7	149	92	7	102	134	144	132	10	11	73	5
500-515	9	158	102	12	113	138	152	143	12	17	84	12
515-530	10	175	115	7	130	154	160	153	12	14	87	11
530-545	7	158	116	11	122	155	166	165	14	17	92	8
545-600	4	145	86	8	104	140	156	155	10	21	89	5
600-615	4	145	80	5	89	143	179	164	7	24	81	9
615-630	2	142	85	7	87	144	173	150	8	14	82	5
630-645	3	130	79	6	84	142	174	143	8	10	78	2
645-700	1	128	74	5	79	134	179	144	7	7	65	3

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	29	558	365	34	378	499	611	546	51	49	277	14	3411
415-515	31	582	381	38	401	524	613	552	52	53	291	24	3542
430-530	34	624	403	36	438	556	615	569	51	53	308	32	3719
445-545	33	640	425	37	467	581	622	593	48	59	336	36	3877
500-600	**30**	**636**	**419**	**38**	**469**	**587**	**634**	**616**	**48**	**69**	**352**	**36**	**3934**
515-615	25	623	397	31	445	592	661	637	43	76	349	33	3912
530-630	17	590	367	31	402	582	674	634	39	76	344	27	3783
545-645	13	562	330	26	364	569	682	612	33	69	330	21	3611
600-700	10	545	318	23	339	563	705	601	30	55	306	19	3514

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: CULVER CITY / LOS ANGELES
DATE: WEDNESDAY, AUGUST 06 , 2003
PERIOD:
INTERSECTION: N/S JEFFERSON BLVD.
E/W JEFFERSON BLVD. / NATIONAL BLVD.
FILE NUMBER: 3

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	0	0	0	0	156	142	99	0	0	22	44	0
715-730	0	0	0	0	209	178	115	0	0	31	51	0
730-745	0	0	0	0	213	219	118	0	0	34	61	0
745-800	0	0	0	0	193	213	125	0	0	40	63	0
800-815	0	0	0	0	172	212	147	0	0	34	80	0
815-830	0	0	0	0	156	207	177	0	0	39	83	0
830-845	0	0	0	0	144	199	155	0	0	29	75	0
845-900	0	0	0	0	138	193	138	0	0	34	71	0
900-915	0	0	0	0	128	168	124	0	0	30	50	0
915-930	0	0	0	0	115	152	101	0	0	31	54	0
930-945	0	0	0	0	109	134	98	0	0	31	53	0
945-1000	0	0	0	0	104	134	77	0	0	35	55	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	0	0	0	0	771	752	457	0	0	127	219	0	2326
715-815	0	0	0	0	787	822	505	0	0	139	255	0	2508
730-830	**0**	**0**	**0**	**0**	**734**	**851**	**567**	**0**	**0**	**147**	**287**	**0**	**2586**
745-845	0	0	0	0	665	831	604	0	0	142	301	0	2543
800-900	0	0	0	0	610	811	617	0	0	136	309	0	2483
815-915	0	0	0	0	566	767	594	0	0	132	279	0	2338
830-930	0	0	0	0	525	712	518	0	0	124	250	0	2129
845-945	0	0	0	0	490	647	461	0	0	126	228	0	1952
900-1000	0	0	0	0	456	588	400	0	0	127	212	0	1783

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	0	0	0	0	70	106	182	0	0	63	193	0
415-430	0	0	0	0	61	116	192	0	0	72	209	0
430-445	0	0	0	0	67	109	194	0	0	71	214	0
445-500	0	0	0	0	61	115	196	0	0	66	218	0
500-515	0	0	0	0	72	117	211	0	0	69	227	0
515-530	0	0	0	0	79	135	224	0	0	86	230	0
530-545	0	0	0	0	71	154	240	0	0	93	249	0
545-600	0	0	0	0	68	126	221	0	0	86	238	0
600-615	0	0	0	0	68	128	219	0	0	92	215	0
615-630	0	0	0	0	61	123	220	0	0	82	214	0
630-645	0	0	0	0	62	116	193	0	0	82	194	0
645-700	0	0	0	0	65	108	188	0	0	77	152	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	0	0	0	0	259	446	764	0	0	272	834	0	2575
415-515	0	0	0	0	261	457	793	0	0	278	868	0	2657
430-530	0	0	0	0	279	476	825	0	0	292	889	0	2761
445-545	0	0	0	0	283	521	871	0	0	314	924	0	2913
500-600	0	0	0	0	290	532	896	0	0	334	944	0	2996
515-615	**0**	**0**	**0**	**0**	**286**	**543**	**904**	**0**	**0**	**357**	**932**	**0**	**3022**
530-630	0	0	0	0	268	531	900	0	0	353	916	0	2968
545-645	0	0	0	0	259	493	853	0	0	342	861	0	2808
600-700	0	0	0	0	256	475	820	0	0	333	775	0	2659

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: CULVER CITY / LOS ANGELES
DATE: WEDNESDAY, AUGUST 06 , 2003
PERIOD:
INTERSECTION: N/S LA CIENEGA BLVD.
E/W JEFFERSON BLVD.
FILE NUMBER: 1

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	65	301	12	42	97	22	30	556	24	15	83	90
715-730	77	341	15	52	127	27	37	616	32	20	123	111
730-745	92	388	20	63	155	29	34	689	32	19	151	119
745-800	99	351	24	77	178	24	31	698	38	20	126	117
800-815	98	334	20	65	152	25	36	685	32	17	121	117
815-830	92	321	21	56	128	24	31	652	38	18	90	107
830-845	89	320	29	44	111	24	30	643	40	16	81	97
845-900	85	325	32	36	96	36	40	635	45	14	79	84
900-915	85	331	32	36	93	45	42	640	48	18	84	72
915-930	87	336	37	36	84	56	41	636	45	12	84	74
930-945	91	352	34	35	82	52	38	635	43	16	83	71
945-1000	87	347	32	19	84	51	37	622	38	11	76	62

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	333	1381	71	234	557	102	132	2559	126	74	483	437	6489
715-815	366	1414	79	257	612	105	138	2688	134	76	521	464	6854
730-830	**381**	**1394**	**85**	**261**	**613**	**102**	**132**	**2724**	**140**	**74**	**488**	**460**	**6854**
745-845	378	1326	94	242	569	97	128	2678	148	71	418	438	6587
800-900	364	1300	102	201	487	109	137	2615	155	65	371	405	6311
815-915	351	1297	114	172	428	129	143	2570	171	66	334	360	6135
830-930	346	1312	130	152	384	161	153	2554	178	60	328	327	6085
845-945	348	1344	135	143	355	189	161	2546	181	60	330	301	6093
900-1000	350	1366	135	126	343	204	158	2533	174	57	327	279	6052

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	39	372	19	68	97	15	52	437	7	53	254	137
415-430	37	378	24	66	104	22	50	434	5	52	251	134
430-445	39	383	28	75	102	24	56	457	8	59	250	139
445-500	42	393	24	78	96	21	64	453	12	68	268	147
500-515	40	386	18	85	85	15	68	487	11	74	271	171
515-530	42	406	17	84	87	11	66	522	17	89	274	189
530-545	48	393	16	76	84	15	54	545	15	92	282	195
545-600	42	392	16	78	85	12	52	579	18	87	281	163
600-615	49	378	22	82	85	17	54	586	16	80	277	154
615-630	47	353	15	80	88	11	50	581	15	74	279	150
630-645	46	345	16	72	84	11	48	573	10	72	277	146
645-700	41	341	15	75	81	12	47	561	11	66	265	143

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	157	1526	95	287	399	82	222	1781	32	232	1023	557	6393
415-515	158	1540	94	304	387	82	238	1831	36	253	1040	591	6554
430-530	163	1568	87	322	370	71	254	1919	48	290	1063	646	6801
445-545	172	1578	75	323	352	62	252	2007	55	323	1095	702	6996
500-600	172	1577	67	323	341	53	240	2133	61	342	1108	718	7135
515-615	**181**	**1569**	**71**	**320**	**341**	**55**	**226**	**2232**	**66**	**348**	**1114**	**701**	**7224**
530-630	186	1516	69	316	342	55	210	2291	64	333	1119	662	7163
545-645	184	1468	69	312	342	51	204	2319	59	313	1114	613	7048
600-700	183	1417	68	309	338	51	199	2301	52	292	1098	593	6901

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: CULVER CITY
LOCATION: JEFFERSON BOULEVARD S/O NATIONAL BOULEVARD
DATE: WEDNESDAY, AUGUST 06, 2003
FILE NO: A-1

DIRECTION:	NORTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	11	9	5	3	28
01:00	3	3	1	3	10
02:00	4	7	3	3	17
03:00	1	5	1	1	8
04:00	0	3	4	4	11
05:00	8	12	13	30	63
06:00	32	50	48	76	206
07:00	103	118	131	131	483
08:00	154	140	164	135	593
09:00	112	104	105	85	406
10:00	85	99	108	91	383
11:00	95	102	88	74	359
12:00	90	92	112	101	395
13:00	114	105	123	106	448
14:00	107	118	170	108	503
15:00	139	134	157	151	581
16:00	178	168	201	179	726
17:00	250	205	212	202	869
18:00	213	174	179	154	720
19:00	111	105	101	83	400
20:00	93	66	64	66	289
21:00	66	71	34	47	218
22:00	37	39	46	37	159
23:00	14	20	17	15	66
				TOTAL	7941
AM PEAK HOUR		08:00-09:00			
VOLUME		593			
PM PEAK HOUR		17:00-18:00			
VOLUME		869			

DIRECTION:	SOUTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	16	8	8	9	41
01:00	3	8	4	6	21
02:00	4	8	0	7	19
03:00	4	6	3	4	17
04:00	6	7	10	10	33
05:00	17	23	73	78	191
06:00	53	82	102	137	374
07:00	148	195	240	232	815
08:00	203	178	215	211	807
09:00	185	129	162	145	621
10:00	149	115	114	115	493
11:00	109	111	118	130	468
12:00	133	108	152	125	518
13:00	134	120	119	122	495
14:00	145	141	162	139	587
15:00	128	146	147	169	590
16:00	158	171	160	177	666
17:00	177	187	204	211	779
18:00	215	185	195	173	768
19:00	135	121	106	103	465
20:00	87	61	51	65	264
21:00	53	65	61	57	236
22:00	45	47	34	28	154
23:00	27	27	25	16	95
				TOTAL	9517
AM PEAK HOUR		07:15-08:15			
VOLUME		870			
PM PEAK HOUR		17:15-18:15			
VOLUME		817			

TOTAL BI-DIRECTIONAL VOLUME	17458

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: CULVER CITY
LOCATION: JEFFERSON BOULEVARD S/O NATIONAL BOULEVARD
DATE: THURSDAY, AUGUST 07, 2003
FILE NO: A-2

DIRECTION:	NORTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	11	9	8	6	34
01:00	5	8	4	3	20
02:00	3	5	2	2	12
03:00	0	1	2	2	5
04:00	2	1	4	2	9
05:00	8	13	18	25	64
06:00	55	42	47	67	211
07:00	95	131	135	169	530
08:00	147	178	153	135	613
09:00	132	127	90	78	427
10:00	70	91	86	97	344
11:00	99	98	96	99	392
12:00	108	101	124	123	456
13:00	121	103	101	115	440
14:00	108	108	162	113	491
15:00	146	117	152	131	546
16:00	189	174	209	192	764
17:00	217	220	194	183	814
18:00	191	197	177	110	675
19:00	130	110	92	91	423
20:00	101	82	61	70	314
21:00	86	70	55	46	257
22:00	53	27	45	24	149
23:00	25	23	15	7	70
				TOTAL	8060
AM PEAK HOUR		07:45-08:45			
VOLUME		647			
PM PEAK HOUR		16:30-17:30			
VOLUME		838			

DIRECTION:	SOUTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	14	12	10	5	41
01:00	6	5	5	4	20
02:00	8	6	2	3	19
03:00	6	4	7	3	20
04:00	3	10	7	9	29
05:00	14	24	60	87	185
06:00	35	88	91	138	352
07:00	135	191	236	243	805
08:00	196	190	185	193	764
09:00	170	143	153	147	613
10:00	159	106	114	99	478
11:00	98	107	134	127	466
12:00	130	101	145	144	520
13:00	149	130	155	125	559
14:00	135	131	158	174	598
15:00	156	152	160	178	646
16:00	172	193	160	148	673
17:00	191	197	214	230	832
18:00	203	188	154	165	710
19:00	146	136	96	105	483
20:00	99	82	62	68	311
21:00	65	48	48	41	202
22:00	55	50	51	33	189
23:00	31	24	20	16	91
				TOTAL	9606
AM PEAK HOUR		07:15-08:15			
VOLUME		866			
PM PEAK HOUR		17:15-18:15			
VOLUME		844			

TOTAL BI-DIRECTIONAL VOLUME	17666

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

BETA FILE

City of Los Angeles

Department of Transportation

COUNTER ARMANDO

DATE 05/06/1903

START TIME 12 AM

LOCATION	JEFFERSON BL E/O LA CIENEGA BL	DAY OF WEEK	TUESDAY	DATE PREPARED	07-May-03
INTERSECTION	E/W STREET	DOT DISTRICT	HOLLYWOOD	SENSOR LAYOUT	'11'
DESCRIPTION	4E+009	WEATHER	CLOUDY	SENSOR SPACING	'160'

	NORTH / WEST BOUND					SOUTH / EAST BOUND					
TIME	1ST QTR	2ND QTR	3RD QTR	4TH QTR	HOUR TOTAL	1ST QTR	2ND QTR	3RD QTR	4TH QTR	HOUR TOTAL	TOTAL
12 AM	16	13	6	12	47	24	22	16	17	79	126
1 AM	6	10	3	7	26	14	14	10	7	45	71
2 AM	7	3	2	8	20	10	8	5	5	28	48
3 AM	8	5	8	10	31	5	9	3	4	21	52
4 AM	10	10	14	26	60	1	8	7	7	23	83
5 AM	27	35	66	84	212	11	10	16	24	61	273
6 AM	76	112	160	242	590	40	52	68	90	250	840
7 AM	298	270	260	288	1116	103	112	101	140	456	1572
8 AM	285	266	254	275	1080	174	182	183	151	690	1770
9 AM	243	186	180	134	743	120	128	114	128	490	1233
10 AM	134	146	150	144	574	128	112	124	115	479	1053
11 AM	113	118	136	139	506	118	144	132	126	520	1026
12 NN	148	128	148	130	554	166	139	138	127	570	1124
1 PM	146	138	145	142	571	158	150	154	147	609	1180
2 PM	136	148	158	158	600	163	159	168	167	657	1257
3 PM	166	179	170	190	705	160	181	238	242	821	1526
4 PM	188	191	222	212	813	232	239	252	239	962	1775
5 PM	225	207	224	231	887	276	274	248	248	1046	1933
6 PM	216	207	197	165	785	240	233	198	168	839	1624
7 PM	118	128	111	83	440	187	130	152	118	587	1027
8 PM	92	90	82	60	324	98	97	100	103	398	722
9 PM	55	52	48	56	211	80	116	84	86	366	577
10 PM	60	50	33	30	173	75	64	72	50	261	434
11 PM	21	23	27	18	89	53	29	35	40	157	246

FIRST 12-HOURS PEAK QUARTER COUNT	298	7 AM	1ST	183	8 AM	3RD
LAST 12-HOURS PEAK QUARTER COUNT	231	5 PM	4TH	276	5 PM	1ST
24 HOUR VEHICLES TOTAL		11157			10415	21572
TOTAL VEHICLES STANDARD DEVIATION (STD)	[+,-]	335.32		[+,-]	305.18	610.87

PEAK HOURS VOLUME

	NORTH / WEST BOUND			SOUTH / EAST BOUND			BOTH DIRECTIONS	
	PEAK HOUR		VOLUME VEHICLES	PEAK HOUR		VOLUME VEHICLES	PEAK HOUR	VOLUME VEHICLES
FIRST 12H PEAK	7 AM		1116	8 AM		690	1116	1806
LAST 12H PEAK	5 PM		887	5 PM		1046	1046	1933
FIRST 12H PEAK STD		[+,-]	14.87		[+,-]	12.89		27.76
LAST 12H PEAK STD		[+,-]	8.93		[+,-]	13.52		22.45

PROGRAM BY LADOT

APPENDIX F

LEVEL OF SERVICE WORKSHEETS

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: Jefferson MTA Bus Maintenance Facility

Intersection: 1 Jefferson Boulevard and La Cienega Boulevard
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	140	140		66	66	
NB Thru	2724	952	*	2232	819	*
NB Right	132	N/A		226	N/A	
SB Left	85	85	*	71	71	*
SB Thru	1394	465		1569	523	
SB Right	381	381		181	181	
EB Left	460	253	*	701	386	
EB Thru	488	281		1114	731	*
EB Right	74	N/A		348	N/A	
WB Left	102	56		55	30	*
WB Thru	613	307	*	341	171	
WB Right (free)	261	261		320	320	

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	2	2
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	3	3
SB Right-Thru	0	0
SB Right	1	1
EB Left	2	2
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	1	1
EB Right	0	0
WB Left	2	2
WB Left-Thru	0	0
WB Thru	2	2
WB Right-Thru	0	0
WB Right	1	1

Approach **Direction**	RTOR Codes **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	3	3
Phasing Code	0	0
Capacity Codes	0	0

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	560	761
North/South Critical Volumes	1,037	890
Sum of Critical Volumes	1,597	1,652
Capacity	1,425	1,425
Intersection CMA Value	1.120	1.159
ATSAC CMA Value	1.050	1.089
Intersection Level of Service	F	F

==

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: Jefferson MTA Bus Maintenance Facility

Intersection: 1 Jefferson Boulevard and La Cienega Boulevard
Scenario: Future Conditions (2006), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	20	6	166	166		4	3	73	73	
NB Thru	1	110	2835	991	*	3	90	2325	854	*
NB Right	1	5	138	N/A		3	9	238	N/A	
SB Left	0	3	88	88	*	0	3	74	74	*
SB Thru	32	56	1482	494		8	63	1640	547	
SB Right	90	15	486	486		29	7	217	217	
EB Left	7	19	486	267	*	39	28	768	423	
EB Thru	17	20	525	302		67	45	1226	803	*
EB Right	3	3	80	N/A		18	14	380	N/A	
WB Left	9	4	115	63		7	2	64	35	*
WB Thru	127	25	765	382	*	80	14	435	217	
WB Right (free)	0	11	272	N/A		0	13	333	N/A	

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	2	2
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	3	3
SB Right-Thru	0	0
SB Right	1	1
EB Left	2	2
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	1	1
EB Right	0	0
WB Left	2	2
WB Left-Thru	0	0
WB Thru	2	2
WB Right-Thru	0	0
WB Right	1	1

Approach **Direction**	RTOR Codes **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	3	3
Phasing Code	0	0
Capacity Codes	0	0

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	649	838
North/South Critical Volumes	1,079	928
Sum of Critical Volumes	1,728	1,767
Capacity	1,425	1,425
Intersection CMA Value	1.213	1.240
ATSAC CMA Value	1.143	1.170
Intersection Level of Service	F	F

==

Future Conditions (2006), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: Jefferson MTA Bus Maintenance Facility

Intersection: 1 Jefferson Boulevard and La Cienega Boulevard
Scenario: Future Conditions (2006), With Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	166	0	166	166		73	0	73	73	
NB Thru	2835	0	2835	991	*	2325	0	2325	854	*
NB Right	138	0	138	N/A		238	0	238	N/A	
SB Left	88	0	88	88	*	74	0	74	74	*
SB Thru	1482	0	1482	494		1640	0	1640	547	
SB Right	486	51	537	537		217	71	288	288	
EB Left	486	20	506	278	*	768	11	779	429	
EB Thru	525	3	528	304		1226	2	1228	804	*
EB Right	80	0	80	N/A		380	0	380	N/A	
WB Left	115	0	115	63		64	0	64	35	*
WB Thru	765	2	767	383	*	435	1	436	218	
WB Right (free)	272	0	272	N/A		333	0	333	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	2	2
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	3	3
SB Right-Thru	0	0
SB Right	1	1
EB Left	2	2
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	1	1
EB Right	0	0
WB Left	2	2
WB Left-Thru	0	0
WB Thru	2	2
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Codes AM PEAK**	**RTOR Codes PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	3	3
Phasing Code	0	0
Capacity Codes	0	0

===

Critical Movement Analysis: Results Summary

===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	661	839
North/South Critical Volumes	1,079	928
Sum of Critical Volumes	1,740	1,768
Capacity	1,425	1,425
Intersection CMA Value	1.221	1.240
ATSAC CMA Value	1.151	1.170
Intersection Level of Service	F	F
PROJECT IMPACT VALUE	0.008	0.001

===

Future Conditions (2006), With Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: Jefferson MTA Bus Maintenance Facility

Intersection: 2 Jefferson Boulevard and Rodeo Road/Higuera Street
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	78	78	*	48	48	
NB Thru	533	267		616	308	*
NB Right (free)	0	391		0	634	
SB Left	156	156		419	419	*
SB Thru	752	376	*	636	318	
SB Right	75	75		30	30	
EB Left	6	6		36	36	
EB Thru	86	43	*	352	176	*
EB Right	11	11		69	69	
WB Left	947	521		587	323	
WB Thru	968	968	*	469	469	*
WB Right	56	56		38	38	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	2	2
NB Right-Thru	0	0
NB Right	1	1
SB Left	1	1
SB Left-Thru	0	0
SB Thru	2	2
SB Right-Thru	0	0
SB Right	1	1
EB Left	1	1
EB Left-Thru	0	0
EB Thru	2	2
EB Right-Thru	0	0
EB Right	1	1
WB Left	2	2
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Codes AM PEAK**	**RTOR Codes PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	3	3
Phasing Code	1	1
Capacity Codes	0	0

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	1,011	645
North/South Critical Volumes	454	727
Sum of Critical Volumes	1,465	1,372
Capacity	1,425	1,425
Intersection CMA Value	1.028	0.963
ATSAC CMA Value	0.958	0.893
Intersection Level of Service	E	D

==

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: Jefferson MTA Bus Maintenance Facility

Intersection: 2 Jefferson Boulevard and Rodeo Road/Higuera Street
Scenario: Future Conditions (2006), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	3	81	81	*	0	2	50	50	
NB Thru	28	22	583	291		110	25	751	375	*
NB Right (free)	33	16	0	407		135	26	0	660	
SB Left	0	6	162	162		0	17	436	436	*
SB Thru	200	30	982	491	*	89	26	751	375	
SB Right	0	3	78	78		0	1	31	31	
EB Left	0	0	6	6		0	1	37	37	
EB Thru	0	3	89	45	*	0	14	366	183	*
EB Right	0	0	11	11		0	3	72	72	
WB Left	99	38	1084	596		42	24	653	359	
WB Thru	0	39	1007	1007	*	0	19	488	488	*
WB Right	0	2	58	58		0	2	40	40	

	AM PEAK	PM PEAK
Movement	**Lanes**	**Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	2	2
NB Right-Thru	0	0
NB Right	1	1
SB Left	1	1
SB Left-Thru	0	0
SB Thru	2	2
SB Right-Thru	0	0
SB Right	1	1
EB Left	1	1
EB Left-Thru	0	0
EB Thru	2	2
EB Right-Thru	0	0
EB Right	1	1
WB Left	2	2
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	1	1

Approach	RTOR Codes	
Direction	**AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	3	3
Phasing Code	1	1
Capacity Codes	0	0

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	1,052	671
North/South Critical Volumes	572	811
Sum of Critical Volumes	1,624	1,482
Capacity	1,425	1,425
Intersection CMA Value	1.140	1.040
ATSAC CMA Value	1.070	0.970
Intersection Level of Service	F	E

==

Future Conditions (2006), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: Jefferson MTA Bus Maintenance Facility

Intersection: 2 Jefferson Boulevard and Rodeo Road/Higuera Street
Scenario: Future Conditions (2006), With Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	81	0	81	81	*	50	0	50	50	
NB Thru	583	3	586	293		751	1	752	376	*
NB Right (free)	0	0	0	407		0	0	0	660	
SB Left	162	11	173	173		436	9	445	445	*
SB Thru	982	6	988	494	*	751	4	755	377	
SB Right	78	0	78	78		31	0	31	31	
EB Left	6	0	6	6		37	0	37	37	
EB Thru	89	0	89	45	*	366	0	366	183	*
EB Right	11	0	11	11		72	0	72	72	
WB Left	1084	0	1084	596		653	0	653	359	
WB Thru	1007	0	1007	1007	*	488	0	488	488	*
WB Right	58	9	67	67		40	4	44	44	

	AM PEAK	PM PEAK
Movement	**Lanes**	**Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	2	2
NB Right-Thru	0	0
NB Right	1	1
SB Left	1	1
SB Left-Thru	0	0
SB Thru	2	2
SB Right-Thru	0	0
SB Right	1	1
EB Left	1	1
EB Left-Thru	0	0
EB Thru	2	2
EB Right-Thru	0	0
EB Right	1	1
WB Left	2	2
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	1	1

Approach	RTOR Codes	
Direction	**AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	3	3
Phasing Code	1	1
Capacity Codes	0	0

===
Critical Movement Analysis: Results Summary
===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	1,052	671
North/South Critical Volumes	575	821
Sum of Critical Volumes	1,627	1,492
Capacity	1,425	1,425
Intersection CMA Value	1.142	1.047
ATSAC CMA Value	1.072	0.977
Intersection Level of Service	F	E
PROJECT IMPACT VALUE	0.002	0.007

===
Future Conditions (2006), With Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: Jefferson MTA Bus Maintenance Facility

Intersection: 3 Jefferson Boulevard and National Boulevard
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	0	N/A		0	N/A	
NB Thru	0	N/A		0	N/A	
NB Right	567	284		904	452	*
SB Left	0	N/A		0	N/A	
SB Thru	0	N/A		0	N/A	
SB Right	0	N/A		0	N/A	
EB Left	0	N/A		0	N/A	
EB Thru	287	217	*	932	645	*
EB Right	147	N/A		357	N/A	
WB Left	851	528	*	543	276	
WB Thru	734	528		286	276	
WB Right	0	N/A		0	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	0	0
NB Thru	2	2
NB Right-Thru	0	0
NB Right	0	0
SB Left	0	0
SB Left-Thru	0	0
SB Thru	0	0
SB Right-Thru	0	0
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	1	1
EB Right	0	0
WB Left	1	1
WB Left-Thru	1	1
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Codes AM PEAK**	**RTOR Codes PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing Code	0	0
Capacity Codes	0	0

===

Critical Movement Analysis: Results Summary

===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	745	645
North/South Critical Volumes	-	452
Sum of Critical Volumes	745	1,097
Capacity	1,500	1,500
Intersection CMA Value	0.497	0.731
ATSAC CMA Value	0.427	0.661
Intersection Level of Service	A	B

===

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: Jefferson MTA Bus Maintenance Facility

Intersection: 3 Jefferson Boulevard and National Boulevard
Scenario: Future Conditions (2006), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	0	0	N/A		0	0	0	N/A	
NB Thru	0	0	0	N/A		0	0	0	N/A	
NB Right	15	23	605	302		52	37	993	496	*
SB Left	0	0	0	N/A		0	0	0	N/A	
SB Thru	0	0	0	N/A		0	0	0	N/A	
SB Right	0	0	0	N/A		0	0	0	N/A	
EB Left	0	0	0	N/A		0	0	0	N/A	
EB Thru	17	12	316	260	*	92	38	1062	723	*
EB Right	52	6	205	N/A		12	14	383	N/A	
WB Left	147	34	1032	629	*	77	22	642	324	
WB Thru	90	30	854	629		32	12	330	324	
WB Right	0	0	0	N/A		0	0	0	N/A	

	AM PEAK	PM PEAK
Movement	**Lanes**	**Lanes**
NB Left	0	0
NB Left-Thru	0	0
NB Thru	2	2
NB Right-Thru	0	0
NB Right	0	0
SB Left	0	0
SB Left-Thru	0	0
SB Thru	0	0
SB Right-Thru	0	0
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	1	1
EB Right	0	0
WB Left	1	1
WB Left-Thru	1	1
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach	RTOR Codes	
Direction	**AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing Code	0	0
Capacity Codes	0	0

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	889	723
North/South Critical Volumes	-	496
Sum of Critical Volumes	889	1,219
Capacity	1,500	1,500
Intersection CMA Value	0.593	0.813
ATSAC CMA Value	0.523	0.743
Intersection Level of Service	A	C

==

Future Conditions (2006), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: Jefferson MTA Bus Maintenance Facility

Intersection: 3 Jefferson Boulevard and National Boulevard
Scenario: Future Conditions (2006), With Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	0	0	0	N/A		0	0	0	N/A	
NB Thru	0	0	0	N/A		0	0	0	N/A	
NB Right	605	23	628	314		993	13	1006	503	*
SB Left	0	0	0	N/A		0	0	0	N/A	
SB Thru	0	0	0	N/A		0	0	0	N/A	
SB Right	0	0	0	N/A		0	0	0	N/A	
EB Left	0	0	0	N/A		0	0	0	N/A	
EB Thru	316	0	316	261	*	1062	0	1062	723	*
EB Right	205	2	207	N/A		383	1	384	N/A	
WB Left	1032	53	1085	646	*	642	72	714	348	
WB Thru	854	0	854	646		330	0	330	348	
WB Right (free)	0	0	0	N/A		0	0	0	N/A	

	AM PEAK	PM PEAK
Movement	**Lanes**	**Lanes**
NB Left	0	0
NB Left-Thru	0	0
NB Thru	2	2
NB Right-Thru	0	0
NB Right	0	0
SB Left	0	0
SB Left-Thru	0	0
SB Thru	0	0
SB Right-Thru	0	0
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	1	1
EB Right	0	0
WB Left	1	1
WB Left-Thru	1	1
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach	RTOR Codes	
Direction	**AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing Code	0	0
Capacity Codes	0	0

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	908	723
North/South Critical Volumes	-	503
Sum of Critical Volumes	908	1,226
Capacity	1,500	1,500
Intersection CMA Value	0.605	0.817
ATSAC CMA Value	0.535	0.747
Intersection Level of Service	A	C
PROJECT IMPACT VALUE	0.012	0.004

==

Future Conditions (2006), With Project

<u>Sunset Avenue Project</u>

F2 – Traffic Impact Analysis for a Mixed-Use Residential
& Commercial Development,
Overland Traffic Consultants, Inc.,
July 2004.

Overland Traffic Consultants, Inc.

TRAFFIC IMPACT ANALYSIS FOR A MIXED-USE RESIDENTIAL & COMMERCIAL DEVELOPMENT

Located at 100 East Sunset Avenue
in the City of Los Angeles

Prepared for:
RAD Management, LLC

Prepared by:
Overland Traffic Consultants, Inc.
25876 The Old Road #307
Santa Clarita, California 91381
(661) 799-8423

July 2004

TRAFFIC IMPACT ANALYSIS FOR A
MIXED – USE RESIDENTIAL & COMMERCIAL DEVELOPMENT

Located at 100 East Sunset Avenue
In the City of Los Angeles

Prepared for:
RAD Management, LLC

Prepared by:

Overland Traffic Consultants, Inc.
25876 The Old Road # 307
Santa Clarita, California 91381
(661) 799 – 8423

July 2004

EXECUTIVE SUMMARY

This report documents the results of a study evaluating potential traffic impacts created by the redevelopment of the existing MTA bus maintenance facility, as shown in the following aerial photograph. The project being proposed is the construction of a multi-family residential housing development of approximately 225 condominiums/lofts with 10,000 square feet of commercial retail.

Vehicular access to the site for the residents is located off Sunset Avenue approximately 100 feet west of Main Street. This access will provide for a residential entrance from Main Street only with egress to both Main Street and Pacific Avenue. The non-residential traffic (commercial and visitors) will be provided an entrance/exit on Main Street located approximately mid-block. The Main Street access will be a right-turn ingress/egress only driveway; no left-turns would be permitted at this location.

It is estimated that the redevelopment project would generate 2,326 daily vehicle trips with 185 morning and 203 afternoon peak hour trips. After accounting for the removal of the existing use and pass-by traffic discounts, the net change in site generated traffic added to the surrounding streets is estimated at 1,168 daily trips, 107 morning trips and 174 afternoon peak hour trips.

The focus of this traffic study is to evaluate the potential traffic impact created by the change in land use at nearby intersections selected for review by the City of Los Angeles Department of Transportation. The study intersections were determined based on the traffic assignment and the estimated amount of project generated peak hour traffic that would have the potential to create significant traffic impacts. Intersections with low amounts of project traffic not exceeding the traffic impact thresholds were not included in this analysis.

Using criteria established by the City of Los Angeles and Santa Monica (for those intersections located in Santa Monica), it has been determined that the change in traffic patterns associated with the redevelopment project may significantly impact the traffic flow at two intersections during the weekday peak hour traffic flow prior to the implementation of traffic mitigation measures.

The two intersections expected to be impacted by the project during the weekday peak hours are: Main Street and Rose Avenue, and Main Street and Sunset Avenue. Listed below are the recommended traffic mitigation measures for each intersection:

1. Right-turn Restrictions – The proposed Main Street non-residential access will be restricted to right-turns only (i.e., no left-turn ingress or egress will be permitted at this driveway.

2. Main Street and Rose Avenue – Pursuant to the Venice Community Plan Transportation Program, it is recommended that the project implement the improvement listed for the Main Street and Rose Avenue intersection (Chapter III page 30): which is to restripe the westbound Rose Avenue approach to provide an exclusive left-turn. Implementation of this improvement would require the removal of approximately four on-street parking spaces on Rose Avenue east of Main Street.

3. Main Street and Sunset Avenue – – Remove parking on the west side of Main Street north of Sunset Avenue for the installation of a southbound right-turn only lane at Sunset Avenue. Restripe the westbound Sunset Avenue approach to provide an exclusive right-turn lane. Construct the west leg of Sunset Avenue (project side) to include an exclusive right-turn lane and a through/left-turn lane. Implementation of this improvement would require the removal of approximately three on-street parking spaces on the west side of Main Street north of Sunset Avenue.

Summer Traffic Analysis

An analysis of summer traffic conditions has been conducted based on new traffic data collected in June 2004. Results of the project's summer traffic impacts indicate the project will have a significant impact at one intersection (Rose Avenue and Lincoln Boulevard). Possible traffic mitigation for the project's summer traffic impact include participation in the implementation of new transit programs such as the proposed Metro Rapid transit program for the Lincoln Boulevard corridor.

Recommend Beach Access Improvements

It is recommended that the project upgrade the existing pedestrian crossings located across Main Street at Sunset Avenue and across Pacific Avenue at Sunset Avenue with flashing markers/signage, i.e., "Smart Crosswalks". This improvement will enhance the pedestrian beach access for the new and existing residents.

Highway Dedications and Street Standards

A part from the project application process, the City of Los Angeles will review the adjacent street standards and may require additional street dedications and improvements. Below are the adjacent streets standards and current conditions.

Main Street and Pacific Avenue are both designated Secondary Highways. The standard for a secondary highway is 90 feet of right-of-way consisting of a 70 foot wide street with 10 foot sidewalks on each side. The half street dedication and street improvement requirements are therefore 45 feet of right-of-way with a 35 foot wide street and 10 foot sidewalks on each side.

A recent land survey shows that Main Street is currently developed with a total right-of-way of 90 feet (50 feet east side and 40 feet west side). The street is developed to approximately 56 feet in width consisting of 28 feet for each half street. The west sidewalk is 12 feet is width. Therefore, the City could ask for a 2-foot street widening reducing the 12-foot sidewalk to 10 feet in width along the project Main Street frontage.

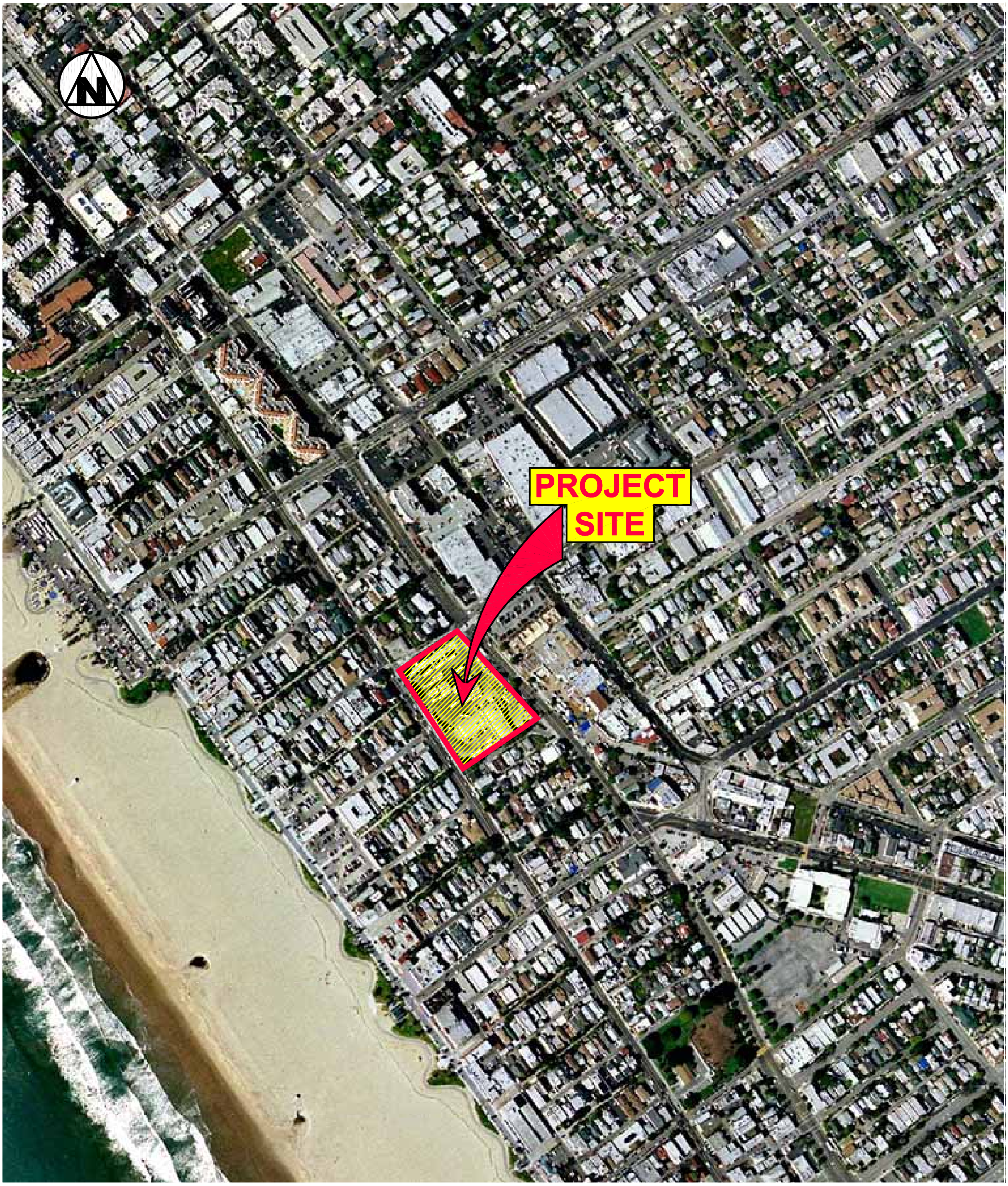
Pacific Avenue is developed to a 55-foot right-of-way with a 44-foot roadway with 5.5 foot sidewalks on each side. The half street dimensions are 27.5 feet of dedication with a 22-foot roadway. The project proposes to maintain the current street dimensions on Pacific Avenue and provide a 17.5 foot dedication. The City could ask for a 13-foot street widening on Pacific Avenue along the project frontage.

Sunset Avenue and Thornton Place are both designated local streets. A local street standard specifies a 60-foot right-of-way with a 36-foot wide roadway and 12-foot sidewalks on each side.

Sunset Avenue is developed with a 24-foot road with a 6-foot sidewalk on the north side for a total dedicated right-of-way of 30-feet. The dedicated right-of-way on Thornton Place varies from 16 to 20 feet in width. The roadway is unimproved and does not connect to Pacific Avenue. The dedicated centerlines of these roadways are assumed to be on center. Therefore, the City could ask for dedication and improvements on both local streets to complete a 30-foot ½ right-of-way and 18-foot ½ roadway.

The project proposes to dedicate 16 feet along the Sunset Avenue frontage to provide a 40 wide street with a 6 foot sidewalk easement along the south side for pedestrian facilities. The 40-foot side street is to provide additional angled parking along the south side of Sunset Avenue west of the proposed project driveway on Sunset Avenue. It is currently proposed that Thornton Place be retained in its current configuration and usage.

There may be exceptions to the highway standards and criteria contained in the Circulation Element of the General Plan and the City's Standard Street Dimensions as listed above where environmental issues, planning practices and community desires warrant alternate standards. Several exceptions as described above will be requested by the project during the environmental review process.



2/12/2004

PROJECT SETTING

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

TABLE OF CONTENTS

Chapter 1 - Introduction 1

Chapter 2 - Project Description 3

Chapter 3 - Environmental Setting 6

- Land Use 6
- Transportation Network 6
- Transit Information 10

Chapter 4 - Project Traffic Characteristics 11

- Project Traffic Generation 11
- Traffic Distribution and Assignment of Project Traffic 13

Chapter 5 - Traffic Conditions Analysis 19

- Analysis of Existing Traffic Conditions 19
- Analysis of Future Traffic Conditions 27
- Impacts on Regional Transportation System 43
- Construction Impacts 43

Chapter 6 – Mitigation Measures 48

Appendix A – Community Plan Land Use Information
Appendix B – Circulation Maps, Street Standards & Street Plans
Appendix C – Transit Routes
Appendix D – Summer Traffic Conditions
Appendix E – Traffic Assignment Data
Appendix F – Traffic Volume Data
Appendix G – Level of Service Worksheets

LIST OF FIGURES

Figure 1 Project Location 2

Figure 2 Project Site Plan 4

Figure 3 Study Intersections Characteristics 7

Figure 4 Project Traffic Distribution 14

Figure 5 Project Traffic Volume 15

Figure 6 Net Project Traffic Volume 17

Figure 7 Existing Traffic Volume - AM Peak Hour 23

Figure 8 Existing Traffic Volume - PM Peak Hour 25

Figure 9 Location of Related Projects 30

Figure 10 Traffic Volume (Without Project) - AM Peak Hour 32

Figure 11 Traffic Volume (Without Project) - PM Peak Hour 34

Figure 12 Traffic Volume (With Project) - AM Peak Hour 39

Figure 13 Traffic Volume (With Project) - PM Peak Hour 41

LIST OF TABLES

Project Trip Generation Rates 13

Estimated Project Traffic Generation 12

Level of Service Definitions 20

Existing Traffic Conditions Summary 22

Listing of Related Projects 28

Estimated Traffic Generation for Other Projects 29

Future Traffic Conditions Without Project 31

Future Traffic Conditions With Project 38

Future Traffic Conditions With Project Mitigation 49

CHAPTER 1 INTRODUCTION

The applicant, RAD Management plans to construct a mixed - use development consisting of approximately 225 condominiums/lofts and 10,000 square feet of commercial retail in the Venice community of Los Angeles. The project site is located at the block bounded by Sunset Avenue on the north, Pacific Avenue on the west, Thornton Place on the south and Main Street on the east as shown on Figure 1. Currently the site is occupied by the MTA Division 6 bus maintenance facility. The property has been an operating bus facility since 1930 with Transportation and Maintenance functions housed in a single 22,000 square foot structure.

An evaluation of the potential traffic impact created by the proposed project has been conducted as part of the project's environmental review. This traffic study was prepared using procedures adopted by the City of Los Angeles and the City of Santa Monica to evaluate the traffic impact of the redevelopment project. Existing and future traffic flows in the vicinity of the project site have been analyzed to estimate the project's traffic impact to the surrounding area. The following 13 intersections have been selected by the City of Los Angeles Department of Transportation for this traffic impact study.

1. Main Street and Ocean Park Boulevard (City of Santa Monica);
2. Main Street and Rose Boulevard;
3. Main Street and Sunset Avenue;
4. Main Street and Thornton Place;
5. Main Street and Abbot Kinney Boulevard;
6. Abbot Kinney Boulevard and Venice Boulevard;
7. Neilson Way and Ocean Park Boulevard (City of Santa Monica);
8. Pacific Avenue and Rose Avenue;
9. Pacific Avenue and Sunset Avenue;
10. Pacific Avenue and Windward Avenue;
11. Pacific Avenue and Venice Boulevard (N);
12. Pacific Avenue and Venice Boulevard (S); and
13. Rose Avenue and Lincoln Boulevard.

FIGURE 1

4/1/2004

PROJECT SITE LOCATION

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.coı

CHAPTER 2 PROJECT DESCRIPTION

The project consists of constructing approximately 225 condominiums and 10,000 square feet of commercial retail. Currently, the commercial component consists of a 1,000 square foot coffee shop, approximately 2,000 square feet of retail space and a 7,000 square foot spa/health club. Project parking is planned in a subterranean garage with a maximum of two parking levels with separate access for the residential and non-residential uses. Site access for the residential component is being considered on Sunset Avenue. The commercial access is proposed on Main Street. Site access on Pacific Avenue is not allowed in the Venice Specific Plan and therefore has not been considered. Conceptual vehicular access plans have been designed based on input received from the City of Los Angeles Department of Transportation and community comments.

It is proposed that the a new driveway on Sunset Avenue for the residential component of the project be constructed approximately 100 feet west of Main Street. This driveway will provide an entrance and exit to Main Street and an exit to Pacific Avenue. Traffic flow will remain one-way westbound to Pacific Avenue west of the proposed Sunset Avenue residential driveway.

A second entrance/exit for the non-residential is planned on Main Street approximately mid-block and is restricted to right-turn ingress and egress only. The conceptual site plan is illustrated in Figure 2(a) and the garage levels are illustrated in Figure 2(b).

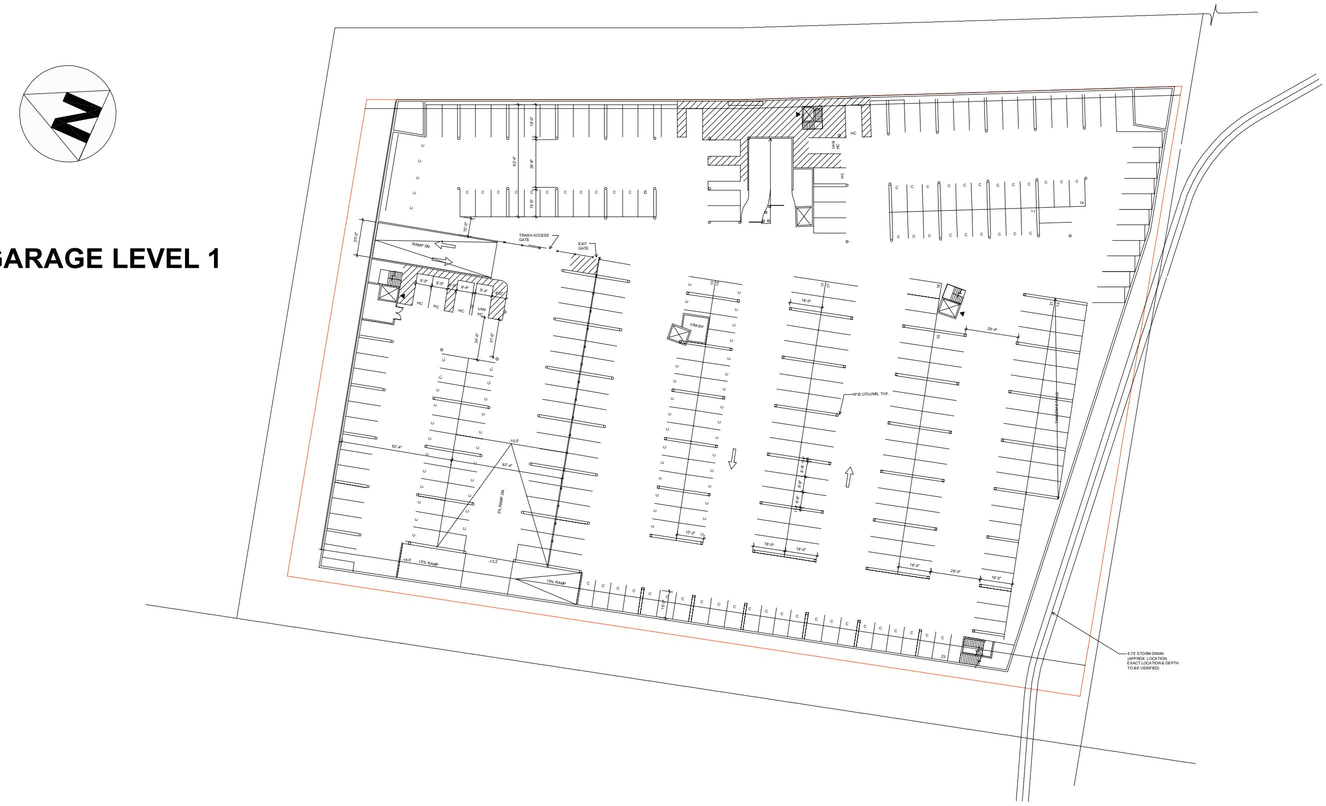
FIGURE 2(a)

7/24/2004

CONCEPTUAL PROJECT SITE PLAN

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.coı

GARAGE LEVEL 1



GARAGE LEVEL 2

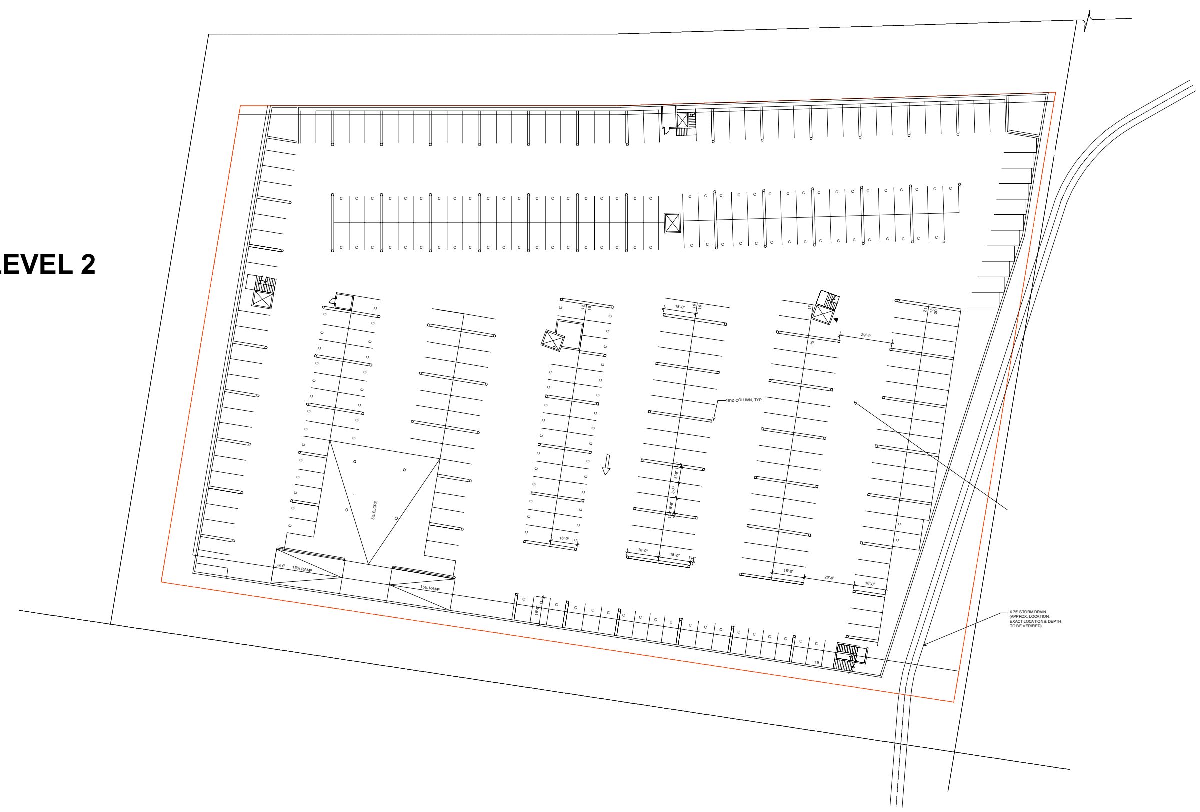


FIGURE 2(b)

7/24/2004

CONCEPT GARAGE PARKING LAYOUT

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.coı

Land Use

The project is located in the Venice community plan area in the western portion of the City of Los Angeles. The land use within the plan area (2,061 acres) is approximately 0.7 percent of the land in the City of Los Angeles. The predominant land use in the community is residential with the majority of the multi-family located west of Lincoln Boulevard and south of Washington Boulevard within the Marina Peninsula. Most of the low density residential is located east of Lincoln Boulevard, in the Oxford Triangle and in the western portion of the Southeast Venice sub area. Approximately 7 percent of the land is designated for commercial use of which the majority is small scale and serves the local population. The more intense commercial is located along Lincoln Boulevard. Of the community's total area, 3 percent is designated for manufacturing and industrial uses of which the majority is located along Venice Boulevard. The Community land use and Specific Plan maps for the study area are provided in Appendix A.

Transportation Network

In addition to collecting traffic volume data, field surveys were conducted to determine the roadway and intersection geometry and traffic signal operations. All of the intersections studied are controlled by traffic signals, except the intersections of Sunset Avenue/Main Street, Sunset Avenue/Pacific Avenue, and the intersection of Main Street and Thornton Place which are controlled by stop signs. The nearest regional facility serving the site is the Marina Freeway (State Highway 90) which is located on the east end of Marina del Rey approximately 1.25 mile east of the project site. This east - west freeway/expressway provides direct access to Lincoln Boulevard and provides 2 - 3 lanes in each direction. Located to the north approximately 1.5 miles is the Santa Monica Freeway (Interstate10). Figure 3 illustrates the study locations, type of traffic control and lane configurations.

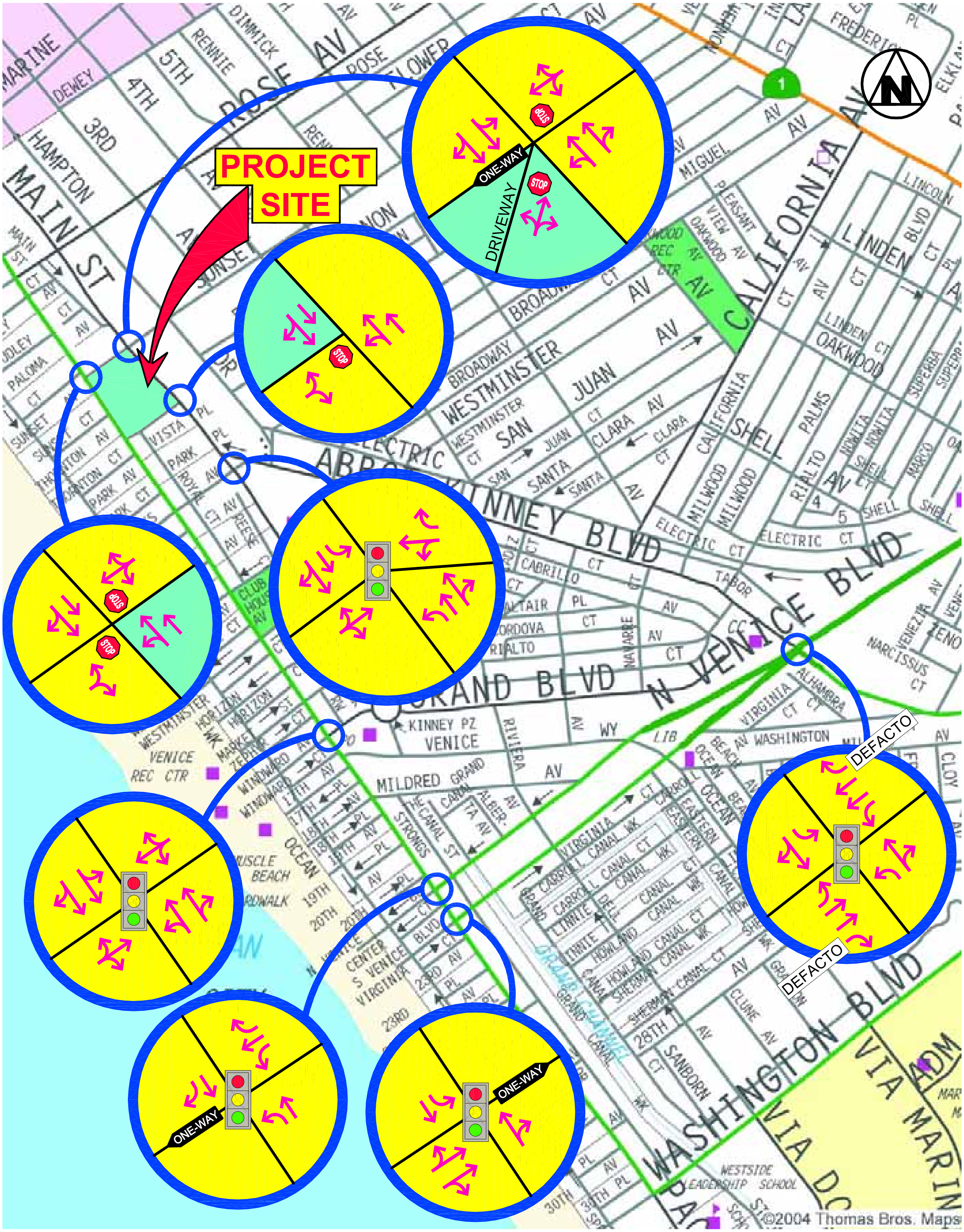


FIGURE 3(a)

9/9/2004

STUDY INTERSECTION CHARACTERISTICS

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

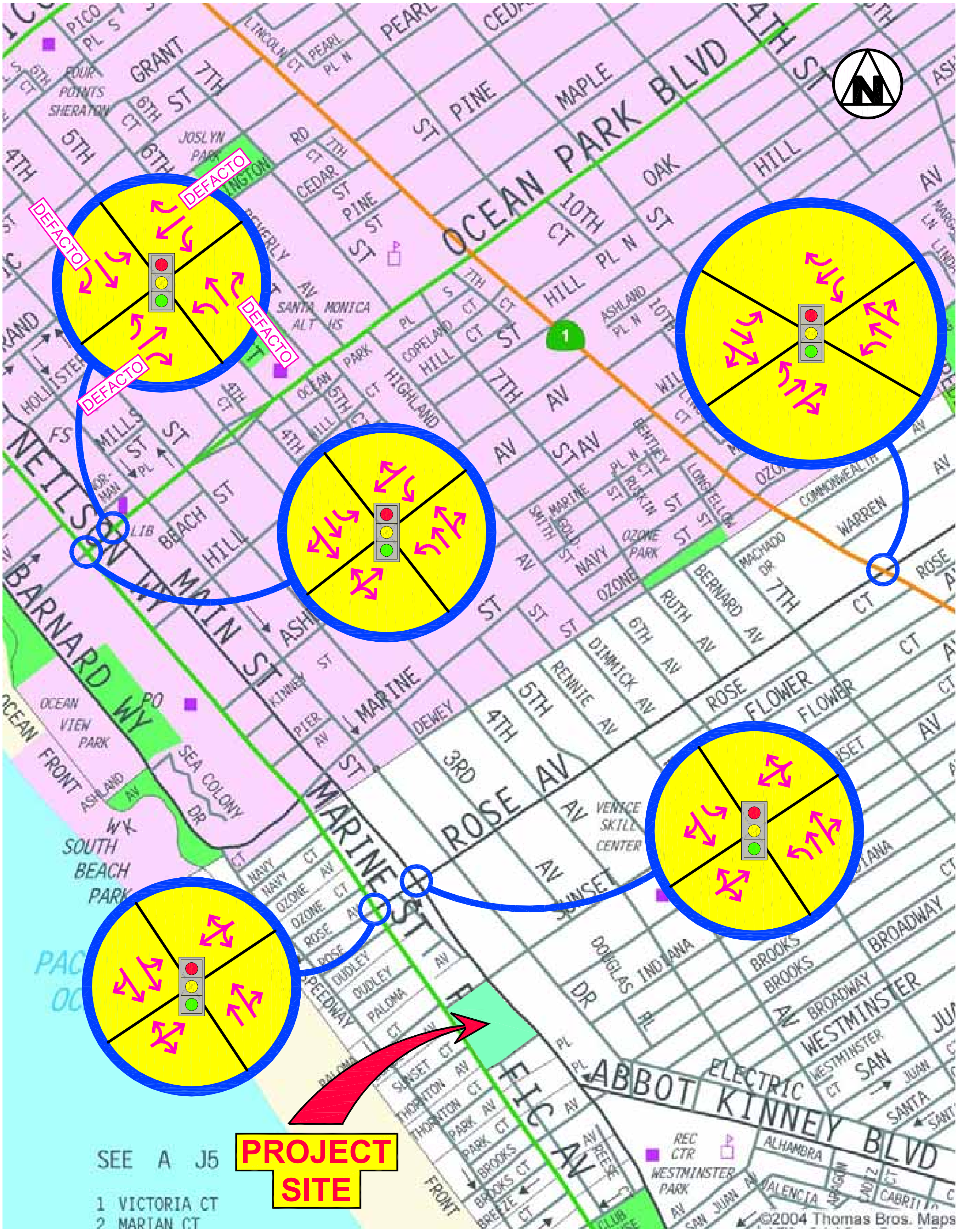


FIGURE 3(b)

4/28/2004

STUDY INTERSECTION CHARACTERISTICS

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

The community plan street designations, street standards and street plans are contained in Appendix B. A brief description of the adjacent roadways is provided below.

Main Street is a designated secondary highway. The roadway is constructed to a width of 56 feet curb to curb on 90 feet of right of way. Two lanes in each direction are provided on Main Street with and on-street metered parking. The standards for a Secondary Highway are a 70-foot roadway and 10-foot sidewalks on each side on 90 feet of right-of-way. However, the roadway centerline is off-set with a 40-foot right-of-way on the west side with a 28-foot ½ roadway. Therefore, the City could ask for a 2-foot widening along the project Main Street frontage.   Peak hour traffic is approximately 900 vehicles per hour northbound in the morning and southbound in the afternoon.

Sunset Avenue is a one-way westbound local street. However, at the intersection of Main Street and Sunset Avenue the MTA bus maintenance driveway is situated so that traffic does exit on to Main Street. The roadway is approximately 24 feet in width with parking on the north side. A 6 ± sidewalk exists on the north side but no sidewalk exists on the south side of Sunset Avenue.

Pacific Avenue is designated a modified secondary highway. The roadway is constructed to a width of 44 feet curb to curb on 55 feet of right of way. Two lanes in each direction are provided on Pacific Avenue between 8 AM and 8 PM after 8 PM street parking is provided until 8AM and only one lane in each direction is provided for traffic flow. Peak hour traffic is approximately 1,300 vehicles per hour northbound in the morning and southbound in the afternoon.

Thornton Place is designated a local street but unimproved. The roadway functions as a local alley connecting to other alleys serving the residential neighborhood to the south. Thornton Place is not constructed to Pacific Avenue. The roadway is approximately 16 to 20 feet in width.

Transit Information

Public transportation in the study area is provided by the Metropolitan Transportation Authority (MTA) and the City of Santa Monica. MTA provides routes 33 and 333 (limited) from downtown Santa Monica, along Main Street and Venice Boulevard to the Patsaouras Transit Plaza in downtown Los Angeles. A bus stop is provided at Main Street and Sunset Avenue adjacent to the project site. City of Santa Monica provides Route 1 along Main Street and Route 2 along Pacific Avenue form downtown Santa Monica to Windward Avenue. The transit lines are illustrated in Appendix C.

CHAPTER 4 PROJECT TRAFFIC CHARACTERISTICS

Project Traffic Generation

Traffic-generating characteristics of residential and non-residential land uses have been studied by the Institute of Transportation Engineers (ITE). The results of the traffic generation studies have been published in Trip Generation, 6th Edition handbook. This publication of traffic generation data has become the industry standard for estimating traffic generation for different land uses. The Coastal Corridor Specific Plan also provides trip generation data to be used for projects located within the Specific Plan area. This impact study utilizes both the ITE and Coastal Corridor Specific plan trip generation rates for estimating the traffic generated by the existing and proposed uses at the site.

These trip generation studies indicate that the uses associated with the proposed project generally exhibit the trip-making characteristics per 1,000 square feet of floor area for non-residential uses and per dwelling unit for residential uses as shown by the trip rates in Table 1. On the basis of these traffic generation rates, estimates of the project's driveway traffic were calculated. As shown in Table 2, the proposed project could be expected to generate an average of 2,326 vehicle trips per weekday with 185 morning peak hour trips and 203 afternoon peak hour trips.

For traffic impact purposes, reductions to the project traffic generation have been made to account for the removal of the existing use and for pass-by traffic according to LADOT guidelines. The pass-by trip is not a new trip added to the street by the commercial uses and therefore is not considered as part of the project traffic impact. After these traffic adjustments, it has been estimated that the net traffic added to the streets is 1,168 daily trips with 107 morning trips and 174 afternoon trips, as shown in Table 2. Weekend estimates of project traffic and a discussion of potential weekend traffic impacts are provided in Appendix D.

Table 1
Project Trip Generation Rates
(ITE 6th Edition & Coastal)

Land Use	ITE Code	Daily	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
Condos (live/work)	230	5.86	0.44	0.07	0.37	0.70	0.47	0.23
Specialty Retail	814	40.67	1.22	0.74	0.48	5.00	2.15	2.85
Coffee Shop	833	716	43.87	26.32	17.55	9.6	4.90	4.70
Health club	493	30	5.68	3.41	2.27	3.60	2.20	1.40

* PM rates per Coastal Specific Plan & 6h Edition split, SANDAG for health club daily & DOT for AM

Table 2
Estimated Project Traffic Generation

Proposed Land Use	Daily Traffic	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
225 Units	1,319	99	16	83	158	106	52
2,000 s.f. retail	81	2	1	1	10	4	6
1,000 s.f. coffee shop	716	44	26	18	10	5	5
7,000 s.f. spa	210	40	24	16	25	15	10
Driveway Traffic	2,326	185	67	118	203	130	73
Less pass-by							
retail (10%)	- 8	-	-	-	- 1	-	- 1
coffee shop (50%)	-358	- 22	-13	- 9	- 5	- 3	- 2
health club (20%)	- 42	- 8	- 5	- 3	- 5	- 3	- 2
With pass-by	1,918	155	49	106	192	124	68
Less MTA Bus Facility	750 est.	48	15	33	18	11	7
Net New Traffic	1,168	107	34	73	174	113	61

Trip Distribution and Assignment of Project Traffic

A primary factor affecting trip direction is the spatial distribution of population and employment centers which would generate project trip origins and destinations. The estimated project directional traffic distribution is also based the study area roadway network, existing traffic flow and site access. Figure 4 illustrated the estimated traffic distribution percentages for the project site as approved by the City of Los Angeles Department of Transportation. The assignment of the project traffic to the study intersections was calculated by multiplying the traffic estimates by intersection percentages for each project component. Traffic assignment percentages for the existing use and proposed residential and non-residential uses are contained in Appendix E. This assignment of site generated traffic at each intersection provides the level of detail necessary to analyze the potential traffic impacts created by the redevelopment project at all the study locations. Figure 5 depicts the project traffic prior to the adjustments for the existing site traffic credits. The net new traffic generated by the project used for the traffic impact analysis is illustrated in Figure 6.

FIGURE 4

4/1/2004

PROJECT TRAFFIC DISTRIBUTION

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

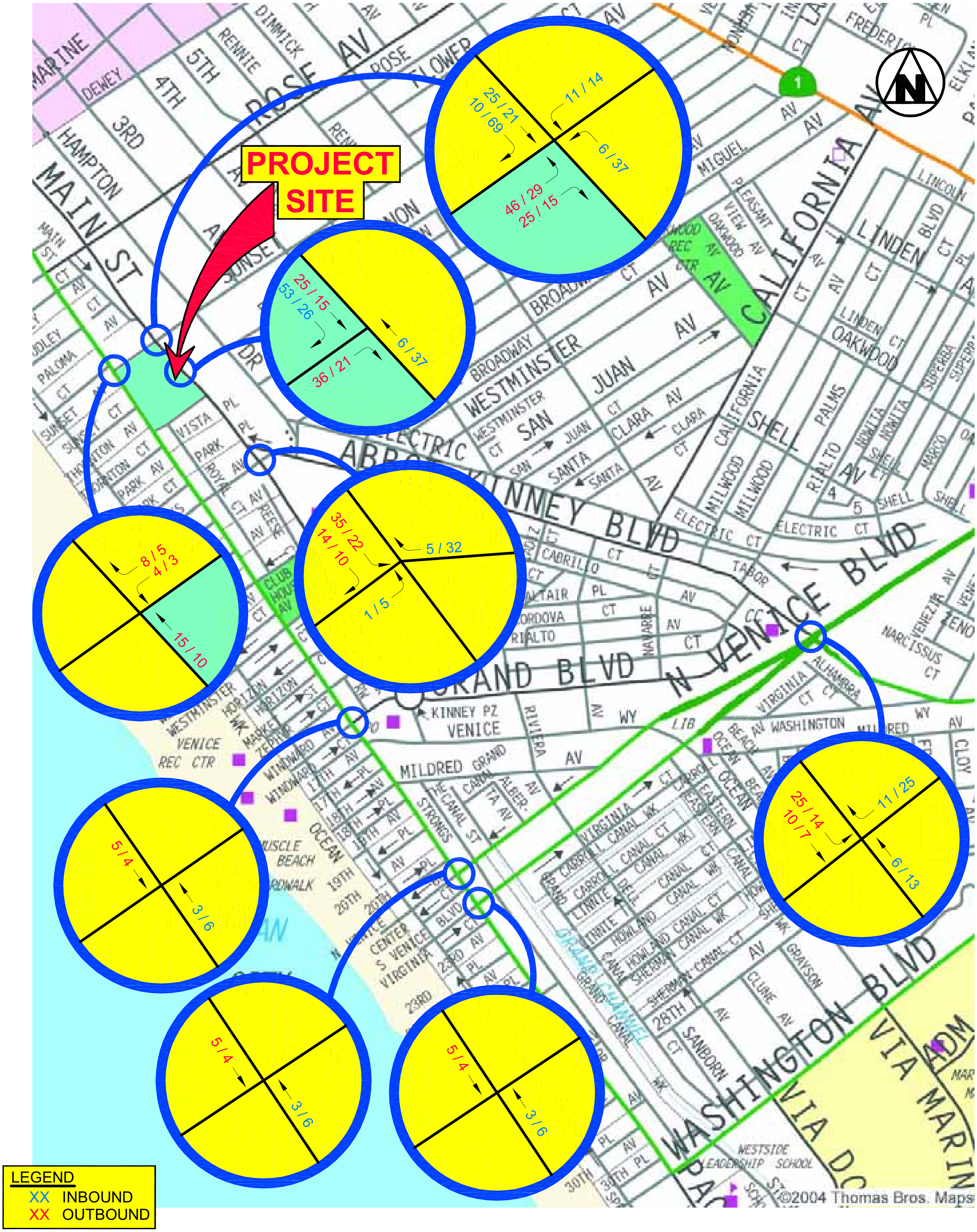


FIGURE 5(a)

7/24/2004

PROJECT TRAFFIC
SUNSET AVENUE & MAIN STREET ACCESS
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

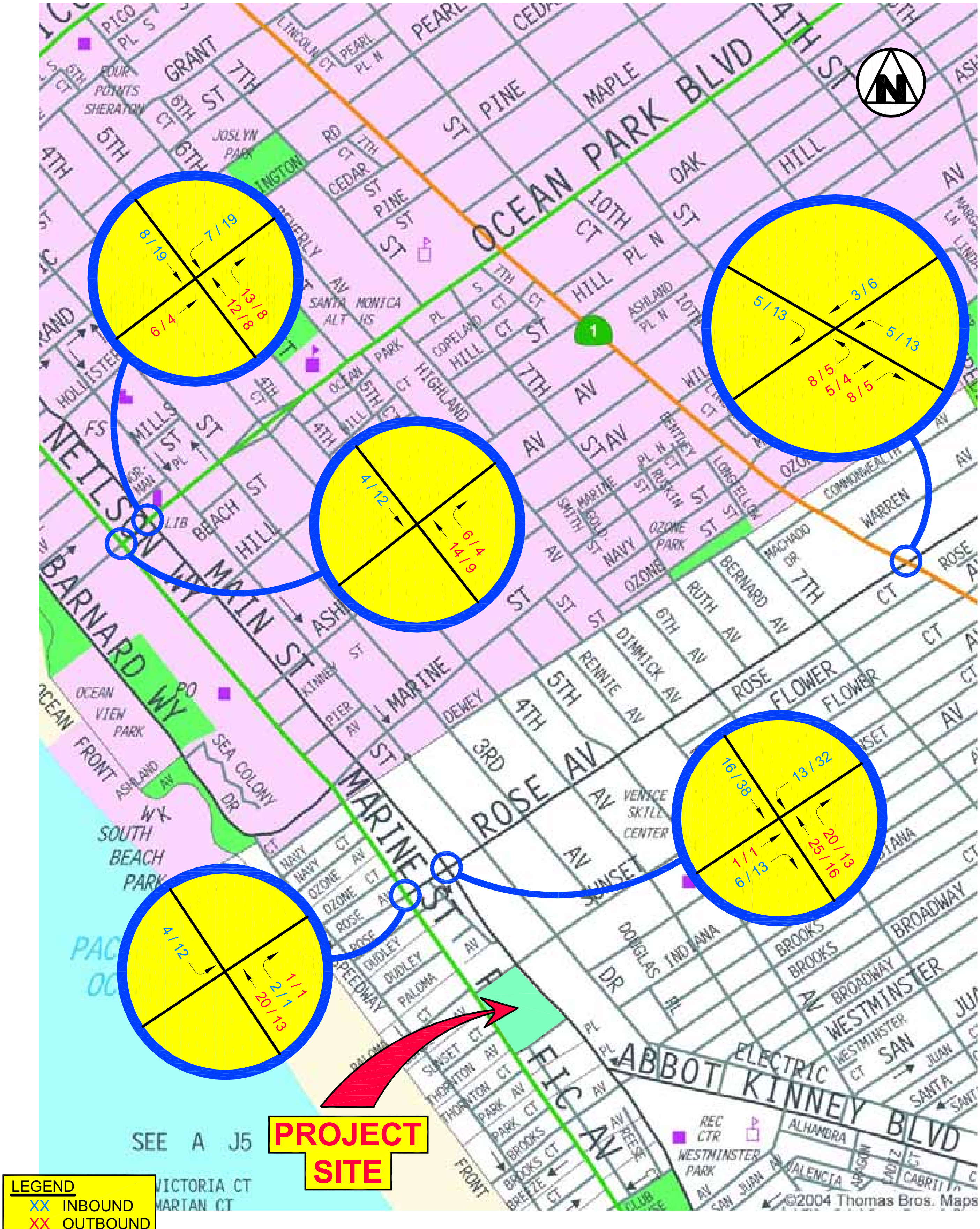


FIGURE 5(b)

7/24/2004

PROJECT TRAFFIC VOLUMES
SUNSET AVENUE & MAIN STREET ACCESS
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

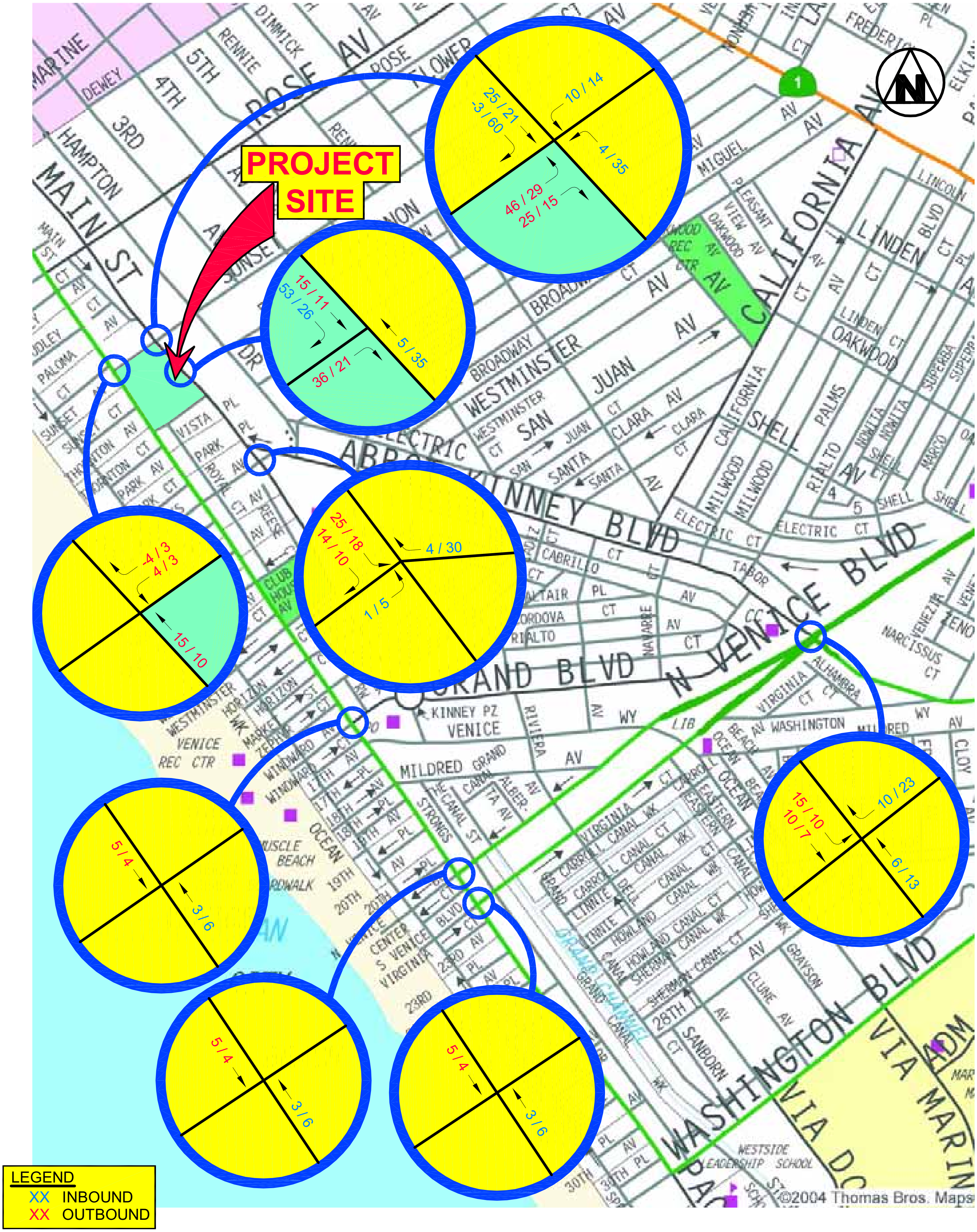


FIGURE 6(a)

7/24/2004

NET NEW PROJECT TRAFFIC
SUNSET AVENUE & MAIN STREET ACCESS
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.

25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

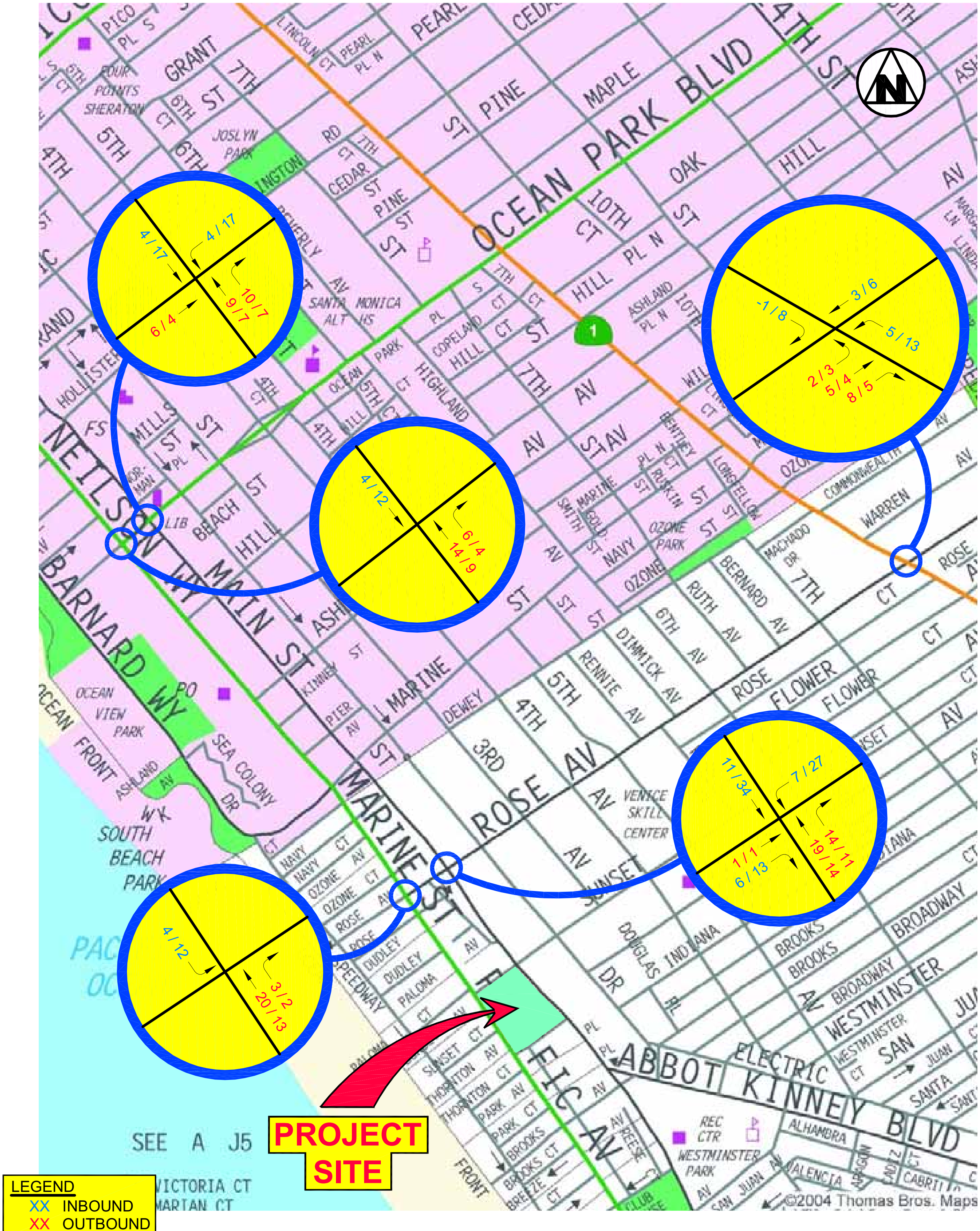


FIGURE 6(b)

7/24/2004

NET NEW PROJECT TRAFFIC VOLUMES
SUNSET AVENUE & MAIN STREET ACCESS
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

Analysis of Existing Traffic Conditions

The traffic conditions analysis was conducted using the Critical Movement Analysis (CMA) method for the study intersections located in the City of Los Angeles. For the two intersections located in the City of Santa Monica, the Highway Capacity Manual (HCM) procedures were used to analyze traffic conditions. New peak hour traffic counts (see Appendix F) were collected along with current intersection geometrics and traffic controls to determine the intersection's typical weekday peak hour operating condition.

The CMA procedure uses a ratio of the traffic volume to the intersection capacity to define the proportion of an hour necessary to accommodate all the traffic moving through the intersection. The CMA procedure adds the highest combination of conflicting traffic volume (V) at an intersection and divides the sum by the intersection capacity value for a V/C ratio. Intersection capacity (C) represents the maximum volume of vehicles which has a reasonable expectation of passing through an intersection in one hour under typical traffic flow conditions. V/C ratios provide an ideal means for quantifying intersection operating characteristics for planning purposes. For example, if an intersection has a V/C value of 0.70, the intersection is operating at 70% capacity with 30% unused capacity.

Once the volume-to-capacity ratio has been calculated, operating characteristics are assigned a level of service grade (A through F) to estimate the level of congestion and stability of the traffic flow. The term "Level of Service" (LOS) is used by traffic engineers to describe the quality of traffic flow. Definitions of the LOS grades are shown in Table 3.

Table 3
V/C Level of Service Definitions

Level of Service	Definition	Equivalent V/C
A	EXCELLENT - Free flow conditions with low traffic density.	0.00 - 0.60
B	VERY GOOD - A stable flow of traffic.	0.61 - 0.70
C	GOOD - Light congestion but stable, occasional backups behind left-turning vehicles.	0.71 - 0.80
D	FAIR - Approaching instability, drivers are restricted in freely changing lanes. Vehicles may be required to wait through more than one cycle.	0.81 - 0.90
E	POOR - At or near capacity with some long lines for left-turning vehicles. Blockage of intersection may occur if traffic signal does not provide for protected turning movements.	0.91 - 1.00
F	FAILURE - Jammed conditions with stoppages of long duration and long queues.	> 1.00

For the two intersections in the City of Santa Monica, an operational analysis has been conducted using the Santa Monica procedures which are based on the Highway Capacity Manual, (HCM). This procedure calculates the vehicle delays at signalized intersections based on the total elapsed time including initial deceleration, queue move-up time, stopped delay and final acceleration delay. Using this procedure the LOS is evaluated on the basis of the total delay per vehicle (in seconds per vehicle) as shown below:

LOS	Control Delay per Vehicle (s/veh)
A	≤10
B	> 10 – 20
C	> 20 – 35
D	> 35 – 55
E	> 55 – 80
F	> 80

The HCM procedures estimate the average number of seconds of delay experienced by motorists traveling through the intersections. Using these procedures, the threshold of significance used by the City of Santa Monica is based on the amount of change in average vehicular delay incurred by vehicles through the intersection (as opposed to the change in the volume/capacity ratio used by the City of Los Angeles to quantify the level of service of an intersection).

By applying these procedures to the study intersections, the ICU values (and delay for the Santa Monica intersections) along with the corresponding Levels of Service (LOS) for existing traffic conditions were determined with the results provided in Table 4. As shown, all the study intersections are operating at acceptable levels of service without any significant traffic delays. Supporting capacity worksheets are contained in Appendix G of this report.

Traffic volume data used in the following peak hour intersectional analysis were based on traffic counts conducted by The Traffic Solution, an independent traffic data collection company. Traffic counts were conducted by counting the number of vehicles at each of the 13 study intersections making each movement. The peak hour volume for each intersection was then determined by finding the four highest consecutive 15-minute volumes for all movements. Existing peak hour traffic volume at each study intersection is illustrated in Figure 7 for the morning rush hour and Figure 8 for the afternoon rush hour.

Table 4

Level of Service for Existing Conditions

No.	Intersection	AM Peak Hour V/C	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour LOS
2.	Main Street & Rose Ave.	0.441	A	0.688	B
3.	Main Street & Sunset Ave.	0.450	A	0.436	A
4.	Main Street & Thornton Pl.	0.348	A	0.394	A
5.	Main Street & Abbot Kinney Blvd.	0.482	A	0.395	A
6.	Abbot Kinney Blvd. & Venice Blvd.	0.510	A	0.625	B
8.	Pacific Ave. & Rose Ave.	0.506	A	0.510	A
9.	Pacific Ave. & Sunset Ave.	0.546	A	0.572	A
10.	Pacific Ave. & Windward Ave.	0.361	A	0.472	A
11.	Pacific Ave. & Venice Blvd. (N)	0.552	A	0.803	D
12.	Pacific Ave. & Venice Blvd. (S)	0.736	C	0.730	C
13.	Rose Ave. & Lincoln Blvd.	0.784	C	0.763	C
	Santa Monica Intersections	Delay (sec.)	LOS	Delay (sec.)	LOS
1.	Main Street & Ocean Park Blvd.	14.1	B	14.1	B
7.	Neilson Way & Ocean Park Blvd.	7.3	A	9.4	A

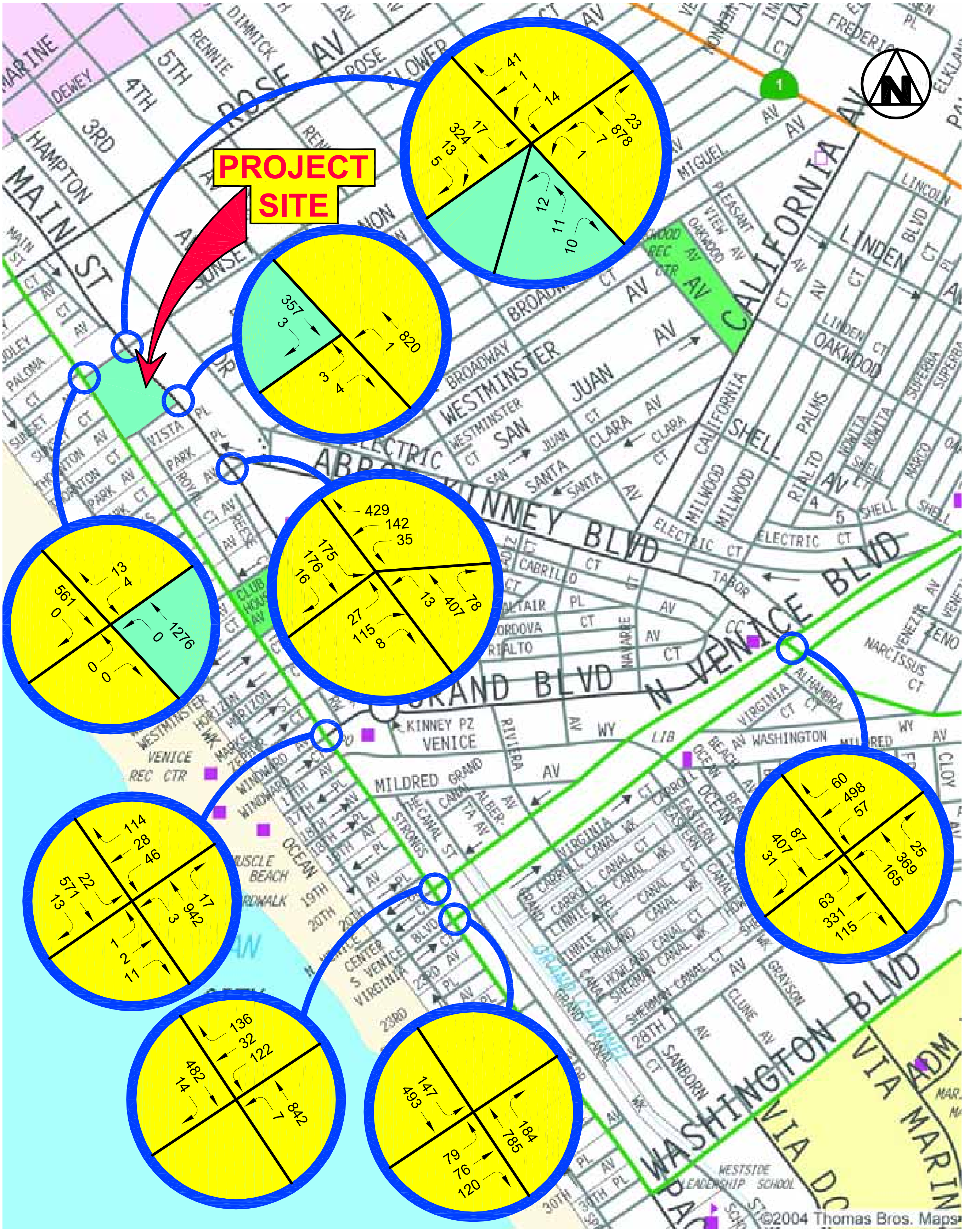


FIGURE 7(a)

4/1/2004

EXISTING (2004) TRAFFIC VOLUMES
AM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

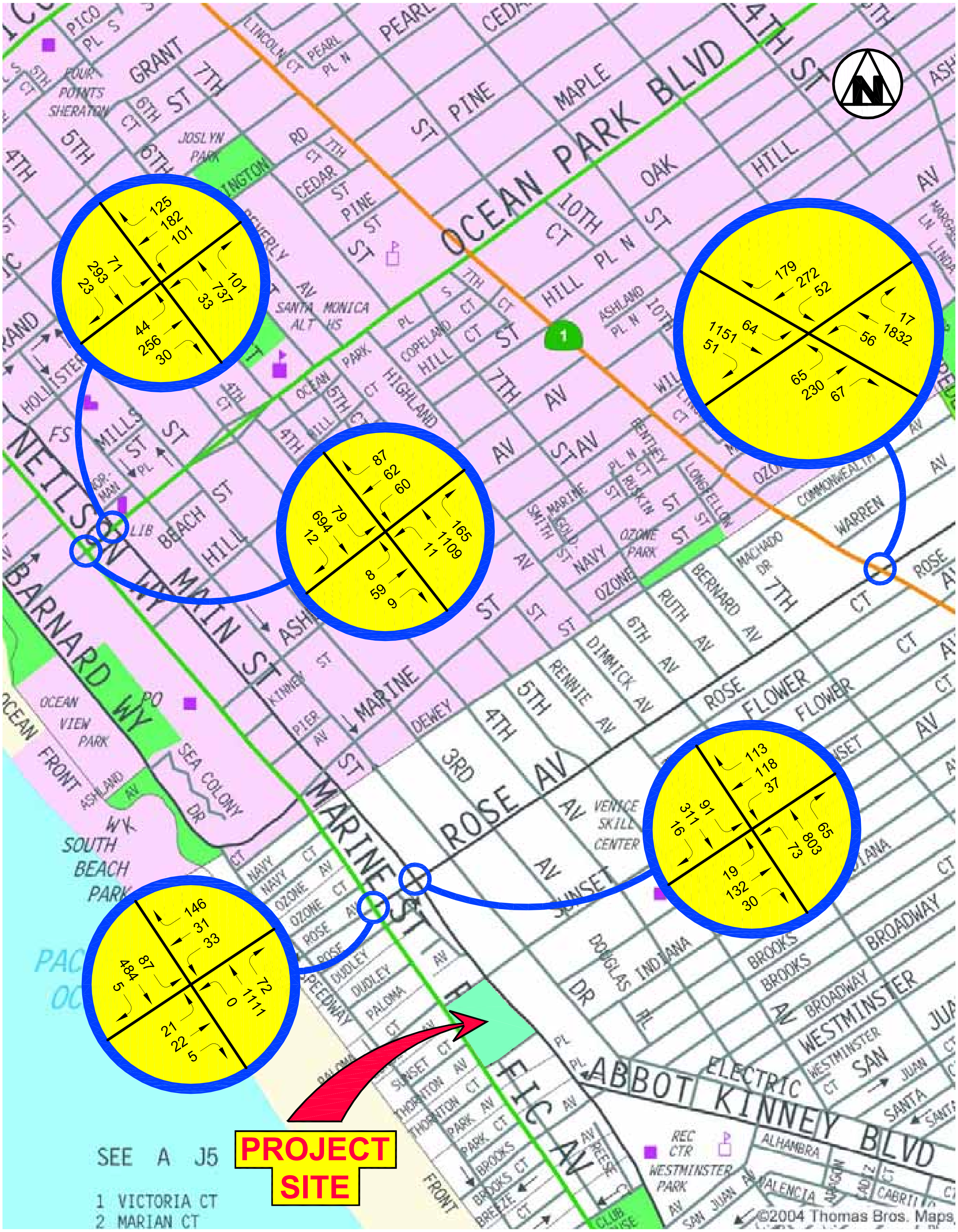


FIGURE 7(b)

4/16/2004

EXISTING (2004) TRAFFIC VOLUMES
AM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

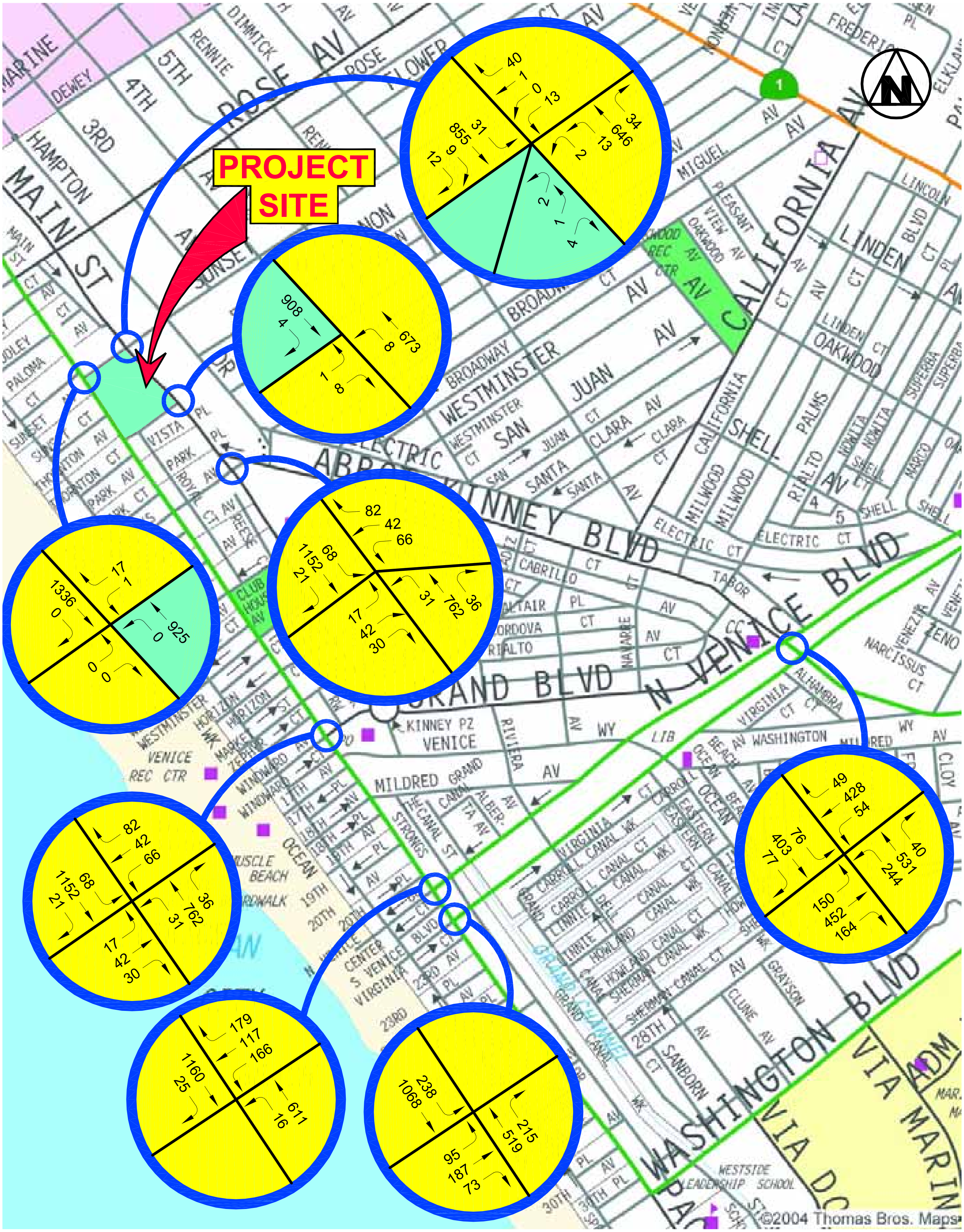


FIGURE 8(a)

4/1/2004

EXISTING (2004) TRAFFIC VOLUMES
PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

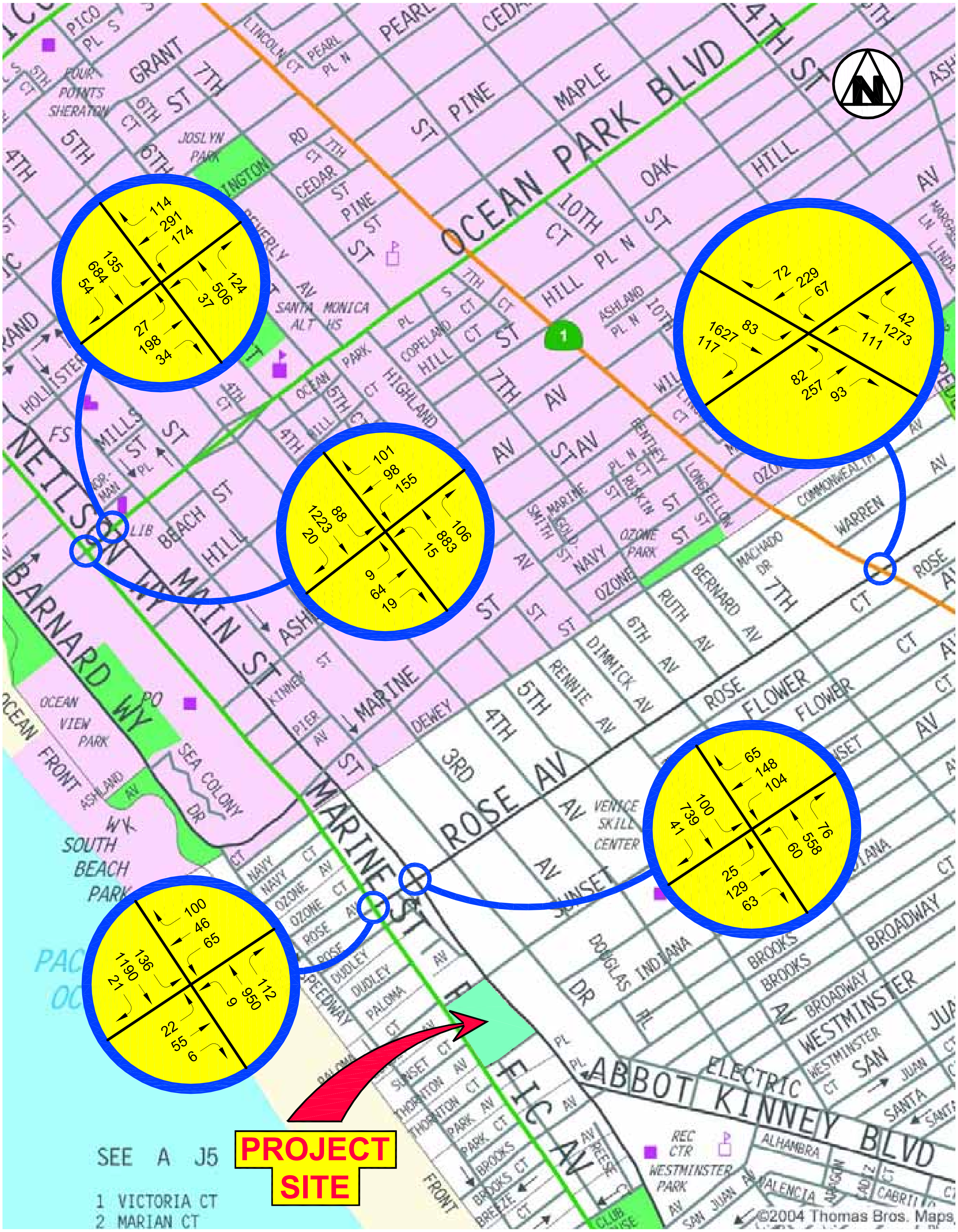


FIGURE 8(b)

4/16/2004

EXISTING (2004) TRAFFIC VOLUMES
PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

Analysis of Future Traffic Conditions

Future traffic volume projections have been developed to analyze the traffic conditions after completion of other planned land developments including the proposed project. Pursuant to the City of Los Angeles traffic impact guidelines, the following steps have been taken to develop the future traffic volume estimate:

(a) Existing traffic + ambient growth (1 % per year) to 2009;

(b) Traffic in (a) + related projects (without project scenario);

(c) Traffic in (b) with the proposed project traffic (with project scenario);

(d) Traffic in (c) + the proposed traffic mitigation, if necessary.

The future cumulative analysis includes other development projects located within the study area that are either under construction or planned. As part of this analysis, development lists were obtained from the City of Los Angles Department of Transportation and the City of Santa Monica Planning Department web site. These lists were reviewed and checked in the field to identify those projects that could produce additional traffic at the study intersections by the future study year. It should be noted that this project, or any actions taken by the City regarding this project, does not have a direct bearing on these other proposed related projects. The descriptions of the 21 related projects are listed in Table 5 with its location illustrated on Figure 9.

To evaluate future traffic conditions with the related projects, estimates of the peak hour trips generated by the other developments are shown in Table 6. The cumulative traffic impact of future traffic growth has been calculated by adding the existing traffic volume, the ambient growth factor and traffic from these other development projects. Estimated traffic conditions created by the ambient traffic growth plus other development projects are shown in Table 7. Future traffic volume estimated for the peak hours without the project are illustrated in Figures 10 and 11 for the morning and afternoon peak hours.

Table 5
Listing of Related Projects

No.	Project	Size	Location
1.	Mixed - Use	123 townhomes & 6,000 sf office less 88,216 sf office	SWC Washington Bd. & Via Dolce
2.	Mixed – use Second Generation	531 Apartments 288 Room Hotel 125 Boat Slips 2 Acre Park	E/S Via Marina S/O Marquesas Way
3.	Mixed – use Second Generation	960 Apartments 241 Senior Apts. 4,000 s.f. retail 6,000 s.f. commercial 439 Boat Slips	E/S Via Marina S/O Panay Way
4.	Mixed – use	100 Apartments 6,885 s.f. commercial	Parcel 20 Panay Way
5.	Mixed -use	80 lofts & 40,000 sf storage less 32,000 sf storage	1046 Princeton Street
6.	Apartments	300 dwelling units	Princeton St. and Carter Ave.
7.	Retail/Restaurant	42,270 s.f. retail 9,200 s.f. restaurant	4141 Lincoln Blvd.
8.	Office	15,180 s.f.	2100 Abbot Kinney Blvd.
9.	gas station	6 pumps and 720 sf mini mart	2005 Lincoln Blvd.
10.	Mixed -use	197,000 s.f. retail 280 unit apartments	1430 Lincoln Blvd.
11.	Condominiums	35 units	s/o 615 Hampton Dr.
12.	Art Lofts	51 dwelling units	615 Hampton Drive
13.	Mixed - use	9,000 s.f. retail 24 condominiums	212 Marine Street
14.	Apartments	44 units	2209 Main Street
15.	Mixed - use	6,553 s.f. retail 26 apartments	2021 - 29 Main Street
16.	Mixed - use	11,549 s.f. retail 107 apartments	2012 - 24 Main Street
17.	Condominiums	9 units	125 Pacific Street
18.	Civic Center Garage	12,500 .f. retail 885 parking spaces	1685 Main Street
19.	RAND Headquarters	308,900 s.f. less existing 295,000 s.f.	1700 Main Street
20.	Playa Vista	Phases 1 & 2	Jefferson bd. & Lincoln Bd.
21.	Pioneer Bakery	70 condominiums 3,953 s.f. restaurant 1,726 s.f. bakery/retail	512 Rose Avenue

Table 6
Estimated Traffic Generation for Other Projects

No.	Related Project	Daily Traffic	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour In	PM Peak Hour Out
1.	Mixed - use	- 337	- 123	27	19	- 163
2.	Mixed - use	2,630	79	150	132	89
3.	Mixed - use	2,411	39	154	120	55
4.	Mixed – use	614	14	37	35	27
5.	Mixed – use	550	8	35	34	17
6.	Apartments	1,989	24	129	125	61
7.	Retail dealership	975	-	-	49	33
8.	Office	312	37	5	7	36
9.	Gas station with mart	977	30	30	40	40
10.	Mixed – use	12,398	169	213	636	613
11.	Condominiums	205	3	12	16	8
12.	Condominiums	299	4	18	24	12
13.	Mixed – use	500	5	11	17	13
14.	Apartments	292	4	19	18	9
15.	Mixed – use	450	6	14	23	18
16.	Mixed – use	1,240	17	51	66	46
17.	Condominiums	53	1	3	3	2
18.	Retail	508	9	6	14	18
19.	RAND Corp.	80	2	18	2	8
20.	Playa Vista Phase I	44,050	2,970	1,400	1,750	2,950
	The Village at Playa Vista	24,220	577	1,049	1,275	1,027
21.	Mixed – Use	1,208	40	45	61	46
	less existing	316	20	8	11	17

FIGURE 9

9/22/2004

RELATED PROJECT LOCATIONS

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

Table 7
Future Traffic Conditions Without Project

No.	Intersection	Peak Hour	Existing V/C	Existing LOS	Future Without Project V/C	Future Without Project LOS	Growth
2.	Main Street &	AM	0.441	A	0.493	A	+ 0.052
	Rose Ave.	PM	0.688	B	0.767	C	+ 0.079
3.	Main Street &	AM	0.460	A	0.495	A	+ 0.035
	Sunset Ave.	PM	0.438	A	0.477	A	+ 0.039
4.	Main Street &	AM	0.348	A	0.372	A	+ 0.024
	Thornton Place	PM	0.394	A	0.427	A	+ 0.033
5.	Main Street &	AM	0.482	A	0.529	A	+ 0.047
	Abbot Kinney Blvd.	PM	0.395	A	0.425	A	+ 0.030
6.	Abbot Kinney Blvd. &	AM	0.510	A	0.541	A	+ 0.031
	Venice Blvd.	PM	0.625	B	0.662	B	+ 0.037
8.	Pacific Ave. &	AM	0.506	A	0.548	A	+ 0.042
	Rose Ave.	PM	0.510	A	0.555	A	+ 0.045
9.	Pacific Ave. &	AM	0.546	A	0.582	A	+ 0.036
	Sunset Ave.	PM	0.572	A	0.611	B	+ 0.039
10.	Pacific Ave. &	AM	0.361	A	0.384	A	+ 0.023
	Windward Ave.	PM	0.472	A	0.501	A	+ 0.029
11.	Pacific Ave. &	AM	0.552	A	0.599	A	+ 0.047
	Venice Blvd. (N)	PM	0.803	D	0.867	D	+ 0.064
12.	Pacific Ave. &	AM	0.736	C	0.797	C	+ 0.061
	Venice Blvd. (S)	PM	0.730	C	0.791	C	+ 0.061
13.	Rose Ave. &	AM	0.784	C	0.890	D	+ 0.106
	Lincoln Blvd.	PM	0.763	C	0.873	D	+ 0.110
Santa Monica Delay Procedures			Delay	LOS	Delay	LOS	Growth
1.	Main Street &	AM	14.1	B	16.9	B	+ 2.8
	Ocean Park Blvd.	PM	14.1	B	16.7	B	+ 2.6
7.	Neilson Way &	AM	7.3	A	7.7	A	+ 0.4
	Ocean Park Blvd.	PM	9.4	A	10.0	B	+ 0.6

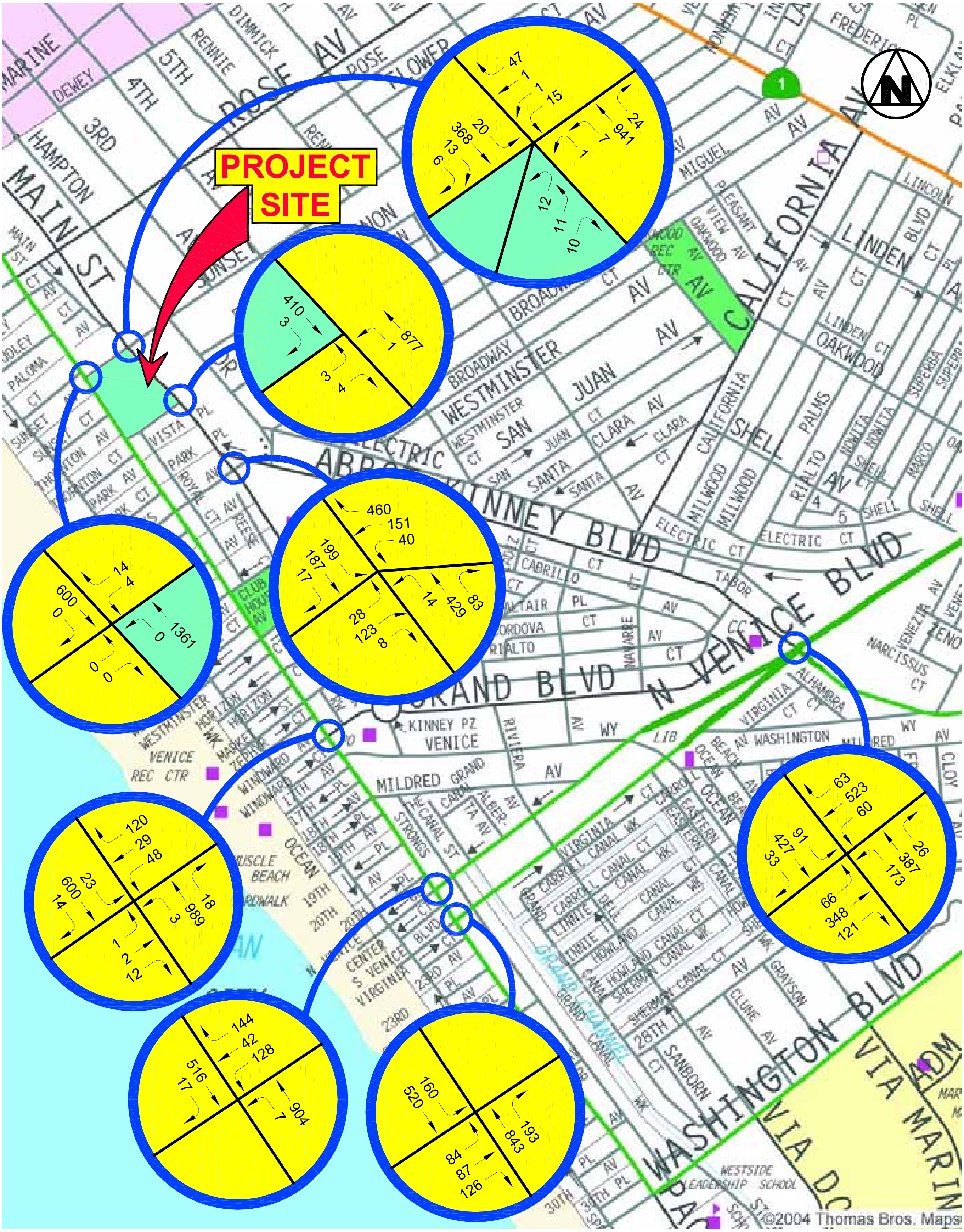


FIGURE 10(a)

7/24/2004

FUTURE (2009) TRAFFIC VOLUMES
WITHOUT PROJECT
AM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

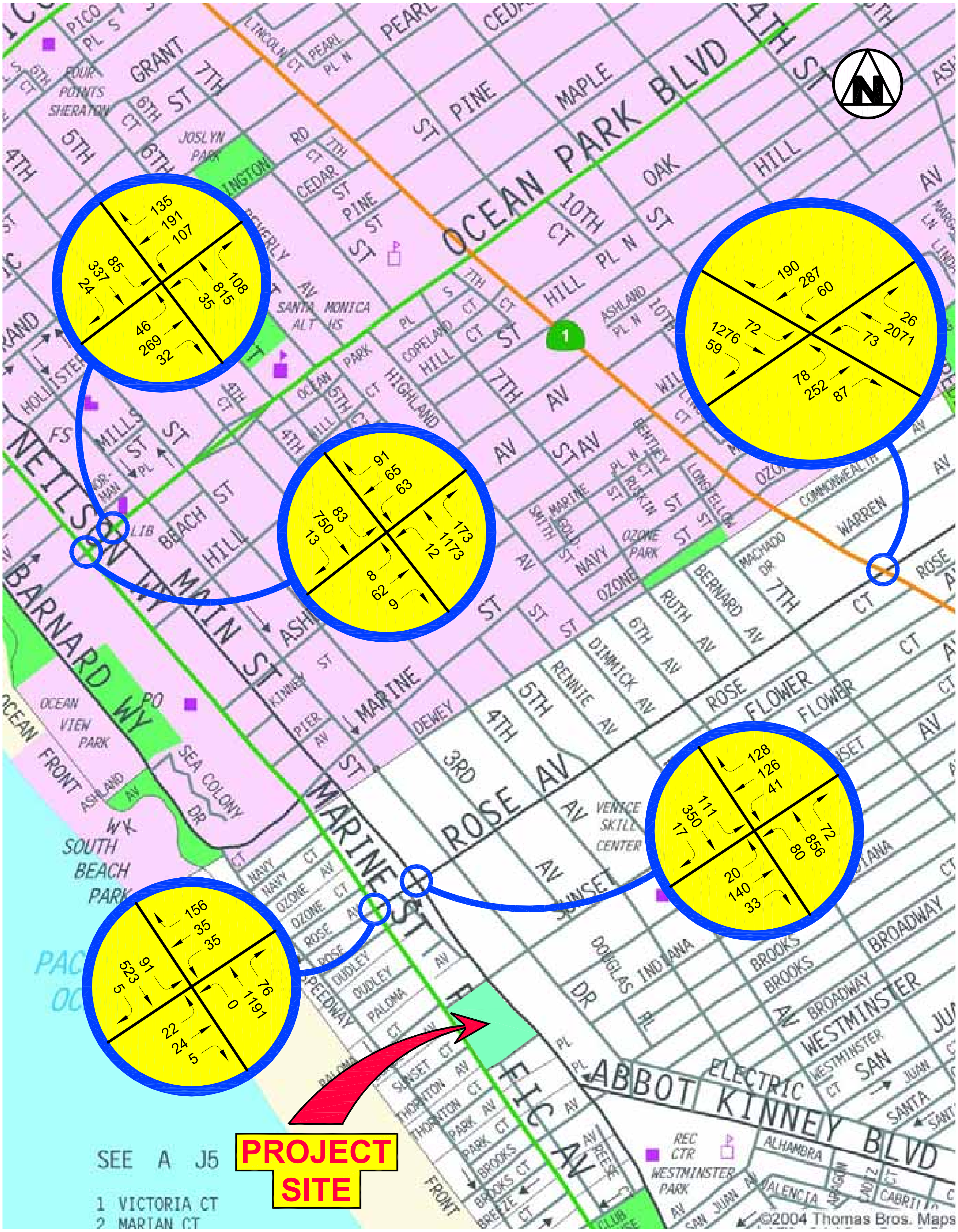


FIGURE 10(b)

9/28/2004

FUTURE (2009) TRAFFIC VOLUMES
WITHOUT PROJECT
AM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

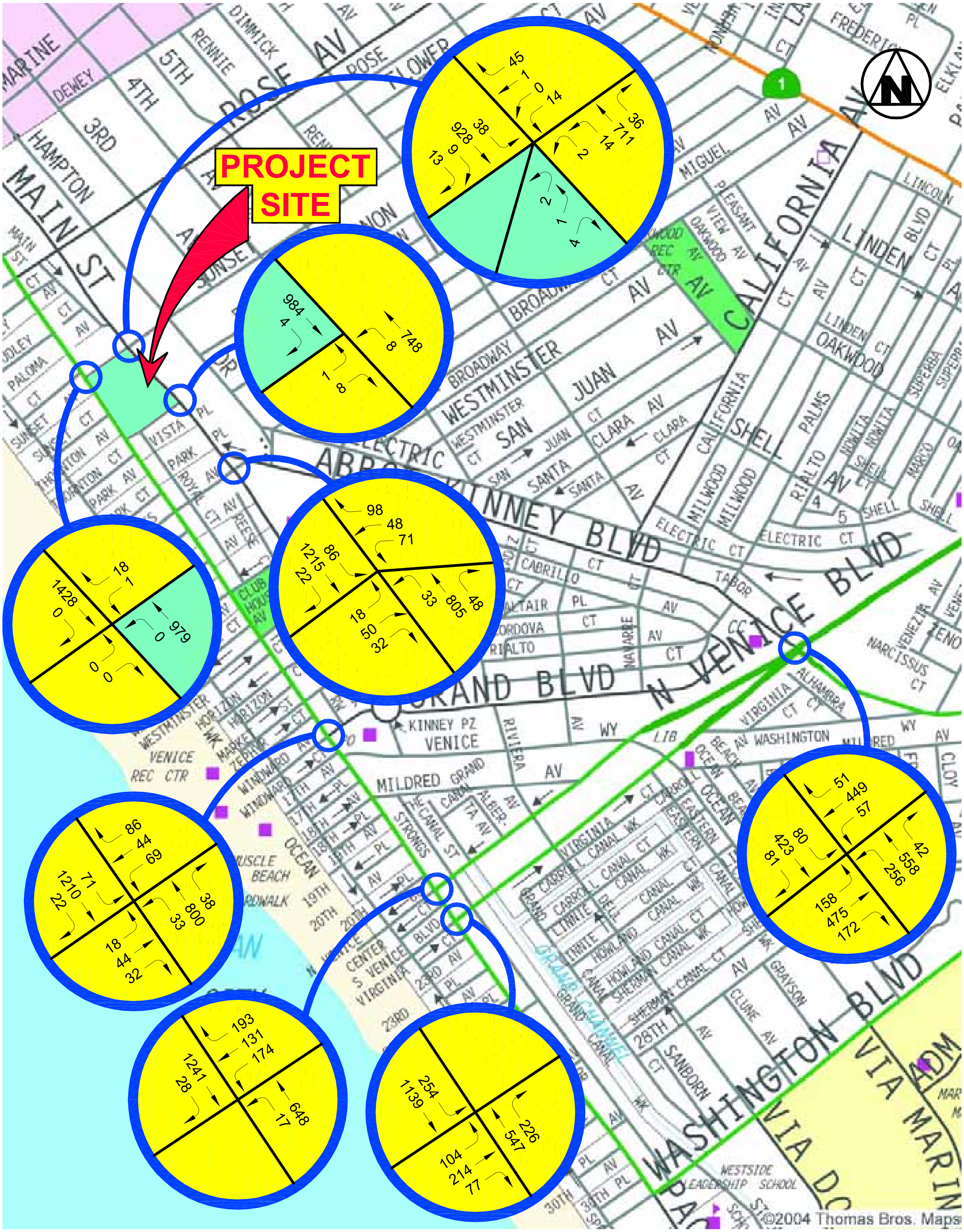


FIGURE 11(a)

7/24/2004

FUTURE (2009) TRAFFIC VOLUMES
WITHOUT PROJECT
PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

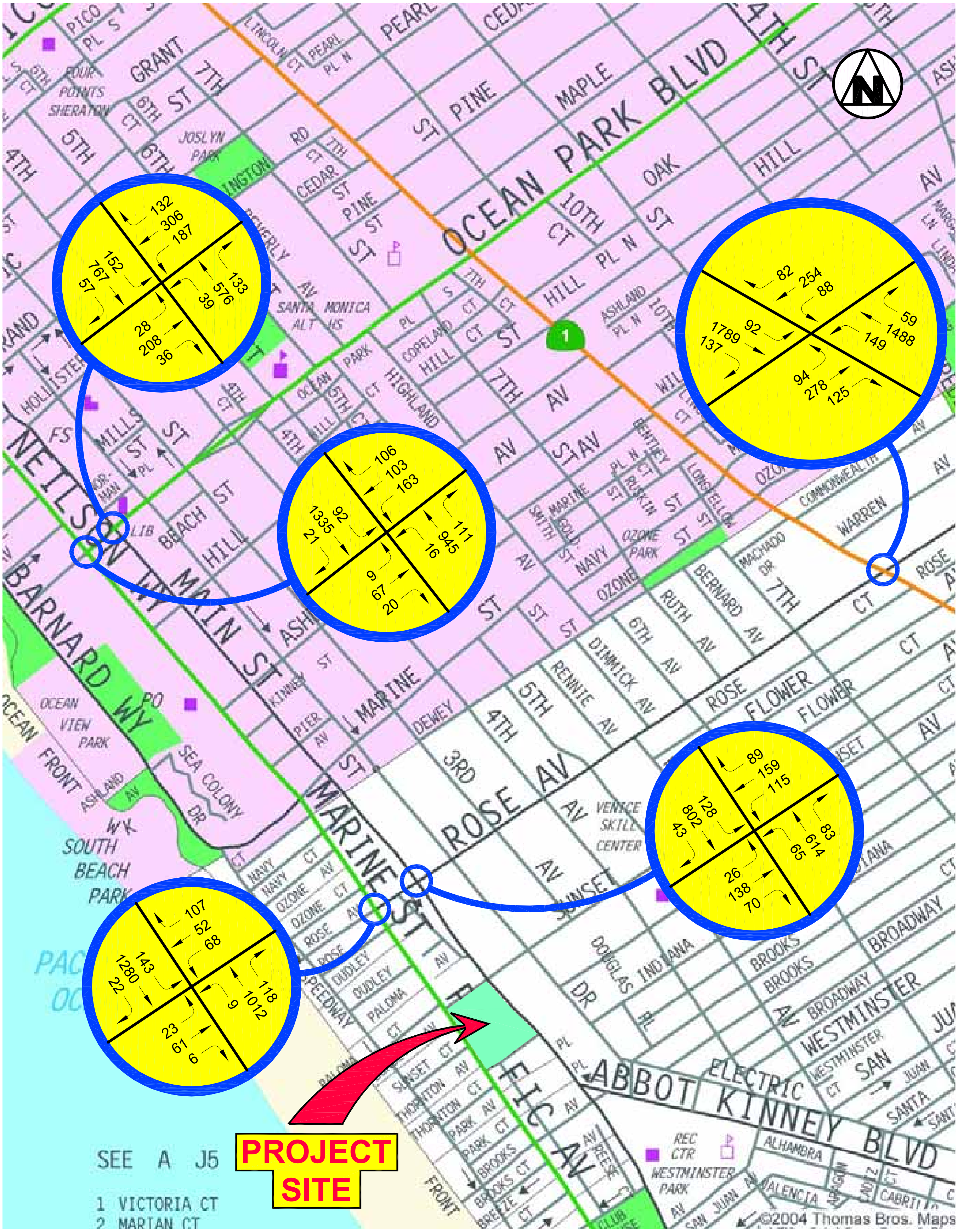


FIGURE 11(b)

9/28/2004

FUTURE (2009) TRAFFIC VOLUMES
WITHOUT PROJECT
PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

It should be noted that the impact analysis does not consider any changes to the existing intersection configuration (i.e., future roadway improvements). However, the Marina by-pass is being studied to provide direct access to the Marina to mitigate Second Generation Development currently being proposed in the Marina

Traffic conditions after completion of the redevelopment project have been calculated by adding the project volume to the without traffic volume estimates. The traffic impact of the added project traffic at the study intersections is shown in the table below using the "without project" estimates as the baseline.

Comparing the changes in the traffic conditions between the without and with project scenarios provides the necessary information to determine if the project creates a significant impact on the study intersections. According to the standards adopted by LADOT for the Coastal Corridor, a traffic impact is considered significant if the related increase in the V/C value equals or exceeds the thresholds shown in the table below:

City of Los Angeles Criterion:

LOS	Final V/C Value	Increase in V/C Value
A - C	0.00 - 0.79	+ 0.04
D	0.80 - 0.89	+ 0.02
E - F	≥ 0.90	+ 0.01 or more

The City of Santa Monica evaluates the traffic impact based on the increase in average vehicle delay using the Highway Capacity Manual operational analysis methodology. The significance criterion is summarized below for arterial intersections.

City of Santa Monica Significant Traffic Impact Criterion:

Future Base Scenario	Future Plus Project Scenario
If LOS = A, B or C And is an arterial intersection	Significant Impact if: Average vehicle delay is ≥ 15 seconds Or LOS becomes D, E or F
If LOS = D And is an arterial intersection	Significant Impact if: Average vehicle delay is ≥ 15 seconds Or LOS becomes E or F
If LOS = E And is an arterial intersection	Significant Impact if: Any net increase in average seconds of delay per vehicle
If LOS = F And is an arterial intersection	Significant Impact if: HCM V/C ratio net increase is ≥ 0.005

Table 8 shows the results of the impact analysis with the Sunset Avenue residential access and the Main Street non-residential access. As shown, 2 intersections located in the City of Los Angeles would be significantly impacted by project traffic. Those intersections are:

1. Main Street and Rose Avenue;
2. Main Street and Sunset Avenue;

Future cumulative “with project” traffic volumes for the Sunset/Main access plan are shown in Figures 12 and 13 for the morning and afternoon peak hours, respectively.

Table 8
Future Traffic Conditions With Project (Sunset & Main Access)

No.	Intersection	Peak Hour	Future Without V/C	Future Without LOS	Future With Project V/C	Future With Project LOS	Future With Project Impact
2.	Main Street &	AM	0.493	A	0.508	A	+ 0.015
	Rose Ave.	PM	0.767	C	0.807	D	+ 0.040*
3.	Main Street &	AM	0.495	A	0.524	A	+ 0.029
	Sunset Ave.	PM	0.477	A	0.573	A	+ 0.096*
4.	Main Street &	AM	0.372	A	0.374	A	+ 0.002
	Thornton Place	PM	0.427	A	0.440	A	+ 0.013
5.	Main Street &	AM	0.529	A	0.549	A	+ 0.020
	Abbot Kinney Blvd.	PM	0.425	A	0.438	A	+ 0.013
6.	Abbot Kinney Blvd. &	AM	0.541	A	0.547	A	+ 0.006
	Venice Blvd.	PM	0.662	B	0.666	B	+ 0.004
8.	Pacific Ave. &	AM	0.548	A	0.558	A	+ 0.010
	Rose Ave.	PM	0.555	A	0.559	A	+ 0.004
9.	Pacific Ave. &	AM	0.582	A	0.588	A	+ 0.006
	Sunset Ave.	PM	0.611	B	0.616	B	+ 0.005
10.	Pacific Ave. &	AM	0.384	A	0.385	A	+ 0.001
	Windward Ave.	PM	0.501	A	0.502	A	+ 0.001
11.	Pacific Ave. &	AM	0.599	A	0.601	B	+ 0.002
	Venice Blvd. (N)	PM	0.867	D	0.870	D	+ 0.003
12.	Pacific Ave. &	AM	0.797	C	0.799	C	+ 0.002
	Venice Blvd. (S)	PM	0.791	C	0.794	C	+ 0.003
13.	Rose Ave. &	AM	0.890	D	0.894	D	+ 0.004
	Lincoln Blvd.	PM	0.873	D	0.891	D	+ 0.018
Santa Monica Delay Procedures			Delay	LOS	Delay	LOS	Impact
1.	Main Street &	AM	16.9	B	17.5	B	+ 0.6
	Ocean Park Blvd.	PM	16.7	B	18.2	B	+ 1.5
7.	Neilson Way &	AM	7.7	A	7.8	A	+ 0.1
	Ocean Park Blvd.	PM	10.0	B	10.1	B	+ 0.1

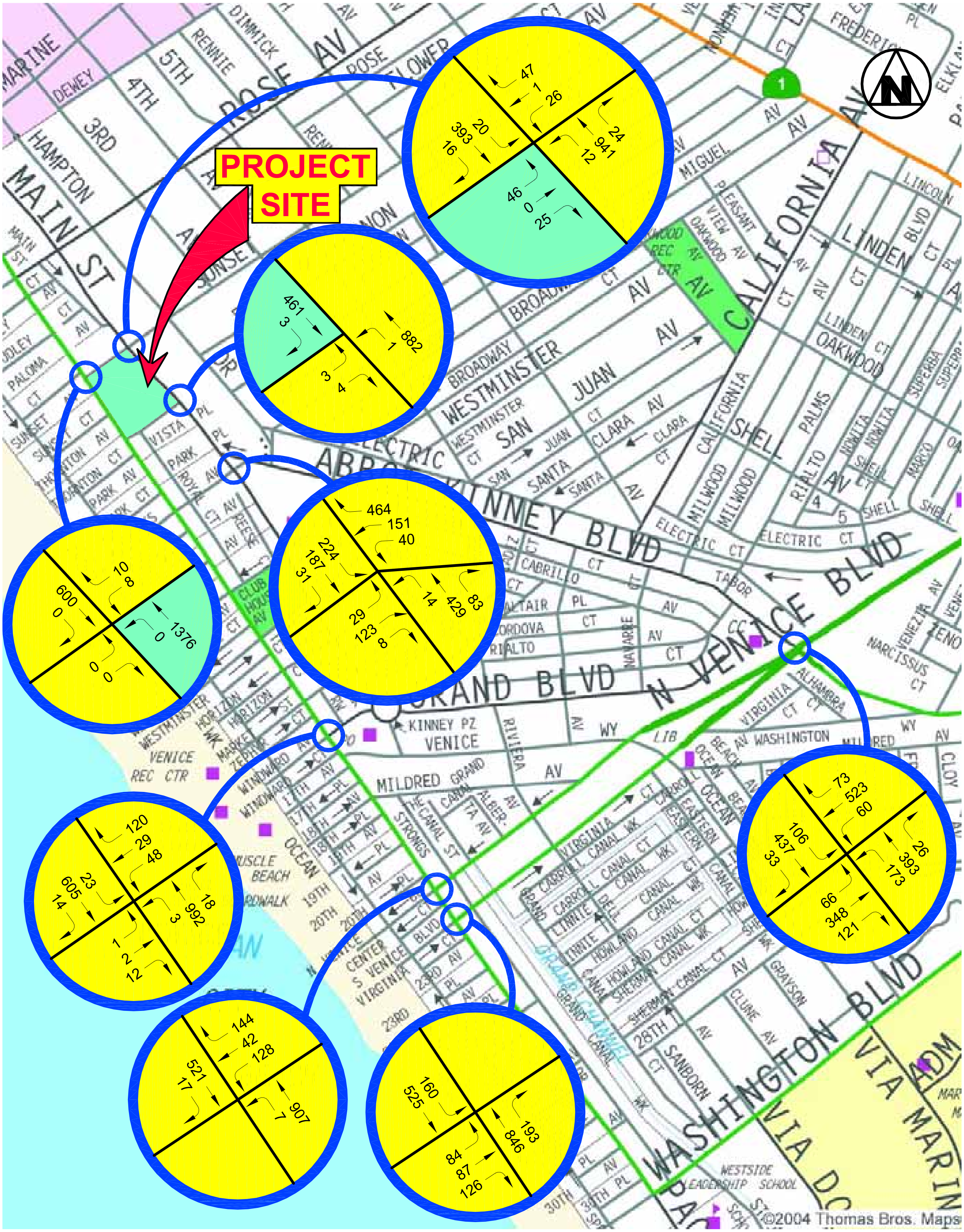


FIGURE 12(a)

7/24/2004

FUTURE (2009) TRAFFIC VOLUMES WITH PROJECT (SUNSET / MAIN) AM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

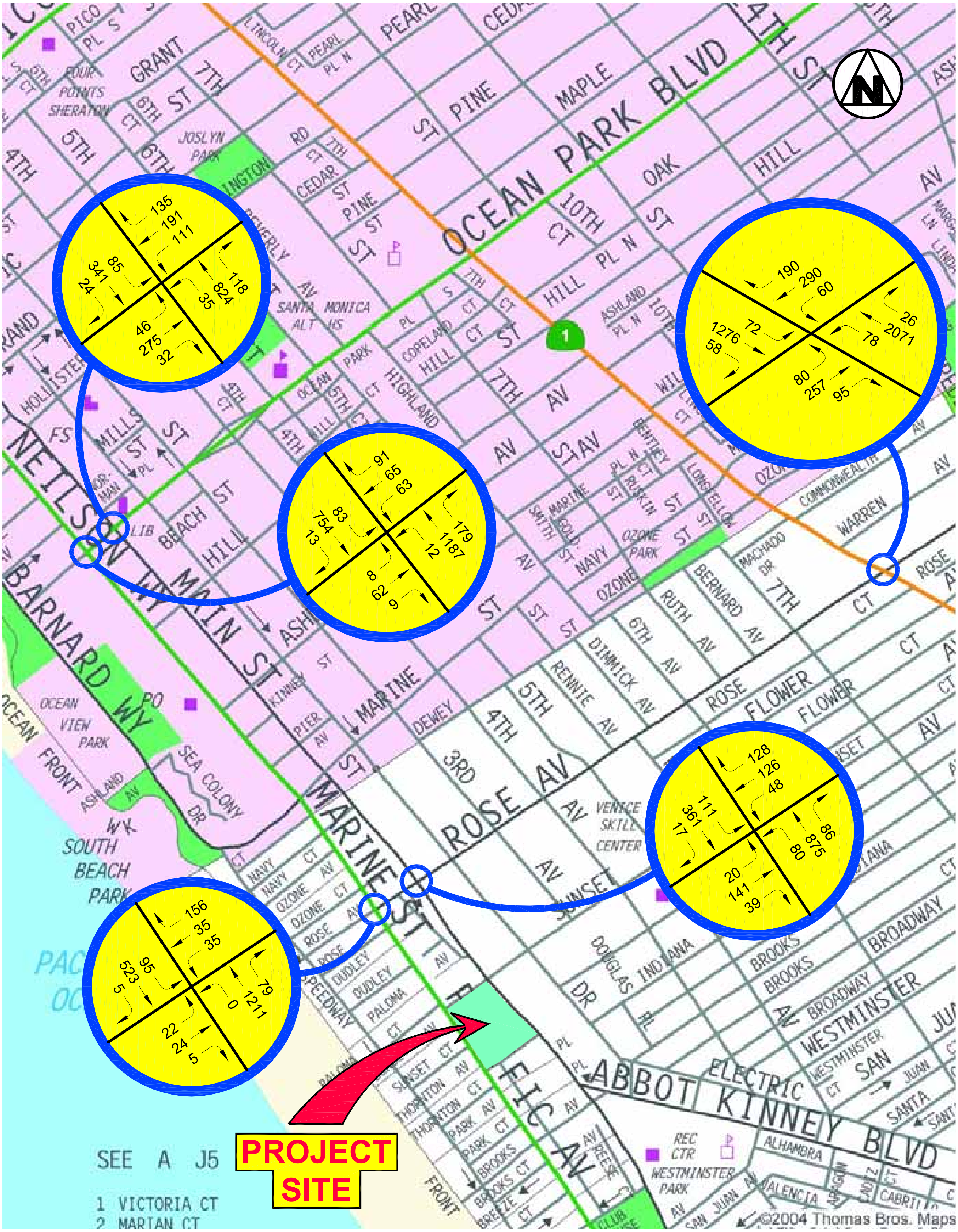


FIGURE 12(b)

9/28/2004

FUTURE (2009) TRAFFIC VOLUMES
WITH PROJECT (SUNSET / MAIN)
AM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

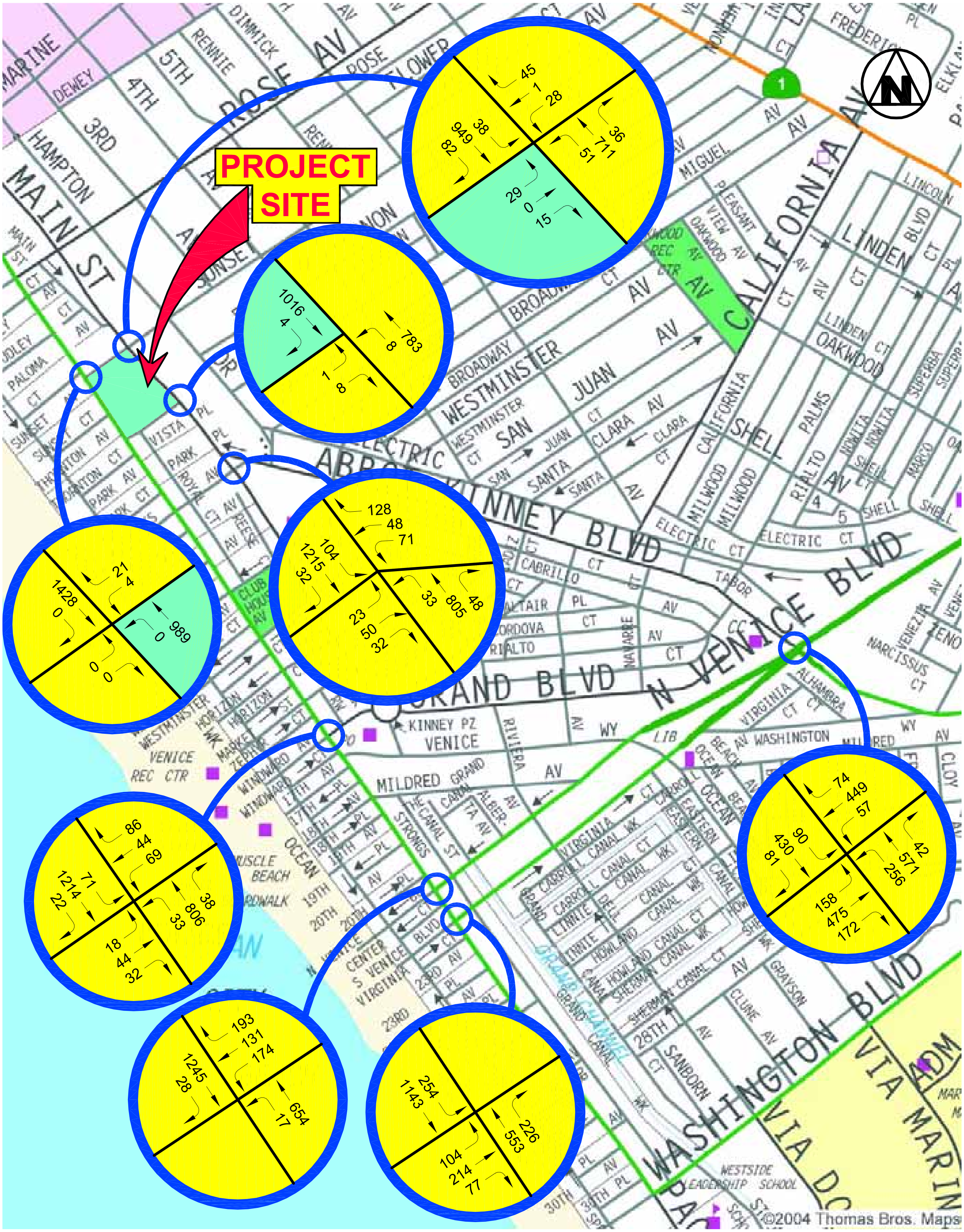


FIGURE 13(a)

7/24/2004

FUTURE (2009) TRAFFIC VOLUMES WITH PROJECT (SUNSET / MAIN) PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

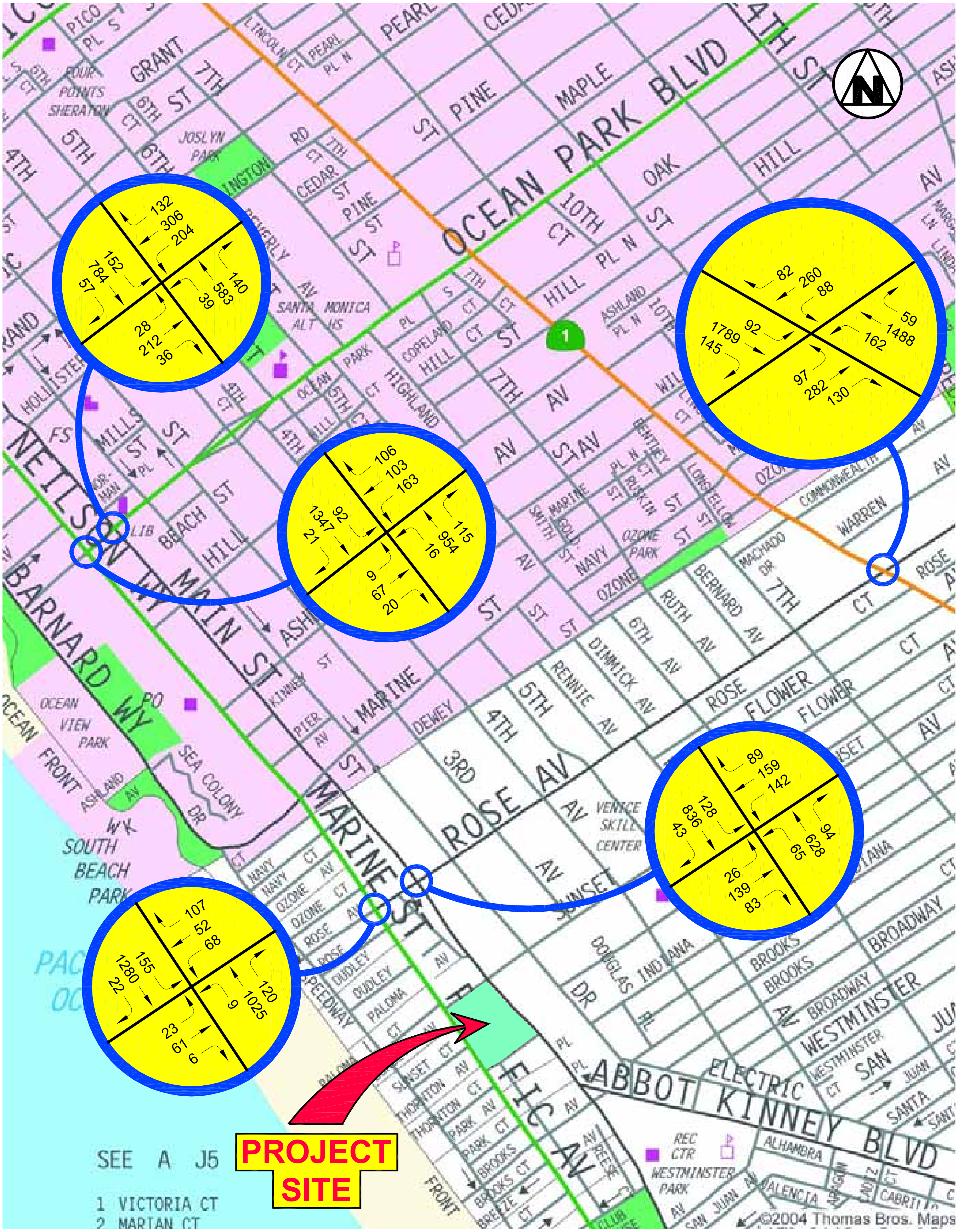


FIGURE 13(b)

9/28/2004

FUTURE (2009) TRAFFIC VOLUMES
WITH PROJECT (SUNSET / MAIN)
PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

Impacts on Regional Transportation System

The Congestion Management program (CMP) was adopted to track regional traffic growth, building permits and transportation improvements. The CMP designated a transportation network including all state highways and some arterials within the County to be monitored by local jurisdictions. If the LOS standard deteriorates on the CMP network, then local jurisdictions must prepare a deficiency plan to be in conformance with the CMP program. Local jurisdictions found to be in nonconformance with the CMP risk the loss of state gas tax funding. Current changes to the CMP program being considered by local officials include adding a countywide trip fee to mitigate regional cumulative impacts.

For purposes of the CMP LOS analysis, a substantial change in freeway segments are defined as an increase or decrease of 0.10 in the demand to capacity ratio and a change in LOS. A CMP traffic impact analysis is required if a project will add 150 or more trips to a freeway segment in either direction during either the AM or PM weekday peak hour. The nearest CMP monitoring location is Lincoln Boulevard and Venice Boulevard. The traffic study shows that significant traffic impacts would not be exceeded at this location. Neither of the Venice Boulevard or Lincoln Boulevard arterial segments carry more than the 50 peak hour project trip limit. As shown in Figure 6, the proposed project does not exceed the CMP traffic limits. Therefore, no additional CMP analysis is necessary.

Construction Impacts

Neither the Los Angeles Department of Transportation, nor the L.A CEQA Thresholds Guide has established a significance threshold for traffic impacts resulting from construction activity. For purposes of this Traffic Report a short-term significant impact on traffic due to construction is conservatively identified if:

- Haul trucks and staging activities associated with excavation would cause substantial inconvenience to travelers, residents and commercial interests in the project area for a period of at least several months;
- The trips generated due to construction activities would exceed the thresholds established for project operations, as may be adjusted by LADOT to account for

the relative short-term nature of construction activities as compared to the long-term impacts associated with indefinite project operations.

Construction of the project will require environmental clean up, demolition of all existing structures, grading, and construction of the new mixed-use development. Traffic during construction activities would be generated by construction equipment, crew vehicles, haul trucks and vehicles delivering building materials. The number of construction workers and construction equipment would vary throughout the construction process in order to maintain a reasonable schedule of completion.

The site preparation work is estimated to take approximately 2 months with site grading/excavation lasting 3 months in duration. The construction of the parking garage will take approximately 4 months to complete. Upon completion of the garage, additional parking for construction activities will be available for the construction of the residential and commercial uses which will take approximately 15 months to complete.

Construction workers would normally arrive at the project site and depart during non-peak hours, and therefore would not add substantially to the trips occurring during the peak hours. Total trip generation and related impacts would be considerably less than the impacts than would occur during project operations. Impacts from construction vehicles would be less than significant.

The amount of export material at the site for the construction of the mixed-use project is estimated at 125,000 cubic yards. During the early stages of the grading operation it is estimated that moving this amount of material will generate up to approximately 100 truckloads per day, or 200 directional daily trips. This level of truck activity would generated approximately 13 peak hour truckloads an equivalent of 26 truck trips during each hour of an 8 hour work day.

During excavation, conflicts between truck haul activities and street traffic, and pedestrian travel could occur due to site constraints related to the project's location, with nearby neighborhoods and certain roadway limitations. Because potential conflicts would occur for an estimated 100 truckloads (200 trips) per day, and related conflicts would occur over a period estimated at three to five months, a substantial inconvenience may occur for travelers, residents and commercial uses in the area unless measures are taken to control such activity. Therefore, the project's construction impacts on traffic due to excavation on traffic are considered a short-term potentially significant short-term impact, prior to mitigation. Mitigation measures are proposed to reduce the potential impact to less than significant levels.

Staging of the haul trucks during excavation shall occur on a designated major arterial street or off-street parking lot were the potential for residential parking and traffic impacts are less than significant. Off-site trucks will then be call to the construction site for loading operations. No detours around the construction site are expected, however, flagmen would be used to control traffic movement during the ingress and egress of trucks and heavy equipment. Based on preliminary proposals, the haul route identified for the site excavation and soil movement would direct traffic to travel north on Main Street, east on Rose Avenue and south on Lincoln Boulevard to the Marina Freeway. Return trips are anticipated to travel the same route.

All delivery trucks would be brought onto the project site and be stored within the perimeter fence of the construction site. Staging will not be allowed on neighborhood residential streets. Staging of construction vehicles on Main Street is not recommended due to lost parking and traffic flow considerations. Any staging on Main Street shall be very limited and allowed only on special occasions and pre-approved by the City via a street use permit.

Construction hours and days are planned to occur from 7 am to 3 pm, Monday through Friday with overtime hours and some weekends as required. Since the majority of construction workers trips would occur outside of the morning and afternoon peak hours and would be substantially less than the traffic generated by the occupied project analyzed in this report as stated previously, therefore construction impacts from this particular type of construction employee traffic activity would be less than significant.

Construction workers will not be allowed to park on the residential neighborhood streets, off-site parking areas, such as the public parking lot located 1 block north of the site shall be used for construction worker parking. Such off-site parking areas shall be located within walking distance of the project site or shuttles services will be provided by the project applicant between the off-site parking areas and the project site.

The project developer will be required to submit formal construction staging and traffic control plans for review and approval by the local agency prior to the issuance of any construction permits. A Work Area Traffic Control Plan will be developed for use during the entire construction period. This plan will also incorporate safety measures around the construction site to reduce the risk to pedestrian traffic near the work area. The Work Area Traffic Control Plan will identify all traffic control measures, signs, delineators and work instructions to be implemented by the construction contractor through the duration of demolition and construction activity.

The proposed mitigation measures listed below are recommended to minimize the potential conflicts between construction activities, street traffic and pedestrians. Mitigation measures may also include access restrictions, covered sidewalks, and designating alternative pedestrian routes.

Prior to the issuance of construction permits the developer shall prepare Work Area Traffic Control Plans that at a minimum should include:

- Identification of a designated haul route to be used by construction trucks;
- Provide an estimate of the number to trucks trips and anticipated trips;
- Identification of traffic control procedures, emergency access provisions, and construction alternative crew parking locations;
- Identification of the on-site location of vehicle and equipment staging;
- Provide a schedule of construction activities;
- Limitations on any potential lane closures to off-peak travel periods;
- Scheduling the delivery of construction materials during non-peak travel periods, to the extent possible;
- Coordinating deliveries to reduce the potential of trucks waiting to unload building materials;
- Prohibiting parking by construction workers on neighborhood streets as determined in conjunction with the City.

In summary, the project's construction impacts on traffic due to excavation on traffic are considered a short-term potentially significant short-term impact, prior to mitigation. Mitigation measures are proposed to reduce the potential impact to less than significant levels.

CHAPTER 6 MITIGATION MEASURES

The analysis contained in this study has determined that the added traffic volume generated by the mixed use project may significantly impact the traffic flow at two intersections prior to the implementation of traffic mitigation measures. The two intersections expected to be impacted by the project alternative with Sunset Avenue and Main Street access are: Main Street and Rose Avenue, and Main Street and Sunset Avenue. Listed below are the recommended traffic mitigation measures for each project alternative:

1. Right-turn Restrictions – The proposed Main Street non-residential access will be restricted to right-turns only (i.e., no left-turn ingress or egress will be permitted at this driveway).

2. Main Street and Rose Avenue – Pursuant to the Venice Community Plan Transportation Program, it is recommended that the project implement the improvement listed for Main Street and Rose Avenue (Chapter III page 30) which is to restripe the westbound Rose Avenue approach to provide an exclusive left-turn lane. Implementation of this improvement would require the removal of approximately four on-street parking spaces on Rose Avenue east of Main Street.

3. Main Street and Sunset Avenue – Remove parking on the west side of Main Street north of Sunset Avenue for the installation of a southbound right-turn only lane at Sunset Avenue. Restripe the westbound Sunset Avenue approach to provide an exclusive right-turn lane. Construct the west leg of Sunset Avenue (project side) to include an exclusive right-turn lane and a through/left-turn lane. Implementation of this improvement would require the removal of approximately three on-street parking spaces on the west side of Main Street north of Sunset Avenue.

The Sunset/Main access project's traffic impacts will be fully mitigated with the implementation of the traffic mitigation measures listed above as shown in Table 9.

Table 9
Future Traffic Conditions
with Sunset/Main Access + Mitigation

No.	Intersection	Peak Hour	Future Without CMA	Future Without LOS	With Project + Mitigation CMA	With Project + Mitigation LOS	With Project + Mitigation Impact
2.	Main Street &	AM	0.493	A	0.477	A	- 0.016
	Rose Avenue	PM	0.767	C	0.773	C	+ 0.006
3.	Main Street &	AM	0.495	A	0.501	A	+ 0.006
	Sunset Avenue	PM	0.477	A	0.514	A	+ 0.037

Summer Traffic Analysis

An analysis of summer traffic conditions has been conducted based on new traffic data collected in June 2004 (see Appendix D). Results of the project's summer traffic impacts indicate the project will have a significant impact at one intersection (Rose Avenue and Lincoln Boulevard). Possible traffic mitigation for the project's summer traffic impact include participation in the implementation of new transit programs such as the summer weekend RAD Shuttle (currently operating as a pilot program) or the proposed Metro Rapid transit program for the Lincoln Boulevard corridor.

Recommend Beach Access Improvements

It is recommended that the project upgrade the existing pedestrian crossings located across Main Street at Sunset Avenue and across Pacific Avenue at Sunset Avenue with flashing markers/signage, i.e., "Smart Crosswalks". This improvement will enhance the pedestrian beach access for the new residents and existing community.

Highway Dedications and Street Standards

A part from the project application process, the City of Los Angeles will review the adjacent street standards and may require additional street dedications and improvements. Below are the adjacent streets standards and current conditions.

Main Street and Pacific Avenue are both designated Secondary Highways. The standard for a secondary highway is 90 feet of right-of-way consisting of a 70 foot wide street with 10 foot sidewalks on each side. The half street dedication and street improvement requirements are therefore 45 feet of right-of-way with a 35 foot wide street and 10 foot sidewalks on each side.

A recent land survey shows that Main Street is currently developed with a total right-of-way of 90 feet (50 feet east side and 40 feet west side). The street is developed to approximately 56 feet in width consisting of 28 feet for each half street. The west sidewalk is 12 feet is width. Therefore, the City could ask for a 2-foot street widening reducing the 12-foot sidewalk to 10 feet in width along the project Main Street frontage.

Pacific Avenue is developed to a 55-foot right-of-way with a 44-foot roadway with 5.5 foot sidewalks on each side. The half street dimensions are 27.5 feet of dedication with a 22-foot roadway. The project proposes to maintain the current street dimensions on Pacific Avenue and provide a 17.5 foot dedication. The City could ask for a 13-foot street widening on Pacific Avenue along the project frontage.

Sunset Avenue and Thornton Place are both designated local streets. A local street standard specifies a 60-foot right-of-way with a 36-foot wide roadway and 12-foot sidewalks on each side.

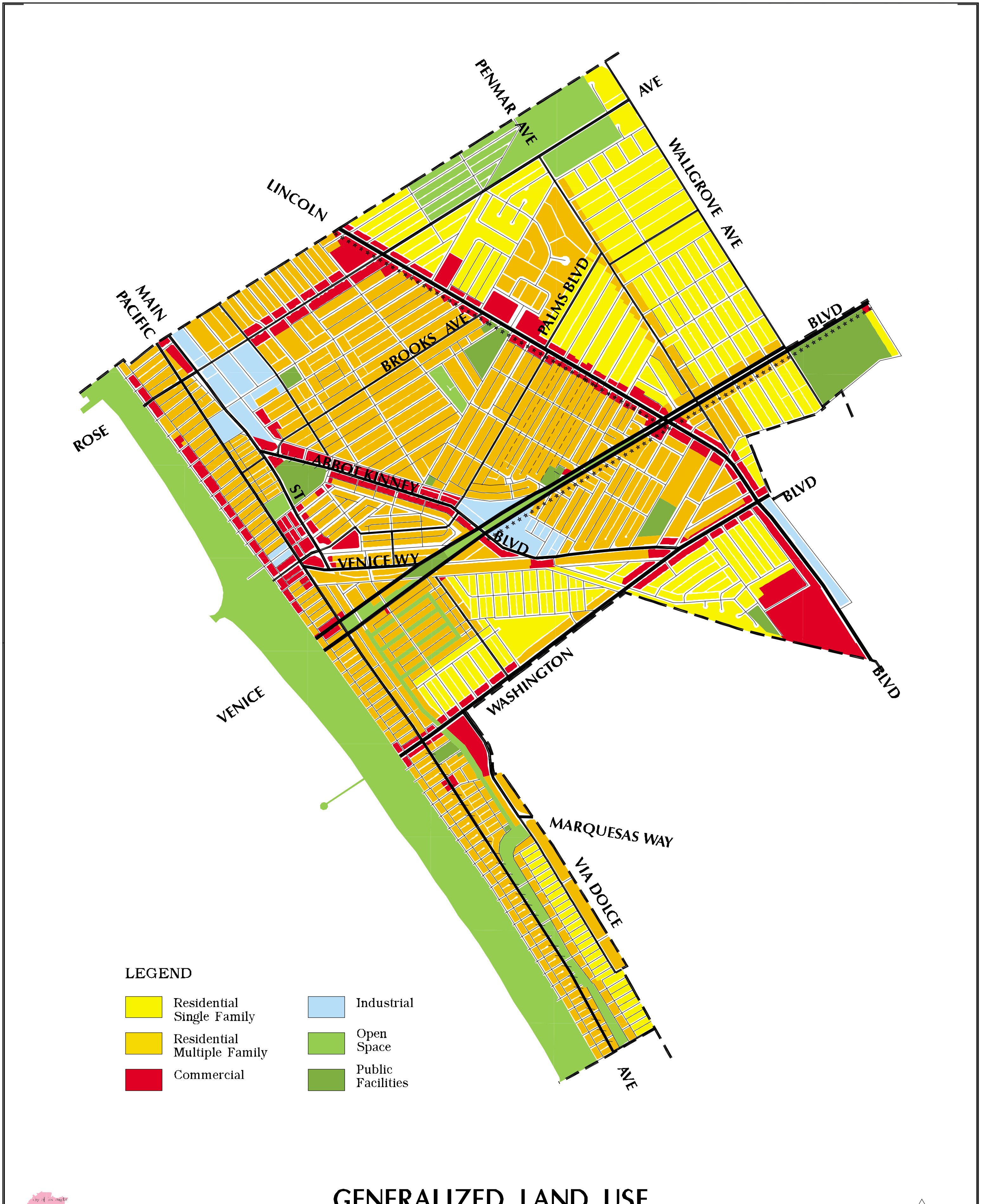
Sunset Avenue is developed with a 24-foot road with a 6-foot sidewalk on the north side for a total dedicated right-of-way of 30-feet. The dedicated right-of-way on Thornton Place varies from 16 to 20 feet in width. The roadway is unimproved and does not connect to Pacific Avenue. The dedicated centerlines of these roadways are assumed to be on center. Therefore, the City could ask for dedication/improvements on both local streets to complete a 30-foot ½ right-of-way and 18-foot ½ roadway.

The project proposes to dedicate 16 feet along the Sunset Avenue frontage to provide a 40 wide street with a 6 foot sidewalk easement along the south side for pedestrian facilities. The 40-foot street is to provide additional angled parking along the south side of Sunset Avenue west of the proposed project driveway on Sunset Avenue. It is currently proposed that Thornton Place be retained in its current configuration.

There may be exceptions to the highway standards and criteria contained in the Circulation Element of the General Plan and the City's Standard Street Dimensions as listed above where environmental issues, planning practices and community desires warrant alternate standards. Several exceptions as described above will be requested by the project during the environmental review process.

APPENDIX A

COMMUNITY PLAN LAND USE INFORMATION



GENERALIZED LAND USE
VENICE

OTHER PLANS / GUIDELINES
VENICE

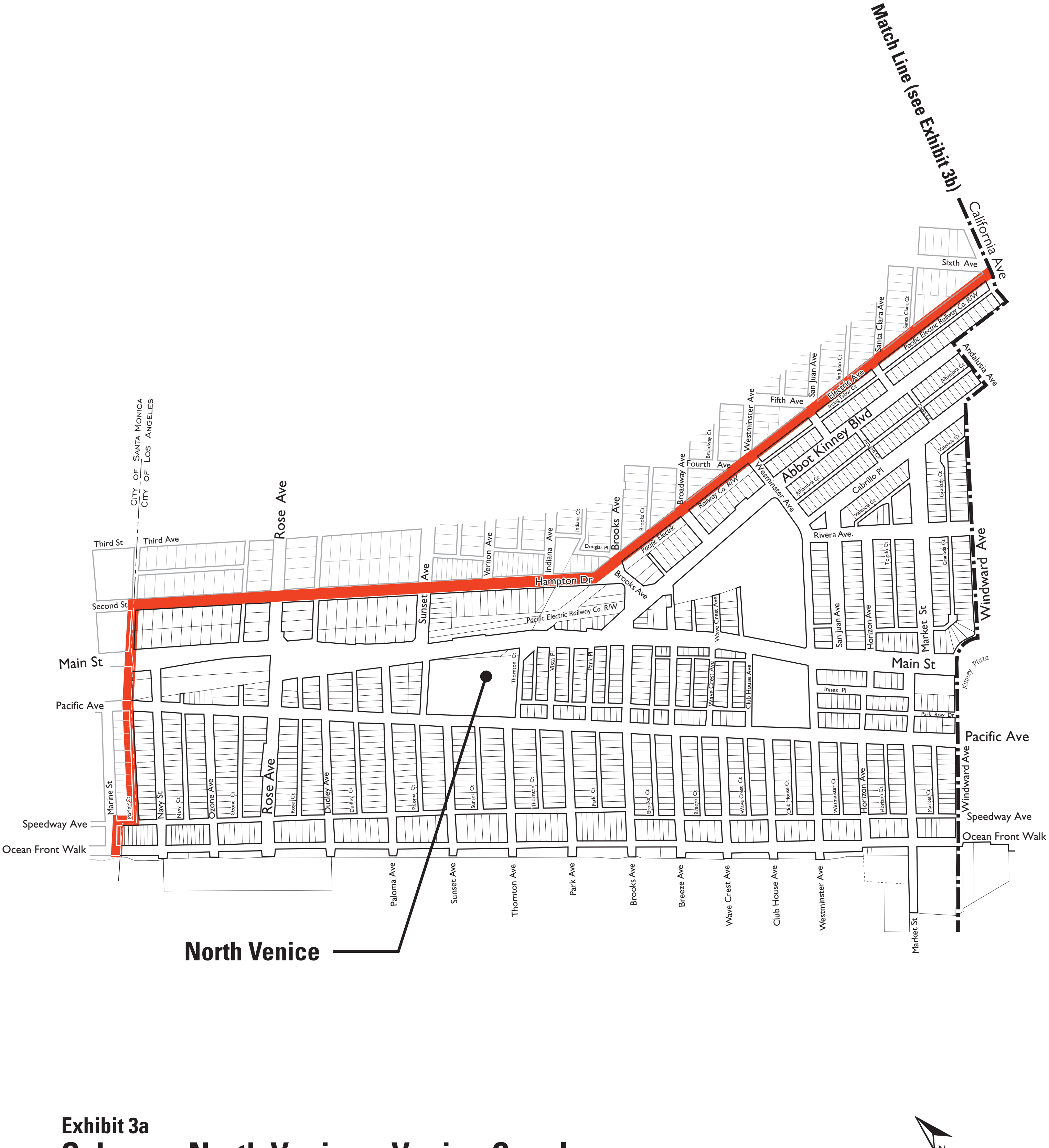
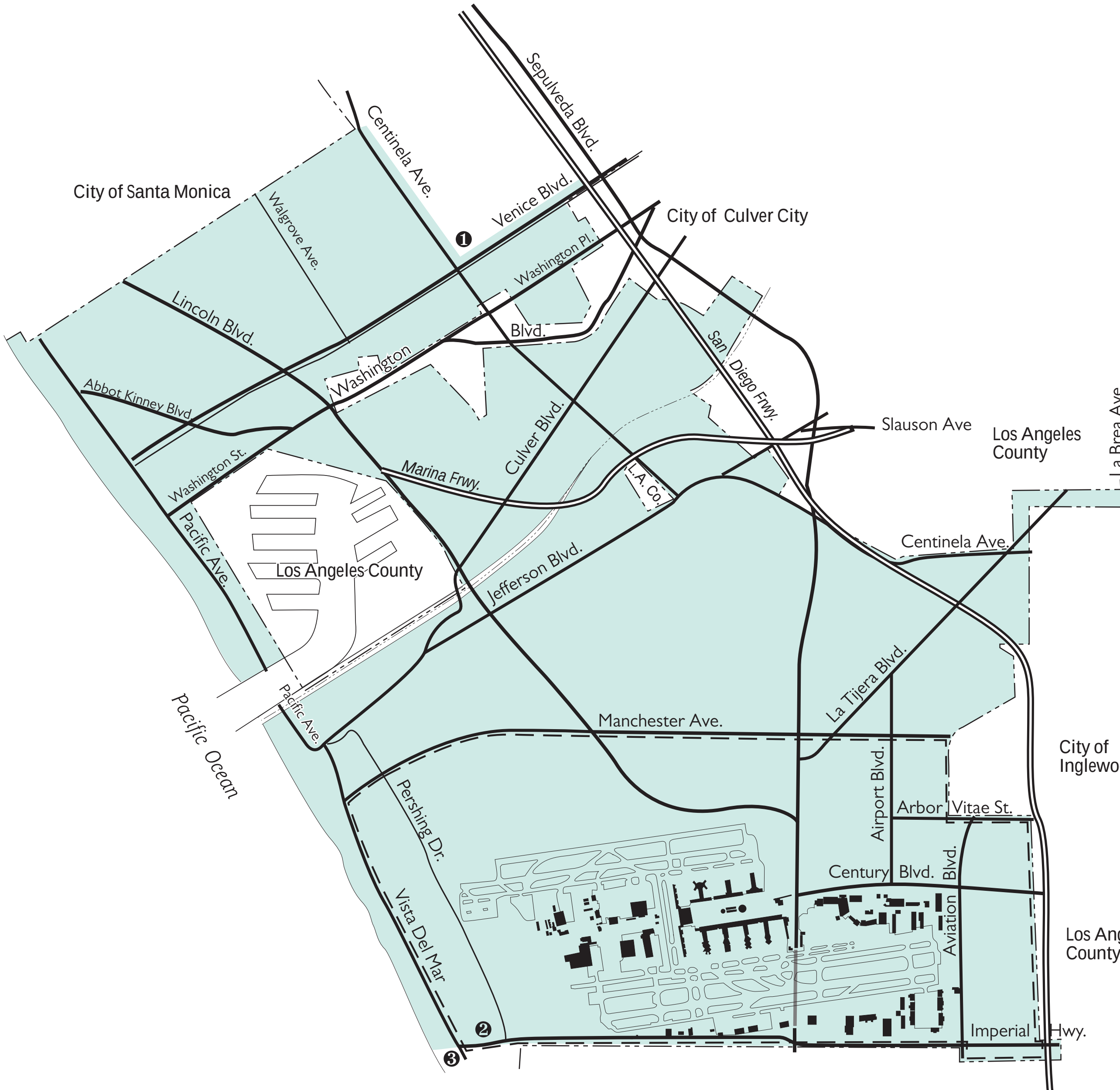


Exhibit 3a

Subarea: North Venice • Venice Canals

Coastal Transportation Corridor Specific Plan



Specific Plan Area

Airport Corridor Boundary

NOTES:

❶ Includes frontages on both sides of Centinela Ave. from Santa Monica City Boundary line south to Venice Blvd. and both sides of Venice Blvd from Centinela Ave. east to the San Diego Frwy.

❷ Includes only northerly frontage of Imperial Hwy. between Pershing Dr. and the westerly terminus of the Specific Plan area.

❸ Westerly prolongation of Imperial Hwy. to Pacific Ocean.

N

Not to Scale

INTRODUCTION

The General Plan Framework is a long range, citywide, comprehensive growth strategy. It is a special element of the general plan which looks to the future as required by law and replaces Concept Los Angeles and the Citywide Plan (adopted in 1974). Because it looks at the city as a whole, the Framework provides a citywide context within which local planning takes place. Both the benefits and challenges of growth are shared.

The Framework sets forth a conceptual relationship between land use and transportation on a citywide basis and defines new land use categories which better describe the character and function of the city as it has evolved over time. The new categories - Neighborhood District, Community Center, Regional Center, Downtown Center and Mixed Use Boulevards - are broadly described (with ranges of intensity/density, heights and lists of typical uses) and generally shown on this long range land use diagram. The definitions reflect a range of land use possibilities found in the city's already diverse urban, suburban and rural land use patterns - patterns which have evolved over time at different rates and in different locations. Their generalized locations reflect a conceptual relationship between land use and transportation.

Because it is citywide, the Framework cannot anticipate every detail. Therefore, the community plans must be looked to for final determinations as to boundaries, land use categories, intensities and heights that fall within the ranges described by the Framework.

The Citywide General Plan Framework Element neither overrides nor supersedes the Community plans. It ***guides*** *the city's long range growth and development policy, establishing citywide standards, goals, policies and objectives for citywide elements and community plans. The Framework is flexible, suggesting a range of uses within its land use definitions. Precise determinations are made in the Community Plans.*

LEGEND
Districts, Centers & Mixed Use Boulevards

Neighborhood District
A focal point for surrounding residential neighborhoods and containing a diversity of land uses such as restaurants, retail outlets, grocery stores, child care facilities, small professional offices, community meeting rooms, pharmacies, religious facilities and other similar services. The clustering of uses minimizes automobile trip-making and encourages walking to and from adjacent neighborhoods. Pedestrian-oriented areas are encouraged, and the district may be served by a local shuttle service. Generally, Neighborhood Districts are at a floor area ratio of 1.5:1 or less and characterized by 1- or 2-story buildings.

Community Center
A focal point for surrounding residential neighborhoods and containing a diversity of uses such as small offices and overnight accommodations, cultural and entertainment facilities, schools and libraries, in addition to neighborhood oriented services. Community Centers range from floor area ratios of l.5:1 to 3.0:1. Generally, the height of different types of Community Centers will also range from 2- to 6-story buildings, *e.g.*, some will be 2-story Centers, some 4- or 6-story Centers depending on the character of the surrounding area. Community Centers are served by small shuttles, local buses in addition to automobiles and/or may be located along rail transit stops.

Regional Center
A focal point of regional commerce, identity and activity and containing a diversity of uses such as corporate and professional offices, residential, retail commercial malls, government buildings, major health facilities, major entertainment and cultural facilities and supporting services. Generally, different types of Regional Centers will fall within the range of floor area ratios from 1.5:1 to 6.0:1. Some will only be commercially oriented; others will contain a mix of residential and commercial uses. Generally, Regional Centers are characterized by 6- to 20-stories (or higher). Regional Centers are usually major transportation hubs.

Downtown Center
An international center for finance and trade that serves the population of the five county metropolitan region. Downtown is the largest government center in the region and the location for major cultural and entertainment facilities, hotels, professional offices, corporate headquarters, financial institutions, high-rise residential towers, regional transportation facilities and the Convention Center. The Downtown Center is generally characterized by a floor area ratio up to 13:1 and high rise buildings.

Mixed Use Boulevard
These connect the city's neighborhood districts and community, regional and Downtown centers. Mixed Use development is encouraged along these boulevards, with the scale, density and height of development compatible with the surrounding areas. Generally, different types of Mixed Use Boulevards will fall within a range of floor area ratios from 1.5:1 up to 4.0:1 and be generally characterized by 1- to 2-story commercial structures, up to 3- to 6-story mixed use buildings between centers and higher buildings within centers. Mixed Use Boulevards are served by a variety of transportation facilities.

Relationship To Community Plans

Adoption of the Framework neither overrides nor mandates changes to the Community Plans. The Community Plans reflect appropriate levels of development at the time of the Framework's adoption. As community plans are updated utilizing future population forecasts and employment goals, the Framework is to be used as a guide - its generalized recommendations to be more precisely determined for the individual needs and opportunities of each community plan area. During that process, nothing suggests that a community plan must be amended to the higher intensities or heights within the ranges described in the Framework. The final determination about what is appropriate locally will be made through the community plans - and that determination may fall anywhere within the ranges described.

As the city evolves over time, it is expected that areas not now recommended as Neighborhood Districts, Community and Regional Centers, and Mixed Use Boulevards may be in the future appropriately so designated; and areas now so designated may not be appropriate. Therefore, the Framework long range diagram may be amended to reflect the final determinations made through the Community Plan update process should those determinations be different from the adopted Framework.

Examples of the application of Framework definitions:

1. A *Regional Center* located in a low- to mid-rise suburban area characterized by large vacant lots may have a lower intensity; while an urban area, where most lots are smaller and built upon at higher intensities may have higher overall intensities. While the uses of these two types of *Regional Centers* will generally be the same (*e.g.*, large office buildings, major entertainment facilities, extensive retail, including large shopping malls, overnight accommodations, served by major transportation and close to housing), the development characteristics will differ and be determined through the Community Plan process, taking into account the surrounding area.

2. A *Community Center* in one part of the city may be identified for a low intensity, *e.g.*, floor area ratio of 1.5:1 and a height of 3 stories; while in another part of the City, a Communify Center may start with a low intensity, *e.g.,* floor area ratio of 1.5:1, but permit a bonus density (*e.g.,* permit an additional floor area ratio of 0.5:1) and higher building heights whenever new development also includes housing.

These kinds of more precise determinations are made through the Community Plans. The General Plan Framework provides the range within which the determinations are made.

Relationship To Specific Plans

The city has a number of adopted specific plans which set detailed development regulations for local areas and include various types of regulatory limitations. Examples of these limitations include "trip caps," Design Review Boards, density/intensity limits, maximum heights, landscape, lot coverage, *etc*. The General Plan Framework is consistent with and does not supersede nor override these local requirements.

Footnotes

1. The General Plan Framework is comprised of the generalized Long Range Land Use Diagram, policies and programs. For a comprehensive understanding of the Framework's recommendations, both maps and text should be consulted.
2. *Special Study Area.* Future changes in use require approval by appropriate decision makers through appropriate studies and procedures. Changes may result in a community plan amendment, specific plan, development agreement, change of zone; and may include further restrictions, if necessary.
3. As decisions are made to fund or withdraw funding from transit stations, adjacent land uses will be re-evaluated.
4. Compact areas identified for future growth are known as Districts, Centers and Mixed Use Boulevards. They are also defined by their function within the community, citywide and regional context and take into consideration adjacent property in adjoining cities when appropriate. They offer a range of development potential because some are developed to their maximum, while others are not.

Figure 3-3

Long Range Land Use Diagram

West/Coastal Los Angeles

Close window to return to previous page

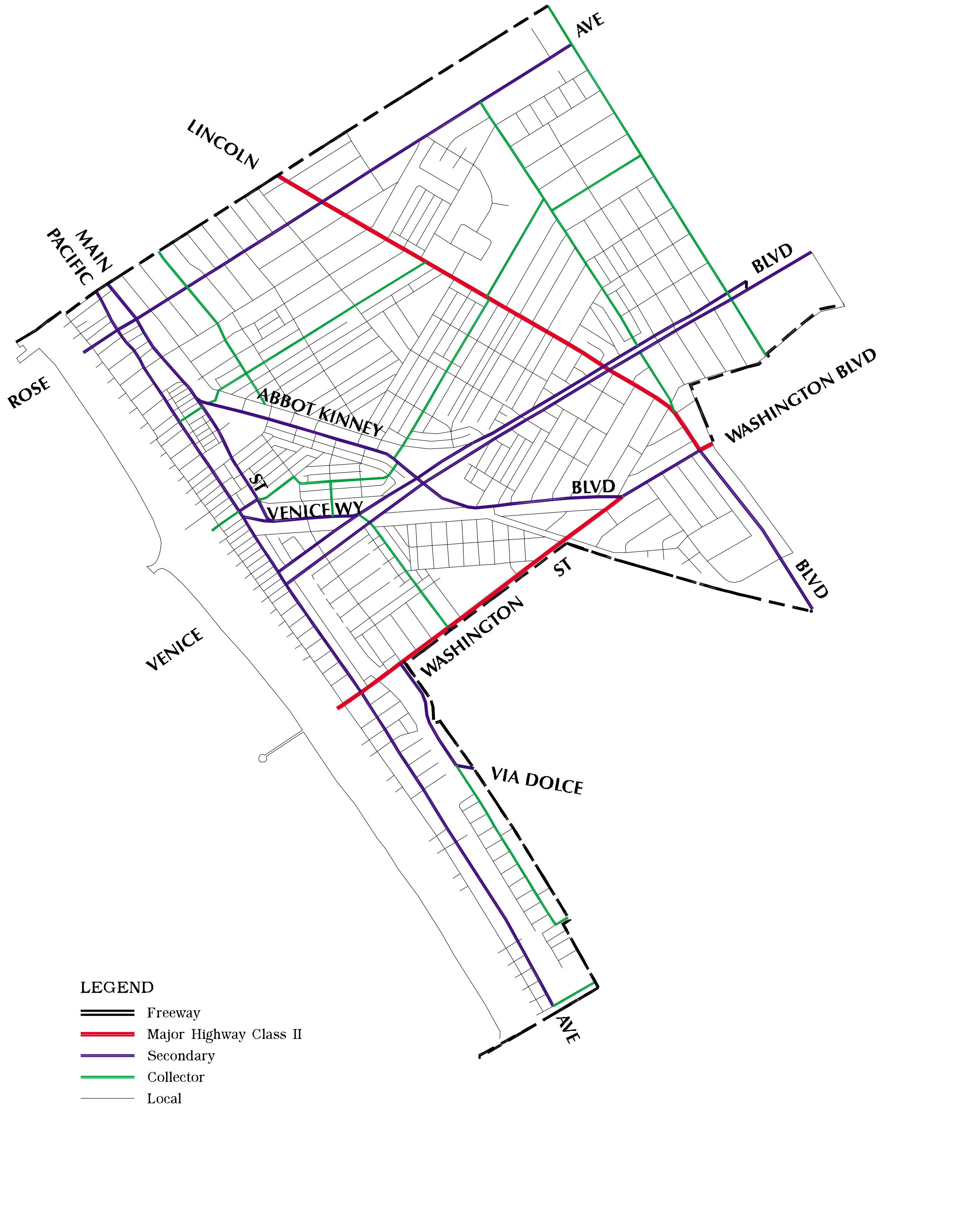
1 1/2 0 1 2 3 4 5 KILOMETERS

N 1 1/2 1/4 0 1 2 3 4 MILES

CITY OF LOS ANGELES GENERAL PLAN FRAMEWORK
2-19-03

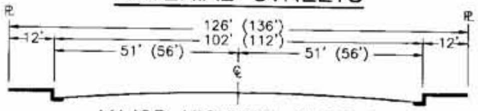
APPENDIX B

CIRCULATION MAPS, STREET STANDARDS & STREET PLANS



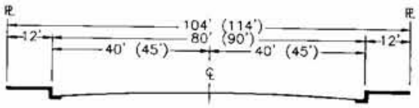
GENERALIZED CIRCULATION
VENICE

ARTERIAL STREETS



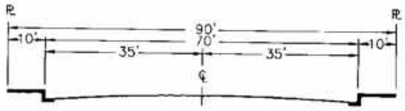
MAJOR HIGHWAY–CLASS I

At intersections with other Major Highways, the larger widths shown in parentheses should be provided, as determined by LADOT, utilizing a Standard Flare Section.



MAJOR HIGHWAY–CLASS II

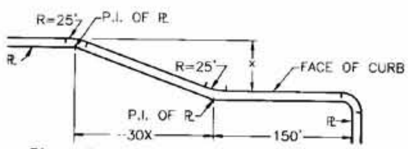
At intersections where LADOT has determined that dual left turn lanes are required, the larger widths shown in parentheses shall be provided, utilizing a Standard Flare Section.



SECONDARY HIGHWAY

TRANSITIONAL EXTENSIONS

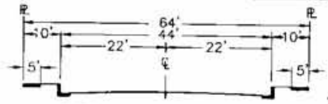
Where a designated Major Highway (Class I or II) or a Secondary Highway crosses another designated arterial street and then changes in designation to a street of lesser standard width, the street of lesser standard width shall be widened on both sides from the intersection to the width of the higher designation and tapered in a Standard Flare Section, as shown below, to provide an orderly transition.



Dimensions shall be measured angle point to angle point.

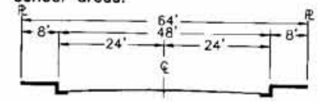
STANDARD FLARE SECTION
(Plan View)

NON–ARTERIAL STREETS



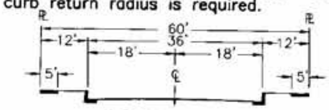
COLLECTOR STREET

For use in quarter mile streets and school areas.



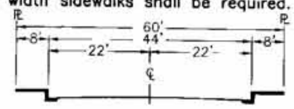
INDUSTRIAL COLLECTOR STREET

For use in industrial areas to assist the flow of local truck traffic within those areas to adjacent arterial streets. A 35' curb return radius is required.



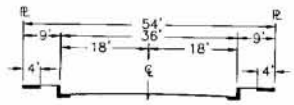
LOCAL STREET

In commercial and multiple residential areas, a 40–foot roadway with 10–foot parkways, and full–width sidewalks shall be required.



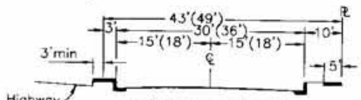
INDUSTRIAL LOCAL STREET

For use in industrial areas. A 35' curb return radius is required.



NONCONTINUOUS LOCAL STREET

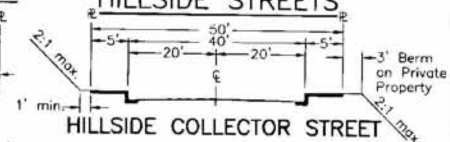
May include cul–de–sac, loop streets and short connector streets. Where an approved internal pedestrian system is provided the parkway on one side may be reduced to 3–feet.



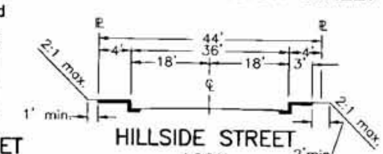
SERVICE ROAD

For use on adjoining major or secondary highways, except that the larger widths shown in parentheses shall be provided in multiple residential zones.

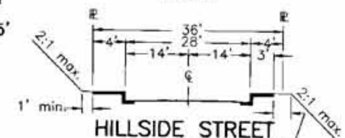
HILLSIDE STREETS



HILLSIDE COLLECTOR STREET

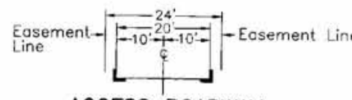


HILLSIDE STREET
LOCAL



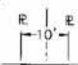
HILLSIDE STREET
LIMITED

(Parking on one side only)



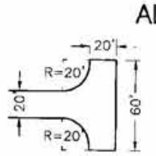
ACCESS ROADWAY
CONDITIONAL

(Limited to 4 dwelling units, and a maximum length of 300 feet. Private Street only)

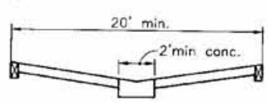


STANDARD WALKWAY
CROSS – SECTION

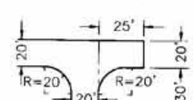
ALLEYS



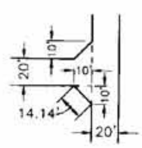
STANDARD TURNING AREA
(Plan View)



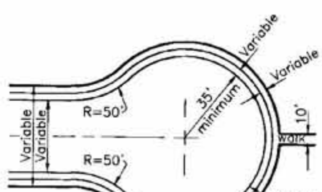
STANDARD CROSS–SECTION



MINIMUM TURNING AREA
(Plan View)



STANDARD CUT–CORNERS FOR 90° INTERSECTION
(Plan View)



CUL–DE–SAC
(Plan View)

MAY BE UNSYMMETRICAL

Note: For fire truck clearance, no obstruction taller than 6" shall be permitted within 3 ft. of the curb. On–street parking shall be prohibited.

NOTE: Dimensions shown hereon are not to scale.

PREPARED IN COOPERATION WITH THE DEPARTMENTS OF TRANSPORTATION AND CITY PLANNING

BUREAU OF ENGINEERING — DEPARTMENT OF PUBLIC WORKS — CITY OF LOS ANGELES

STANDARD STREET DIMENSIONS

STANDARD PLAN S–470–0

SUBMITTED March 25, 1999
Clark W. Robins
ENGINEER OF DESIGN
DEPUTY ENGINEER

APPROVED MARCH 31 1999
Thomas Conner
CITY ENGINEER

DESIGNED BY	DRAWN BY	CHECKED BY
M.F.D., D.L.F., J.E.F. A.D.R.	R. TANABE	L. GANAJA

REGISTERED PROFESSIONAL ENGINEER THOMAS K. CONNER NO. 23788 EXP. 12/31/2001 CIVIL STATE OF CALIFORNIA

APPROVED [signature] 4·6·99
GENERAL MANAGER, DEPT. OF TRANSPORTATION DATE

Conslowe 4/6/99
DIRECTOR OF PLANNING DATE

ADOPTED MAY 13, 1999
CITY PLANNING COMISSION DATE

SUPERSEDES	REFERENCES
D–22549	

VAULT INDEX NUMBER B–4428

SHEET 1 OF 2 SHEETS

THIS STANDARD PLAN BECOMES EFFECTIVE ON NOVEMBER 10, 1999

STANDARD STREET CONDITIONS

1. City Council may, by ordinance, adopt specific standards for individual streets which differ from these official standard street dimensions. Community Plans should be reviewed for designation of Pedestrian Priority Street Segments of arterial streets which would require wider sidewalks than those indicated on this Standard Plan.

2. Sidewalk widths for non-arterial streets shall be the minimum shown hereon. Greater widths, up to full width between curb and property line, with tree wells, shall be required where commercial and multiple residential frontage, schools, areas of heavy pedestrian traffic or other special circumstances indicate the need.

3. Except for special conditions or as otherwise provided, sidewalk shall be placed as close to the property line as possible.

4. Where sidewalk is constructed adjacent to the curb it shall have a minimum width of 10 feet inclusive of curb thickness except for hillside streets, noncontinuous local streets and industrial streets.

5. Where sidewalk is constructed on the fill or low side of a hillside street, a berm may be required on private property.

6. Easements may be required in addition to the widths shown hereon, where necessary for the installation of public utilities or for widened sidewalks (minimum 15-foot width) adjacent to transit stations.

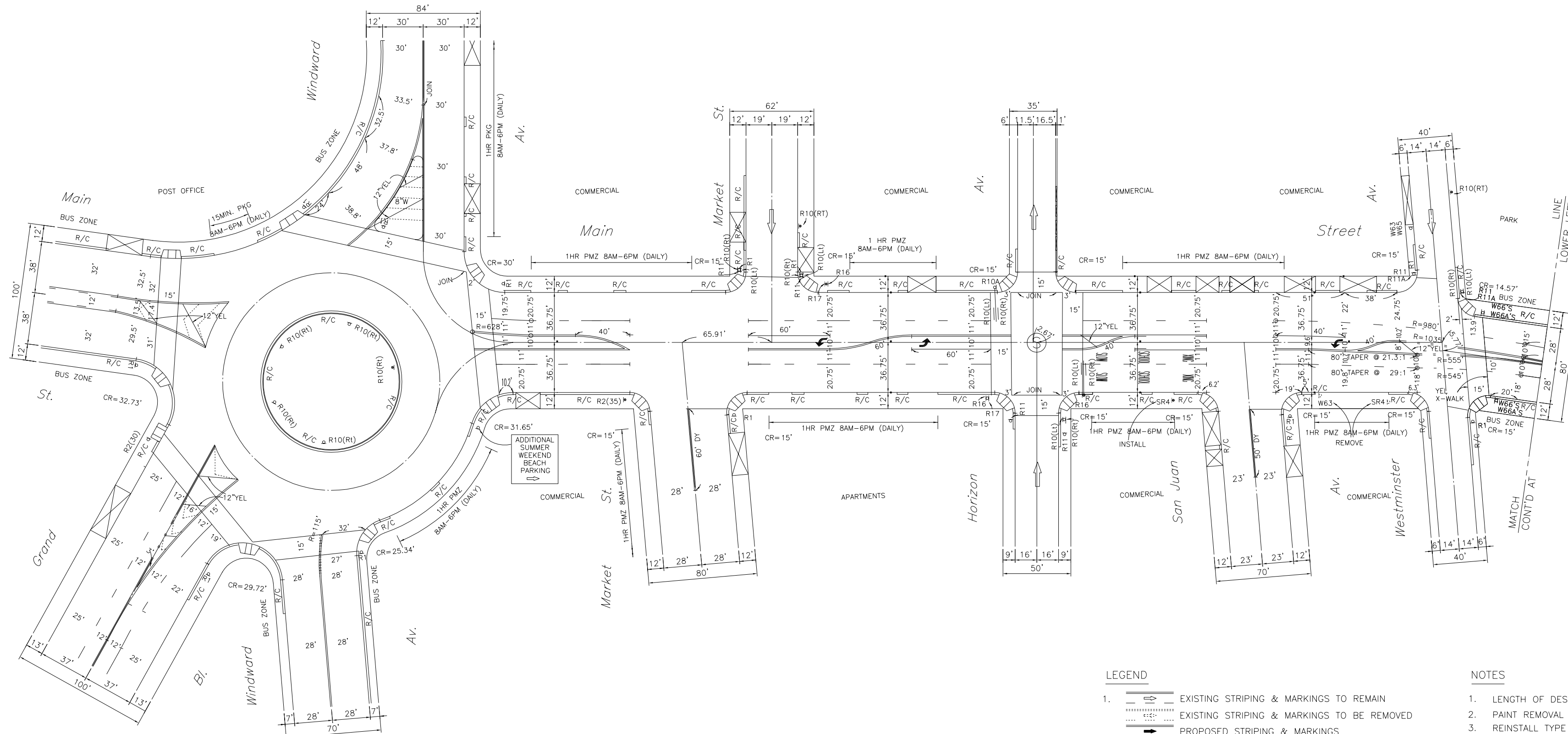
7. Fifty-foot curb radii (instead of the standard 35' curb radii) shall be provided for cul-de-sacs in industrial areas.

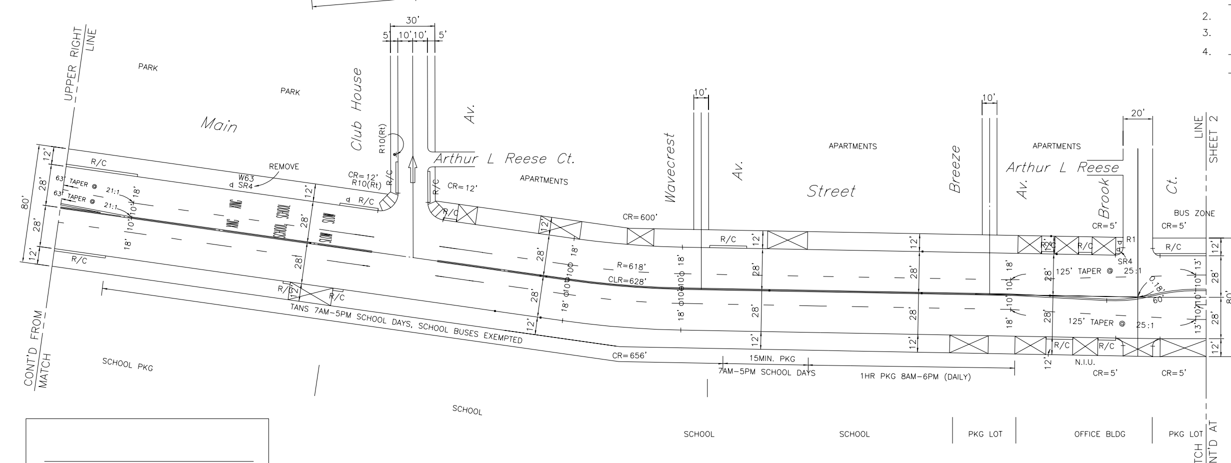
8. Private street development should conform to the standard public street dimensions shown on this sheet, where appropriate. Variations may be approved on a case-by-case basis.

9. For intersections of streets the following dedications shall apply:
   a. Intersections of arterial streets with any other street: 15'x15' cut corner OR 20' curved corner radius.
   b. Intersections of non-arterial and/or hillside streets: 10'x10' cut corner OR 15' curved corner radius.

10. Hillside Collector Streets. In hillside areas where topography or other environmental considerations, documented to the satisfaction of the City Engineer, would render full street improvements infeasible, the roadway width of the hillside collector street may be reduced to no less than 32 feet, provided that parking is limited to one side only.

STANDARD PLAN NO. S-470-0	VAULT INDEX NUMBER B-4428	SHEET 2 OF 2 SHEETS





LEGEND

1. EXISTING STRIPING & MARKINGS TO REMAIN
EXISTING STRIPING & MARKINGS TO BE REMOVED
PROPOSED STRIPING & MARKINGS
2. EXISTING SIGNS * PROPOSED SIGNS
3. SIGNALIZED INTERSECTION
4. R/C EXISTING RED CURB
R/C PROPOSED RED CURB

NOTES

1. LENGTH OF DESIGN : 4440' ±
2. PAINT REMOVAL REQUIRED.
3. REINSTALL TYPE A3 BARS AS NEEDED.
4. NO SIGNAL LOOP RELOCATIONS ARE REQUIRED WITH THIS PLAN.
5. THE CENTERLINE OFFSET BETWEEN THE CITY OF LOS ANGELES & CITY OF SANTA MONICA ROADWAYS IS 5.1 FEET.

THIS DRAWING SUPERCEDES DWG A-2233 (SHT 1 OF 3)

STREET RESURFACING PROJECT
MAIN STREET
WINDWARD AV. TO C.L. N/O NAVY ST.
W.O.# 95468 F.Y. 98-99

TRANSPORTATION PLANNING MANAGER
CITY OF SANTA MONICA

SCALE: 1"=40'

BASE	WH.	8-27-98	SUPERVISOR PAT
FIELD	WH.	8-25-98	S.T.A.R.
DRAFTING			DISTRICT
CHECK	MC.	8-25-98	SIGNALS
DESIGN	MC.	8-25-98	BIKEWAYS

BY | DATE | BY | DATE

REVISION DESCRIPTION (NON CADD PLANS ONLY) | T.E. | SR. T.E. | PR. TRAN. ENGR. | DATE

RECOMMENDED 3-4 19 99 PATRICK TOMCHECK Transportation Engineer
APPROVED 3-4 19 99 THOMAS L. JONES Senior Transportation Engineer

REGISTERED PROFESSIONAL ENGINEER THOMAS L. JONES No. 19381 Exp. 09-30-01 CIVIL STATE OF CALIFORNIA

INSTALLATION DATES
MARKOUT BEGAN:
MARKOUT COMPLETED:
STRIPING COMPLETED:
References:
006.126 P 2514
FB 108-141 P6171
FB 111-141 P 6809

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
FRANCES T. BANERJEE, GENERAL MANAGER

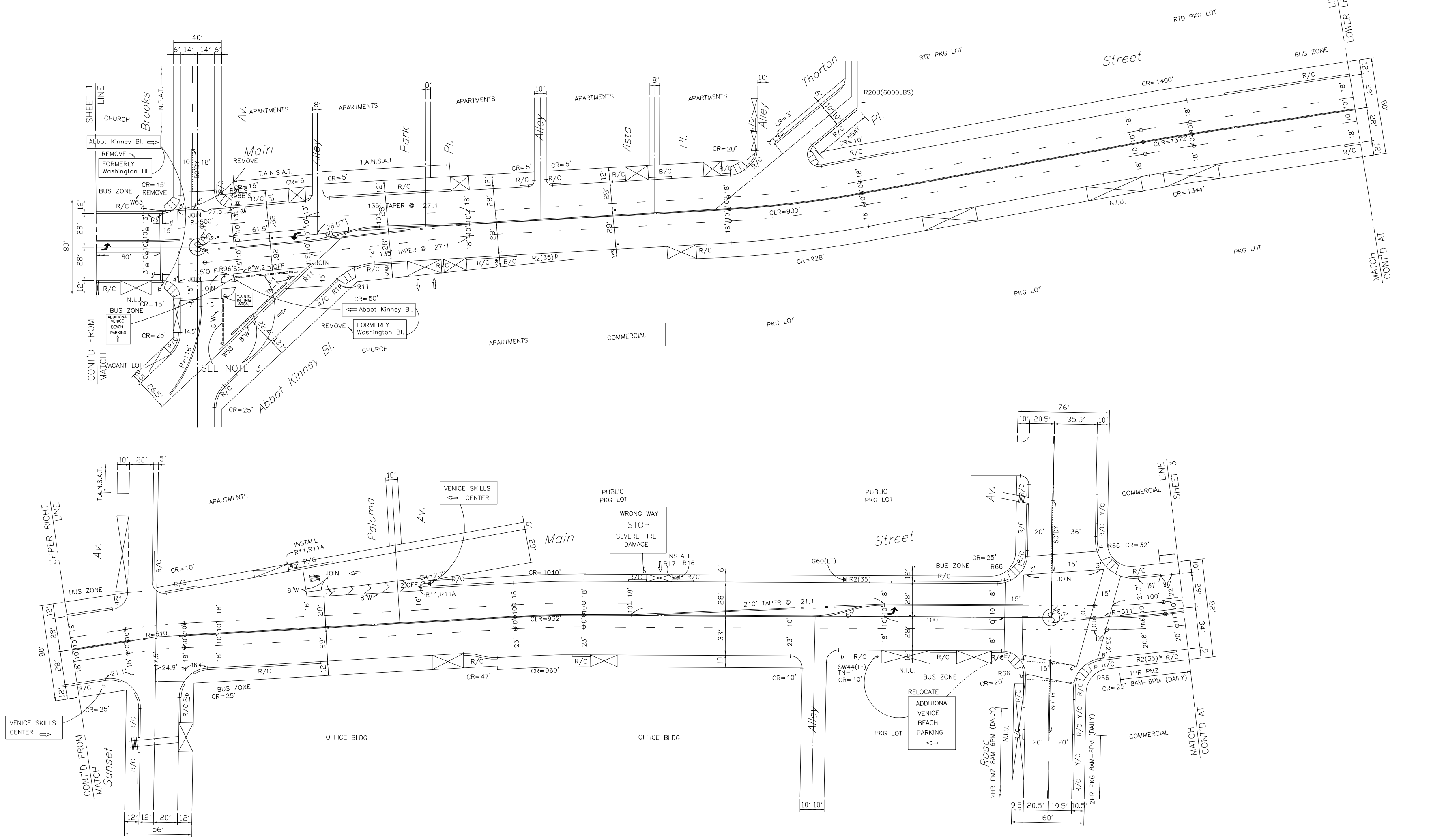
MAIN STREET
WINDWARD AV. TO C.L. N/O NAVY ST

Thomas Guide	District	PROJECT NO.	DRAWING NO.	
671,G5	W	72303	A-2233A	1 / 3

CITY OF LOS ANGELES
THOMAS K. CONNER CITY ENGINEER
NO.
DATE ____ 19 ____
DIV./DIST. ENGR. R.E. NO.

1"=20' ORIGINAL MAP SCALE 1"=40'
20 10 0 20 40 60 80 100 FEET
40 20 0 40 80 120 160 200 FEET

SCALES HORIZ. 1"= VERT. 1"= SHEET INDEX NUMBER



THIS DRAWING SUPERCEDES DWG A-2233 (SHT 2 OF 3)

SCALE: 1"=40'

INSTALLATION DATES
MARKOUT BEGAN:
MARKOUT COMPLETED:
STRIPING COMPLETED:
References:

Thomas Guide	District
671,G5	W

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
FRANCES T. BANERJEE, GENERAL MANAGER

MAIN STREET
WINDWARD AVE. TO C.L. N/O NAVY ST.

PROJECT NO.	DRAWING NO.	
72303	A-2233A	2 / 3

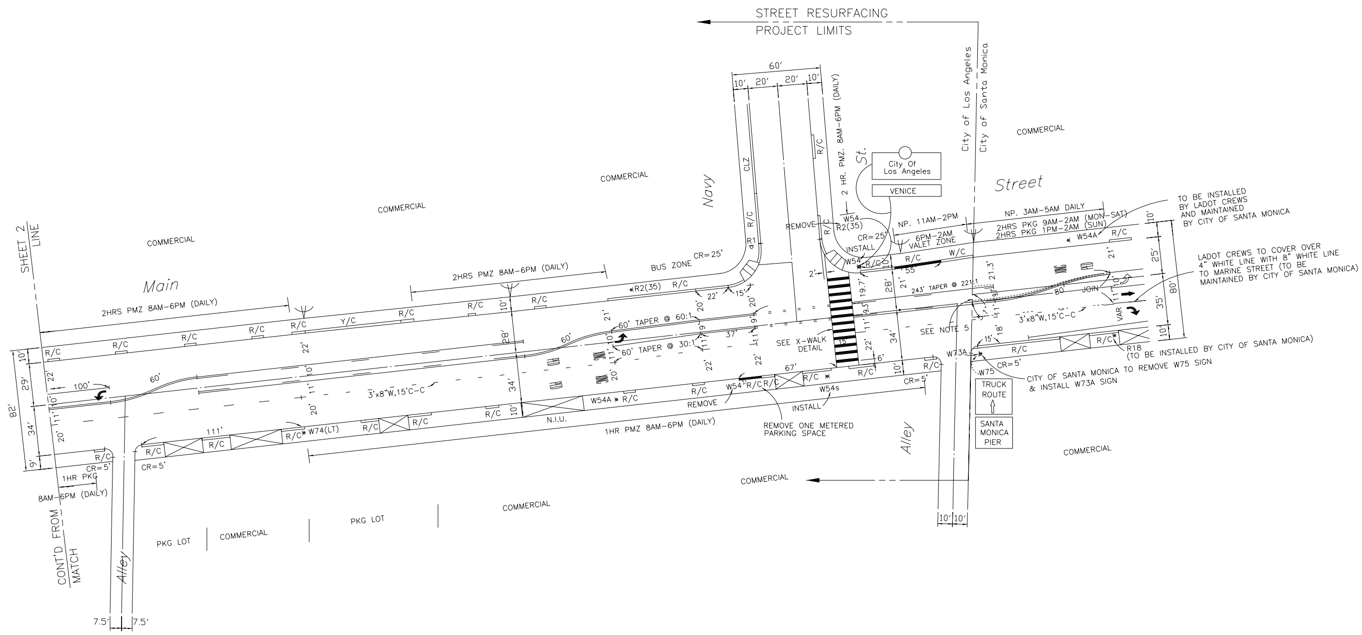
1"=20' ORIGINAL MAP SCALE 1"=40'

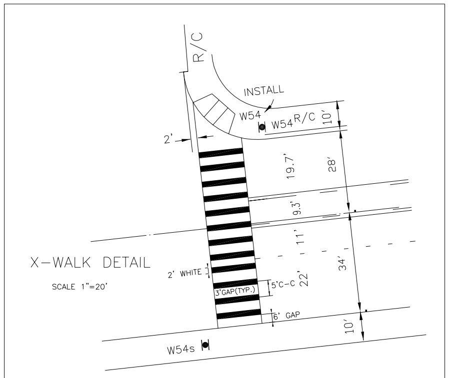
SCALES	HORIZ. 1"= VERT. 1"=	SHEET	INDEX NUMBER

	BY	DATE		BY	DATE
BASE	WH.	8-27-98	SUPERVISOR		
FIELD	WH.	8-25-98	S.T.A.R.		
DRAFTING			DISTRICT		
CHECK	MC.		SIGNALS		
DESIGN	MC.		BIKEWAYS		

REVISION DESCRIPTION (NON CADD PLANS ONLY)	T.E.	SR. T.E.	PR. TRAN. ENGR.	DATE

CITY OF LOS ANGELES
THOMAS K. CONNER CITY ENGINEER
NO.
DATE ______ 19__
DIV./DIST. ENGR. R.E. NO.





X-WALK DETAIL
SCALE 1"=20'

NOTE:
LADOT SIGNAL SYSTEMS SECTION TO CONDUCT STUDY PRIOR TO INSTALLATION OF LADDER-STYLE MARKINGS.

THIS DRAWING SUPERCEDES DWG A-2233 (SHT 3 OF 3)

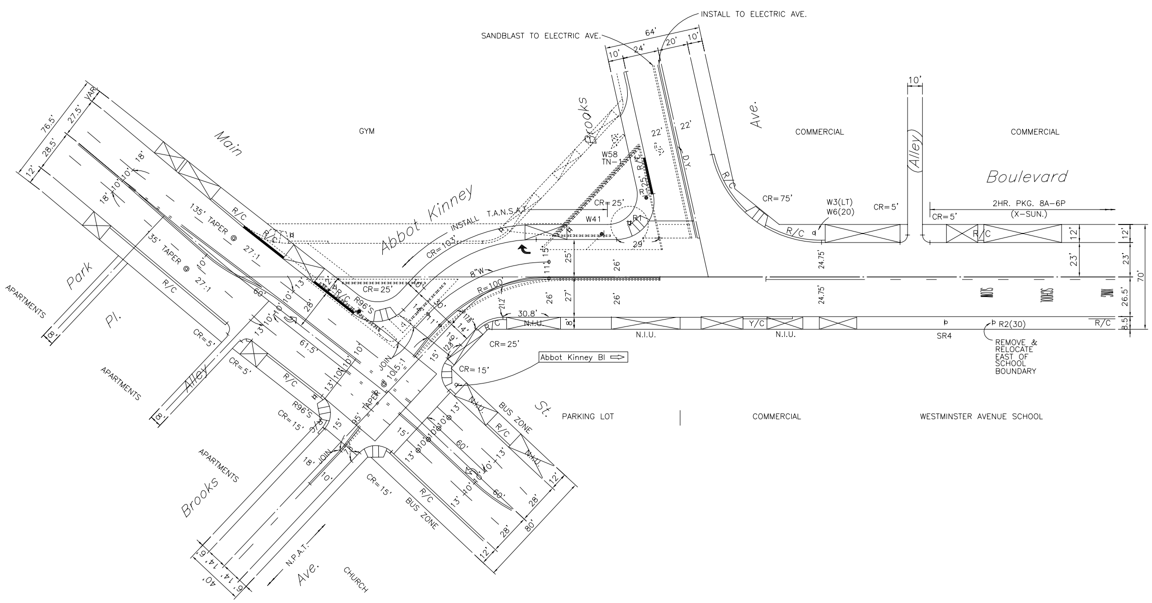
SCALE: 1"=40'

INSTALLATION DATES	CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION FRANCES T. BANERJEE, GENERAL MANAGER
MARKOUT BEGAN: MARKOUT COMPLETED: STRIPING COMPLETED: References:	MAIN STREET WINDWARD AVE. TO C.L. N/O NAVY ST.
Thomas Guide 671,G5 / District W	PROJECT NO. 72303 / DRAWING NO. A-2233A / 3 of 3

BASE	WH.	8-27-98	SUPERVISOR
FIELD	WH.	8-25-98	S.T.A.R.
DRAFTING			DISTRICT
CHECK			SIGNALS
DESIGN	M.C.		BIKEWAYS

CITY OF LOS ANGELES — THOMAS K. CONNER, CITY ENGINEER

SCALES — HORIZ. 1"= VERT. 1"= — SHEET — INDEX NUMBER



CONSTRUCTION NOTES (B–PERMITS):

1. THE B–PERMITTEE SHALL BE RESPONSIBLE FOR LABOR AND MATERIAL INVOLVED IN THE REMOVAL, MARKOUT, AND INSTALLATION OF ALL STRIPING/PAVEMENT MARKINGS SHOWN HEREON. REMOVAL OF MARKINGS SHALL BE PERFORMED BEFORE MARKOUT AND INSTALLATION OF NEW STRIPING AND SHALL BE BY WET SANDBLASTING IN ACCORDANCE WITH LADOT SPECIFICATION NO. 76–016–10. MARKOUT SHALL BE BY HEAVY PAINT BRUSH MARKINGS OVER A PULLED ROPE IN THE RESPECTIVE WHITE AND YELLOW COLORS OF THE PROPOSED STRIPING. (STRIPING GAPS SHALL BE DOTTED). STRIPING AND PAVEMENT MARKINGS SHALL BE IN HOT APPLIED ALKYD THERMOPLASTIC IN ACCORDANCE WITH LADOT SPECIFICATIONS NOS. 51–005–10 AND 76–012–15.

2. THE INSTALLATION OF THERMOPLASTIC STRIPING MAY PROCEED ONLY AFTER INSPECTION AND APPROVAL OF MARKOUT BY THE LADOT CITYWIDE INVESTIGATIONS UNIT. THE CONTRACTOR SHALL CORRECT ALL ERRORS IN MARKOUT REQUESTED BY LADOT. THE CONTRACTOR SHALL CONTACT THE LADOT CITYWIDE INVESTIGATIONS UNIT AT (213) 580–5211 AT THE FOLLOWING POINTS IN TIME FOR THE FOLLOWING PURPOSES:

   A. TEN (10) WORKING DAYS IN ADVANCE OF MARKOUT.

   B. UPON COMPLETION OF MARKOUT (INCLUDING ANY MARKOUT CORRECTIONS) FOR INSPECTION AND APPROVAL.

   C. UPON COMPLETION OF THERMOPLASTIC STRIPING (INCLUDING ANY THERMOPLASTIC STRIPING CORRECTIONS) FOR INSPECTION AND FINAL STRIPING APPROVAL.

3. DURING ALL PHASES OF CONSTRUCTION, TEMPORARY REFLECTIVE PAVEMENT MARKERS SHALL BE MAINTAINED ADJACENT TO THE TEMPORARY CENTERLINE, MARKOUT CENTERLINE OR SCAR OF THE SANDBLASTED CENTERLINE, AS APPLICABLE, AS PER LADOT STANDARD PLAN NO. S–453.0.

4. THE FIELD CONDITIONS SHOWN AS EXISTING ON THIS PLAN MAY CHANGE BETWEEN THE PLAN APPROVAL DATE AND THE IMPLEMENTATION DATE. THE B–PERMITTE MAY BE REQUIRED TO INSTALL OR REMOVE STRIPING, PAVEMENT MARKINGS, SIGNS OR OTHER TRAFFIC CONTROL DEVICES BEYOND THAT INDICATED ON THIS PLAN, IN ORDER TO FACILITATE THESE CHANGES IN FIELD CONDIONS AND/OR TO BE IN COMPLIANCE WITH LADOT STANDARDS AND SPECIFICATIONS. IF THIS PLAN HAS NOT BEEN INSTALLED WITHIN TWO (2) YEARS OF THE APPROVAL DATE, IT SHOULD BE RESUBMITTED TO LADOT GEOMETRIC DESIGN SECTION FOR REVIEW PRIOR TO PROCEEDING TO CONSTRUCTION.

LEGEND

1. EXISTING STRIPING & MARKINGS TO REMAIN
   EXISTING STRIPING & MARKINGS TO BE REMOVED
   PROPOSED STRIPING & MARKINGS
2. EXISTING SIGNS • PROPOSED SIGNS
3. SIGNALIZED INTERSECTION
4. R/C EXISTING RED CURB
   R/C PROPOSED RED CURB

NOTES

1. LENGTH OF DESIGN : 300' ±
2. PAINT REMOVAL REQUIRED.

VACATION NO. E1400486
ABBOT KINNEY BL.& BROOKS AVE.
W.O. #E1400486

REGISTERED PROFESSIONAL ENGINEER
THOMAS L. JONES
No. 19381
Exp. 09-30-01
CIVIL
STATE OF CALIFORNIA

RECOMMENDED ____ 19 __ Transportation Engineer	APPROVED ____ 19 __ Senior Transportation Engineer
INSTALLATION DATES MARKOUT BEGAN: MARKOUT COMPLETED: STRIPING COMPLETED: References:	CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION FRANCES T. BANERJEE, GENERAL MANAGER ABBOT KINNEY BOULEVARD AT BROOKS AVE. AND MAIN ST.

Thomas Guide	District	PROJECT NO.	DRAWING NO.	
671;H5	WESTERN	11004	A–2453	1 / 1

SCALE: 1"=40'

1"=20' ORIGINAL MAP SCALE 1"=40'
20 10 0 20 40 60 80 100 FEET
40 20 0 40 80 120 160 200 FEET

SCALES HORIZ. 1"= VERT. 1"=

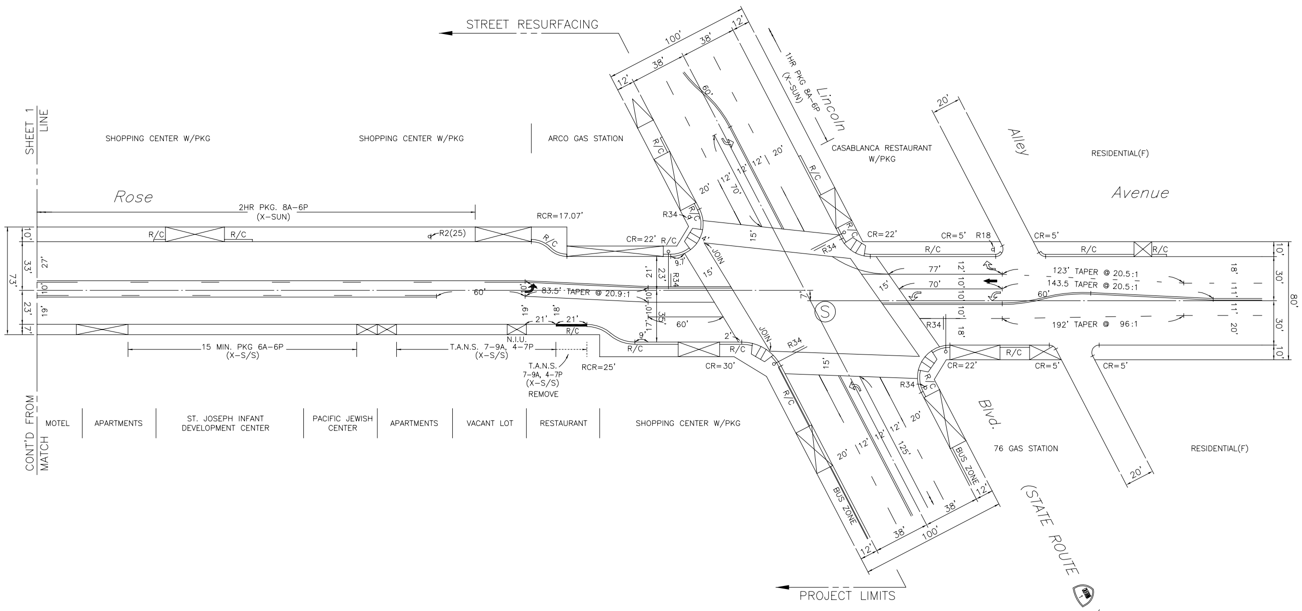
SHEET 6 OF 6 SHEETS

INDEX NUMBER P–35269

CITY OF LOS ANGELES
VITALY B. TROYAN CITY ENGINEER
DATE ____ 19 __
DIV./DIST. ENGR. R.E. NO.
NO.

NO.	REVISION DESCRIPTION (NON CADD PLANS ONLY)	T.E.	SR. T.E.	PR. TRAN. ENGR.	DATE

	BY	DATE	SUPERVISOR	BY	DATE
BASE	S.Q.	07–14–99	SUPERVISOR	P.A.T.	
FIELD	E.C.		S.T.A.R.		
DRAFTING	S.Q.	07–14–99	DISTRICT		
CHECK			SIGNALS		
DESIGN			BIKEWAYS		



SCALE: 1"=40'

INSTALLATION DATES
MARKOUT BEGAN:
MARKOUT COMPLETED:
STRIPING COMPLETED:
References:

Thomas Guide	District
671, H4	W

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
WAYNE K. TANDA, GENERAL MANAGER

ROSE AVENUE

4TH AVE. TO LINCOLN BLVD.

PROJECT NO. 72317 | DRAWING NO. A-3430 | 2 / 2

1"=20' ORIGINAL MAP SCALE 1"=40'
20 10 0 20 40 60 80 100 FEET
40 20 0 40 80 120 160 200 FEET

SCALES | HORIZ. 1"= | VERT. 1"=

SHEET

INDEX NUMBER

	BY	DATE		BY	DATE
BASE	RGF	6/22/2002	SUPERVISOR	T.C.	7/9/2002
FIELD	RGF	6/22/2002	S.T.A.R.		
DRAFTING			DISTRICT	M.B.	7/31/2002
CHECK			SIGNALS		
DESIGN	R.G.	7/9/2002	BIKEWAYS		

NO.	REVISION DESCRIPTION (NON CADD PLANS ONLY)	T.E.	SR. T.E.	PR. TRAN. ENGR.	DATE

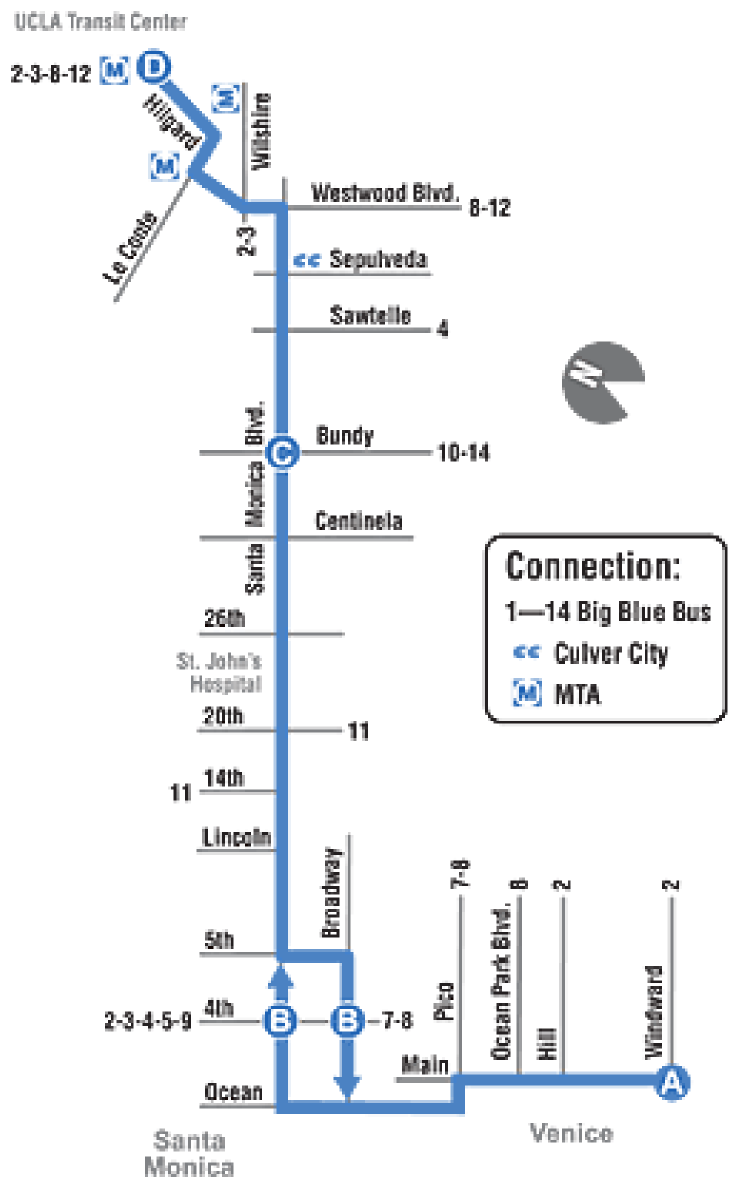
CITY OF LOS ANGELES
VITALY B. TROYAN P.E. CITY ENGINEER
DATE ______ 20 ___
DIV./DIST. ENGR. R.E. NO.

APPENDIX C

TRANSIT ROUTES

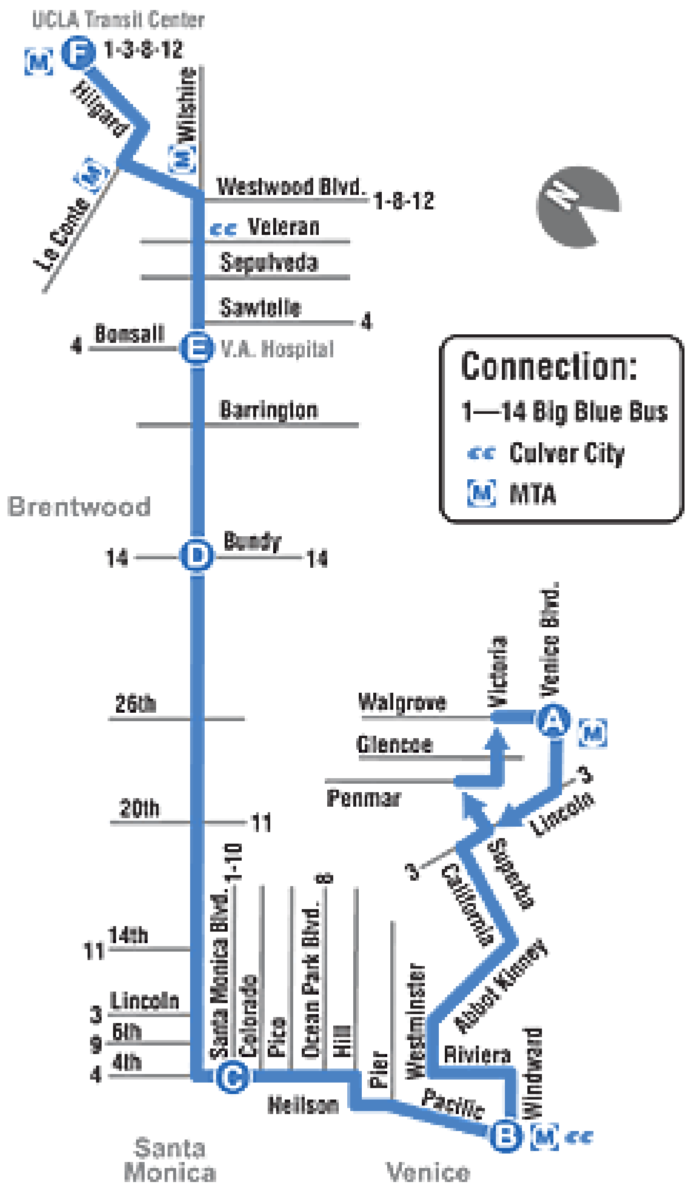
1 Santa Monica Boulevard

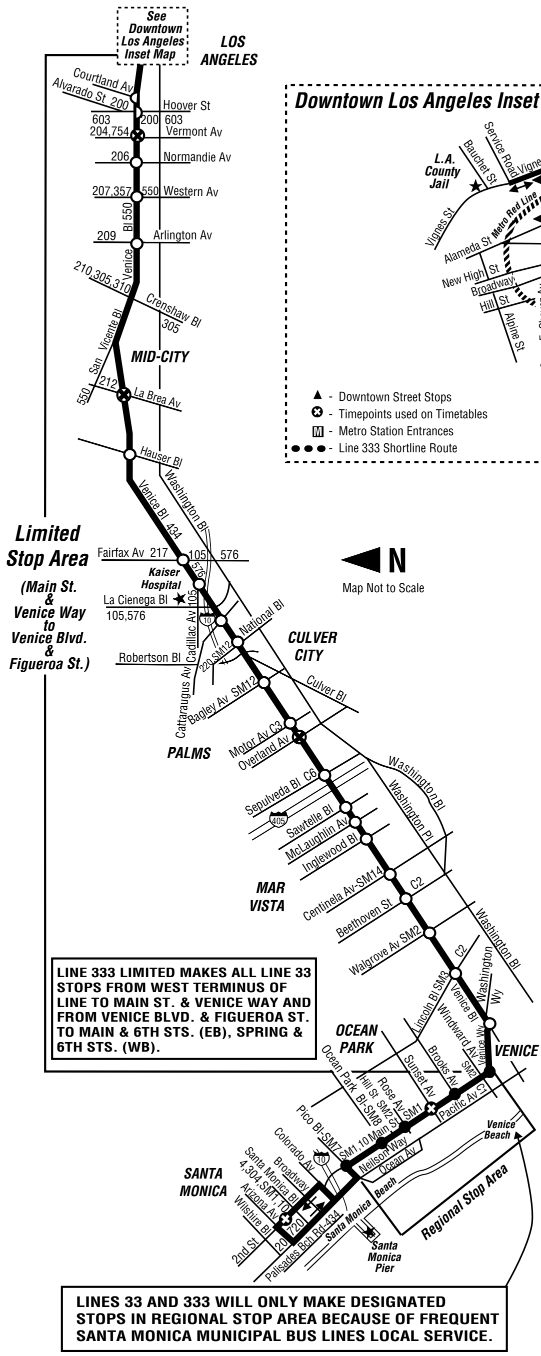
Effective September 8, 2002/
Efectivo el 8 de Septiembre, 2002

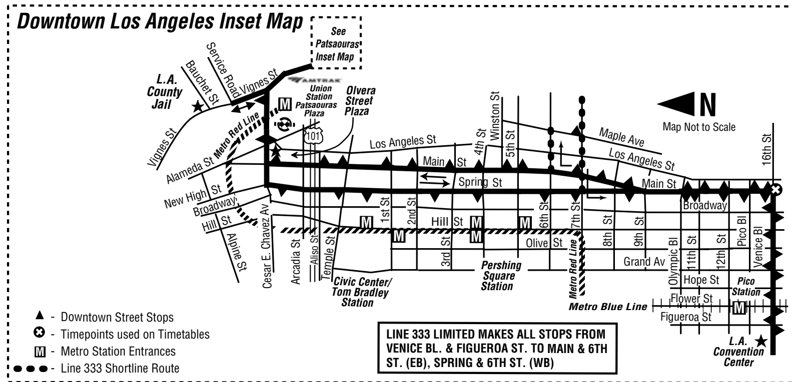


2 Wilshire Blvd. Venice

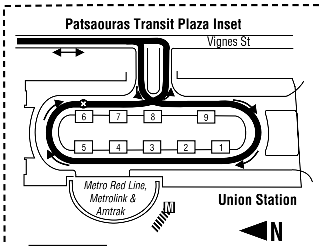
Effective September 8, 2002/
Efectivo el 8 de Septiembre, 2002







Patsaouras Transit Plaza Inset



Bus Stops

1 - Metro Bus - 434,439;
OCTA - 701,SC 794;SM10
2 - LADOT Metrolink Shuttles
Commuter Express 430, 534
3 - LADOT Dash D
4 - Metro Bus - 58;AV785
5 - Metro Bus - 40,42,340,442
6 - Metro Bus - 33
7 - Metro Bus - 444,445,446,447,745;F699
8 - Unused
9 - Torrance 1,LAC/USC County Hospital
Shuttle

Legend

O	- Limited Stops
⊗	- Limited Stops and Timepoints used on Timetable
⊗	- Timepoints used on Timetable
●	- Regional Stop
C	- Culver City Bus
SM	- Santa Monica Big Blue Bus
AV	- Antelope Valley Transit
SC	- Santa Clarita Transit
F	- Foothill Transit
OCTA	- Orange County Transportation Authority
LADOT	- Los Angeles Department of Transportation

Metro Bus Lines Shown at Transfer Locations
Subject to Change Without Notice

0311700033

APPENDIX D

SUMMER TRAFFIC CONDITIONS

Estimated Saturday Traffic Generation

Traffic generation estimates for the proposed project have been calculated for the project's peak hour on a typical Saturday. Saturday traffic rates were selected for the project weekend analysis because they are slightly higher then traffic rates for a typical Sunday. This additional trip generation analysis was prepared using the same procedures used to calculate the weekday traffic estimates.

The Saturday trip generation data indicates that the uses associated with the proposed project generally exhibit the trip-making characteristics per 1,000 square feet of floor area for non-residential uses and per dwelling unit for residential uses as shown by the trip rates in Table D1 below. On the basis of these Saturday traffic generation rates, estimates of the project's driveway traffic were calculated.

As shown in Table D2 below, the proposed project generates slightly less weekend peak traffic than the weekday afternoon peak hour. The project may be expected to generate an average with 169 peak hour Saturday trips as compared to the estimated weekday 185 morning peak hour trips and 203 afternoon peak hour trips.

For traffic impact purposes, reductions to the project traffic generation have been made to account for the removal of the existing use and for pass-by traffic according to LADOT guidelines. After these traffic adjustments, it has been estimated that the net traffic added to the streets on a Saturday could be 147 peak hour trips on Saturday versus 107 morning trips and 174 afternoon weekday trips.

Table D1
Project Saturday Trip Generation Rates
(ITE 6th & 7th Edition)

Land Use	ITE Code	Daily	Peak Hour Total	In	Out
Condos (live/work)	230	5.67	0.47	0.25	0.22
Specialty Retail	814	42.04	4.2	2.10	2.10
Coffee Shop	833	696	36.67	15.4	21.27
Health club	493	20.87	2.6	1.59	1.01

* Rates per ITE 6th and 7th Edition

Table D2
Comparison of Saturday and Weekday Project Traffic Generation

Proposed Land Use	Saturday Traffic	Saturday Peak Hour Total	In	Out	Weekday PM Peak Hour Total	In	Out
225 Units	1,276	106	56	50	158	106	52
2,000 s.f. retail	84	8	4	4	10	4	6
1,000 s.f. coffee shop	696	37	16	21	10	5	5
7,000 s.f. spa	146	18	11	7	25	15	10
Driveway Traffic	2,202	169	87	82	203	130	73
Less pass-by							
retail (10%)	- 8	-	-	-	- 1	-	- 1
coffee shop (50%)	-348	- 18	- 8	- 10	- 5	- 3	- 2
health club (20%)	- 29	- 4	- 2	- 2	- 5	- 3	- 2
With pass-by	1,817	147	77	70	192	124	68
Less MTA Bus Facility	400 est.	(gates closed)			18	11	7
Net New Traffic	1,417	147	77	70	174	113	61

Estimated Saturday Traffic Impacts

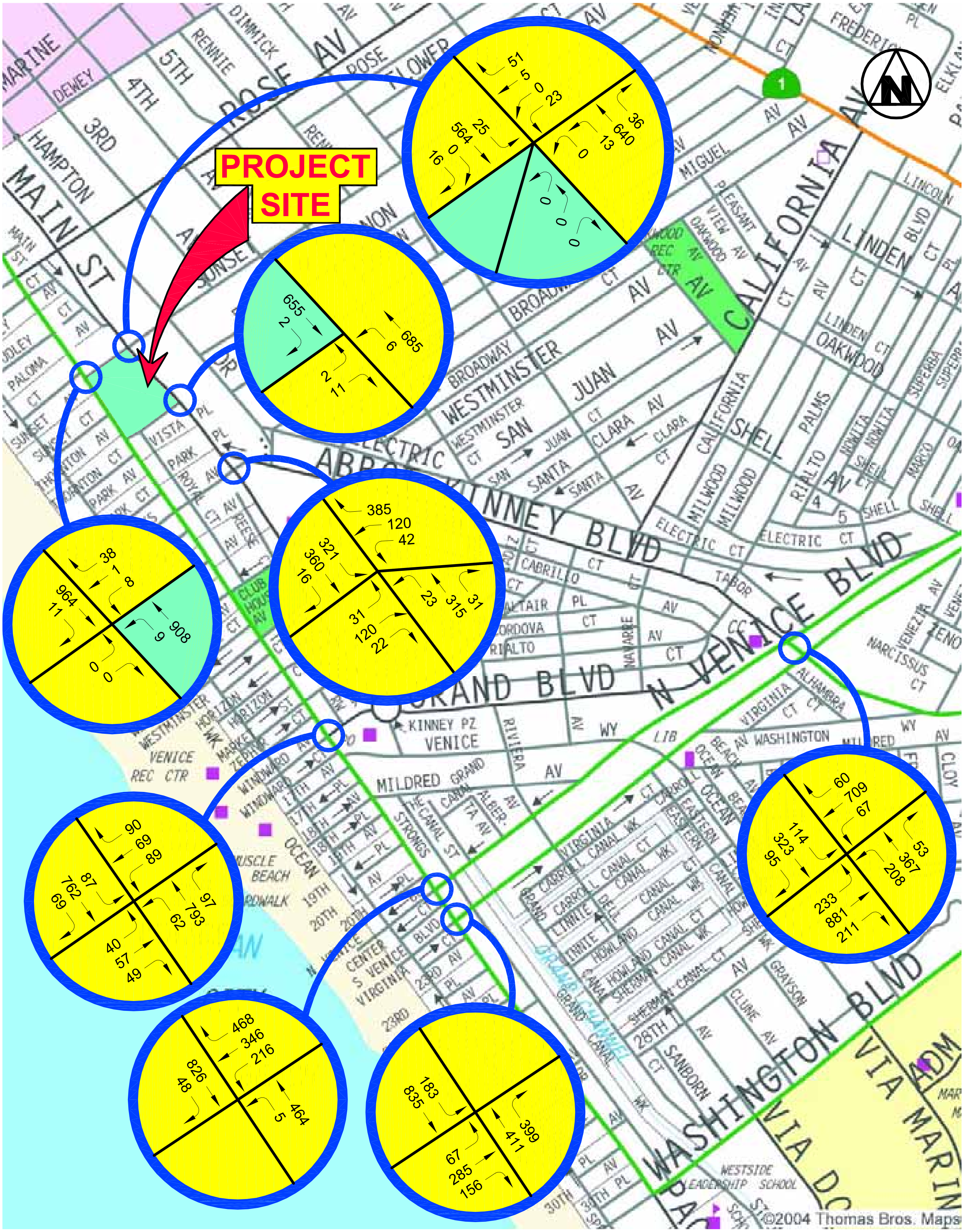
Using the same significant impact thresholds as in the weekday impact analysis, the results of the summer weekend traffic conditions are presented below. New traffic counts were conducted on the first two Saturdays in June between the hours of 12 noon to 4 PM for this weekend analysis. The highest hour of traffic volume at each study intersection was then used to calculate the level of service conditions as shown in Table D3 below.

A tabulation of all the intersection peak hour traffic counts was done to gage the differences between the weekday morning and afternoon with the weekend mid-day peak. This tabulation shows that the weekday afternoon traffic has the largest traffic volume passing through the study intersections with a total sum of 31,107 vehicles followed closely by the Saturday mid-day volume with 30,451 vehicles. The weekday morning peak hour traffic count totaled 25,657 vehicles.

Weekend mid-day traffic conditions at the study intersections are shown below in Table D3. The peak hour data at each intersection for the Saturday mid-day peak is illustrated in figures D1 and D2.

Table D3
Level of Service for Existing Saturday Conditions

No.	Intersection	V/C	LOS
2.	Main Street & Rose Ave.	0.591	A
3.	Main Street & Sunset Ave.	0.374	A
4.	Main Street & Thornton Pl.	0.299	A
5.	Main Street & Abbot Kinney Blvd.	0.507	A
6.	Abbot Kinney Blvd. & Venice Blvd.	0.709	C
8.	Pacific Ave. & Rose Ave.	0.514	A
9.	Pacific Ave. & Sunset Ave.	0.421	A
10.	Pacific Ave. & Windward Ave.	0.467	A
11.	Pacific Ave. & Venice Blvd. (N)	0.766	C
12.	Pacific Ave. & Venice Blvd. (S)	0.731	C
13.	Rose Ave. & Lincoln Blvd.	0.850	D
	Santa Monica Intersections	Delay (sec.)	LOS
1.	Main Street & Ocean Park Blvd.	12.7	B
7.	Neilson Way & Ocean Park Blvd.	9.6	A

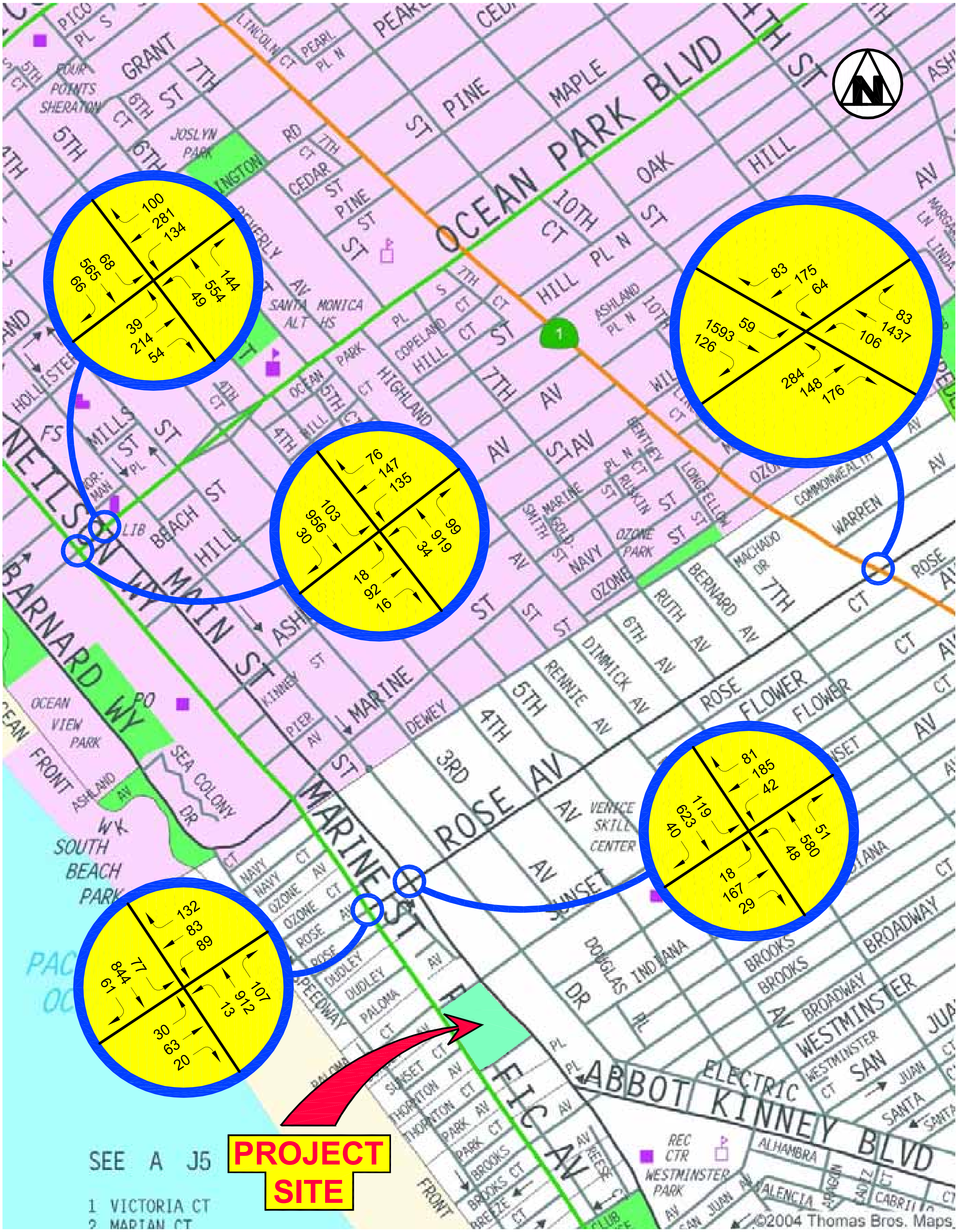


APPENDIX D-1

7/7/2004

WEEKEND TRAFFIC VOLUMES
SATURDAY PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com



APPENDIX D-2

7/7/2004

WEEKEND TRAFFIC VOLUMES
SATURDAY PEAK HOUR

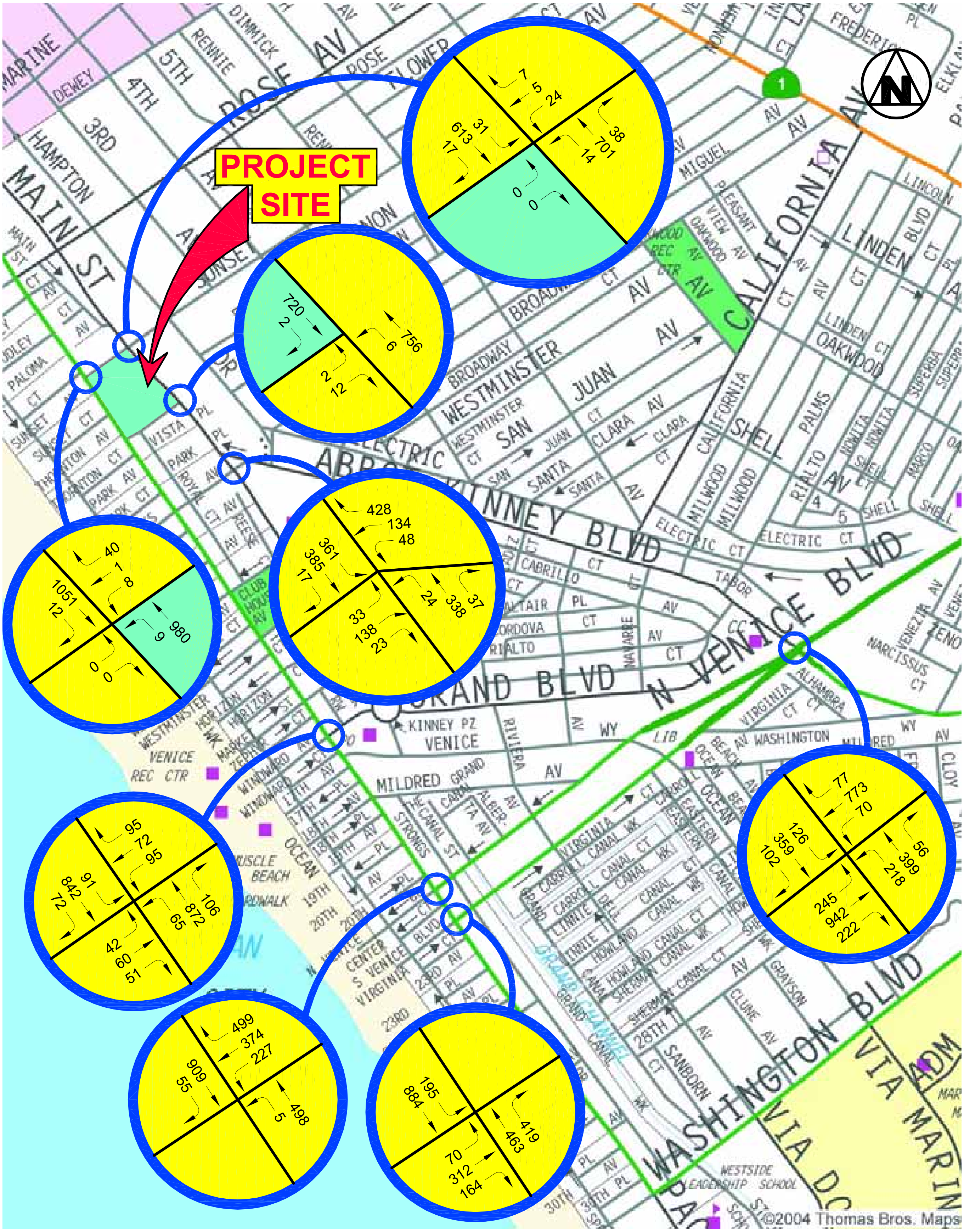
Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

MTA VENICE \ SAT-VOLS (N)

Traffic estimates for the related projects were calculated for Saturday and added to the Saturday traffic counts inflated to the future 2009 study year. Table D4 shows the estimated Saturday peak hour traffic generated by the related projects. Figures D3 and D4 shown the estimated Saturday 2009 baseline traffic conditions without the project.

Table D4
Estimated Saturday Peak Hour Traffic Generation for Other Projects

		Peak Hour	
No.	Related Project	In	Out
1.	Mixed - use	18	12
2.	Mixed - use	285	202
3.	Mixed - use	325	215
4.	Mixed – use	33	21
5.	Mixed – use	20	18
6.	Apartments	95	61
7.	Retail dealership	180	135
8.	Office	3	3
9.	Gas station with mart	40	40
10.	Mixed – use	312	306
11.	Condominiums	9	8
12.	Condominiums	13	11
13.	Mixed – use	17	16
14.	Apartments	12	11
15.	Mixed – use	16	15
16.	Mixed – use	45	31
17.	Condominiums	2	2
18.	Retail	27	25
19.	RAND Corp.	2	2
20.	Playa Vista Phase I	2,187	1,646
	The Village at Playa Vista	4,860	4,688
21.	Pioneer Mixed - Use	52	36

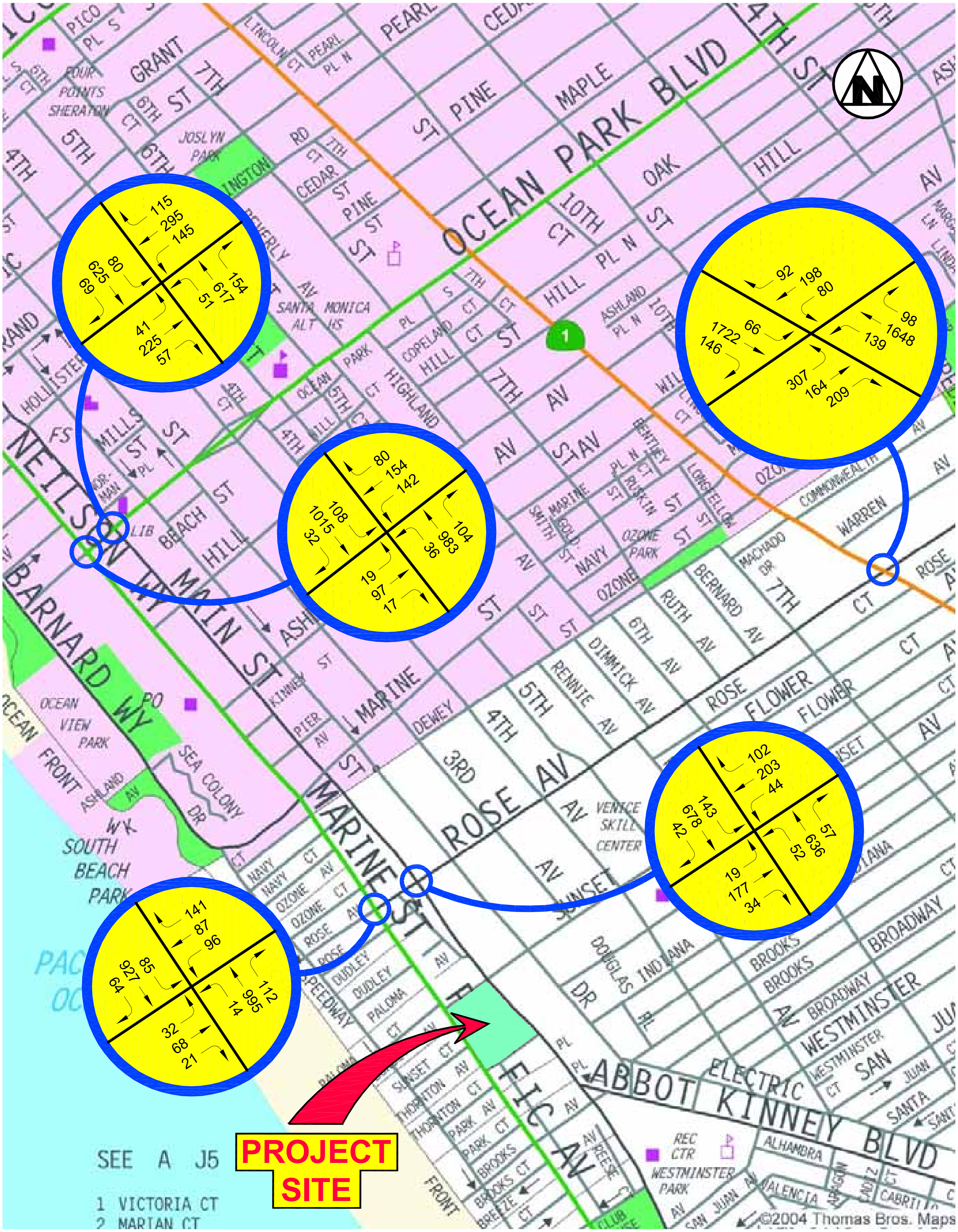


APPENDIX D-3

9/9/2004

SATURDAY MID-DAY TRAFFIC VOLUMES
WITHOUT PROJECT

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com



APPENDIX D-4

9/28/2004

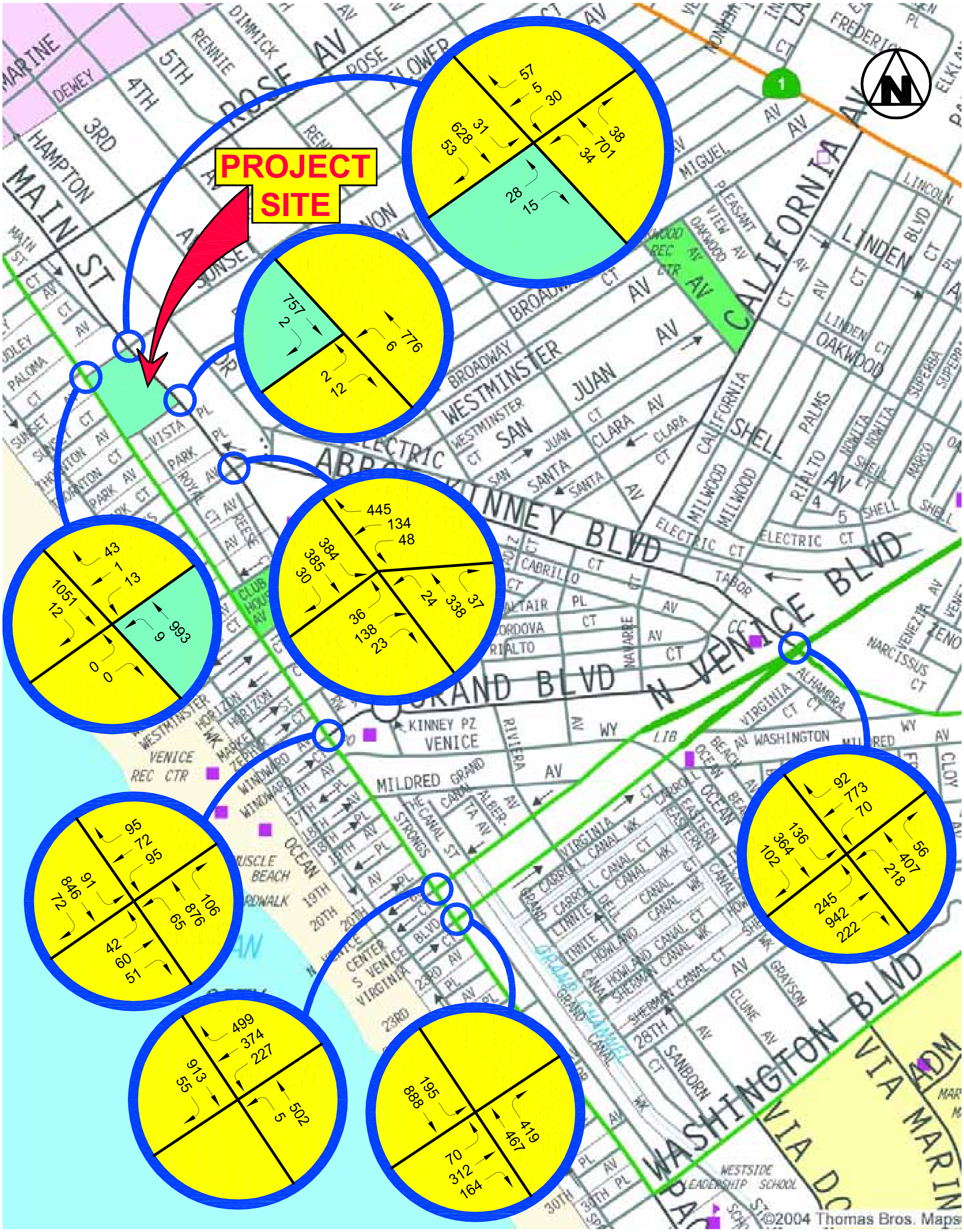
SATURDAY MID-DAY TRAFFIC VOLUMES
WITHOUT PROJECT

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

Lastly, the project's Saturday traffic flows have been added to the future without project traffic volume for the project weekend impact analysis. The results shown below indicate that the project will have a significant impact on summer traffic conditions at one intersection (Rose Avenue and Lincoln Boulevard). Possible traffic mitigation for the project's summer traffic impact include participation in the implementation of new transit programs such as the proposed Metro Rapid transit program for the Lincoln Boulevard corridor. Figures D5 and D6 shown the future with project traffic volumes used in this traffic impact analysis.

Table D5
Future Saturday Traffic Conditions With Project (Sunset & Main Access)

		Future Without		Future With Project		
No.	Intersection	V/C	LOS	V/C	LOS	Impact
2.	Main Street & Rose Ave.	0.661	B	0.689	B	+ 0.028
3.	Main Street & Sunset Ave.	0.411	A	0.448	A	+ 0.037
4.	Main Street & Thornton Place	0.329	A	0.337	A	+ 0.008
5.	Main Street & Abbot Kinney Blvd.	0.573	A	0.601	B	+ 0.028
6.	Abbot Kinney Blvd. & Venice Blvd.	0.774	C	0.777	C	+ 0.003
8.	Pacific Ave. & Rose Ave.	0.563	A	0.574	A	+ 0.011
9.	Pacific Ave. & Sunset Ave.	0.454	A	0.466	A	+ 0.012
10.	Pacific Ave. & Windward Ave.	0.511	A	0.513	A	+ 0.002
11.	Pacific Ave. & Venice Blvd. (N)	0.843	D	0.845	D	+ 0.002
12.	Pacific Ave. & Venice Blvd. (S)	0.800	C	0.803	D	+ 0.003
13.	Rose Ave. & Lincoln Blvd.	0.952	E	0.963	E	+ 0.011*
Santa Monica Delay Procedures		Delay	LOS	Delay	LOS	Impact
1.	Main Street & Ocean Park Blvd.	13.7	B	14.1	B	+ 0.4
7.	Neilson Way & Ocean Park Blvd.	10.2	B	10.2	B	+ 0.0

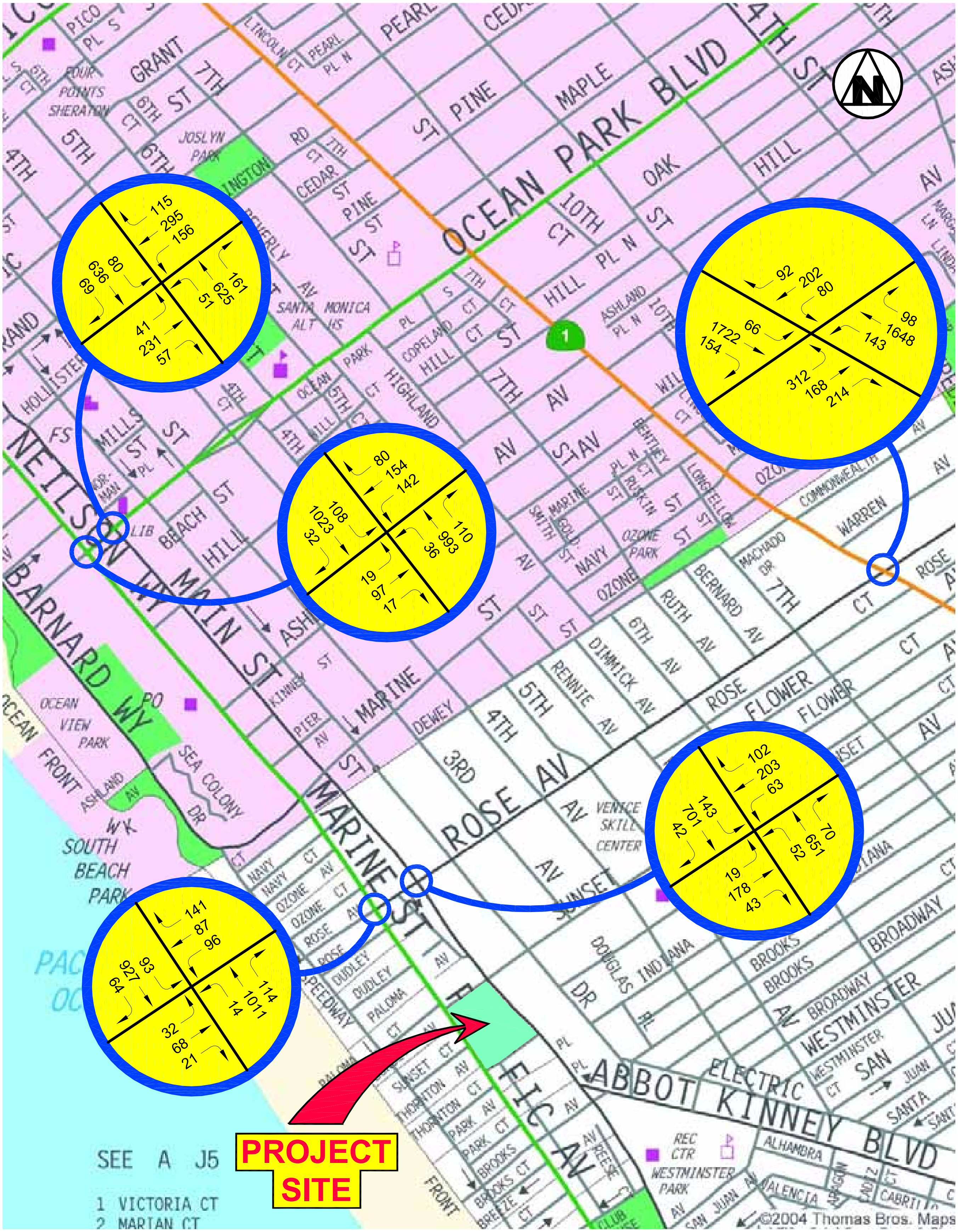


APPENDIX D-5

9/9/2004

SATURDAY MID-DAY TRAFFIC VOLUMES
WITH PROJECT

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com



APPENDIX D-6

9/28/2004

SATURDAY MID-DAY TRAFFIC VOLUMES WITH PROJECT

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

APPENDIX E

TRAFFIC ASSIGNMENT DATA

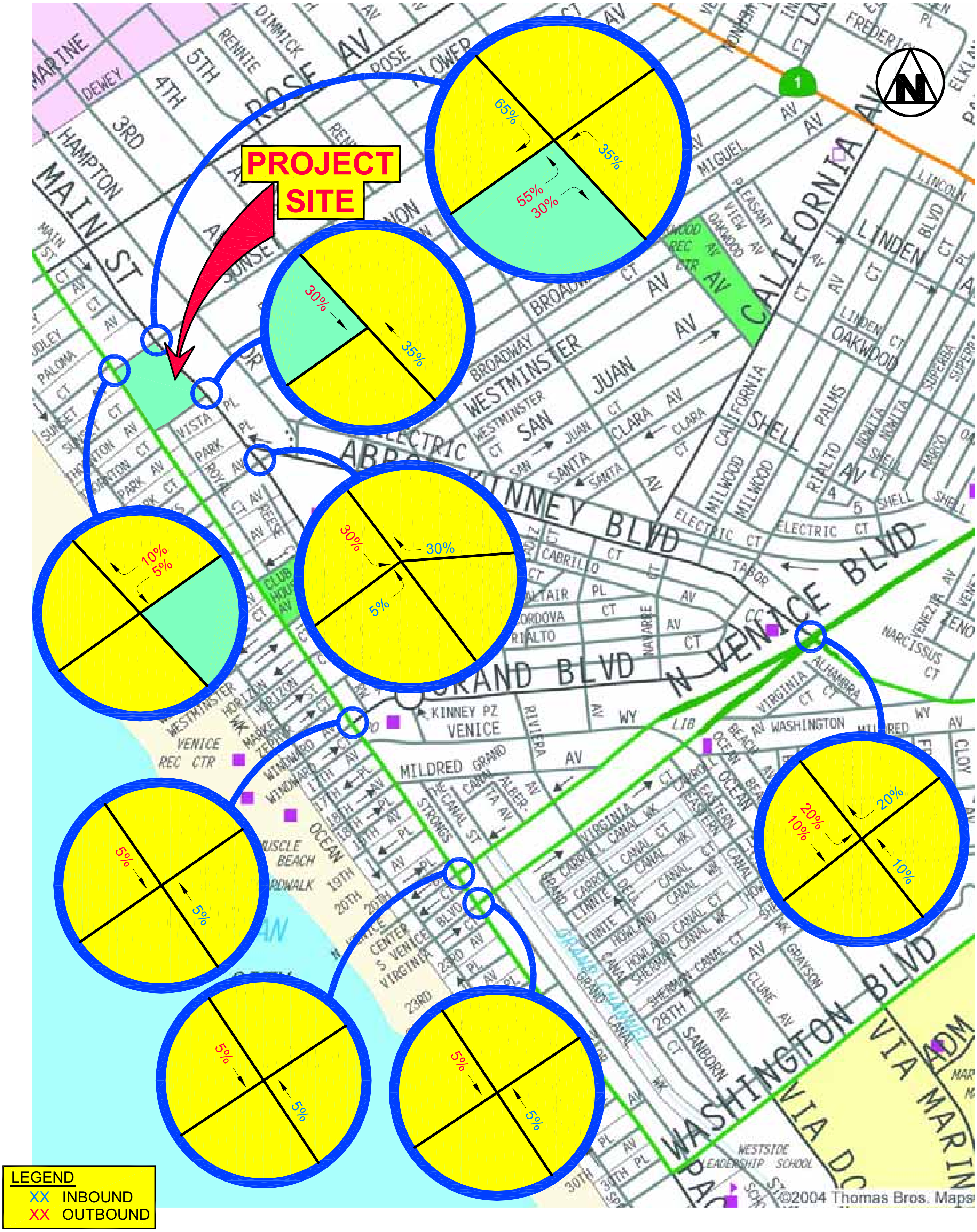


EXHIBIT 1

7/24/2004

RESIDENTIAL TRAFFIC ASSIGNMENT PERCENTAGES

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

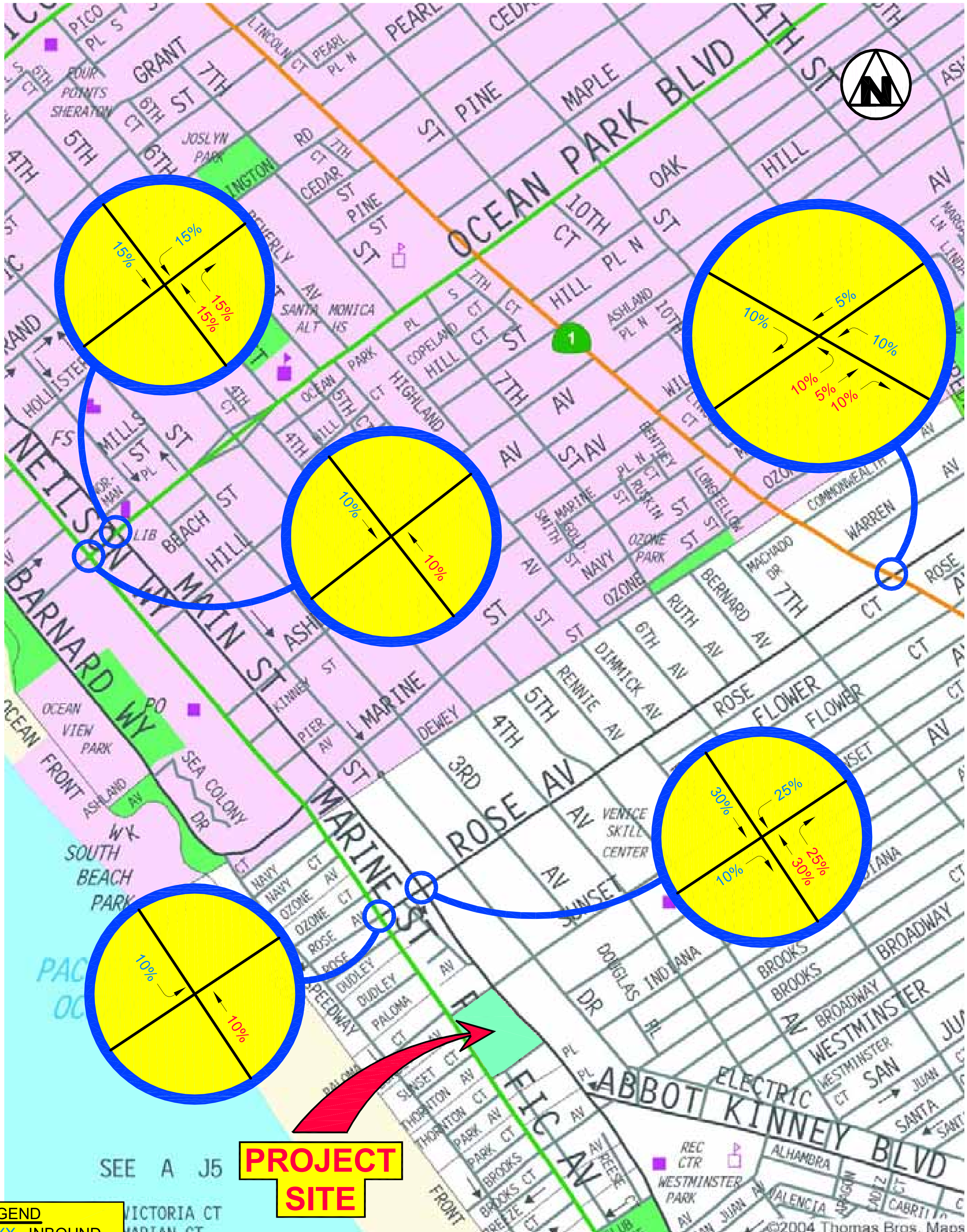


EXHIBIT 2

7/24/2004

RESIDENTIAL TRAFFIC ASSIGNMENT PERCENTAGES

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

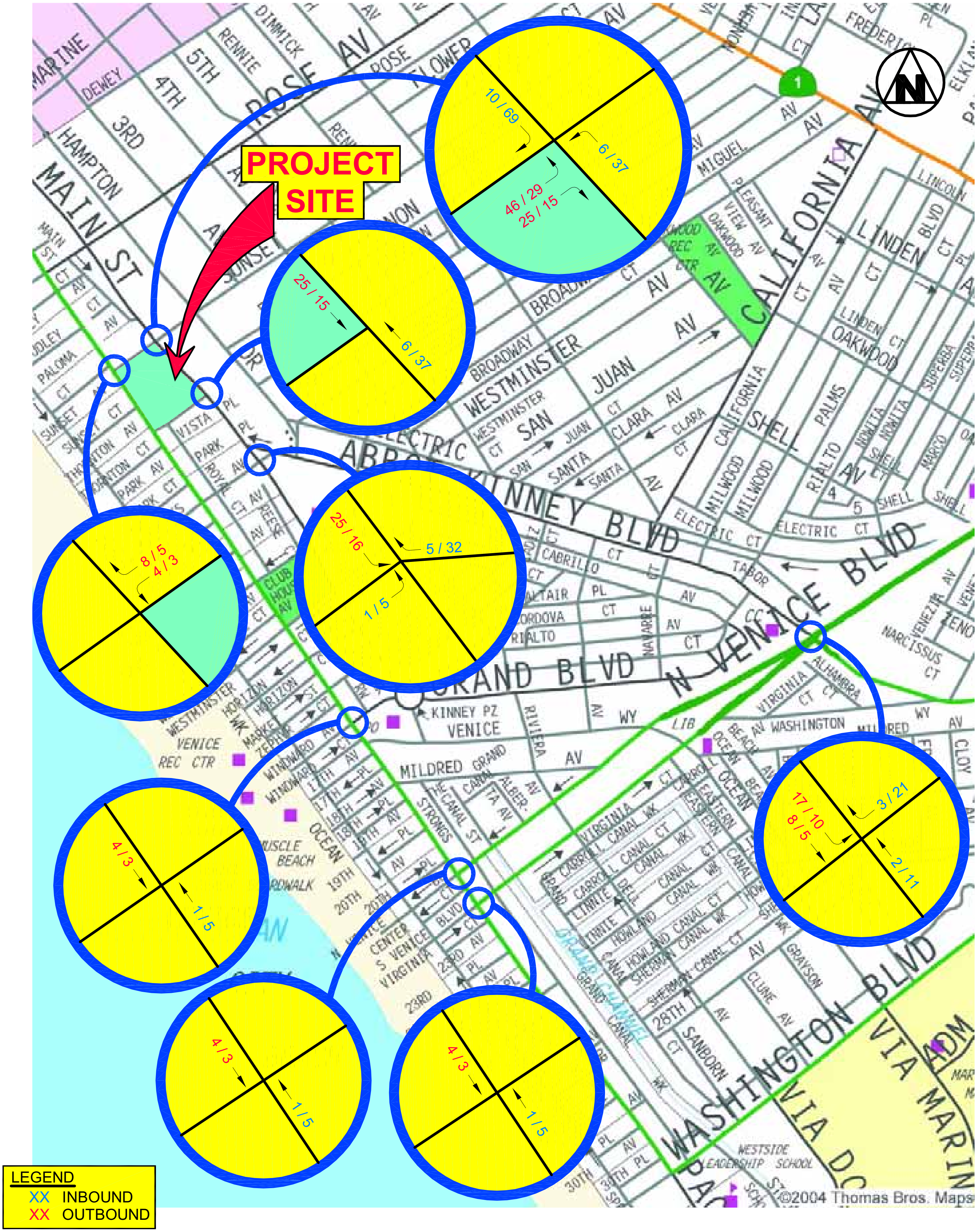


EXHIBIT 3

7/24/2004

RESIDENTIAL TRAFFIC
SUNSET AVENUE ACCESS
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

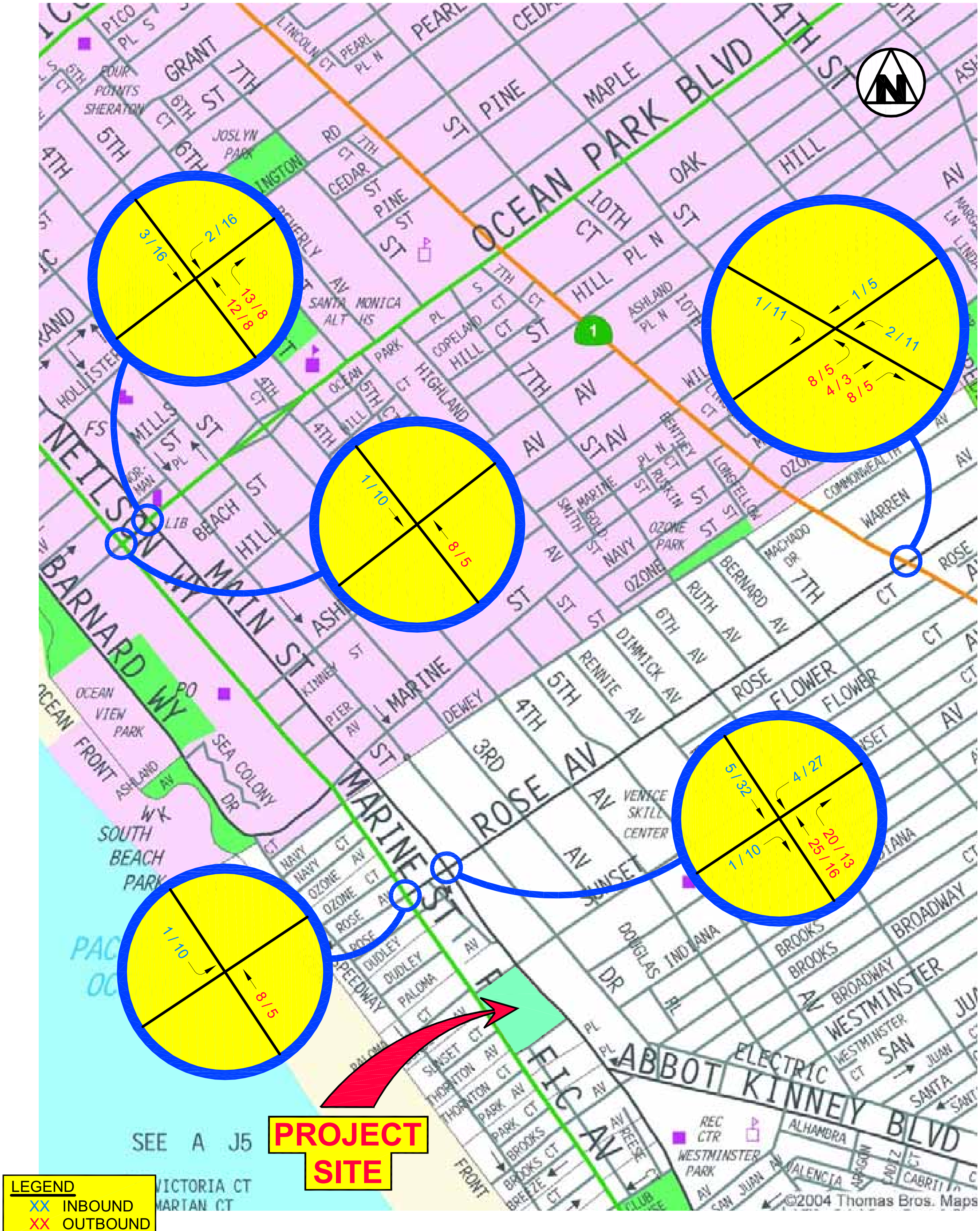


EXHIBIT 4

7/24/2004

RESIDENTIAL TRAFFIC VOLUMES
SUNSET AVENUE ACCESS
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

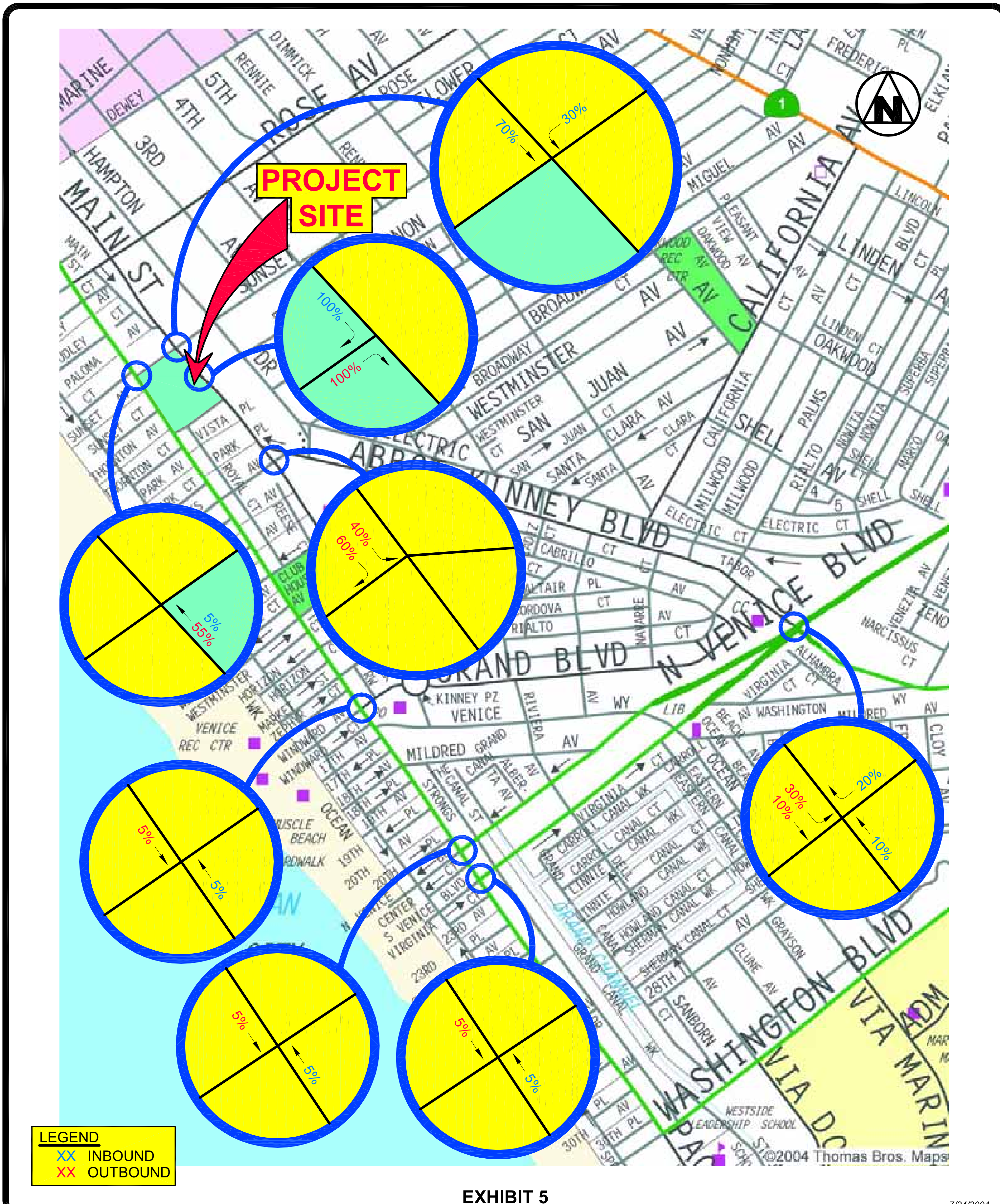


EXHIBIT 5

7/24/2004

NON-RESIDENTIAL TRAFFIC ASSIGNMENT PERCENTAGES
MAIN STREET ACCESS

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

MTA VENICE \ NONRES-TRAF-ASGN-MAIN(S)

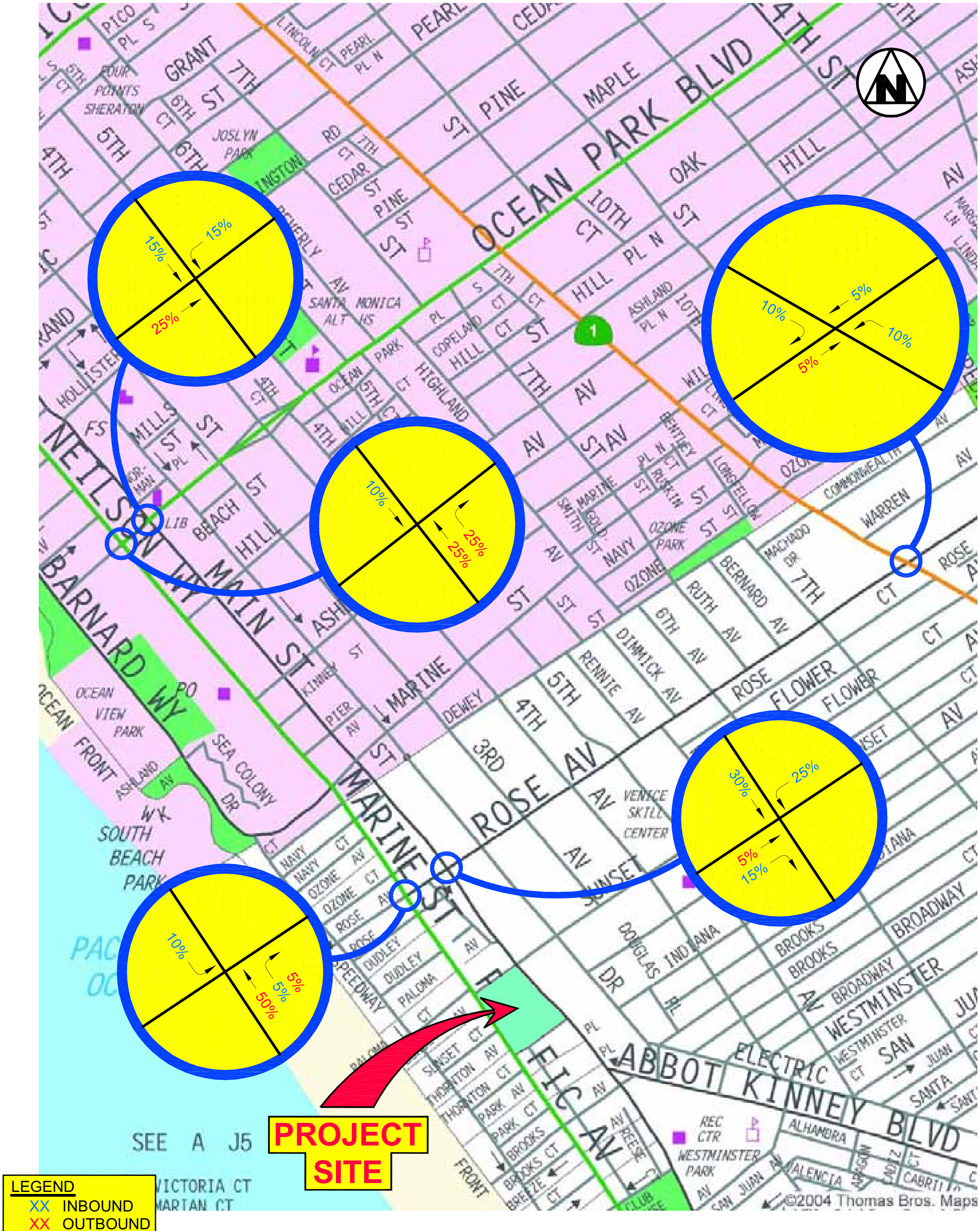


EXHIBIT 6

7/24/2004

NON-RESIDENTIAL TRAFFIC ASSIGNMENT PERCENTAGES
MAIN STREET ACCESS

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

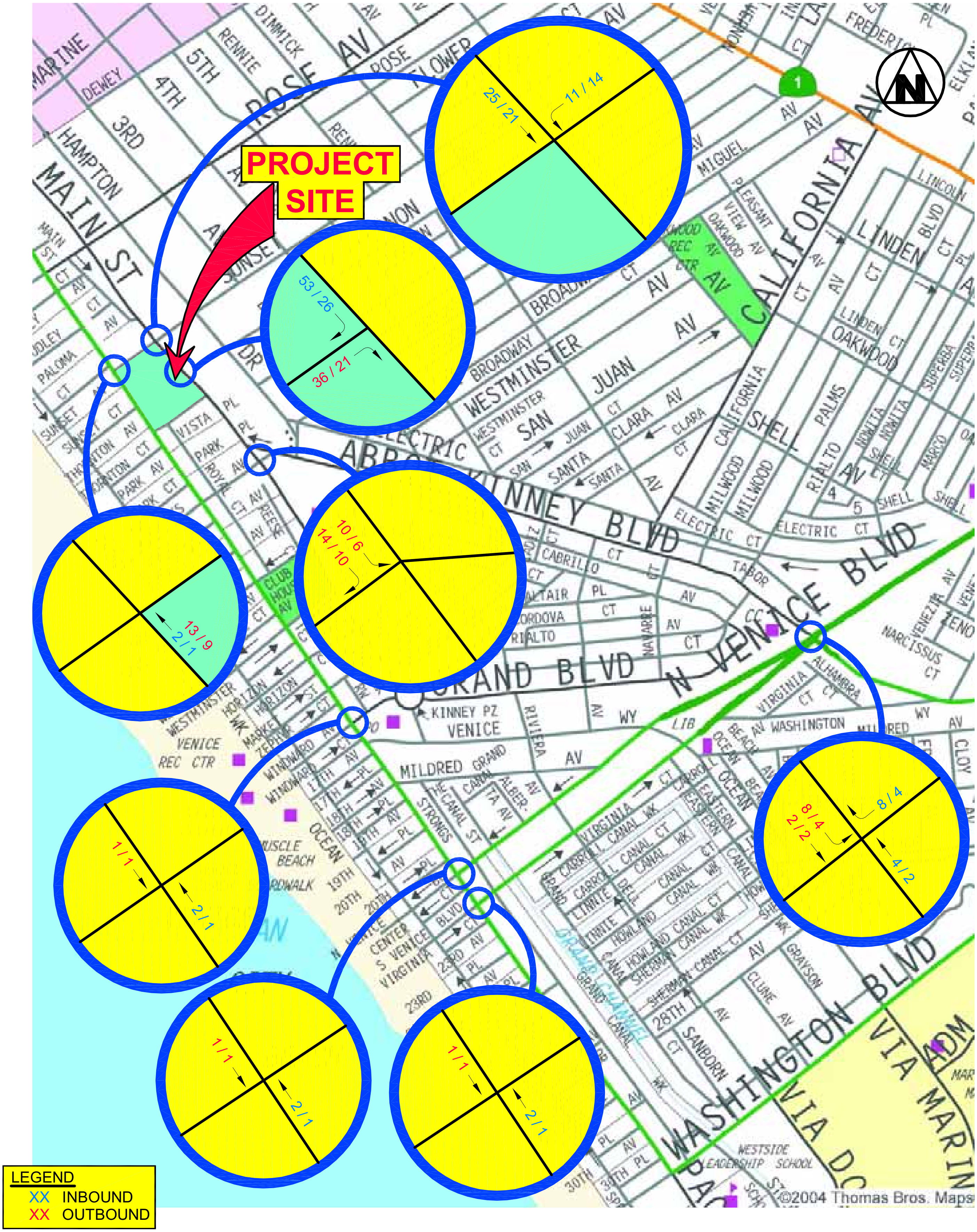


EXHIBIT 7

7/24/2004

NON-RESIDENTIAL TRAFFIC
MAIN STREET ACCESS
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

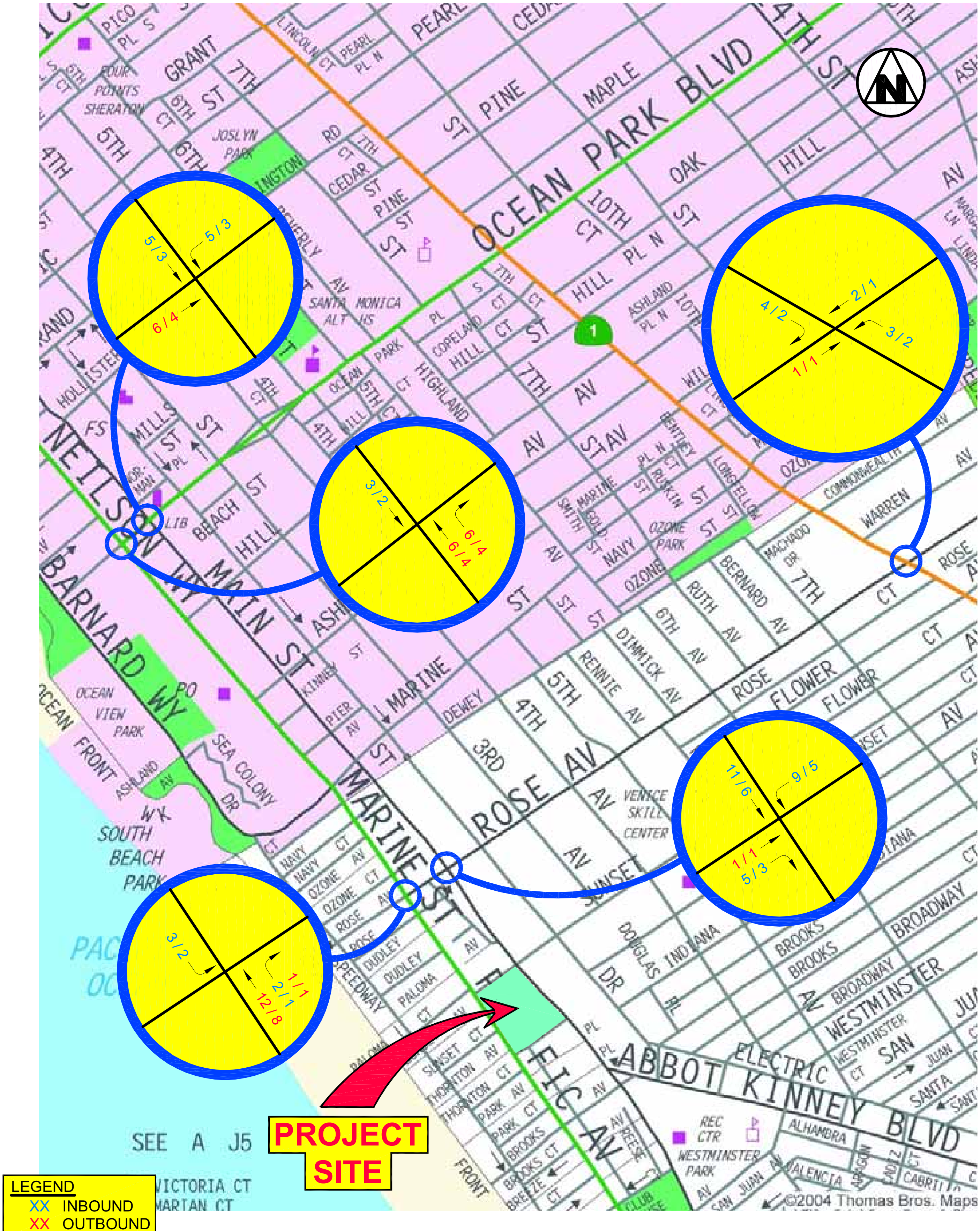


EXHIBIT 8

7/24/2004

NON-RESIDENTIAL TRAFFIC
MAIN STREET ACCESS
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.com

MTA VENICE \ AMPM-NON-RES-MAIN(N)

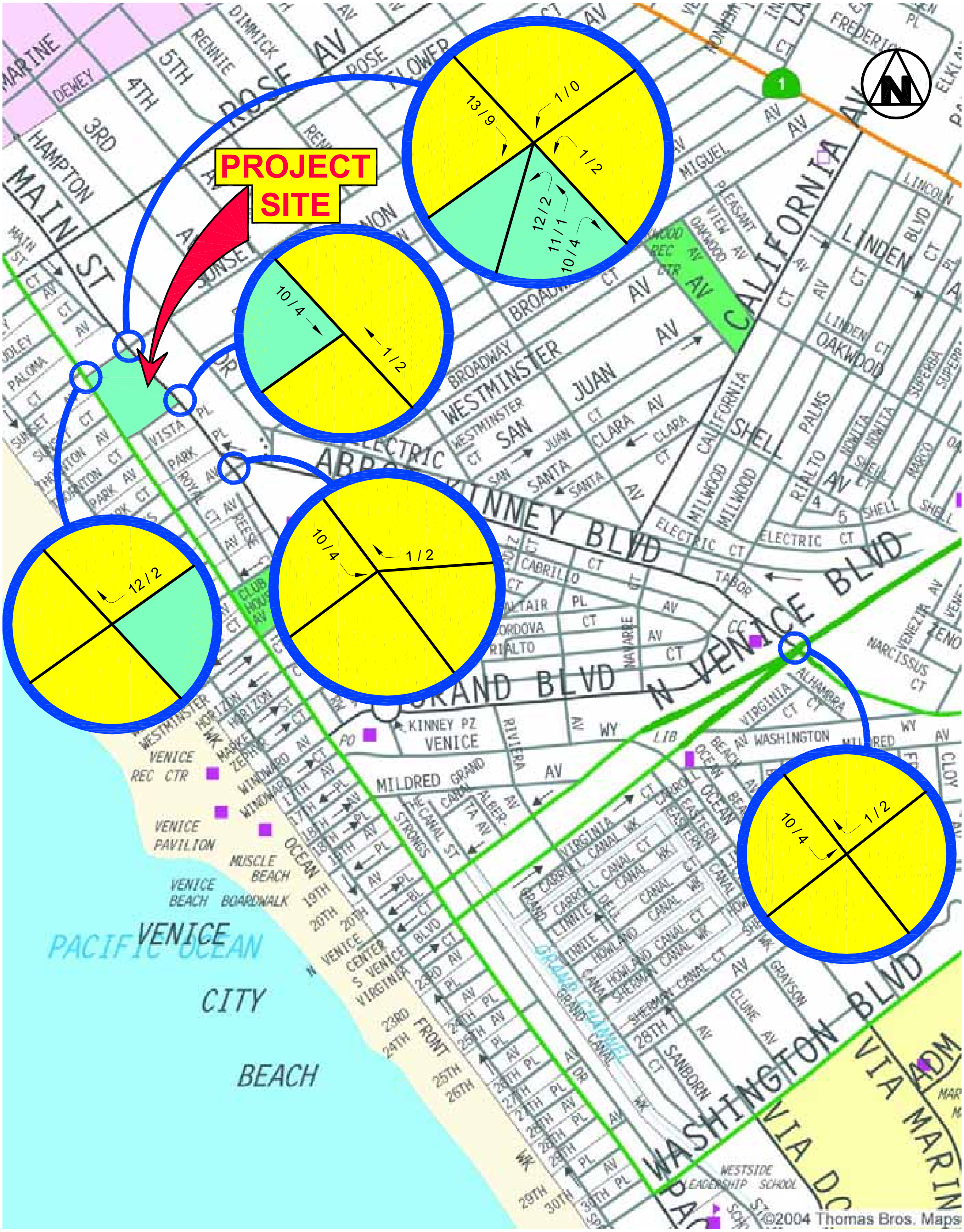


EXHIBIT 9

7/24/2004

EXISTING TRAFFIC ASSIGNMENT
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.co

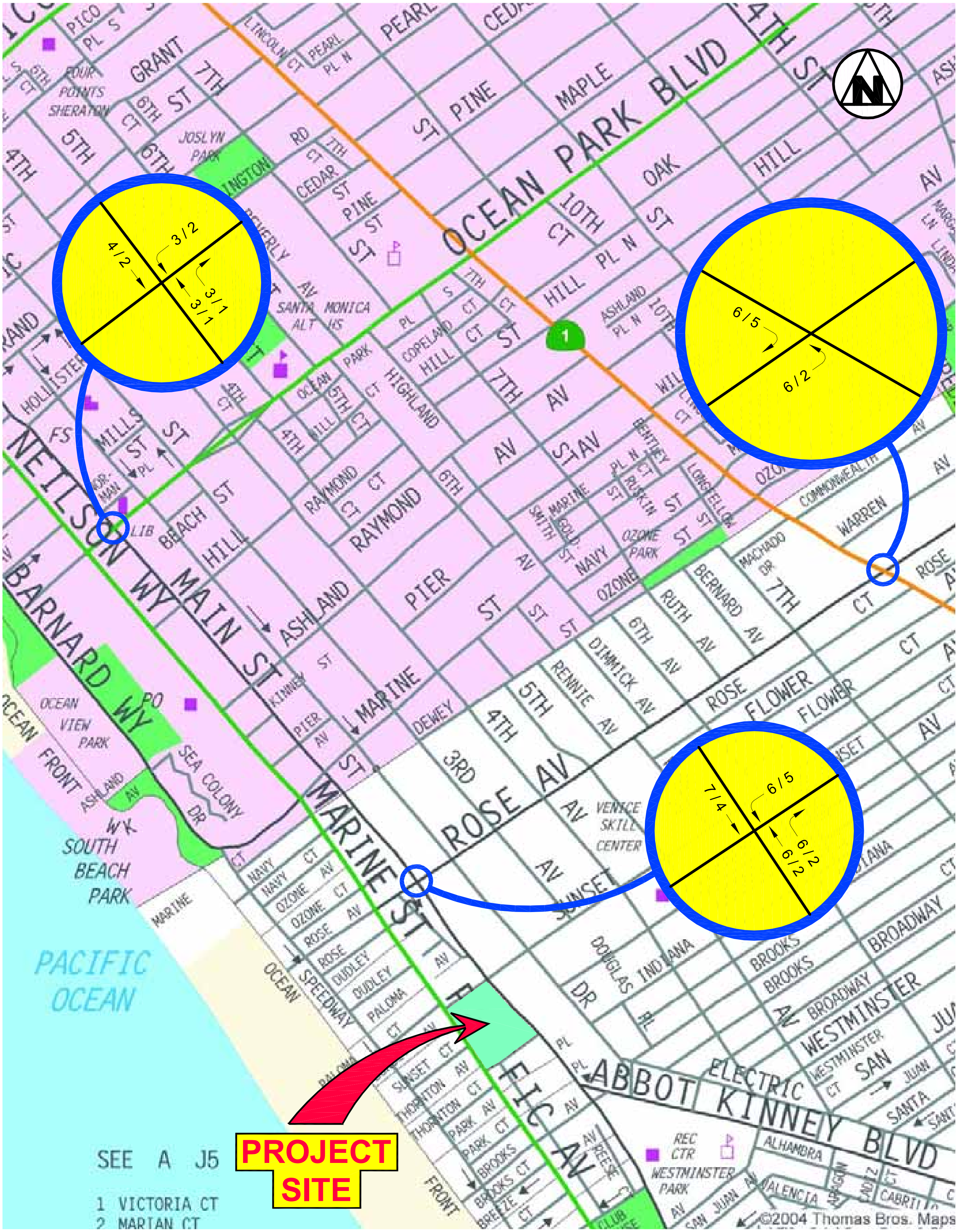


EXHIBIT 10

7/24/2004

EXISTING TRAFFIC ASSIGNMENT
AM / PM PEAK HOUR

Overland Traffic Consultants, Inc.
25876 The Old Road #307, Santa Clarita, CA 91381
(661)799-8423 v, (661)799-8456 f, OTC@overlandtraffic.coı

APPENDIX F

TRAFFIC VOLUME DATA

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

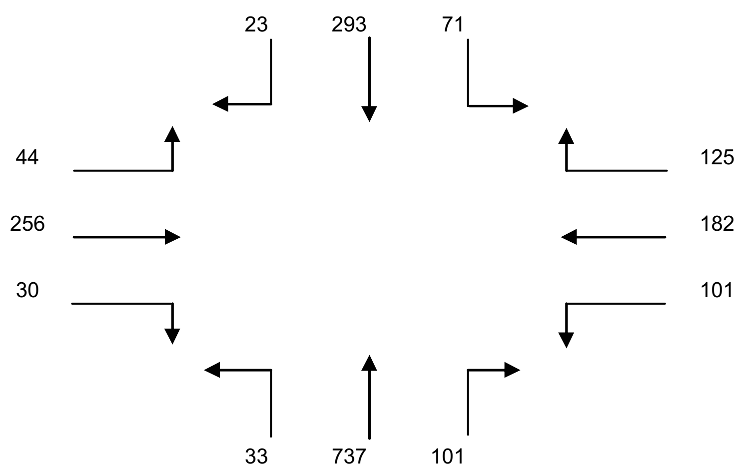
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION: N/S MAIN ST.
E/W OCEAN PARK BLVD.
FILE NUMBER: 1-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	3	40	4	19	26	9	20	117	7	2	31	5
715-730	5	34	5	33	25	19	14	115	9	7	30	7
730-745	2	35	10	34	28	11	23	195	17	7	40	3
745-800	6	51	16	33	42	23	35	188	10	8	58	8
800-815	3	68	14	28	47	18	21	174	4	3	63	18
818-830	7	87	20	31	47	18	19	175	9	2	65	4
830-845	7	87	21	33	46	42	26	200	10	7	70	14
845-900	8	71	14	35	58	36	23	133	8	4	61	9

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	16	160	35	119	121	62	92	615	43	24	159	23	1469
715-815	16	188	45	128	142	71	93	672	40	25	191	36	1647
730-830	18	241	60	126	164	70	98	732	40	20	226	33	1828
745-845	23	293	71	125	182	101	101	737	33	20	256	44	1986
800-900	25	313	69	127	198	114	89	682	31	16	259	45	1968

A.M. PEAK HOUR
745-845

OCEAN PARK BLVD.



MAIN ST.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

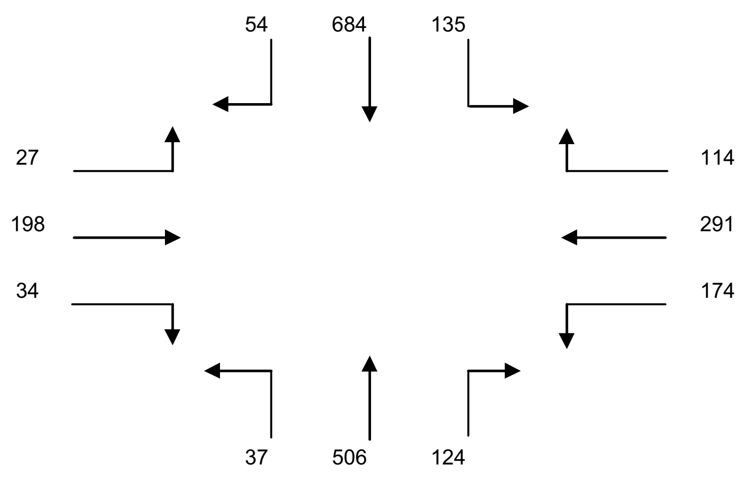
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S MAIN.ST
E/W OCEAN PARK BLVD.
FILE NUMBER: 1-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	15	159	34	22	57	49	27	134	6	8	46	5
415-430	16	180	24	27	76	52	36	103	7	9	40	2
430-445	13	163	28	24	53	41	34	144	6	17	60	11
445-500	9	176	43	24	89	37	28	129	7	7	53	7
500-515	18	175	27	23	84	54	30	108	9	8	41	2
515-530	14	170	37	43	65	42	32	125	15	2	44	7
530-545	12	154	36	27	64	43	27	105	6	15	60	10
545-600	14	169	27	19	68	51	26	127	10	8	57	5

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	53	678	129	97	275	179	125	510	26	41	199	25	2337
415-515	56	694	122	98	302	184	128	484	29	41	194	22	2354
430-530	54	684	135	114	291	174	124	506	37	34	198	27	2378
445-545	53	675	143	117	302	176	117	467	37	32	198	26	2343
500-600	58	668	127	112	281	190	115	465	40	33	202	24	2315

P.M. PEAK HOUR
430-530

OCEAN PARK BLVD.



MAIN.ST

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

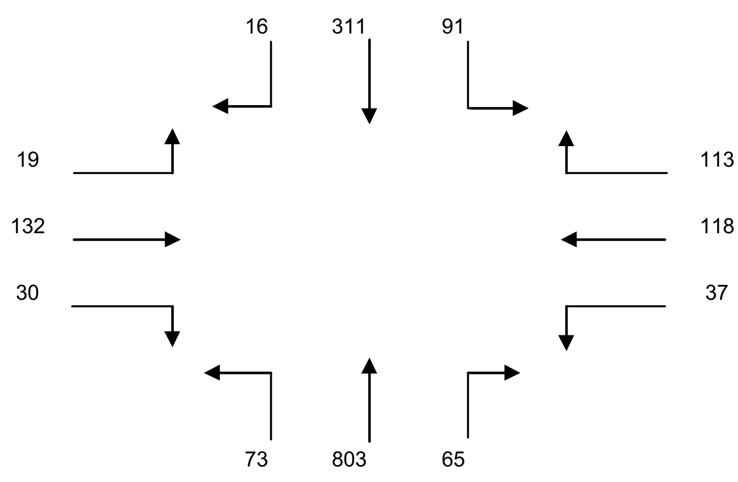
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		SANTA MONICA AREA.
DATE:		WEDNESDAY, MARCH 10, 2004
PERIOD:		07:00 AM TO 09:00 AM
INTERSECTION:	N/S	MAIN ST.
	E/W	ROSE AV.
FILE NUMBER:		2-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	1	35	12	31	20	5	10	124	10	8	8	6
715-730	2	49	10	24	20	2	14	177	7	2	29	4
730-745	2	42	12	33	27	7	10	175	17	4	15	4
745-800	2	70	21	30	23	4	20	209	19	6	32	6
800-815	4	78	19	27	31	10	17	206	14	6	31	6
818-830	8	88	28	30	32	11	15	192	17	9	38	4
830-845	2	75	23	26	32	12	13	196	23	9	31	3
845-900	3	68	17	28	29	9	12	178	17	7	31	4

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	7	196	55	118	90	18	54	685	53	20	84	20	1400
715-815	10	239	62	114	101	23	61	767	57	18	107	20	1579
730-830	16	278	80	120	113	32	62	782	67	25	116	20	1711
745-845	16	311	91	113	118	37	65	803	73	30	132	19	1808
800-900	17	309	87	111	124	42	57	772	71	31	131	17	1769

A.M. PEAK HOUR
745-845



ROSE AV.

MAIN ST.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

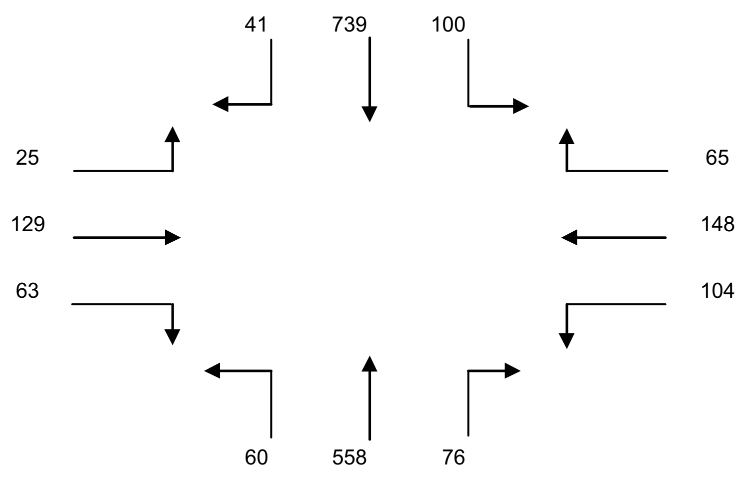
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S MAIN.ST
E/W ROSE AV.
FILE NUMBER: 2-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	11	167	28	21	29	15	18	130	12	15	39	5
415-430	7	190	24	17	42	18	13	156	20	10	32	8
430-445	5	178	31	11	27	30	17	134	9	9	35	7
445-500	8	178	38	13	31	24	18	120	13	13	26	6
500-515	7	191	22	13	42	30	23	148	20	13	42	6
515-530	15	200	23	25	37	23	19	146	13	20	33	2
530-545	11	170	17	14	38	27	16	144	14	17	28	11
545-600	8	169	24	18	34	18	14	124	19	18	25	7

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	31	713	121	62	129	87	66	540	54	47	132	26	2008
415-515	27	737	115	54	142	102	71	558	62	45	135	27	2075
430-530	35	747	114	62	137	107	77	548	55	55	136	21	2094
445-545	41	739	100	65	148	104	76	558	60	63	129	25	2108
500-600	41	730	86	70	151	98	72	562	66	68	128	26	2098

P.M. PEAK HOUR
445-545



ROSE AV.

MAIN.ST

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION: N/S MAIN ST.
E/W SUNSET AV/ MTA DRWY.
FILE NUMBER: 3-AM

15 MINUTE	1A	1B	2	3	4	5A	5B	6	7	8	9A	9B	10	11	12
TOTALS	SBRT	SBRT	SBTH	SBLT	WBRT	WBTH	WBTH	WBLT	NBRT	NBTH	NBLT	NBLT	EBRT	EBTH	EBLT
700-715	1	1	33	3	6	0	1	2	6	167	1	2	1	0	0
715-730	1	2	37	1	5	1	0	1	5	172	2	0	0	0	0
730-745	0	0	54	7	6	0	0	4	4	183	3	0	0	0	1
745-800	0	2	60	3	9	0	0	7	3	205	1	0	0	0	1
800-815	1	3	92	4	10	0	0	2	2	215	0	0	0	0	1
818-830	2	5	88	5	9	0	0	3	11	230	3	0	1	0	0
830-845	2	3	84	5	13	1	1	2	7	228	3	1	1	0	3
845-900	3	9	72	1	5	0	0	2	8	183	1	0	3	0	3

1 HOUR	1A	1B	2	3	4	5A	5B	6	7	8	9A	9B	10	11	12	
TOTALS	SBRT	SBRT	SBTH	SBLT	WBRT	WBTH	WBTH	WBLT	NBRT	NBTH	NBLT	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	2	5	184	14	26	1	1	14	18	727	7	2	1	0	2	1004
715-815	2	7	243	15	30	1	0	14	14	775	6	0	0	0	3	1110
730-830	3	10	294	19	34	0	0	16	20	833	7	0	1	0	3	1240
745-845	5	13	324	17	41	1	1	14	23	878	7	1	2	0	5	1332
800-900	8	20	336	15	37	1	1	9	28	856	7	1	5	0	7	1331

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S MAIN.ST
E/W SUNSET AV/ MTA DRWY.
FILE NUMBER: 3--PM

15 MINUTE	1A	1B	2	3	4	5A	5B	6	7	8	9A	9B	10	11	12
TOTALS	SBRT	SBRT	SBTH	SBLT	WBRT	WBTH	WBTH	WBLT	NBRT	NBTH	NBLT	NBLT	EBRT	EBTH	EBLT
400-415	2	4	191	5	7	0	0	1	2	102	3	0	0	0	1
415-430	1	3	201	10	5	1	0	6	6	139	3	0	1	0	1
430-445	4	0	189	5	13	1	1	4	12	144	2	0	2	0	2
445-500	2	1	218	8	11	0	0	5	8	163	3	2	2	1	1
500-515	4	2	210	2	10	1	0	4	10	165	1	0	0	0	0
515-530	0	3	216	7	9	0	0	3	9	162	6	0	1	0	1
530-545	6	3	211	14	10	0	0	1	7	156	3	0	1	0	0
545-600	6	3	228	10	11	2	0	5	9	142	3	1	3	0	2

1 HOUR	1A	1B	2	3	4	5A	5B	6	7	8	9A	9B	10	11	12	
TOTALS	SBRT	SBRT	SBTH	SBLT	WBRT	WBTH	WBTH	WBLT	NBRT	NBTH	NBLT	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	9	8	799	28	36	2	1	16	28	548	11	2	5	1	5	1499
415-515	11	6	818	25	39	3	1	19	36	611	9	2	5	1	4	1590
430-530	10	6	833	22	43	2	1	16	39	634	12	2	5	1	4	1630
445-545	12	9	855	31	40	1	0	13	34	646	13	2	4	1	2	1663
500-600	16	11	865	33	40	3	0	13	35	625	13	1	5	0	3	1663

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

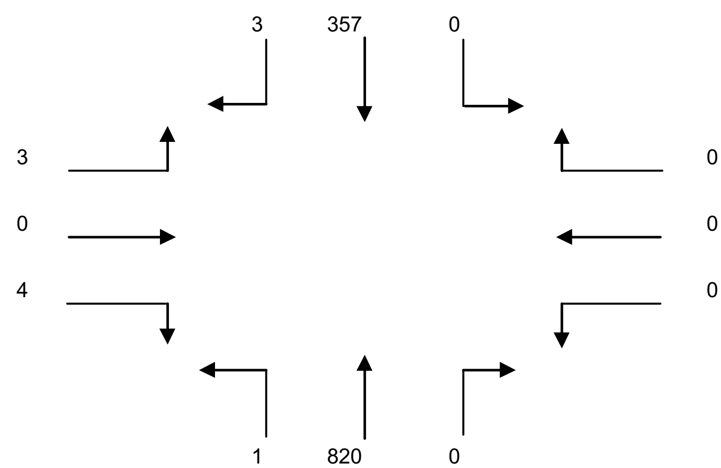
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		SANTA MONICA AREA.
DATE:		WEDNESDAY, MARCH 10, 2004
PERIOD:		07:00 AM TO 09:00 AM
INTERSECTION:	N/S	MAIN ST.
	E/W	THONTON PL.
FILE NUMBER:		4-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	0	31	0	0	0	0	0	50	0	0	0	1
715-730	0	44	0	0	0	0	0	168	0	0	0	0
730-745	0	53	0	0	0	0	0	169	0	0	0	1
745-800	0	86	0	0	0	0	0	229	0	0	0	1
800-815	1	95	0	0	0	0	0	210	0	2	0	1
818-830	1	87	0	0	0	0	0	209	0	2	0	0
830-845	1	89	0	0	0	0	0	172	1	0	0	1
845-900	1	90	0	0	0	0	0	192	0	1	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	0	214	0	0	0	0	0	616	0	0	0	3	833
715-815	1	278	0	0	0	0	0	776	0	2	0	3	1060
730-830	2	321	0	0	0	0	0	817	0	4	0	3	1147
745-845	3	357	0	0	0	0	0	820	1	4	0	3	1188
800-900	4	361	0	0	0	0	0	783	1	5	0	2	1156

A.M. PEAK HOUR
745-845



THONTON PL.

MAIN ST.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

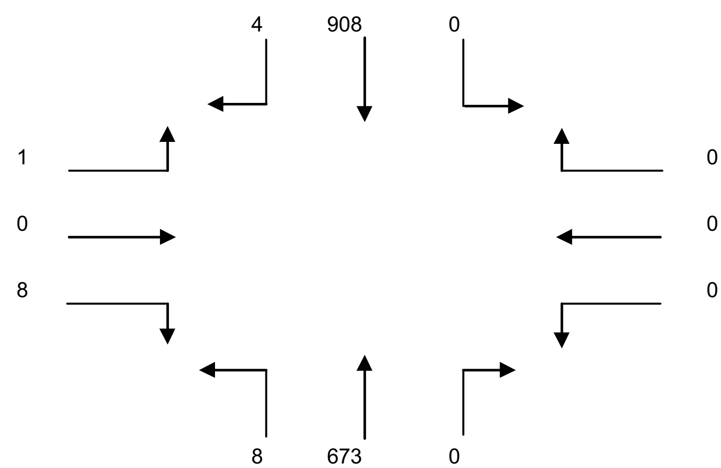
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S MAIN.ST
E/W THORNTON PLACE.
FILE NUMBER: 4-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	1	176	0	0	0	0	0	130	0	0	0	1
415-430	2	215	0	0	0	0	0	153	3	0	0	2
430-445	0	188	0	0	0	0	0	142	1	1	0	1
445-500	0	228	0	0	0	0	0	148	2	4	0	0
500-515	2	210	0	0	0	0	0	157	1	1	0	1
515-530	1	224	0	0	0	0	0	186	1	0	0	0
530-545	1	246	0	0	0	0	0	182	4	3	0	0
545-600	2	176	0	0	0	0	0	143	0	3	0	2

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	3	807	0	0	0	0	0	573	6	5	0	4	1398
415-515	4	841	0	0	0	0	0	600	7	6	0	4	1462
430-530	3	850	0	0	0	0	0	633	5	6	0	2	1499
445-545	4	908	0	0	0	0	0	673	8	8	0	1	1602
500-600	6	856	0	0	0	0	0	668	6	7	0	3	1546

P.M. PEAK HOUR
445-545

THORNTON PLACE.



MAIN.ST

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

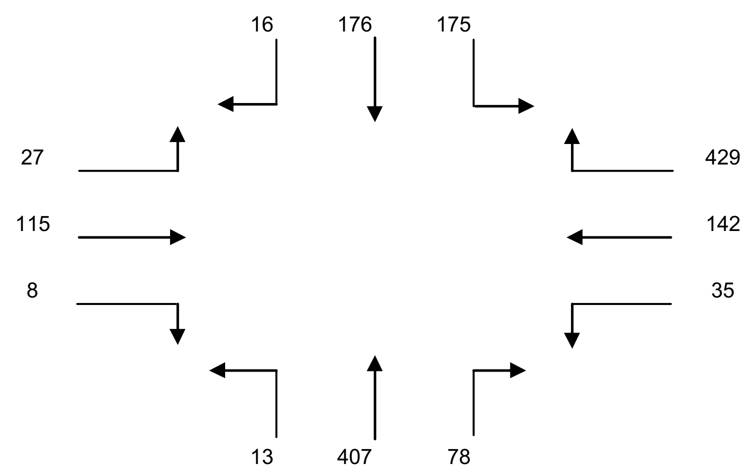
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		SANTA MONICA AREA.
DATE:		WEDNESDAY, MARCH 10, 2004
PERIOD:		07:00 AM TO 09:00 AM
INTERSECTION:	N/S	MAIN ST.
	E/W	ABBOT KINNEY BLVD.
FILE NUMBER:		5-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	1	28	13	46	10	3	10	60	2	1	17	3
715-730	1	16	15	34	12	5	15	76	4	4	21	0
730-745	1	43	16	75	21	4	14	76	2	2	18	5
745-800	5	40	43	112	33	5	24	108	3	2	20	12
800-815	5	42	45	106	31	11	20	112	3	3	29	5
818-830	2	50	51	110	45	10	18	95	5	1	29	5
830-845	4	44	36	101	33	9	16	92	2	2	37	5
845-900	6	47	56	96	30	7	18	85	3	3	30	7

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	8	127	87	267	76	17	63	320	11	9	76	20	1081
715-815	12	141	119	327	97	25	73	372	12	11	88	22	1299
730-830	13	175	155	403	130	30	76	391	13	8	96	27	1517
745-845	16	176	175	429	142	35	78	407	13	8	115	27	1621
800-900	17	183	188	413	139	37	72	384	13	9	125	22	1602

A.M. PEAK HOUR
745-845



ABBOT KINNEY BLVD.

MAIN ST.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

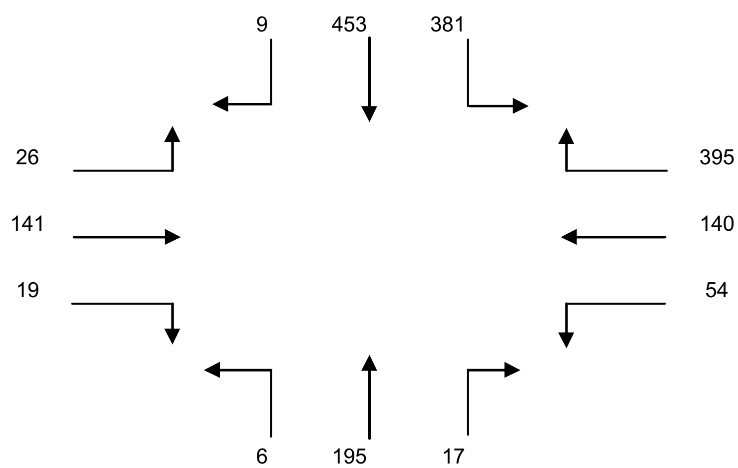
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		SANTA MONICA AREA.
DATE:		WEDNESDAY, MARCH 10, 2004
PERIOD:		04:00 PM TO 06:00 PM
INTERSECTION:	N/S	MAIN.ST
	E/W	ABBOT KINNEY BLVD.
FILE NUMBER:		5-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	3	75	90	78	43	9	6	50	2	1	28	4
415-430	4	96	92	88	37	8	5	48	1	4	26	6
430-445	4	102	102	84	29	4	9	62	0	5	42	8
445-500	2	115	94	91	24	13	2	40	1	4	25	5
500-515	1	119	102	95	39	13	4	41	0	4	37	2
515-530	3	110	95	105	40	13	8	62	2	8	41	10
530-545	3	109	90	104	37	15	3	52	3	3	38	9
545-600	2	121	75	95	21	5	6	38	1	5	41	5

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	13	388	378	341	133	34	22	200	4	14	121	23	1671
415-515	11	432	390	358	129	38	20	191	2	17	130	21	1739
430-530	10	446	393	375	132	43	23	205	3	21	145	25	1821
445-545	9	453	381	395	140	54	17	195	6	19	141	26	1836
500-600	9	459	362	399	137	46	21	193	6	20	157	26	1835

P.M. PEAK HOUR
445-545



ABBOT KINNEY BLVD.

MAIN.ST

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

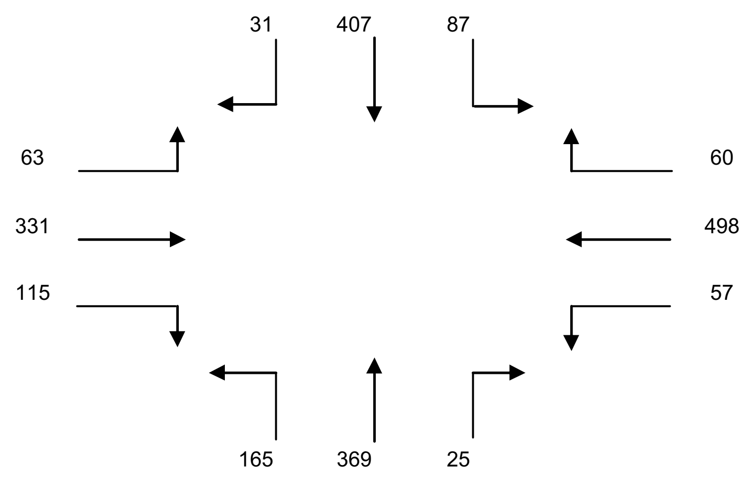
CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		SANTA MONICA AREA.
DATE:		WEDNESDAY, MARCH 10, 2004
PERIOD:		07:00 AM TO 09:00 AM
INTERSECTION:	N/S	ABBOT KINNEY BLVD.
	E/W	VENICE BLVD.
FILE NUMBER:		6,7-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	7	49	11	11	107	3	1	47	16	28	44	5
715-730	5	64	10	8	109	9	5	61	29	19	67	10
730-745	8	88	19	14	138	17	8	95	30	23	76	13
745-800	5	100	22	16	129	16	5	68	35	35	84	14
800-815	10	130	26	19	120	13	2	102	55	34	91	18
818-830	8	89	20	11	111	11	10	104	45	23	80	18
830-845	6	111	21	6	100	10	4	55	25	43	97	17
845-900	7	112	19	7	99	6	4	50	22	36	75	11

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	25	301	62	49	483	45	19	271	110	105	271	42	1783
715-815	28	382	77	57	496	55	20	326	149	111	318	55	2074
730-830	31	407	87	60	498	57	25	369	165	115	331	63	2208
745-845	29	430	89	52	460	50	21	329	160	135	352	67	2174
800-900	31	442	86	43	430	40	20	311	147	136	343	64	2093

A.M. PEAK HOUR
730-830

VENICE BLVD.



ABBOT KINNEY BLVD.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

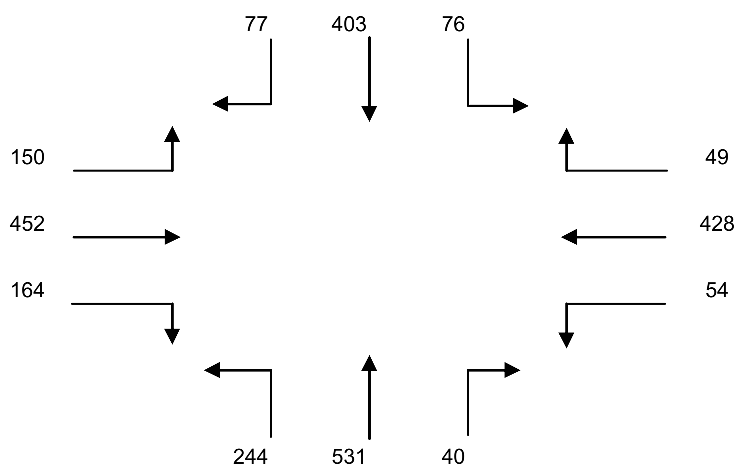
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S ABBOT KINNEY BLVD.
E/W VENICE BLVD.
FILE NUMBER: 6,7-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	19	104	10	12	105	9	20	112	64	30	121	45
415-430	23	104	24	14	98	15	8	144	70	44	112	43
430-445	21	97	18	9	118	16	6	135	60	58	110	35
445-500	14	98	24	14	107	14	6	140	50	32	109	27
500-515	18	101	19	12	94	14	9	131	60	33	95	32
515-530	31	111	15	11	102	13	12	122	61	61	105	53
530-545	25	106	13	13	105	9	11	122	66	53	108	54
545-600	26	80	10	9	92	9	12	112	52	44	91	45

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	77	403	76	49	428	54	40	531	244	164	452	150	2668
415-515	76	400	85	49	417	59	29	550	240	167	426	137	2635
430-530	84	407	76	46	421	57	33	528	231	184	419	147	2633
445-545	88	416	71	50	408	50	38	515	237	179	417	166	2635
500-600	100	398	57	45	393	45	44	487	239	191	399	184	2582

P.M. PEAK HOUR
400-500

VENICE BLVD.



ABBOT KINNEY BLVD.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

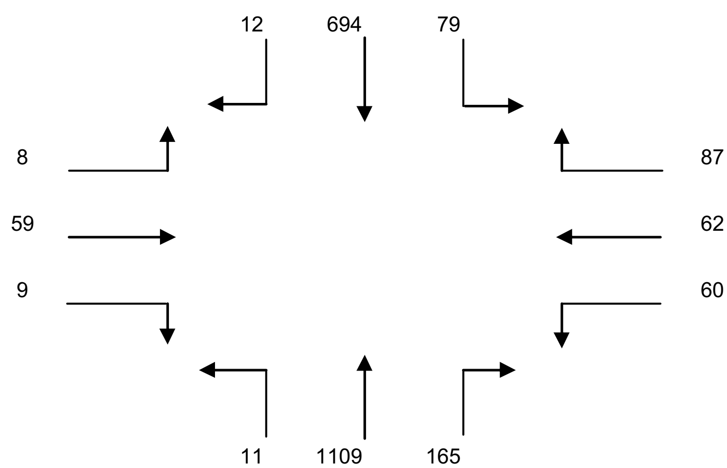
CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		SANTA MONICA AREA.
DATE:		WEDNESDAY, MARCH 10, 2004
PERIOD:		07:00 AM TO 09:00 AM
INTERSECTION:	N/S	OCEAN PARK BLVD.
	E/W	NEILSON WAY.
FILE NUMBER:		12-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	3	98	9	17	9	4	24	217	1	4	14	2
715-730	4	96	13	21	7	8	24	253	2	2	15	2
730-745	1	103	14	27	8	7	26	277	3	5	7	4
745-800	4	124	15	28	16	8	32	312	2	3	14	5
800-815	2	143	19	26	12	11	45	284	3	3	18	1
818-830	3	167	14	19	16	14	42	290	2	1	19	4
830-845	3	205	22	15	19	16	40	274	3	2	14	1
845-900	4	179	24	27	15	19	38	261	3	3	8	2

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	12	421	51	93	40	27	106	1059	8	14	50	13	1894
715-815	11	466	61	102	43	34	127	1126	10	13	54	12	2059
730-830	10	537	62	100	52	40	145	1163	10	12	58	14	2203
745-845	12	639	70	88	63	49	159	1160	10	9	65	11	2335
800-900	12	694	79	87	62	60	165	1109	11	9	59	8	2355

A.M. PEAK HOUR
800-900

NEILSON WAY.



OCEAN PARK BLVD.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

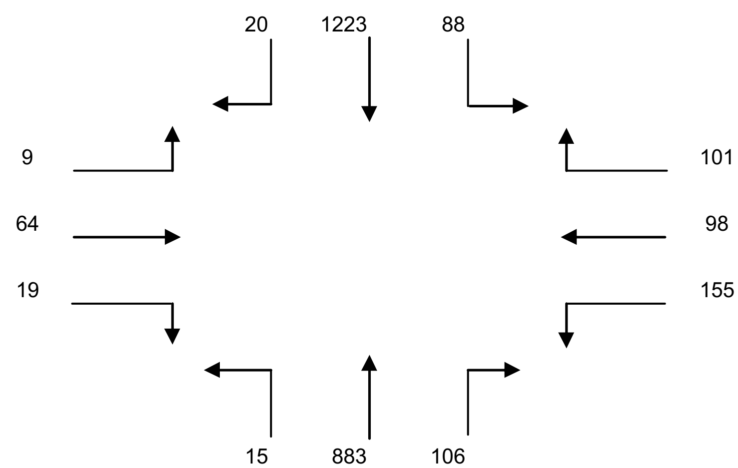
CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		SANTA MONICA AREA.
DATE:		WEDNESDAY, MARCH 10, 2004
PERIOD:		04:00 PM TO 06:00 PM
INTERSECTION:	N/S	OCEAN PARK BLVD.
	E/W	NEILSON WY.
FILE NUMBER:		12-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
400-415	6	208	22	18	10	26	26	245	8	4	7	1
415-430	2	255	22	13	15	38	22	253	7	2	17	3
430-445	7	313	27	22	29	28	28	210	3	4	22	2
445-500	2	300	25	25	29	44	29	211	4	4	10	1
500-515	2	293	16	26	17	40	20	251	2	4	17	3
515-530	9	317	20	28	23	43	29	211	6	7	15	3
530-545	5	273	18	17	27	39	29	228	1	5	23	2
545-600	1	285	30	18	16	40	25	219	1	2	12	2

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
400-500	17	1076	96	78	83	136	105	919	22	14	56	7	2609
415-515	13	1161	90	86	90	150	99	925	16	14	66	9	2719
430-530	20	1223	88	101	98	155	106	883	15	19	64	9	2781
445-545	18	1183	79	96	96	166	107	901	13	20	65	9	2753
500-600	17	1168	84	89	83	162	103	909	10	18	67	10	2720

P.M. PEAK HOUR
430-530

NEILSON WY.



OCEAN PARK BLVD.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

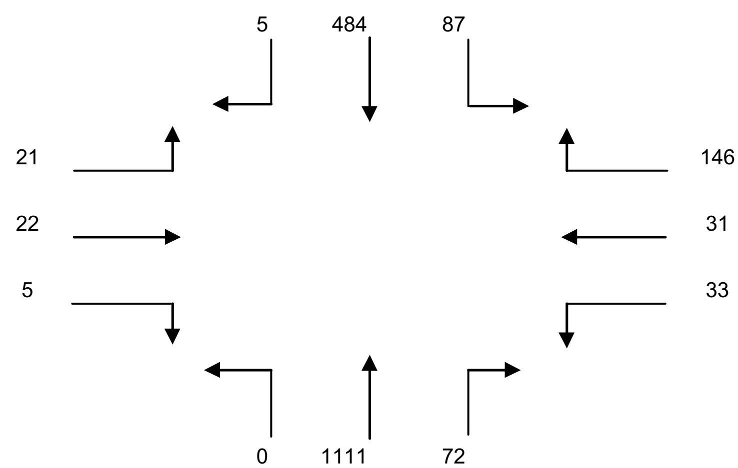
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION: N/S PACIFIC AV.
E/W ROSE AV.
FILE NUMBER: 9-AM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
700-715	3	66	8	26	5	2	5	148	0	0	2	0
715-730	2	92	15	29	3	6	9	230	0	0	1	3
730-745	3	96	13	25	2	2	14	258	0	0	7	3
745-800	1	117	21	37	3	5	25	270	0	0	3	4
800-815	3	140	26	37	9	9	18	277	0	0	7	6
818-830	1	114	25	38	8	12	14	291	0	4	4	5
830-845	0	113	15	34	11	7	15	273	0	1	8	6
845-900	1	84	18	28	9	5	14	250	0	0	5	6

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
700-800	9	371	57	117	13	15	53	906	0	0	13	10	1564
715-815	9	445	75	128	17	22	66	1035	0	0	18	16	1831
730-830	8	467	85	137	22	28	71	1096	0	4	21	18	1957
745-845	5	484	87	146	31	33	72	1111	0	5	22	21	2017
800-900	5	451	84	137	37	33	61	1091	0	5	24	23	1951

A.M. PEAK HOUR
745-845

ROSE AV.



PACIFIC AV.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

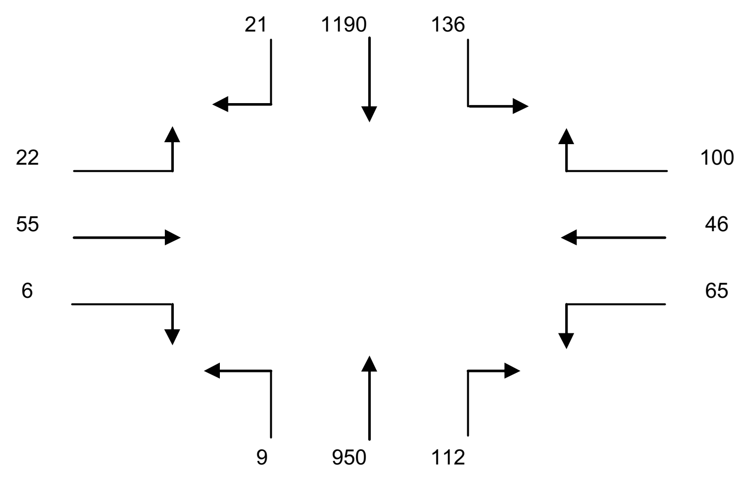
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S PACIFIC AVE.
E/W ROSE AVE.
FILE NUMBER: 9-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	4	275	46	14	6	15	17	221	0	3	11	2
415-430	12	321	27	24	8	7	22	171	0	0	3	2
430-445	10	312	26	26	11	12	18	200	0	0	12	1
445-500	6	303	37	25	14	8	20	199	3	2	12	3
500-515	6	304	27	24	14	21	17	222	5	3	12	11
515-530	4	302	28	27	10	12	30	233	2	1	8	4
530-545	6	294	38	22	14	17	31	261	1	1	17	4
545-600	5	290	43	27	8	15	34	234	1	1	18	3

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	32	1211	136	89	39	42	77	791	3	5	38	8	2471
415-515	34	1240	117	99	47	48	77	792	8	5	39	17	2523
430-530	26	1221	118	102	49	53	85	854	10	6	44	19	2587
445-545	22	1203	130	98	52	58	98	915	11	7	49	22	2665
500-600	21	1190	136	100	46	65	112	950	9	6	55	22	2712

P.M. PEAK HOUR
5:00-6:00

ROSE AVE.



PACIFIC AVE.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

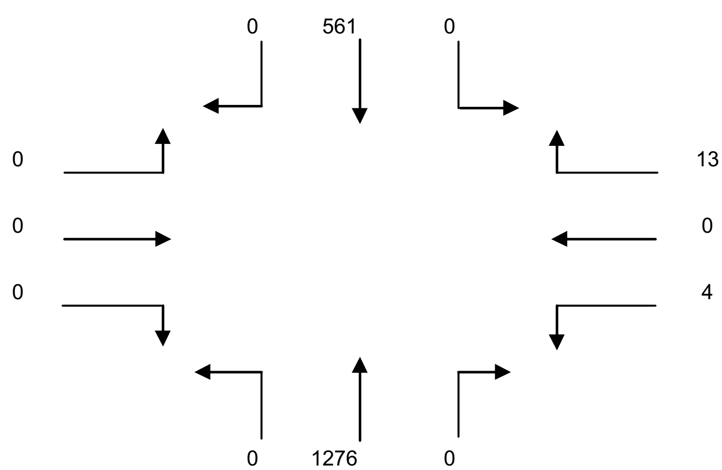
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION: N/S PACIFIC AV.
E/W SUNSET AVE.
FILE NUMBER: 8-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	0	65	0	1	0	0	0	174	0	0	0	0
715-730	0	105	0	3	0	1	0	261	0	0	0	0
730-745	0	91	0	5	0	1	0	221	0	0	0	0
745-800	0	122	0	1	0	0	0	278	0	0	0	0
800-815	0	127	0	1	0	0	0	284	0	0	0	0
818-830	0	162	0	8	0	0	0	355	0	0	0	0
830-845	0	152	0	3	0	3	0	336	0	0	0	0
845-900	0	120	0	1	0	1	0	301	0	0	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	0	383	0	10	0	2	0	934	0	0	0	0	1329
715-815	0	445	0	10	0	2	0	1044	0	0	0	0	1501
730-830	0	502	0	15	0	1	0	1138	0	0	0	0	1656
745-845	0	563	0	13	0	3	0	1253	0	0	0	0	1832
800-900	0	561	0	13	0	4	0	1276	0	0	0	0	1854

A.M. PEAK HOUR
800-900

SUNSET AVE.



PACIFIC AV.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

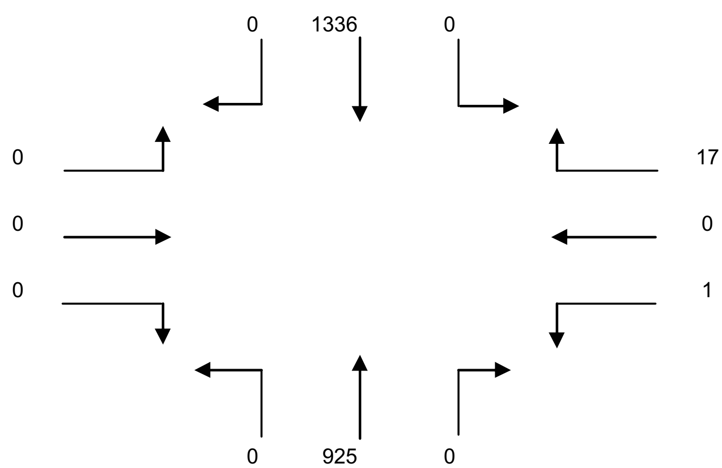
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S PACIFIC AVE.
E/W SUNSET AVE.
FILE NUMBER: 8-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
400-415	0	287	0	3	0	1	0	235	0	0	0	0
415-430	0	330	0	4	0	0	0	223	0	0	0	0
430-445	0	326	0	6	0	1	0	225	0	0	0	0
445-500	0	317	0	3	0	0	0	238	0	0	0	0
500-515	0	329	0	3	0	0	0	232	0	0	0	0
515-530	0	341	0	5	0	0	0	223	0	0	0	0
530-545	0	349	0	6	0	1	0	232	0	0	0	0
545-600	0	329	0	4	0	1	0	215	0	0	0	0

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
400-500	0	1260	0	16	0	2	0	921	0	0	0	0	2199
415-515	0	1302	0	16	0	1	0	918	0	0	0	0	2237
430-530	0	1313	0	17	0	1	0	918	0	0	0	0	2249
445-545	0	1336	0	17	0	1	0	925	0	0	0	0	2279
500-600	0	1348	0	18	0	2	0	902	0	0	0	0	2270

P.M. PEAK HOUR
445-545

SUNSET AVE.



PACIFIC AVE.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

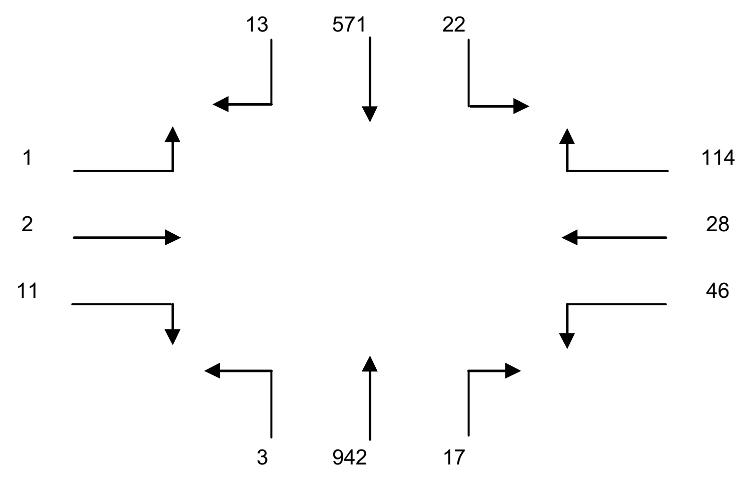
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION: N/S PACIFIC AVE.
E/W WINDWARD AVENUE
FILE NUMBER: 11-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	3	68	2	14	0	2	7	187	3	0	2	0
715-730	2	100	3	22	2	7	14	214	1	0	2	2
730-745	1	103	6	22	8	17	4	233	1	0	1	0
745-800	0	101	2	28	6	5	5	231	1	0	0	0
800-815	4	133	7	28	8	6	4	252	0	0	0	1
818-830	2	120	3	26	9	17	7	235	0	1	1	0
830-845	4	175	6	39	9	11	2	235	2	6	1	0
845-900	3	143	6	21	2	12	4	220	1	4	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	6	372	13	86	16	31	30	865	6	0	5	2	1432
715-815	7	437	18	100	24	35	27	930	3	0	3	3	1587
730-830	7	457	18	104	31	45	20	951	2	1	2	1	1639
745-845	10	529	18	121	32	39	18	953	3	7	2	1	1733
800-900	13	571	22	114	28	46	17	942	3	11	2	1	1770

A.M. PEAK HOUR
800-900

WINDWARD AVENUE



PACIFIC AVE.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

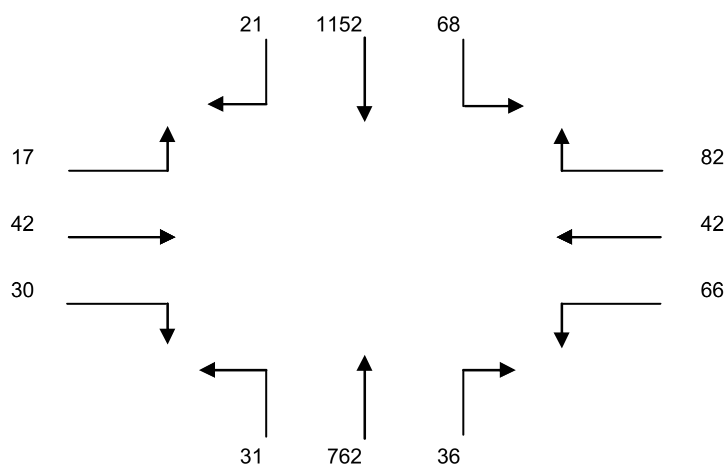
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S PACIFIC AVE.
E/W WINDWARD AVENUE
FILE NUMBER: 11-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	6	241	17	22	5	10	8	196	18	2	11	3
415-430	14	287	21	20	5	15	6	194	8	5	6	4
430-445	9	270	13	18	1	12	9	188	3	6	11	7
445-500	7	302	23	29	16	23	4	187	5	6	16	8
500-515	4	272	10	23	9	14	15	191	11	8	8	4
515-530	7	284	16	20	8	17	11	197	5	9	6	4
530-545	3	294	19	10	9	12	6	187	10	7	12	1
545-600	11	296	27	19	8	14	6	181	3	3	7	16

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	36	1100	74	89	27	60	27	765	34	19	44	22	2297
415-515	34	1131	67	90	31	64	34	760	27	25	41	23	2327
430-530	27	1128	62	90	34	66	39	763	24	29	41	23	2326
445-545	21	1152	68	82	42	66	36	762	31	30	42	17	2349
500-600	25	1146	72	72	34	57	38	756	29	27	33	25	2314

P.M. PEAK HOUR
445-545



WINDWARD AVENUE

PACIFIC AVE.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

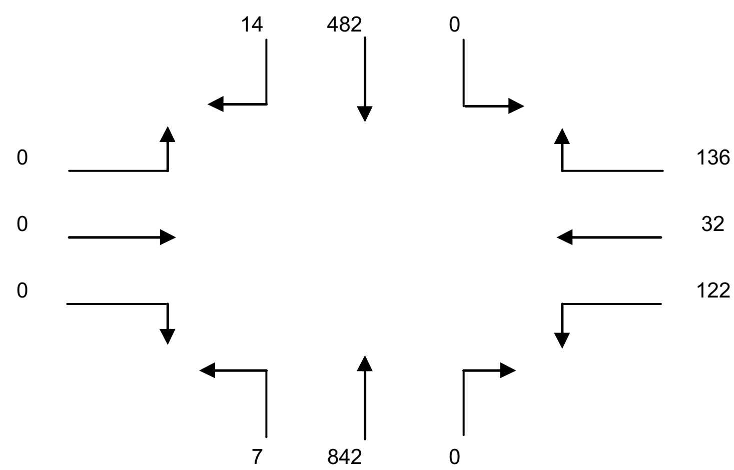
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION: N/S PACIFIC AVE.
E/W N.VENICE BLVD.
FILE NUMBER: 13-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	1	79	0	13	5	22	0	157	2	0	0	0
715-730	2	119	0	18	9	28	0	180	3	0	0	0
730-745	6	112	0	22	7	24	0	215	0	0	0	0
745-800	4	122	0	36	9	25	0	217	3	0	0	0
800-815	2	115	0	42	6	31	0	208	2	0	0	0
818-830	6	122	0	22	10	34	0	212	2	0	0	0
830-845	2	123	0	36	7	32	0	205	0	0	0	0
845-900	1	128	0	21	11	29	0	214	5	0	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	13	432	0	89	30	99	0	769	8	0	0	0	1440
715-815	14	468	0	118	31	108	0	820	8	0	0	0	1567
730-830	18	471	0	122	32	114	0	852	7	0	0	0	1616
745-845	14	482	0	136	32	122	0	842	7	0	0	0	1635
800-900	11	488	0	121	34	126	0	839	9	0	0	0	1628

A.M. PEAK HOUR
745-845



N.VENICE BLVD.

PACIFIC AVE.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

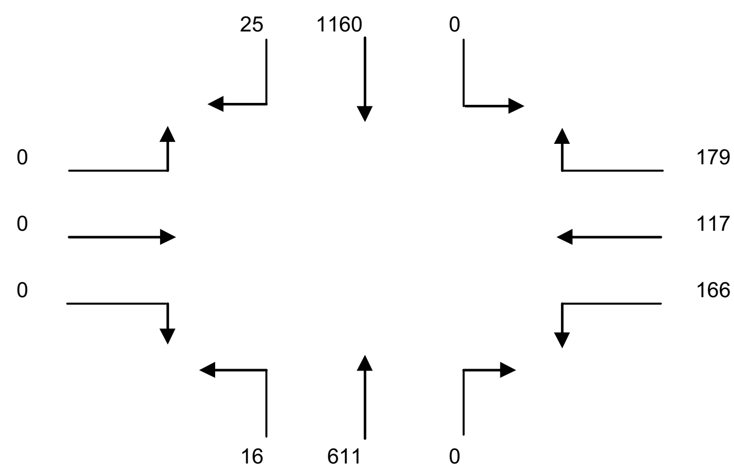
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S PACIFIC AVE.
E/W N. VENICE BLVD.
FILE NUMBER: 13-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	6	275	0	39	26	41	0	137	3	0	0	0
415-430	6	288	0	51	26	47	0	165	2	0	0	0
430-445	12	274	0	38	31	39	0	147	7	0	0	0
445-500	4	292	0	48	27	40	0	154	3	0	0	0
500-515	3	306	0	42	33	40	0	145	4	0	0	0
515-530	10	283	0	25	27	36	0	150	9	0	0	0
530-545	6	287	0	31	21	40	0	155	6	0	0	0
545-600	6	260	0	35	27	45	0	161	3	0	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	28	1129	0	176	110	167	0	603	15	0	0	0	2228
415-515	25	1160	0	179	117	166	0	611	16	0	0	0	2274
430-530	29	1155	0	153	118	155	0	596	23	0	0	0	2229
445-545	23	1168	0	146	108	156	0	604	22	0	0	0	2227
500-600	25	1136	0	133	108	161	0	611	22	0	0	0	2196

P.M. PEAK HOUR
415-515



N. VENICE BLVD.

PACIFIC AVE.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

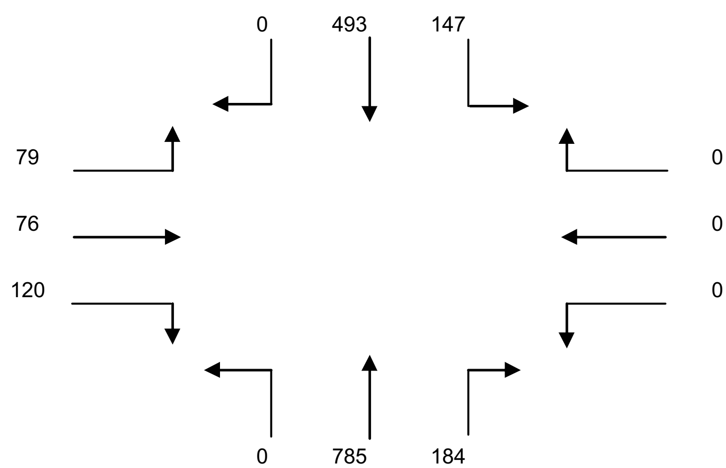
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION: N/S PACIFIC AVE.
E/W S.VENICE BLVD.
FILE NUMBER: 14-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	0	79	18	0	0	0	38	141	0	5	6	4
715-730	0	118	17	0	0	0	46	176	0	11	19	15
730-745	0	101	26	0	0	0	52	198	0	12	9	15
745-800	0	123	32	0	0	0	43	203	0	22	19	20
800-815	0	119	30	0	0	0	45	201	0	37	22	14
818-830	0	120	36	0	0	0	55	188	0	26	15	21
830-845	0	121	33	0	0	0	38	205	0	35	22	25
845-900	0	133	48	0	0	0	46	191	0	22	17	19

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
700-800	0	421	93	0	0	0	179	718	0	50	53	54	1568
715-815	0	461	105	0	0	0	186	778	0	82	69	64	1745
730-830	0	463	124	0	0	0	195	790	0	97	65	70	1804
745-845	0	483	131	0	0	0	181	797	0	120	78	80	1870
800-900	0	493	147	0	0	0	184	785	0	120	76	79	1884

A.M. PEAK HOUR
800-900



S.VENICE BLVD.

PACIFIC AVE.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

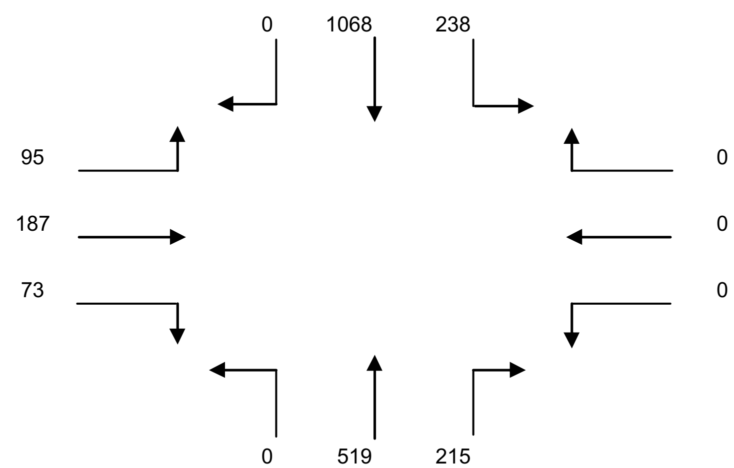
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA AREA.
DATE: WEDNESDAY, MARCH 10, 2004
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION: N/S PACIFIC AVE.
E/W S. VENICE BLVD.
FILE NUMBER: 14-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	0	258	70	0	0	0	46	127	0	15	57	35
415-430	0	267	63	0	0	0	56	133	0	10	47	18
430-445	0	257	65	0	0	0	51	120	0	16	44	37
445-500	0	278	61	0	0	0	59	138	0	13	40	23
500-515	0	255	59	0	0	0	61	121	0	21	52	19
515-530	0	274	52	0	0	0	44	137	0	13	51	27
530-545	0	261	66	0	0	0	51	123	0	26	44	26
545-600	0	240	49	0	0	0	53	122	0	13	39	10

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	0	1060	259	0	0	0	212	518	0	54	188	113	2404
415-515	0	1057	248	0	0	0	227	512	0	60	183	97	2384
430-530	0	1064	237	0	0	0	215	516	0	63	187	106	2388
445-545	0	1068	238	0	0	0	215	519	0	73	187	95	2395
500-600	0	1030	226	0	0	0	209	503	0	73	186	82	2309

P.M. PEAK HOUR
445-545



S. VENICE BLVD.

PACIFIC AVE.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

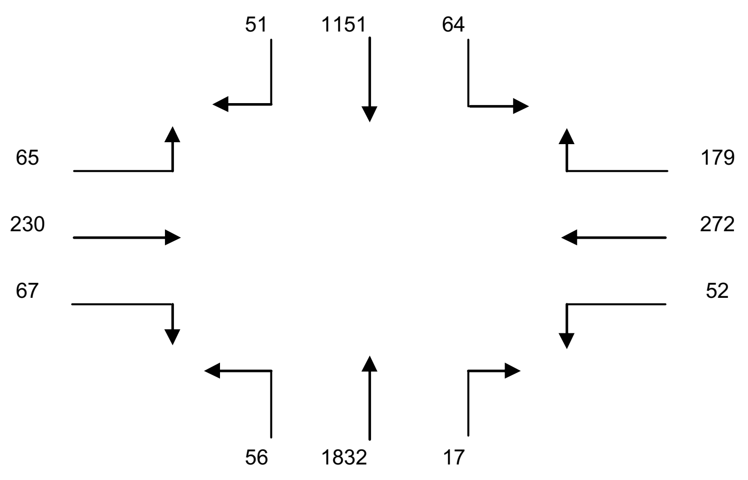
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		SANTA MONICA AREA.
DATE:		WEDNESDAY, MARCH 10, 2004
PERIOD:		07:00 AM TO 09:00 AM
INTERSECTION:	N/S	LINCOLN BLVD.
	E/W	ROSE AV.
FILE NUMBER:		10-AM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
700-715	13	187	9	29	37	12	2	417	18	13	28	26
715-730	15	205	13	33	41	11	5	443	19	15	32	18
730-745	19	253	10	39	43	9	6	459	12	20	46	23
745-800	12	276	15	46	68	16	4	477	16	23	54	19
800-815	11	309	17	52	75	14	7	463	11	15	62	15
818-830	13	291	18	42	66	12	4	440	16	17	64	13
830-845	15	275	14	39	63	10	2	452	13	12	50	18
845-900	18	251	11	39	58	13	4	443	25	13	4	28

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
700-800	59	921	47	147	189	48	17	1796	65	71	160	86	3606
715-815	57	1043	55	170	227	50	22	1842	58	73	194	75	3866
730-830	55	1129	60	179	252	51	21	1839	55	75	226	70	4012
745-845	51	1151	64	179	272	52	17	1832	56	67	230	65	4036
800-900	57	1126	60	172	262	49	17	1798	65	57	180	74	3917

A.M. PEAK HOUR
745-845



ROSE AV.

LINCOLN BLVD.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

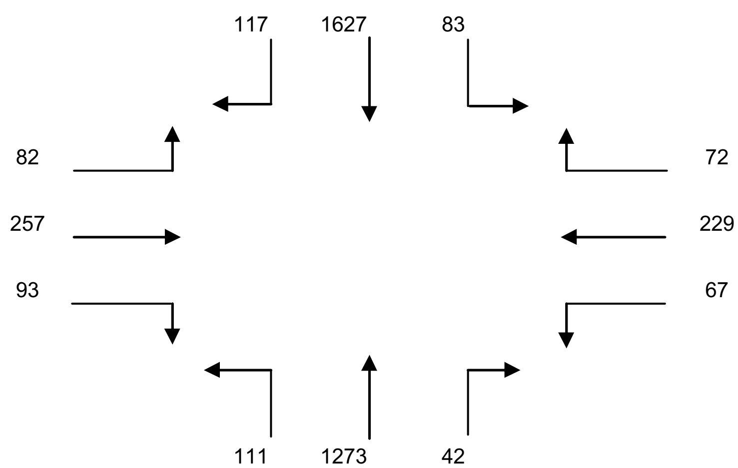
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		SANTA MONICA AREA.
DATE:		WEDNESDAY, MARCH 10, 2004
PERIOD:		04:00 PM TO 06:00 PM
INTERSECTION:	N/S	LINCOLN BLVD.
	E/W	ROSE AVE.
FILE NUMBER:		10-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
400-415	37	382	21	24	69	16	8	368	28	25	76	22
415-430	25	452	26	25	60	12	11	289	23	16	53	21
430-445	26	395	18	14	56	22	8	324	32	26	60	17
445-500	29	398	18	9	44	17	15	292	28	26	68	22
500-515	32	392	14	14	58	14	13	282	20	19	50	21
515-530	23	408	26	17	67	14	11	307	24	21	64	21
530-545	35	389	23	17	65	9	8	294	19	15	57	19
545-600	21	412	26	16	72	11	8	247	23	7	62	19

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
400-500	117	1627	83	72	229	67	42	1273	111	93	257	82	4053
415-515	112	1637	76	62	218	65	47	1187	103	87	231	81	3906
430-530	110	1593	76	54	225	67	47	1205	104	92	242	81	3896
445-545	119	1587	81	57	234	54	47	1175	91	81	239	83	3848
500-600	111	1601	89	64	262	48	40	1130	86	62	233	80	3806

P.M. PEAK HOUR
400-500



ROSE AVE.

LINCOLN BLVD.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

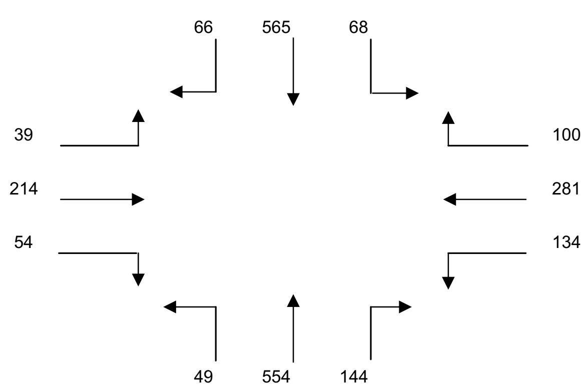
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: LOS ANGELES.
DATE: SATURDAY, JUNE 05, 2004
PERIOD: 12:00 PM TO 04:00 PM
INTERSECTION N/S MAIN ST.
E/W OCEAN PARK BLVD.
FILE NUMBER: 1-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
1200-1215	13	144	22	33	64	39	21	135	5	13	62	11
1215-1230	17	138	25	27	79	37	38	133	7	13	51	9
1230-1245	14	129	20	36	69	35	24	121	15	17	49	6
1245-0100	20	134	19	32	57	41	38	127	14	21	57	8
0100-0115	21	137	20	39	62	38	23	123	13	20	56	11
0115-0130	16	135	19	29	56	31	32	121	9	12	50	8
0130-0145	15	133	14	26	72	33	34	138	10	11	68	7
0145-0200	15	142	20	28	67	28	47	130	19	14	55	11
0200-0215	17	141	16	21	73	37	31	142	11	17	51	7
0215-0230	19	149	18	25	69	36	32	144	9	12	40	14
0230-0245	15	125	19	28	67	38	35	120	12	28	57	13
0245-0300	22	137	17	21	64	41	36	135	7	13	44	12
0300-0315	11	109	20	18	67	27	23	124	13	8	46	9
0315-0330	15	143	15	33	61	29	26	137	17	12	58	16
0330-0345	11	122	16	22	58	22	33	139	18	16	56	12
0345-0400	6	135	10	25	45	34	31	125	16	11	46	11

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
1200-0100	64	545	86	128	269	152	121	516	41	64	219	34	2239
1215-0115	72	538	84	134	267	151	123	504	49	71	213	34	2240
1230-0130	71	535	78	136	244	145	117	492	51	70	212	33	2184
1245-0145	72	539	72	126	247	143	127	509	46	64	231	34	2210
0100-0200	67	547	73	122	257	130	136	512	51	57	229	37	2218
0115-0215	63	551	69	104	268	129	144	531	49	54	224	33	2219
0130-0230	66	565	68	100	281	134	144	554	49	54	214	39	2268
0145-0245	66	557	73	102	276	139	145	536	51	71	203	45	2264
0200-0300	73	552	70	95	273	152	134	541	39	70	192	46	2237
0215-0315	67	520	74	92	267	142	126	523	41	61	187	48	2148
0230-0330	63	514	71	100	259	135	120	516	49	61	205	50	2143
0245-0345	59	511	68	94	250	119	118	535	55	49	204	49	2111
0300-0400	43	509	61	98	231	112	113	525	64	47	206	48	2057

P.M. PEAK HOUR
130-230

OCEAN PARK BLVD.



THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

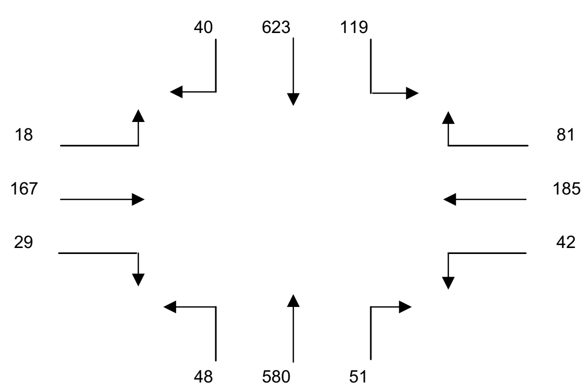
CLIENT:	OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:	LOS ANGELES.
DATE:	SATURDAY, JUNE 05, 2004
PERIOD:	12:00 PM TO 04:00 PM
INTERSECTION N/S	MAIN ST.
E/W	ROSE BLVD.
FILE NUMBER:	2-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
1200-1215	11	138	18	16	56	10	13	128	16	7	27	5
1215-1230	21	145	37	21	57	15	12	173	20	6	34	9
1230-1245	8	125	12	18	39	11	13	139	15	6	33	3
1245-0100	11	140	18	17	41	14	10	138	16	4	38	6
0100-0115	8	128	18	22	69	7	15	154	17	8	40	2
0115-0130	6	152	16	13	52	9	12	124	12	6	49	4
0130-0145	6	142	36	15	49	10	9	151	14	6	44	8
0145-0200	21	140	24	18	56	12	7	142	27	8	49	6
0200-0215	8	163	41	15	48	8	13	135	10	6	44	2
0215-0230	9	154	26	20	44	9	8	131	13	12	43	7
0230-0245	6	155	24	21	42	11	18	159	15	6	38	4
0245-0300	17	151	28	25	51	14	12	155	10	5	42	5
0300-0315	12	166	13	18	57	19	10	138	5	7	32	7
0315-0330	6	132	17	14	44	12	8	139	15	4	48	7
0330-0345	7	161	24	18	52	11	14	146	11	8	39	7
0345-0400	7	140	16	13	31	12	18	155	10	3	29	6

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
1200-0100	51	548	85	72	193	50	48	578	67	23	132	23	1870
1215-0115	48	538	85	78	206	47	50	604	68	24	145	20	1913
1230-0130	33	545	64	70	201	41	50	555	60	24	160	15	1818
1245-0145	31	562	88	67	211	40	46	567	59	24	171	20	1886
0100-0200	41	562	94	68	226	38	43	571	70	28	182	20	1943
0115-0215	41	597	117	61	205	39	41	552	63	26	186	20	1948
0130-0230	44	599	127	68	197	39	37	559	64	32	180	23	1969
0145-0245	44	612	115	74	190	40	46	567	65	32	174	19	1978
0200-0300	40	623	119	81	185	42	51	580	48	29	167	18	1983
0215-0315	44	626	91	84	194	53	48	583	43	30	155	23	1974
0230-0330	41	604	82	78	194	56	48	591	45	22	160	23	1944
0245-0345	42	610	82	75	204	56	44	578	41	24	161	26	1943
0300-0400	32	599	70	63	184	54	50	578	41	22	148	27	1868

P.M. PEAK HOUR
0200-0300

ROSE BLVD.



THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: SANTA MONICA / VENICE
DATE: SATURDAY, JULY 03, 2004
PERIOD: 12:00 P.M. TO 4:00 PM
INTERSECTION: N/S MAIN STREET
E/W SUNSET AVENUE / MTA SERVICE DRIVEWAY
FILE NUMBER: 3-MD

15 MINUTE	1A	1B	2	3	4	5A	5B	6	7	8	9A	9B	10	11	12
TOTALS	SBRT	SBRT	SBTH	SBLT	WBRT	WBTH	WBTH	WBLT	NBRT	NBTH	NBLT	NBLT	EBRT	EBTH	EBLT
1200-1215	7	0	145	12	13	0	0	3	6	154	4	0	0	0	0
1215-1230	9	0	125	12	10	0	0	6	6	141	3	0	0	0	0
1230-1245	5	0	115	13	8	2	0	6	8	143	4	0	0	0	0
1245-0100	6	0	142	8	13	1	0	7	10	159	3	0	0	0	0
0100-0115	4	0	148	8	16	1	0	4	9	168	3	0	0	0	0
0115-0130	2	0	139	4	10	2	0	6	9	164	2	0	0	0	0
0130-0145	4	0	135	5	12	1	0	6	8	149	5	0	0	0	0
0145-0200	4	0	149	11	7	0	0	3	8	142	3	0	0	0	0
0200-0215	4	0	161	8	4	2	0	2	5	159	9	0	0	0	0
0215-0230	3	0	127	6	7	0	0	4	9	159	3	0	0	0	0
0230-0245	7	0	136	7	13	2	0	3	6	133	3	0	0	0	0
0245-0300	4	0	153	10	13	0	0	2	6	146	2	0	0	0	0
0300-0315	6	0	148	7	9	0	0	4	9	146	7	0	0	0	0
0315-0330	7	0	137	6	10	0	0	1	7	148	1	0	0	0	0
0330-0345	8	0	134	4	12	0	0	1	8	148	2	0	0	0	0
0345-0400	5	0	113	7	8	1	0	1	7	145	1	0	0	0	0

1 HOUR	1A	1B	2	3	4	5A	5B	6	7	8	9A	9B	10	11	12
TOTALS	SBRT	SBRT	SBTH	SBLT	WBRT	WBTH	WBTH	WBLT	NBRT	NBTH	NBLT	NBLT	EBRT	EBTH	EBLT
1200-0100	27	0	527	45	44	3	0	22	30	597	14	0	0	0	0
1215-0115	24	0	530	41	47	4	0	23	33	611	13	0	0	0	0
1230-0130	17	0	544	33	47	6	0	23	36	634	12	0	0	0	0
1245-0145	16	0	564	25	51	5	0	23	36	640	13	0	0	0	0
0100-0200	14	0	571	28	45	4	0	19	34	623	13	0	0	0	0
0115-0215	14	0	584	28	33	5	0	17	30	614	19	0	0	0	0
0130-0230	15	0	572	30	30	3	0	15	30	609	20	0	0	0	0
0145-0245	18	0	573	32	31	4	0	12	28	593	18	0	0	0	0
0200-0300	18	0	577	31	37	4	0	11	26	597	17	0	0	0	0
0215-0315	20	0	564	30	42	2	0	13	30	584	15	0	0	0	0
0230-0330	24	0	574	30	45	2	0	10	28	573	13	0	0	0	0
0245-0345	25	0	572	27	44	0	0	8	30	588	12	0	0	0	0
0300-0400	26	0	532	24	39	1	0	7	31	587	11	0	0	0	0

NOTE: MTA SERVICE AREA GATE CLOSED

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

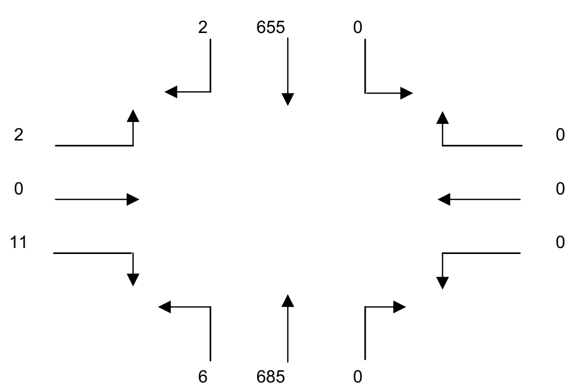
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: LOS ANGELES.
DATE: SATURDAY, JUNE 05, 2004
PERIOD: 12:00 PM TO 04:00 PM
INTERSECTION N/S MAIN ST.
E/W THORNTON PL.
FILE NUMBER: 4-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
1200-1215	2	149	0	0	0	0	0	169	0	0	0	0
1215-1230	1	152	0	0	0	0	0	158	0	0	0	0
1230-1245	1	148	0	0	0	0	0	157	0	0	0	0
1245-0100	0	147	0	0	0	0	0	164	0	1	0	0
0100-0115	2	154	0	0	0	0	0	168	0	0	0	0
0115-0130	0	158	0	0	0	0	0	157	1	1	0	2
0130-0145	0	169	0	0	0	0	0	153	2	2	0	0
0145-0200	1	183	0	0	0	0	0	169	1	0	0	0
0200-0215	0	174	0	0	0	0	0	151	4	1	0	0
0215-0230	1	162	0	0	0	0	0	167	0	1	0	2
0230-0245	3	163	0	0	0	0	0	171	2	1	0	2
0245-0300	0	166	0	0	0	0	0	171	2	3	0	1
0300-0315	1	141	0	0	0	0	0	163	1	3	0	0
0315-0330	0	174	0	0	0	0	0	182	1	4	0	0
0330-0345	1	174	0	0	0	0	0	169	2	1	0	1
0345-0400	1	161	0	0	0	0	0	155	1	1	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
1200-0100	4	596	0	0	0	0	0	648	0	1	0	0	1249
1215-0115	4	601	0	0	0	0	0	647	0	1	0	0	1253
1230-0130	3	607	0	0	0	0	0	646	1	2	0	2	1261
1245-0145	2	628	0	0	0	0	0	642	3	4	0	2	1281
0100-0200	3	664	0	0	0	0	0	647	4	3	0	2	1323
0115-0215	1	684	0	0	0	0	0	630	8	4	0	2	1329
0130-0230	2	688	0	0	0	0	0	640	7	4	0	2	1343
0145-0245	5	682	0	0	0	0	0	658	7	3	0	4	1359
0200-0300	4	665	0	0	0	0	0	660	8	6	0	5	1348
0215-0315	5	632	0	0	0	0	0	672	5	8	0	5	1327
0230-0330	4	644	0	0	0	0	0	687	6	11	0	3	1355
0245-0345	2	655	0	0	0	0	0	685	6	11	0	2	1361
0300-0400	3	650	0	0	0	0	0	669	5	9	0	1	1337

P.M. PEAK HOUR
0245-0345

THORNTON PL.



THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

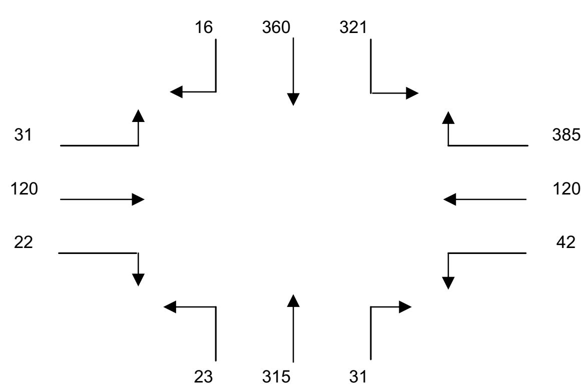
CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		LOS ANGELES.
DATE:		SATURDAY, JUNE 12, 2004
PERIOD:		12:00 PM TO 04:00 PM
INTERSECTION	N/S	MAIN ST.
	E/W	ABBOT KINNEY BLVD.
FILE NUMBER:		5-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
1200-1215	1	58	59	89	28	11	8	73	2	2	30	4
1215-1230	2	60	85	73	32	9	10	67	1	3	27	6
1230-1245	2	75	82	116	40	6	4	81	5	4	36	9
1245-0100	7	69	80	85	30	7	7	75	5	7	28	5
0100-0115	1	71	81	86	33	9	5	53	3	5	23	5
0115-0130	2	109	80	94	37	9	7	71	3	6	25	5
0130-0145	4	68	86	87	31	12	3	72	5	6	32	6
0145-0200	4	76	75	93	22	11	13	91	6	5	33	8
0200-0215	6	107	80	111	30	10	8	81	9	5	30	12
0215-0230	1	67	74	69	38	9	8	65	3	4	23	9
0230-0245	5	86	70	81	29	7	5	65	5	4	34	7
0245-0300	5	80	74	85	28	7	5	60	4	4	28	10
0300-0315	6	83	63	113	50	14	15	70	2	5	31	6
0315-0330	5	81	75	86	39	6	6	63	4	8	35	10
0330-0345	5	77	77	107	23	4	8	73	4	8	28	10
0345-0400	5	89	78	90	17	5	5	76	2	7	29	4

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
1200-0100	12	262	306	363	130	33	29	296	13	16	121	24	1605
1215-0115	12	275	328	360	135	31	26	276	14	19	114	25	1615
1230-0130	12	324	323	381	140	31	23	280	16	22	112	24	1688
1245-0145	14	317	327	352	131	37	22	271	16	24	108	21	1640
0100-0200	11	324	322	360	123	41	28	287	17	22	113	24	1672
0115-0215	16	360	321	385	120	42	31	315	23	22	120	31	1786
0130-0230	15	318	315	360	121	42	32	309	23	20	118	35	1708
0145-0245	16	336	299	354	119	37	34	302	23	18	120	36	1694
0200-0300	17	340	298	346	125	33	26	271	21	17	115	38	1647
0215-0315	17	316	281	348	145	37	33	260	14	17	116	32	1616
0230-0330	21	330	282	365	146	34	31	258	15	21	128	33	1664
0245-0345	21	321	289	391	140	31	34	266	14	25	122	36	1690
0300-0400	21	330	293	396	129	29	34	282	12	28	123	30	1707

P.M. PEAK HOUR
0115-0215

ABBOT KINNEY BLVD.



THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

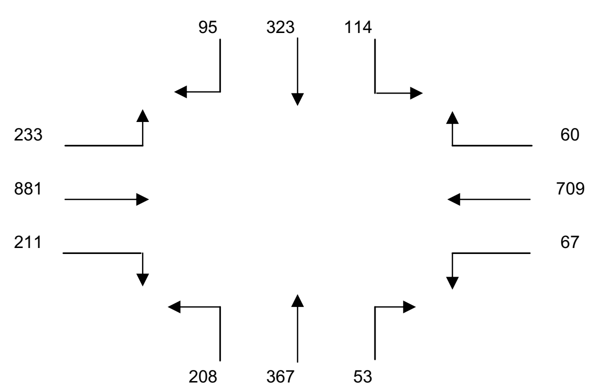
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: LOS ANGELES.
DATE: SATURDAY, JUNE 12, 2004
PERIOD: 12:00 PM TO 04:00 PM
INTERSECTION N/S VENICE BLVD.
E/W ABBOT KINNEY BLVD.
FILE NUMBER: 6-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
1200-1215	21	72	37	6	149	16	14	109	45	77	179	43
1215-1230	21	94	34	19	137	18	16	96	47	52	239	58
1230-1245	17	90	15	5	160	18	10	115	60	41	172	30
1245-0100	36	102	35	18	164	16	10	115	49	90	248	56
0100-0115	28	85	29	9	177	16	22	78	31	49	237	36
0115-0130	32	72	18	16	173	14	17	94	41	42	208	25
0130-0145	25	80	30	13	172	16	18	101	63	32	164	45
0145-0200	28	81	49	14	195	21	9	85	53	67	229	83
0200-0215	19	79	14	12	160	16	13	96	54	26	200	42
0215-0230	25	73	27	20	189	12	19	106	62	57	220	64
0230-0245	23	90	24	14	165	18	12	80	39	61	232	44
0245-0300	18	79	13	12	167	15	11	95	61	46	188	33
0300-0315	14	80	25	7	177	10	11	77	51	47	215	70
0315-0330	14	81	19	12	180	14	12	98	58	55	227	41
0330-0345	19	77	23	13	181	16	15	84	47	58	246	49
0345-0400	10	61	18	7	174	15	21	97	48	58	222	58

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
1200-0100	95	358	121	48	610	68	50	435	201	260	838	187	3271
1215-0115	102	371	113	51	638	68	58	404	187	232	896	180	3300
1230-0130	113	349	97	48	674	64	59	402	181	222	865	147	3221
1245-0145	121	339	112	56	686	62	67	388	184	213	857	162	3247
0100-0200	113	318	126	52	717	67	66	358	188	190	838	189	3222
0115-0215	104	312	111	55	700	67	57	376	211	167	801	195	3156
0130-0230	97	313	120	59	716	65	59	388	232	182	813	234	3278
0145-0245	95	323	114	60	709	67	53	367	208	211	881	233	3321
0200-0300	85	321	78	58	681	61	55	377	216	190	840	183	3145
0215-0315	80	322	89	53	698	55	53	358	213	211	855	211	3198
0230-0330	69	330	81	45	689	57	46	350	209	209	862	188	3135
0245-0345	65	317	80	44	705	55	49	354	217	206	876	193	3161
0300-0400	57	299	85	39	712	55	59	356	204	218	910	218	3212

P.M. PEAK HOUR
0145-0245



ABBOT KINNEY BLVD.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

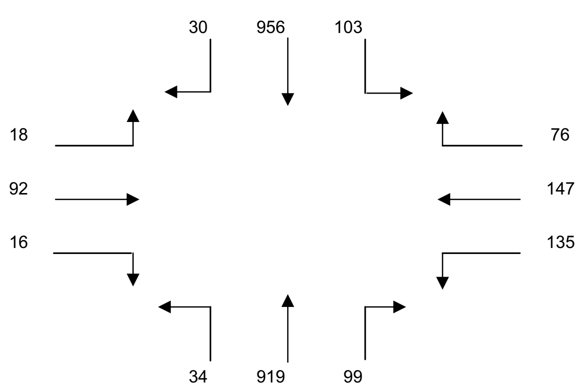
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: LOS ANGELES.
DATE: SATURDAY, JUNE 05, 2004
PERIOD: 12:00 PM TO 04:00 PM
INTERSECTION N/S NEILSON WAY.
E/W OCEAN PARK BLVD.
FILE NUMBER: 7-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
1200-1215	17	194	23	15	22	36	27	198	8	8	21	2
1215-1230	9	218	19	19	39	33	20	189	10	4	22	3
1230-1245	10	200	19	25	39	31	23	174	6	2	14	2
1245-0100	7	223	31	17	33	40	25	245	7	3	16	4
0100-0115	8	225	30	20	36	37	29	218	17	5	24	1
0115-0130	11	227	21	17	31	36	30	222	8	7	19	3
0130-0145	7	196	22	26	39	23	33	208	10	5	23	2
0145-0200	5	229	29	23	38	36	32	212	11	7	17	6
0200-0215	8	232	22	18	38	27	28	210	11	6	13	7
0215-0230	6	230	16	22	37	32	23	243	7	8	14	2
0230-0245	8	221	39	16	46	28	29	228	6	5	22	5
0245-0300	9	235	23	21	42	21	22	213	7	7	20	2
0300-0315	9	249	19	19	31	42	19	233	9	3	19	8
0315-0330	5	248	33	18	38	26	29	239	8	2	25	3
0330-0345	7	224	28	18	36	46	29	234	10	4	28	5
0345-0400	10	230	24	17	29	22	15	207	8	3	14	8

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
1200-0100	43	835	92	76	133	140	95	806	31	17	73	11	2352
1215-0115	34	866	99	81	147	141	97	826	40	14	76	10	2431
1230-0130	36	875	101	79	139	144	107	859	38	17	73	10	2478
1245-0145	33	871	104	80	139	136	117	893	42	20	82	10	2527
0100-0200	31	877	102	86	144	132	124	860	46	24	83	12	2521
0115-0215	31	884	94	84	146	122	123	852	40	25	72	18	2491
0130-0230	26	887	89	89	152	118	116	873	39	26	67	17	2499
0145-0245	27	912	106	79	159	123	112	893	35	26	66	20	2558
0200-0300	31	918	100	77	163	108	102	894	31	26	69	16	2535
0215-0315	32	935	97	78	156	123	93	917	29	23	75	17	2575
0230-0330	31	953	114	74	157	117	99	913	30	17	86	18	2609
0245-0345	30	956	103	76	147	135	99	919	34	16	92	18	2625
0300-0400	31	951	104	72	134	136	92	913	35	12	86	24	2590

P.M. PEAK HOUR
0245-0345

OCEAN PARK BLVD.



THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

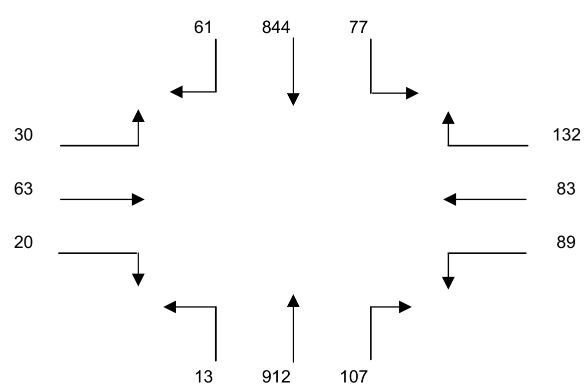
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		LOS ANGELES.
DATE:		SATURDAY, JUNE 05, 2004
PERIOD:		12:00 PM TO 04:00 PM
INTERSECTION	N/S	PACIFIC AV.
	E/W	ROSE AV.
FILE NUMBER:		8-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
1200-1215	16	202	18	37	14	22	29	174	2	4	5	4
1215-1230	19	223	22	43	16	27	36	188	3	5	6	5
1230-1245	20	215	22	44	22	23	34	193	2	5	6	6
1245-0100	22	214	17	46	22	22	33	190	2	3	7	4
0100-0115	17	216	21	45	11	17	32	212	2	4	6	6
0115-0130	20	229	17	36	20	22	22	213	4	2	3	5
0130-0145	12	221	22	44	15	28	25	208	0	1	15	4
0145-0200	18	218	17	60	18	25	28	206	4	1	8	6
0200-0215	11	228	9	34	19	21	17	215	0	1	17	7
0215-0230	23	218	19	21	10	26	33	193	6	1	18	5
0230-0245	18	211	20	20	14	19	19	220	1	3	11	10
0245-0300	12	220	14	44	23	32	24	227	9	7	15	5
0300-0315	16	219	18	27	13	23	25	229	1	4	11	8
0315-0330	18	215	22	23	23	19	27	209	1	4	21	11
0330-0345	15	190	23	38	24	15	31	247	2	5	16	6
0345-0400	13	206	24	35	20	19	26	250	3	4	17	3

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
1200-0100	77	854	79	170	74	94	132	745	9	17	24	19	2294
1215-0115	78	868	82	178	71	89	135	783	9	17	25	21	2356
1230-0130	79	874	77	171	75	84	121	808	10	14	22	21	2356
1245-0145	71	880	77	171	68	89	112	823	8	10	31	19	2359
0100-0200	67	884	77	185	64	92	107	839	10	8	32	21	2386
0115-0215	61	896	65	174	72	96	92	842	8	5	43	22	2376
0130-0230	64	885	67	159	62	100	103	822	10	4	58	22	2356
0145-0245	70	875	65	135	61	91	97	834	11	6	54	28	2327
0200-0300	64	877	62	119	66	98	93	855	16	12	61	27	2350
0215-0315	69	868	71	112	60	100	101	869	17	15	55	28	2365
0230-0330	64	865	74	114	73	93	95	885	12	18	58	34	2385
0245-0345	61	844	77	132	83	89	107	912	13	20	63	30	2431
0300-0400	62	830	87	123	80	76	109	935	7	17	65	28	2419

P.M. PEAK HOUR
0245-0345



ROSE AV.

PACIFIC AV.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

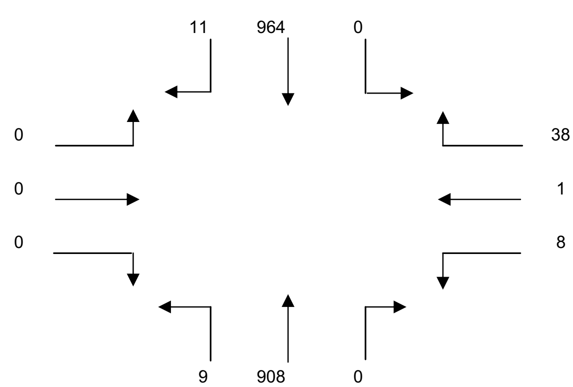
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: LOS ANGELES.
DATE: SATURDAY, JUNE 12, 2004
PERIOD: 12:00 PM TO 04:00 PM
INTERSECTION N/S PACIFIC AV.
E/W SUNSET AV.
FILE NUMBER: 9-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
1200-1215	4	183	0	4	0	0	0	141	1	0	0	0
1215-1230	2	204	0	8	1	0	0	163	0	0	0	0
1230-1245	8	225	0	7	3	2	0	203	1	0	0	0
1245-0100	1	245	0	13	0	1	0	205	2	0	0	0
0100-0115	5	251	0	7	0	2	0	253	2	0	0	0
0115-0130	5	222	0	9	0	2	0	198	1	0	0	0
0130-0145	2	246	0	5	0	3	0	192	3	0	0	0
0145-0200	2	231	0	13	1	1	0	258	3	0	0	0
0200-0215	5	239	0	6	1	2	0	205	3	0	0	0
0215-0230	3	228	0	12	0	2	0	193	3	0	0	0
0230-0245	1	245	0	7	1	3	0	241	3	0	0	0
0245-0300	5	238	0	11	0	2	0	221	1	0	0	0
0300-0315	2	253	0	8	0	1	0	253	2	0	0	0
0315-0330	2	220	0	7	1	4	0	203	3	0	0	0
0330-0345	2	234	0	6	0	2	0	243	4	0	0	0
0345-0400	1	251	0	9	1	0	0	212	0	0	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
1200-0100	15	857	0	32	4	3	0	712	4	0	0	0	1627
1215-0115	16	925	0	35	4	5	0	824	5	0	0	0	1814
1230-0130	19	943	0	36	3	7	0	859	6	0	0	0	1873
1245-0145	13	964	0	34	0	8	0	848	8	0	0	0	1875
0100-0200	14	950	0	34	1	8	0	901	9	0	0	0	1917
0115-0215	14	938	0	33	2	8	0	853	10	0	0	0	1858
0130-0230	12	944	0	36	2	8	0	848	12	0	0	0	1862
0145-0245	11	943	0	38	3	8	0	897	12	0	0	0	1912
0200-0300	14	950	0	36	2	9	0	860	10	0	0	0	1881
0215-0315	11	964	0	38	1	8	0	908	9	0	0	0	1939
0230-0330	10	956	0	33	2	10	0	918	9	0	0	0	1938
0245-0345	11	945	0	32	1	9	0	920	10	0	0	0	1928
0300-0400	7	958	0	30	2	7	0	911	9	0	0	0	1924

P.M. PEAK HOUR
0215-0315

SUNSET AV.



THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

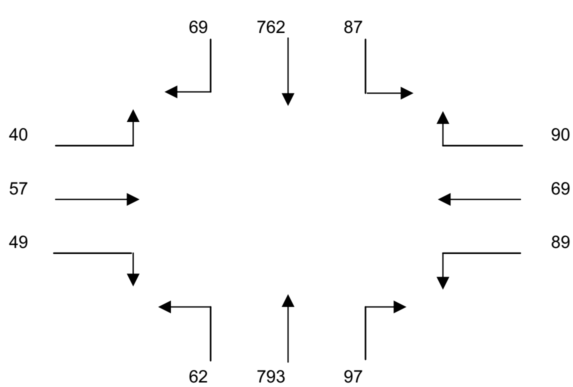
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		LOS ANGELES.
DATE:		SATURDAY, JUNE 12, 2004
PERIOD:		12:00 PM TO 04:00 PM
INTERSECTION	N/S	PACIFIC AV.
	E/W	WINDWARD AV
FILE NUMBER:		10-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
1200-1215	11	184	12	19	15	13	17	190	20	10	9	12
1215-1230	11	150	13	23	14	25	19	175	18	8	8	14
1230-1245	17	166	12	28	16	21	21	185	29	18	8	9
1245-0100	14	189	13	19	14	17	13	179	24	8	13	11
0100-0115	20	172	20	23	20	26	22	169	21	13	10	13
0115-0130	23	190	19	21	19	20	16	195	19	15	5	10
0130-0145	13	183	12	20	13	12	17	178	20	11	13	8
0145-0200	15	192	18	28	17	22	24	207	18	10	11	12
0200-0215	16	197	21	26	13	21	22	189	19	16	13	9
0215-0230	20	180	23	19	19	26	25	202	14	10	16	9
0230-0245	18	193	25	17	20	20	26	195	11	13	17	10
0245-0300	16	195	18	20	16	21	24	179	11	12	10	8
0300-0315	15	191	16	23	18	22	26	169	13	11	16	7
0315-0330	13	196	18	16	13	16	19	195	15	12	20	8
0330-0345	11	200	13	17	8	18	19	158	15	11	11	9
0345-0400	18	189	18	19	11	16	16	175	18	9	16	10

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
1200-0100	53	689	50	89	59	76	70	729	91	44	38	46	2034
1215-0115	62	677	58	93	64	89	75	708	92	47	39	47	2051
1230-0130	74	717	64	91	69	84	72	728	93	54	36	43	2125
1245-0145	70	734	64	83	66	75	68	721	84	47	41	42	2095
0100-0200	71	737	69	92	69	80	79	749	78	49	39	43	2155
0115-0215	67	762	70	95	62	75	79	769	76	52	42	39	2188
0130-0230	64	752	74	93	62	81	88	776	71	47	53	38	2199
0145-0245	69	762	87	90	69	89	97	793	62	49	57	40	2264
0200-0300	70	765	87	82	68	88	97	765	55	51	56	36	2220
0215-0315	69	759	82	79	73	89	101	745	49	46	59	34	2185
0230-0330	62	775	77	76	67	79	95	738	50	48	63	33	2163
0245-0345	55	782	65	76	55	77	88	701	54	46	57	32	2088
0300-0400	57	776	65	75	50	72	80	697	61	43	63	34	2073

P.M. PEAK HOUR
0145-0245



WINDWARD AV

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

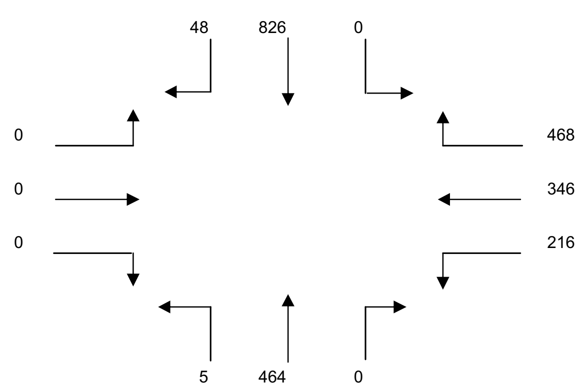
CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: LOS ANGELES.
DATE: SATURDAY, JUNE 12, 2004
PERIOD: 12:00 PM TO 04:00 PM
INTERSECTION N/S PACIFIC AV.
E/W NORTH VENICE BLVD.
FILE NUMBER: 11-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
1200-1215	6	139	0	60	65	11	0	94	1	0	0	0
1215-1230	12	167	0	73	77	33	0	125	1	0	0	0
1230-1245	14	210	0	92	81	36	0	106	4	0	0	0
1245-0100	8	212	0	104	71	42	0	111	3	0	0	0
0100-0115	8	201	0	105	78	43	0	106	5	0	0	0
0115-0130	12	202	0	102	85	36	0	122	4	0	0	0
0130-0145	11	206	0	113	95	49	0	126	4	0	0	0
0145-0200	6	198	0	126	88	56	0	118	0	0	0	0
0200-0215	16	206	0	114	86	52	0	108	1	0	0	0
0215-0230	15	216	0	115	77	59	0	112	0	0	0	0
0230-0245	8	202	0	94	86	32	0	115	5	0	0	0
0245-0300	6	217	0	108	97	67	0	126	9	0	0	0
0300-0315	4	181	0	94	75	33	0	118	3	0	0	0
0315-0330	10	163	0	97	79	42	0	108	2	0	0	0
0330-0345	4	171	0	99	66	44	0	96	1	0	0	0
0345-0400	8	178	0	86	81	52	0	81	2	0	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
1200-0100	40	728	0	329	294	122	0	436	9	0	0	0	1958
1215-0115	42	790	0	374	307	154	0	448	13	0	0	0	2128
1230-0130	42	825	0	403	315	157	0	445	16	0	0	0	2203
1245-0145	39	821	0	424	329	170	0	465	16	0	0	0	2264
0100-0200	37	807	0	446	346	184	0	472	13	0	0	0	2305
0115-0215	45	812	0	455	354	193	0	474	9	0	0	0	2342
0130-0230	48	826	0	468	346	216	0	464	5	0	0	0	2373
0145-0245	45	822	0	449	337	199	0	453	6	0	0	0	2311
0200-0300	45	841	0	431	346	210	0	461	15	0	0	0	2349
0215-0315	33	816	0	411	335	191	0	471	17	0	0	0	2274
0230-0330	28	763	0	393	337	174	0	467	19	0	0	0	2181
0245-0345	24	732	0	398	317	186	0	448	15	0	0	0	2120
0300-0400	26	693	0	376	301	171	0	403	8	0	0	0	1978

P.M. PEAK HOUR
0130-0230

NORTH VENICE BLVD.



THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

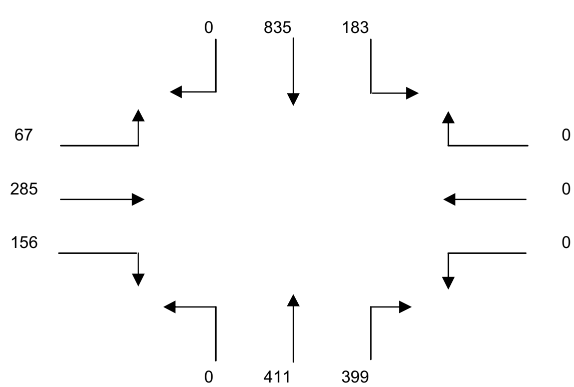
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT: LOS ANGELES.
DATE: SATURDAY, JUNE 12, 2004
PERIOD: 12:00 PM TO 04:00 PM
INTERSECTION N/S PACIFIC AV.
E/W SOUTH VENICE BLVD.
FILE NUMBER: 12-PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
1200-1215	0	150	11	0	0	0	94	84	0	12	46	5
1215-1230	0	197	56	0	0	0	101	124	0	38	59	15
1230-1245	0	202	34	0	0	0	99	102	0	33	41	13
1245-0100	0	207	32	0	0	0	106	119	0	44	53	12
0100-0115	0	198	57	0	0	0	98	113	0	45	62	15
0115-0130	0	209	40	0	0	0	103	103	0	48	83	20
0130-0145	0	212	38	0	0	0	94	102	0	37	63	15
0145-0200	0	216	48	0	0	0	104	93	0	26	77	17
0200-0215	0	208	42	0	0	0	110	94	0	28	62	10
0215-0230	0	213	44	0	0	0	96	93	0	23	69	13
0230-0245	0	206	34	0	0	0	83	102	0	40	60	18
0245-0300	0	188	46	0	0	0	110	106	0	42	56	22
0300-0315	0	196	40	0	0	0	99	96	0	42	69	9
0315-0330	0	170	33	0	0	0	94	90	0	29	58	16
0330-0345	0	178	47	0	0	0	104	90	0	25	57	18
0345-0400	0	167	54	0	0	0	101	112	0	36	67	12

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
1200-0100	0	756	133	0	0	0	400	429	0	127	199	45	2089
1215-0115	0	804	179	0	0	0	404	458	0	160	215	55	2275
1230-0130	0	816	163	0	0	0	406	437	0	170	239	60	2291
1245-0145	0	826	167	0	0	0	401	437	0	174	261	62	2328
0100-0200	0	835	183	0	0	0	399	411	0	156	285	67	2336
0115-0215	0	845	168	0	0	0	411	392	0	139	285	62	2302
0130-0230	0	849	172	0	0	0	404	382	0	114	271	55	2247
0145-0245	0	843	168	0	0	0	393	382	0	117	268	58	2229
0200-0300	0	815	166	0	0	0	399	395	0	133	247	63	2218
0215-0315	0	803	164	0	0	0	388	397	0	147	254	62	2215
0230-0330	0	760	153	0	0	0	386	394	0	153	243	65	2154
0245-0345	0	732	166	0	0	0	407	382	0	138	240	65	2130
0300-0400	0	711	174	0	0	0	398	388	0	132	251	55	2109

P.M. PEAK HOUR
0100-0200



SOUTH VENICE BLVD.

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

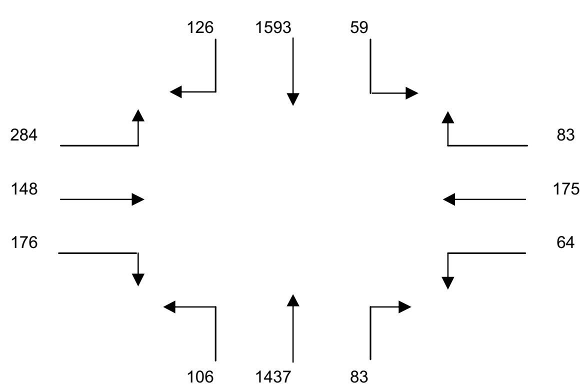
CLIENT:		OVERLAND TRAFFIC CONSULTANTS, INC.
PROJECT:		LOS ANGELES.
DATE:		SATURDAY, JUNE 05, 2004
PERIOD:		12:00 PM TO 04:00 PM
INTERSECTION	N/S	LINCOLN BLVD.
	E/W	ROSE AV.
FILE NUMBER:		13-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
1200-1215	25	358	12	19	44	21	20	327	23	37	44	64
1215-1230	27	390	16	16	46	14	18	354	26	44	42	75
1230-1245	35	412	11	18	46	14	24	363	30	49	30	73
1245-0100	28	408	12	32	39	17	22	359	25	49	41	67
0100-0115	36	383	20	17	44	19	19	361	25	34	35	69
0115-0130	18	370	13	27	40	16	19	372	23	46	39	70
0130-0145	28	384	15	22	40	12	16	394	22	43	36	73
0145-0200	35	388	12	20	38	22	17	373	20	45	34	70
0200-0215	25	398	5	19	37	15	15	374	18	48	32	88
0215-0230	12	395	8	14	40	24	16	371	18	52	35	65
0230-0245	27	354	6	16	45	19	16	345	20	58	22	75
0245-0300	29	376	16	13	35	12	15	376	31	25	24	62
0300-0315	24	389	21	15	44	17	11	351	23	32	32	69
0315-0330	32	394	18	16	37	15	17	374	23	35	45	71
0330-0345	23	366	20	11	34	18	19	376	23	42	32	67
0345-0400	26	334	12	15	38	14	22	338	28	39	33	57

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
1200-0100	115	1568	51	85	175	66	84	1403	104	179	157	279	4266
1215-0115	126	1593	59	83	175	64	83	1437	106	176	148	284	4334
1230-0130	117	1573	56	94	169	66	84	1455	103	178	145	279	4319
1245-0145	110	1545	60	98	163	64	76	1486	95	172	151	279	4299
0100-0200	117	1525	60	86	162	69	71	1500	90	168	144	282	4274
0115-0215	106	1540	45	88	155	65	67	1513	83	182	141	301	4286
0130-0230	100	1565	40	75	155	73	64	1512	78	188	137	296	4283
0145-0245	99	1535	31	69	160	80	64	1463	76	203	123	298	4201
0200-0300	93	1523	35	62	157	70	62	1466	87	183	113	290	4141
0215-0315	92	1514	51	58	164	72	58	1443	92	167	113	271	4095
0230-0330	112	1513	61	60	161	63	59	1446	97	150	123	277	4122
0245-0345	108	1525	75	55	150	62	62	1477	100	134	133	269	4150
0300-0400	105	1483	71	57	153	64	69	1439	97	148	142	264	4092

P.M. PEAK HOUR
1215-0115

ROSE AV.



THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91006
626.446.7978

APPENDIX G

LEVEL OF SERVICE WORKSHEETS

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Main Street & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*AM Peak Hour*	Analysis Year	*2004*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	1	1	1	1	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	44	256	30	101	182	125	33	737	101	71	293	23
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G = *0.0*	G =	G =	G = *36.0*	G =	G =	G =
	Y = *4*	Y =	Y =	Y =	Y = *4*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	49	284	33	112	202	139	37	819	112	79	326	26
Lane group capacity, c	260	456	388	196	456	388	557	1026	872	203	1026	872
v/c ratio, X	0.19	0.62	0.09	0.57	0.44	0.36	0.07	0.80	0.13	0.39	0.32	0.03
Total green ratio, g/C	0.27	0.27	0.27	0.27	0.27	0.27	0.60	0.60	0.60	0.60	0.60	0.60
Uniform delay, d_1	17.0	19.3	16.5	19.0	18.3	17.8	5.0	9.2	5.2	6.3	5.9	4.9
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.21	0.11	0.17	0.11	0.11	0.11	0.34	0.11	0.11	0.11	0.11
Incremental delay, d_2	0.4	2.6	0.1	4.0	0.7	0.6	0.1	4.5	0.1	1.2	0.2	0.0
Initial queue delay, d_3												
Control delay	17.3	22.0	16.6	23.0	19.0	18.4	5.0	13.7	5.3	7.5	6.1	4.9
Lane group LOS	B	C	B	C	B	B	A	B	A	A	A	A
Approach delay	20.9			19.8			12.4			6.3		
Approach LOS	C			B			B			A		
Intersection delay	14.1			X_C = 0.74			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Main Street & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*AM Peak Hour*	Analysis Year	*2009 without project*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	1	1	1	1	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	46	269	32	107	191	135	35	815	108	85	337	24
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G = *0.0*	G =	G =	G = *36.0*	G =	G =	G =
	Y = *4*	Y =	Y =	Y =	Y = *4*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	51	299	36	119	212	150	39	906	120	94	374	27
Lane group capacity, c	252	456	388	185	456	388	518	1026	872	147	1026	872
v/c ratio, X	0.20	0.66	0.09	0.64	0.46	0.39	0.08	0.88	0.14	0.64	0.36	0.03
Total green ratio, g/C	0.27	0.27	0.27	0.27	0.27	0.27	0.60	0.60	0.60	0.60	0.60	0.60
Uniform delay, d_1	17.1	19.6	16.5	19.5	18.4	18.0	5.0	10.2	5.2	7.8	6.1	4.9
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.23	0.11	0.22	0.11	0.11	0.11	0.41	0.11	0.22	0.11	0.11
Incremental delay, d_2	0.4	3.4	0.1	7.4	0.8	0.6	0.1	9.2	0.1	9.0	0.2	0.0
Initial queue delay, d_3												
Control delay	17.5	23.0	16.6	26.9	19.2	18.6	5.1	19.4	5.3	16.8	6.4	4.9
Lane group LOS	B	C	B	C	B	B	A	B	A	B	A	A
Approach delay	21.6			20.9			17.3			8.3		
Approach LOS	C			C			B			A		
Intersection delay	16.9			X_C = 0.81			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Main Street & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*AM Peak Hour*	Analysis Year	*2009 with project*
		Project ID	*RAD Sunset (with Main & Sunset Access)*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	1	1	1	1	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	46	275	32	111	191	135	35	824	118	85	341	24
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 16.0	G = 0.0	G =	G =	G = 36.0	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	51	306	36	123	212	150	39	916	131	94	379	27
Lane group capacity, c	252	456	388	180	456	388	514	1026	872	140	1026	872
v/c ratio, X	0.20	0.67	0.09	0.68	0.46	0.39	0.08	0.89	0.15	0.67	0.37	0.03
Total green ratio, g/C	0.27	0.27	0.27	0.27	0.27	0.27	0.60	0.60	0.60	0.60	0.60	0.60
Uniform delay, d_1	17.1	19.6	16.5	19.7	18.4	18.0	5.0	10.3	5.3	8.0	6.2	4.9
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.24	0.11	0.25	0.11	0.11	0.11	0.42	0.11	0.24	0.11	0.11
Incremental delay, d_2	0.4	3.8	0.1	10.2	0.8	0.6	0.1	10.1	0.1	11.9	0.2	0.0
Initial queue delay, d_3												
Control delay	17.5	23.5	16.6	29.9	19.2	18.6	5.1	20.4	5.4	19.9	6.4	4.9
Lane group LOS	B	C	B	C	B	B	A	C	A	B	A	A
Approach delay		22.1			21.7			18.0			8.9	
Approach LOS		C			C			B			A	
Intersection delay		17.5			X_C = 0.83		Intersection LOS				B	

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Main Street & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*PM Peak Hour*	Analysis Year	*2004*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	1	1	1	1	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	27	198	34	174	291	114	37	506	124	135	684	54
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *17.7*	G = *0.0*	G =	G =	G = *34.3*	G =	G =	G =
	Y = *4*	Y =	Y =	Y =	Y = *4*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	30	220	38	193	323	127	41	562	138	150	760	60
Lane group capacity, c	201	504	429	280	504	429	210	978	831	344	978	831
v/c ratio, X	0.15	0.44	0.09	0.69	0.64	0.30	0.20	0.57	0.17	0.44	0.78	0.07
Total green ratio, g/C	0.30	0.30	0.30	0.30	0.30	0.30	0.57	0.57	0.57	0.57	0.57	0.57
Uniform delay, d_1	15.6	17.1	15.3	18.7	18.4	16.3	6.2	8.2	6.1	7.3	9.9	5.7
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.11	0.11	0.26	0.22	0.11	0.11	0.17	0.11	0.11	0.33	0.11
Incremental delay, d_2	0.3	0.6	0.1	7.0	2.8	0.4	0.5	0.8	0.1	0.9	4.0	0.0
Initial queue delay, d_3												
Control delay	15.9	17.7	15.4	25.7	21.1	16.7	6.7	9.0	6.2	8.2	13.9	5.8
Lane group LOS	B	B	B	C	C	B	A	A	A	A	B	A
Approach delay	17.2			21.6			8.4			12.5		
Approach LOS	B			C			A			B		
Intersection delay	14.1			X_C = 0.75			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Main Street & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*PM Peak Hour*	Analysis Year	*2009 without project*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	1	1	1	1	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	28	208	36	187	306	132	39	576	133	152	767	57
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 17.4	G = 0.0	G =	G =	G = 34.6	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 60.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	31	231	40	208	340	147	43	640	148	169	852	63
Lane group capacity, c	182	496	422	265	496	422	156	986	838	296	986	838
v/c ratio, X	0.17	0.47	0.09	0.78	0.69	0.35	0.28	0.65	0.18	0.57	0.86	0.08
Total green ratio, g/C	0.29	0.29	0.29	0.29	0.29	0.29	0.58	0.58	0.58	0.58	0.58	0.58
Uniform delay, d_1	15.9	17.5	15.6	19.6	18.9	16.8	6.4	8.6	6.0	8.0	10.7	5.6
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.11	0.11	0.33	0.25	0.11	0.11	0.23	0.11	0.17	0.39	0.11
Incremental delay, d_2	0.4	0.7	0.1	14.3	3.9	0.5	1.0	1.5	0.1	2.6	8.1	0.0
Initial queue delay, d_3												
Control delay	16.4	18.2	15.6	33.9	22.8	17.3	7.4	10.1	6.1	10.7	18.8	5.7
Lane group LOS	B	B	B	C	C	B	A	B	A	B	B	A
Approach delay	17.7			25.0			9.2			16.8		
Approach LOS	B			C			A			B		
Intersection delay	16.7			X_C = 0.84			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information		**Site Information**	
Analyst	*Jerry Overland*	Intersection	*Main Street & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*PM Peak Hour*	Analysis Year	*2009 with project*
		Project ID	*RAD Sunset (with Sunset & Main Access)*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	1	1	1	1	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	28	212	36	204	306	132	39	583	140	152	784	57
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 17.4	G = 0.0	G =	G =	G = 34.6	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	31	236	40	227	340	147	43	648	156	169	871	63
Lane group capacity, c	182	496	422	261	496	422	143	986	838	290	986	838
v/c ratio, X	0.17	0.48	0.09	0.87	0.69	0.35	0.30	0.66	0.19	0.58	0.88	0.08
Total green ratio, g/C	0.29	0.29	0.29	0.29	0.29	0.29	0.58	0.58	0.58	0.58	0.58	0.58
Uniform delay, d_1	15.9	17.5	15.6	20.2	18.9	16.8	6.5	8.7	6.0	8.1	11.0	5.6
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.11	0.11	0.40	0.25	0.11	0.11	0.23	0.11	0.17	0.41	0.11
Incremental delay, d_2	0.4	0.7	0.1	25.6	3.9	0.5	1.2	1.6	0.1	3.0	9.6	0.0
Initial queue delay, d_3												
Control delay	16.4	18.3	15.6	45.8	22.8	17.3	7.7	10.3	6.1	11.1	20.5	5.7
Lane group LOS	B	B	B	D	C	B	A	B	A	B	C	A
Approach delay	17.7			29.0			9.4			18.2		
Approach LOS	B			C			A			B		
Intersection delay	18.2			X_C = 0.88			Intersection LOS			B		

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 2 Main Street and Rose Avenue
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	73	73		60	60	*
NB Thru	803	434	*	558	317	
NB Right	65	N/A		76	N/A	
SB Left	91	91	*	100	100	
SB Thru	311	327		739	780	*
SB Right	16	N/A		41	N/A	
EB Left	19	N/A	*	25	N/A	*
EB Thru	132	181		129	217	
EB Right	30	N/A		63	N/A	
WB Left	37	N/A		104	N/A	
WB Thru	118	268	*	148	317	*
WB Right	113	N/A		65	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	287	342
North/South Critical Volumes	525	840
Sum of Critical Volumes	812	1,182
Capacity	1,500	1,500
Intersection CMA Value	0.541	0.788
ATSAC/ATCS CMA Value	0.441	0.688
Intersection Level of Service	A	B

==

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 2 Main Street and Rose Avenue
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	3	4	80	80		2	3	65	65	*
NB Thru	13	40	856	464	*	28	28	614	348	
NB Right	4	3	72	N/A		3	4	83	N/A	
SB Left	15	5	111	111	*	23	5	128	128	
SB Thru	23	16	350	366		26	37	802	845	*
SB Right	0	1	17	N/A		0	2	43	N/A	
EB Left	0	1	20	N/A	*	0	1	26	N/A	*
EB Thru	1	7	140	192		3	6	138	235	
EB Right	1	2	33	N/A		4	3	70	N/A	
WB Left	2	2	41	N/A		6	5	115	N/A	
WB Thru	2	6	126	294	*	4	7	159	364	*
WB Right	9	6	128	N/A		21	3	89	N/A	

	AM PEAK	PM PEAK
Movement	**Lanes**	**Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach	RTOR Reductions	
Direction	**AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	314	390
North/South Critical Volumes	575	910
Sum of Critical Volumes	889	1,300
Capacity	1,500	1,500
Intersection CMA Value	0.593	0.867
ATSAC/ATCS CMA Value	0.493	0.767
Intersection Level of Service	A	C

==
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 2 Main Street and Rose Avenue
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	80	0	80	80		65	0	65	65	*
NB Thru	856	19	875	481	*	614	14	628	361	
NB Right	72	14	86	N/A		83	11	94	N/A	
SB Left	111	0	111	111	*	128	0	128	128	
SB Thru	350	11	361	377		802	34	836	879	*
SB Right	17	0	17	N/A		43	0	43	N/A	
EB Left	20	0	20	N/A	*	26	0	26	N/A	*
EB Thru	140	1	141	199		138	1	139	249	
EB Right	33	6	39	N/A		70	13	83	N/A	
WB Left	41	7	48	N/A		115	27	142	N/A	
WB Thru	126	0	126	301	*	159	0	159	391	*
WB Right	128	0	128	N/A		89	0	89	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	321	417
North/South Critical Volumes	591	944
Sum of Critical Volumes	913	1,361
Capacity	1,500	1,500
Intersection CMA Value	0.608	0.907
ATSAC/ATCS CMA Value	0.508	0.807
Intersection Level of Service	A	D
PROJECT IMPACT VALUE	0.015	0.040

==

Future Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 2 Main Street and Rose Avenue
Scenario: Future Conditions (2009), With Project Mitigation (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	80	0	80	80		65	0	65	65	*
NB Thru	856	19	875	481	*	614	14	628	361	
NB Right	72	14	86	N/A		83	11	94	N/A	
SB Left	111	0	111	111	*	128	0	128	128	
SB Thru	350	11	361	377		802	34	836	879	*
SB Right	17	0	17	N/A		43	0	43	N/A	
EB Left	20	0	20	20	*	26	0	26	26	
EB Thru	140	1	141	179		138	1	139	223	*
EB Right	33	6	39	N/A		70	13	83	N/A	
WB Left	41	7	48	48		115	27	142	142	*
WB Thru	126	0	126	254	*	159	0	159	249	
WB Right	128	0	128	N/A		89	0	89	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	1	1
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	0	0
EB Right	0	0
WB Left	1	1
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

===

Critical Movement Analysis: Results Summary

===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	274	365
North/South Critical Volumes	591	944
Sum of Critical Volumes	865	1,309
Capacity	1,500	1,500
Intersection CMA Value	0.577	0.873
ATSAC/ATCS CMA Value	0.477	0.773
Intersection Level of Service	A	C
PROJECT IMPACT VALUE	-0.016	0.006

===

Future Conditions (2009), With Project Mitigation (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 3 Main Street and Sunset Avenue
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	8	N/A		15	N/A	*
NB Thru	878	455	*	646	348	
NB Right	23	N/A		34	N/A	
SB Left	17	N/A	*	31	N/A	
SB Thru	324	180		855	454	*
SB Right	18	N/A		21	N/A	
EB Left	23	N/A	*	3	N/A	*
EB Thru	0	33		0	7	
EB Right	10	N/A		4	N/A	
WB Left	15	N/A		13	N/A	
WB Thru	1	57	*	1	54	*
WB Right	41	N/A		40	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**RTOR Reductions PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1200	1200

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	80	57
North/South Critical Volumes	472	469
Sum of Critical Volumes	552	526
Capacity	1,200	1,200
Intersection CMA Value	0.460	0.438
ATSAC CMA Value	0.460	0.438
Intersection Level of Service	A	A

==

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 3 Main Street and Sunset Avenue
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	0	8	N/A		0	1	16	N/A	*
NB Thru	19	44	941	487	*	33	32	711	381	
NB Right	0	1	24	N/A		0	2	36	N/A	
SB Left	2	1	20	N/A	*	5	2	38	N/A	
SB Thru	28	16	368	203		30	43	928	494	*
SB Right	0	1	19	N/A		0	1	22	N/A	
EB Left	0	0	23	N/A	*	0	0	3	N/A	*
EB Thru	0	0	0	33		0	0	0	7	
EB Right	0	0	10	N/A		0	0	4	N/A	
WB Left	0	1	16	N/A		0	1	14	N/A	
WB Thru	0	0	1	64	*	0	0	1	60	*
WB Right	4	2	47	N/A		3	2	45	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1200	1200

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	87	63
North/South Critical Volumes	507	509
Sum of Critical Volumes	593	572
Capacity	1,200	1,200
Intersection CMA Value	0.495	0.477
ATSAC CMA Value	0.495	0.477
Intersection Level of Service	A	A

==
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 3 Main Street and Sunset Avenue
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	8	4	12	N/A		16	35	51	N/A	*
NB Thru	941	0	941	489	*	711	0	711	399	
NB Right	24	0	24	N/A		36	0	36	N/A	
SB Left	20	0	20	N/A	*	38	0	38	N/A	
SB Thru	368	25	393	214		928	21	949	534	*
SB Right	19	-3	16	N/A		22	60	82	N/A	
EB Left	0	46	46	46	*	0	29	29	29	*
EB Thru	0	0	0	25		0	0	0	15	
EB Right	0	25	25	N/A		0	15	15	N/A	
WB Left	16	10	26	N/A		14	14	28	N/A	
WB Thru	1	0	1	74	*	1	0	1	74	*
WB Right	47	0	47	N/A		45	0	45	N/A	

	AM PEAK	PM PEAK
Movement	**Lanes**	**Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	1	1
EB Left-Thru	0	0
EB Thru	0	0
EB Right-Thru	1	1
EB Right	0	0
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach	RTOR Reductions	
Direction	**AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1200	1200

===
Critical Movement Analysis: Results Summary
===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	120	103
North/South Critical Volumes	509	585
Sum of Critical Volumes	628	688
Capacity	1,200	1,200
Intersection CMA Value	0.524	0.573
ATSAC CMA Value	0.524	0.573
Intersection Level of Service	A	A
PROJECT IMPACT VALUE	0.029	0.096

===
Future Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 3 Main Street and Sunset Avenue
Scenario: Future Conditions (2009), With Project Mitigation (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	8	4	12	N/A		16	35	51	N/A	*
NB Thru	941	0	941	489	*	711	0	711	399	
NB Right	24	0	24	N/A		36	0	36	N/A	
SB Left	20	0	20	N/A	*	38	0	38	N/A	
SB Thru	368	25	393	207		928	21	949	493	*
SB Right	19	-3	16	16		22	60	82	82	
EB Left	0	46	46	46	*	0	29	29	29	*
EB Thru	0	0	0	N/A		0	0	0	N/A	
EB Right	0	25	25	25		0	15	15	15	
WB Left	16	10	26	27		14	14	28	29	
WB Thru	1	0	1	N/A	*	1	0	1	N/A	*
WB Right	47	0	47	47		45	0	45	45	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	1	1
SB Right-Thru	0	0
SB Right	1	1
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	1	1
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1200	1200

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	93	74
North/South Critical Volumes	509	544
Sum of Critical Volumes	602	618
Capacity	1,200	1,200
Intersection CMA Value	0.501	0.514
ATSAC CMA Value	0.501	0.514
Intersection Level of Service	A	A
PROJECT IMPACT VALUE	0.006	0.037

==
Future Conditions (2009), With Project Mitigation (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 4 Main Street and Thorton Place
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	1	N/A		8	N/A	*
NB Thru	820	411	*	673	341	
NB Right	0	N/A		0	N/A	
SB Left	0	N/A	*	0	N/A	
SB Thru	357	180		908	456	*
SB Right	3	N/A		4	N/A	
EB Left	3	N/A		1	N/A	
EB Thru	0	7	*	0	9	*
EB Right	4	N/A		8	N/A	
WB Left	0	N/A		0	N/A	
WB Thru	0	N/A		0	N/A	
WB Right	0	N/A		0	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1200	1200

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	7	9
North/South Critical Volumes	411	464
Sum of Critical Volumes	418	473
Capacity	1,200	1,200
Intersection CMA Value	0.348	0.394
ATSAC CMA Value	0.348	0.394
Intersection Level of Service	A	A

==

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 4 Main Street and Thorton Place
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	0	1	N/A		0	0	8	N/A	*
NB Thru	16	41	877	439	*	41	34	748	378	
NB Right	0	0	0	N/A		0	0	0	N/A	
SB Left	0	0	0	N/A	*	0	0	0	N/A	
SB Thru	35	18	410	207		31	45	984	494	*
SB Right	0	0	3	N/A		0	0	4	N/A	
EB Left	0	0	3	N/A		0	0	1	N/A	
EB Thru	0	0	0	7	*	0	0	0	9	*
EB Right	0	0	4	N/A		0	0	8	N/A	
WB Left	0	0	0	N/A		0	0	0	N/A	
WB Thru	0	0	0	N/A		0	0	0	N/A	
WB Right	0	0	0	N/A		0	0	0	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1200	1200

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	7	9
North/South Critical Volumes	439	503
Sum of Critical Volumes	446	512
Capacity	1,200	1,200
Intersection CMA Value	0.372	0.427
ATSAC CMA Value	0.372	0.427
Intersection Level of Service	A	A

==

Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 4 Main Street and Thorton Place
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	1	0	1	N/A		8	0	8	N/A	*
NB Thru	877	5	882	442	*	748	35	783	396	
NB Right	0	0	0	N/A		0	0	0	N/A	
SB Left	0	0	0	N/A	*	0	0	0	N/A	
SB Thru	410	51	461	232		984	32	1016	510	*
SB Right	3	0	3	N/A		4	0	4	N/A	
EB Left	3	0	3	N/A		1	0	1	N/A	
EB Thru	0	0	0	7	*	0	0	0	9	*
EB Right	4	0	4	N/A		8	0	8	N/A	
WB Left	0	0	0	N/A		0	0	0	N/A	
WB Thru	0	0	0	N/A		0	0	0	N/A	
WB Right	0	0	0	N/A		0	0	0	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1200	1200

===
Critical Movement Analysis: Results Summary
===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	7	9
North/South Critical Volumes	442	519
Sum of Critical Volumes	449	528
Capacity	1,200	1,200
Intersection CMA Value	0.374	0.440
ATSAC CMA Value	0.374	0.440
Intersection Level of Service	A	A
PROJECT IMPACT VALUE	0.002	0.013

===
Future Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 5 Main Street and Abbot Kinney Boulevard
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	13	13		31	31	*
NB Thru	407	243	*	762	399	
NB Right	78	N/A		36	N/A	
SB Left	175	175	*	68	68	
SB Thru	176	96		1152	587	*
SB Right	16	N/A		21	N/A	
EB Left	27	N/A	*	17	N/A	*
EB Thru	115	150		42	89	
EB Right	8	N/A		30	N/A	
WB Left	35	N/A		66	N/A	
WB Thru	142	142		42	108	*
WB Right	429	429	*	82	82	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Reductions AM PEAK**	**RTOR Reductions PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0

Number of Phases	2	2
Phasing		
Capacity	1500	1500

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	456	125
North/South Critical Volumes	418	618
Sum of Critical Volumes	874	743
Capacity	1,500	1,500
Intersection CMA Value	0.582	0.495
ATSAC/ATCS CMA Value	0.482	0.395
Intersection Level of Service	A	A

==

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 5 Main Street and Abbot Kinney Boulevard
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	1	14	14		0	2	33	33	*
NB Thru	2	20	429	256	*	5	38	805	426	
NB Right	1	4	83	N/A		10	2	48	N/A	
SB Left	15	9	199	199	*	15	3	86	86	
SB Thru	2	9	187	102		5	58	1215	618	*
SB Right	0	1	17	N/A		0	1	22	N/A	
EB Left	0	1	28	N/A	*	0	1	18	N/A	*
EB Thru	2	6	123	160		6	2	50	99	
EB Right	0	0	8	N/A		0	2	32	N/A	
WB Left	3	2	40	N/A		2	3	71	N/A	
WB Thru	2	7	151	151		4	2	48	119	*
WB Right	10	21	460	460	*	12	4	98	98	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	489	137
North/South Critical Volumes	455	651
Sum of Critical Volumes	944	788
Capacity	1,500	1,500
Intersection CMA Value	0.629	0.525
ATSAC/ATCS CMA Value	0.529	0.425
Intersection Level of Service	A	A

==
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 5 Main Street and Abbot Kinney Boulevard
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	14	0	14	14		33	0	33	33	*
NB Thru	429	0	429	256	*	805	0	805	426	
NB Right	83	0	83	N/A		48	0	48	N/A	
SB Left	199	25	224	224	*	86	18	104	104	
SB Thru	187	0	187	109		1215	0	1215	623	*
SB Right	17	14	31	N/A		22	10	32	N/A	
EB Left	28	1	29	N/A	*	18	5	23	N/A	*
EB Thru	123	0	123	161		50	0	50	104	
EB Right	8	0	8	N/A		32	0	32	N/A	
WB Left	40	0	40	N/A		71	0	71	N/A	
WB Thru	151	0	151	151		48	0	48	119	
WB Right	460	4	464	464	*	98	30	128	128	*

	AM PEAK	PM PEAK
Movement	**Lanes**	**Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	1	1
WB Thru	0	0
WB Right-Thru	0	0
WB Right	1	1

Approach	RTOR Reductions	
Direction	**AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

===
Critical Movement Analysis: Results Summary
===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	494	151
North/South Critical Volumes	480	656
Sum of Critical Volumes	974	807
Capacity	1,500	1,500
Intersection CMA Value	0.649	0.538
ATSAC/ATCS CMA Value	0.549	0.438
Intersection Level of Service	A	A
PROJECT IMPACT VALUE	0.020	0.013

===
Future Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 6 Venice Boulevard and Abbot Kinney Boulevard
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	165	165	*	244	244	*
NB Thru	369	394		531	571	
NB Right	25	N/A		40	N/A	
SB Left	87	87		76	76	
SB Thru	407	438	*	403	480	*
SB Right	31	N/A		77	N/A	
EB Left	63	63	*	150	150	*
EB Thru	331	166		452	226	
EB Right	115	115		164	164	
WB Left	57	57		54	54	
WB Thru	498	249	*	428	214	*
WB Right	60	60		49	49	

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	1	1
EB Left-Thru	0	0
EB Thru	2	2
EB Right-Thru	0	0
EB Right	1	1
WB Left	1	1
WB Left-Thru	0	0
WB Thru	2	2
WB Right-Thru	0	0
WB Right	1	1

Approach **Direction**	RTOR Reductions **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	312	364
North/South Critical Volumes	603	724
Sum of Critical Volumes	915	1,088
Capacity	1,500	1,500
Intersection CMA Value	0.610	0.725
ATSAC/ATCS CMA Value	0.510	0.625
Intersection Level of Service	A	B

==

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 6 Venice Boulevard and Abbot Kinney Boulevard
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	8	173	173	*	0	12	256	256	*
NB Thru	0	18	387	414		0	27	558	600	
NB Right	0	1	26	N/A		0	2	42	N/A	
SB Left	0	4	91	91		0	4	80	80	
SB Thru	0	20	427	460	*	0	20	423	504	*
SB Right	0	2	33	N/A		0	4	81	N/A	
EB Left	0	3	66	66	*	0	8	158	158	*
EB Thru	0	17	348	174		0	23	475	237	
EB Right	0	6	121	121		0	8	172	172	
WB Left	0	3	60	60		0	3	57	57	
WB Thru	0	25	523	261	*	0	21	449	225	*
WB Right	0	3	63	63		0	2	51	51	

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	1	1
EB Left-Thru	0	0
EB Thru	2	2
EB Right-Thru	0	0
EB Right	1	1
WB Left	1	1
WB Left-Thru	0	0
WB Thru	2	2
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	RTOR Reductions **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

===
Critical Movement Analysis: Results Summary
===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	328	382
North/South Critical Volumes	633	760
Sum of Critical Volumes	961	1,142
Capacity	1,500	1,500
Intersection CMA Value	0.641	0.762
ATSAC/ATCS CMA Value	0.541	0.662
Intersection Level of Service	A	B

===
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 6 Venice Boulevard and Abbot Kinney Boulevard
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	173	0	173	173	*	256	0	256	256	*
NB Thru	387	6	393	420		558	13	571	613	
NB Right	26	0	26	N/A		42	0	42	N/A	
SB Left	91	15	106	106		80	10	90	90	
SB Thru	427	10	437	470	*	423	7	430	511	*
SB Right	33	0	33	N/A		81	0	81	N/A	
EB Left	66	0	66	66	*	158	0	158	158	*
EB Thru	348	0	348	174		475	0	475	237	
EB Right	121	0	121	121		172	0	172	172	
WB Left	60	0	60	60		57	0	57	57	
WB Thru	523	0	523	261	*	449	0	449	225	*
WB Right	63	10	73	73		51	23	74	74	

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	1	1
EB Left-Thru	0	0
EB Thru	2	2
EB Right-Thru	0	0
EB Right	1	1
WB Left	1	1
WB Left-Thru	0	0
WB Thru	2	2
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	RTOR Reductions **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	328	382
North/South Critical Volumes	643	767
Sum of Critical Volumes	971	1,149
Capacity	1,500	1,500
Intersection CMA Value	0.647	0.766
ATSAC/ATCS CMA Value	0.547	0.666
Intersection Level of Service	A	B
PROJECT IMPACT VALUE	0.006	0.004

==
Future Conditions (2009), With Project (Sunset/Main Access)

HCS2000™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*Jerry Overland*	Intersection	*Neilson Way & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*AM Peak Hour*	Analysis Year	*2004*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*1*	*0*	*1*	*1*	*0*	*1*	*2*	*0*	*1*	*2*	*0*
Lane group		*LTR*		*L*	*TR*		*L*	*TR*		*L*	*TR*	
Volume, V (vph)	*8*	*59*	*9*	*60*	*62*	*87*	*11*	*1109*	*165*	*79*	*694*	*12*
% Heavy vehicles, %HV	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Pretimed (P) or actuated (A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Start-up lost time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of effective green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type, AT		*3*		*3*	*3*		*3*	*3*		*3*	*3*	
Unit extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/metering, I		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial unmet demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane width		*12.0*		*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B		*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Min. time for pedestrians, G_p		*3.2*			*3.2*			*3.2*			*3.2*	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *9.4*	G = *0.0*	G =	G =	G = *42.6*	G =	G =	G =
	Y = *4*	Y =	Y =	Y =	Y = *4*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		*85*		*67*	*166*		*12*	*1415*		*88*	*784*	
Lane group capacity, c		*215*		*200*	*244*		*419*	*2262*		*185*	*2301*	
v/c ratio, X		*0.40*		*0.34*	*0.68*		*0.03*	*0.63*		*0.48*	*0.34*	
Total green ratio, g/C		*0.16*		*0.16*	*0.16*		*0.71*	*0.71*		*0.71*	*0.71*	
Uniform delay, d_1		*22.7*		*22.5*	*23.9*		*2.6*	*4.5*		*3.8*	*3.3*	
Progression factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay calibration, k		*0.11*		*0.11*	*0.25*		*0.11*	*0.21*		*0.11*	*0.11*	
Incremental delay, d_2		*1.2*		*1.0*	*7.5*		*0.0*	*0.6*		*1.9*	*0.1*	
Initial queue delay, d_3												
Control delay		*23.9*		*23.5*	*31.4*		*2.6*	*5.1*		*5.7*	*3.4*	
Lane group LOS		*C*		*C*	*C*		*A*	*A*		*A*	*A*	
Approach delay		*23.9*			*29.1*			*5.1*			*3.7*	
Approach LOS		*C*			*C*			*A*			*A*	
Intersection delay		*7.3*			X_C = *0.64*		Intersection LOS				*A*	

HCS2000™ DETAILED REPORT

General Information		**Site Information**	
Analyst	*Jerry Overland*	Intersection	*Neilson Way & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*AM Peak Hour*	Analysis Year	*2009 without project*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	1	0	1	1	0	1	2	0	1	2	0
Lane group		LTR		L	TR		L	TR		L	TR	
Volume, V (vph)	8	62	9	63	65	91	12	1173	173	83	750	13
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of effective green, e		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type, AT		3		3	3		3	3		3	3	
Unit extension, UE		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/metering, I		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Initial unmet demand, Q_b		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width		12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B		0		0	0		0	0		0	0	
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *9.3*	G = *0.0*	G =	G =	G = *42.7*	G =	G =	G =
	Y = *4*	Y =	Y =	Y =	Y = *4*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		88		70	173		13	1495		92	847	
Lane group capacity, c		202		199	242		390	2267		165	2307	
v/c ratio, X		0.44		0.35	0.71		0.03	0.66		0.56	0.37	
Total green ratio, g/C		0.16		0.16	0.16		0.71	0.71		0.71	0.71	
Uniform delay, d_1		23.0		22.7	24.1		2.6	4.7		4.1	3.4	
Progression factor, PF		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay calibration, k		0.11		0.11	0.28		0.11	0.23		0.15	0.11	
Incremental delay, d_2		1.5		1.1	9.6		0.0	0.7		4.2	0.1	
Initial queue delay, d_3												
Control delay		24.5		23.7	33.7		2.6	5.4		8.3	3.5	
Lane group LOS		C		C	C		A	A		A	A	
Approach delay		24.5			30.8			5.4			3.9	
Approach LOS		C			C			A			A	
Intersection delay		7.7			$X_C = 0.67$		Intersection LOS				A	

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Neilson Way & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*AM Peak Hour*	Analysis Year	*2009 with project*
		Project ID	*RAD Sunset (with Sunset & Main Access)*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	1	0	1	1	0	1	2	0	1	2	0
Lane group		LTR		L	TR		L	TR		L	TR	
Volume, V (vph)	8	62	9	63	65	91	12	1187	179	83	754	13
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of effective green, e		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type, AT		3		3	3		3	3		3	3	
Unit extension, UE		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/metering, I		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Initial unmet demand, Q_b		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width		12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B		0		0	0		0	0		0	0	
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 9.3	G = 0.0	G =	G =	G = 42.7	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		88		70	173		13	1518		92	852	
Lane group capacity, c		202		199	242		387	2267		159	2307	
v/c ratio, X		0.44		0.35	0.71		0.03	0.67		0.58	0.37	
Total green ratio, g/C		0.16		0.16	0.16		0.71	0.71		0.71	0.71	
Uniform delay, d_1		23.0		22.7	24.1		2.6	4.8		4.2	3.4	
Progression factor, PF		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay calibration, k		0.11		0.11	0.28		0.11	0.24		0.17	0.11	
Incremental delay, d_2		1.5		1.1	9.6		0.0	0.8		5.2	0.1	
Initial queue delay, d_3												
Control delay		24.5		23.7	33.7		2.6	5.5		9.4	3.5	
Lane group LOS		C		C	C		A	A		A	A	
Approach delay		24.5			30.8			5.5			4.1	
Approach LOS		C			C			A			A	
Intersection delay		7.8			X_C = 0.68		Intersection LOS				A	

$HCS2000^{TM}$ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Neilson Way & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*PM Peak Hour*	Analysis Year	*2004*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	1	0	1	1	0	1	2	0	1	2	0
Lane group		LTR		L	TR		L	TR		L	TR	
Volume, V (vph)	9	64	19	155	98	101	15	883	106	88	1223	20
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of effective green, e		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type, AT		3		3	3		3	3		3	3	
Unit extension, UE		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/metering, I		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Initial unmet demand, Q_b		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width		12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B		0		0	0		0	0		0	0	
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 11.8	G = 0.0	G =	G =	G = 40.2	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 60.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		102		172	221		17	1099		98	1381	
Lane group capacity, c		280		249	311		172	2142		258	2171	
v/c ratio, X		0.36		0.69	0.71		0.10	0.51		0.38	0.64	
Total green ratio, g/C		0.20		0.20	0.20		0.67	0.67		0.67	0.67	
Uniform delay, d_1		20.9		22.4	22.5		3.5	5.0		4.4	5.7	
Progression factor, PF		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay calibration, k		0.11		0.26	0.27		0.11	0.12		0.11	0.22	
Incremental delay, d_2		0.8		7.9	7.4		0.3	0.2		0.9	0.6	
Initial queue delay, d_3												
Control delay		21.7		30.3	29.9		3.8	5.2		5.3	6.3	
Lane group LOS		C		C	C		A	A		A	A	
Approach delay		21.7			30.1			5.2			6.3	
Approach LOS		C			C			A			A	
Intersection delay		9.4			X_C = 0.65		Intersection LOS				A	

HCS2000™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*Jerry Overland*	Intersection	*Neilson Way & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*PM Peak Hour*	Analysis Year	*2009 without project*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*1*	*0*	*1*	*1*	*0*	*1*	*2*	*0*	*1*	*2*	*0*
Lane group		*LTR*		*L*	*TR*		*L*	*TR*		*L*	*TR*	
Volume, V (vph)	*9*	*67*	*20*	*163*	*103*	*106*	*16*	*945*	*111*	*92*	*1335*	*21*
% Heavy vehicles, %HV	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Pretimed (P) or actuated (A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Start-up lost time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of effective green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type, AT		*3*		*3*	*3*		*3*	*3*		*3*	*3*	
Unit extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/metering, I		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial unmet demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane width		*12.0*		*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B		*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Min. time for pedestrians, G_p		*3.2*			*3.2*			*3.2*			*3.2*	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *12.6*	G = *0.0*	G =	G =	G = *39.4*	G =	G =	G =
	Y = *4*	Y =	Y =	Y =	Y = *4*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		*106*		*181*	*232*		*18*	*1173*		*102*	*1506*	
Lane group capacity, c		*313*		*264*	*332*		*133*	*2100*		*225*	*2129*	
v/c ratio, X		*0.34*		*0.69*	*0.70*		*0.14*	*0.56*		*0.45*	*0.71*	
Total green ratio, g/C		*0.21*		*0.21*	*0.21*		*0.66*	*0.66*		*0.66*	*0.66*	
Uniform delay, d_1		*20.2*		*21.9*	*21.9*		*3.9*	*5.6*		*5.0*	*6.6*	
Progression factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay calibration, k		*0.11*		*0.25*	*0.27*		*0.11*	*0.16*		*0.11*	*0.27*	
Incremental delay, d_2		*0.6*		*7.2*	*6.4*		*0.5*	*0.3*		*1.5*	*1.1*	
Initial queue delay, d_3												
Control delay		*20.8*		*29.1*	*28.3*		*4.3*	*5.9*		*6.5*	*7.7*	
Lane group LOS		*C*		*C*	*C*		*A*	*A*		*A*	*A*	
Approach delay		*20.8*			*28.6*			*5.9*			*7.6*	
Approach LOS		*C*			*C*			*A*			*A*	
Intersection delay		*10.0*			X_C = *0.71*		Intersection LOS				*B*	

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	Jerry Overland	Intersection	Neilson Way & Ocean Park Blvd.
Agency or Co.	OTC Inc.	Area Type	CBD or Similar
Date Performed	4/28/2004	Jurisdiction	City of Santa Monica
Time Period	PM Peak Hour	Analysis Year	2009 with project
		Project ID	RAD Sunset (with Sunset & Main)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	1	0	1	1	0	1	2	0	1	2	0
Lane group		LTR		L	TR		L	TR		L	TR	
Volume, V (vph)	9	67	20	163	103	106	16	954	115	92	1347	21
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of effective green, e		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type, AT		3		3	3		3	3		3	3	
Unit extension, UE		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/metering, I		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Initial unmet demand, Q_b		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width		12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B		0		0	0		0	0		0	0	
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 12.6	G = 0.0	G =	G =	G = 39.4	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		106		181	232		18	1188		102	1520	
Lane group capacity, c		313		264	332		130	2099		219	2129	
v/c ratio, X		0.34		0.69	0.70		0.14	0.57		0.47	0.71	
Total green ratio, g/C		0.21		0.21	0.21		0.66	0.66		0.66	0.66	
Uniform delay, d_1		20.2		21.9	21.9		3.9	5.6		5.1	6.7	
Progression factor, PF		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay calibration, k		0.11		0.25	0.27		0.11	0.16		0.11	0.28	
Incremental delay, d_2		0.6		7.2	6.4		0.5	0.4		1.6	1.2	
Initial queue delay, d_3												
Control delay		20.8		29.1	28.3		4.4	6.0		6.7	7.8	
Lane group LOS		C		C	C		A	A		A	A	
Approach delay	20.8			28.6			6.0			7.7		
Approach LOS	C			C			A			A		
Intersection delay	10.1			X_C = 0.71			Intersection LOS			B		

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 8 Pacific Avenue and Rose Avenue
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	0	N/A		9	N/A	*
NB Thru	1111	592	*	950	536	
NB Right	72	N/A		112	N/A	
SB Left	87	N/A	*	136	N/A	
SB Thru	484	288		1190	674	*
SB Right	5	N/A		21	N/A	
EB Left	21	N/A	*	22	N/A	*
EB Thru	22	48		55	83	
EB Right	5	N/A		6	N/A	
WB Left	33	N/A		65	N/A	
WB Thru	31	210	*	46	211	*
WB Right	146	N/A		100	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**RTOR Reductions PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0

Number of Phases	2	2
Capacity	1500	1500

NO LEFT TURNS NORTHBOUND

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	231	233
North/South Critical Volumes	679	683
Sum of Critical Volumes	910	916
Capacity	1,500	1,500
Intersection CMA Value	0.606	0.610
ATSAC/ATCS CMA Value	0.506	0.510
Intersection Level of Service	A	A

==

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 8 Pacific Avenue and Rose Avenue
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Crititcal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Crititcal**
NB Left	0	0	0	N/A		0	0	9	N/A	*
NB Thru	24	56	1191	633	*	14	48	1012	569	
NB Right	0	4	76	N/A		0	6	118	N/A	
SB Left	0	4	91	N/A	*	0	7	143	N/A	
SB Thru	15	24	523	310		30	60	1280	722	*
SB Right	0	0	5	N/A		0	1	22	N/A	
EB Left	0	1	22	N/A	*	0	1	23	N/A	*
EB Thru	1	1	24	51		3	3	61	90	
EB Right	0	0	5	N/A		0	0	6	N/A	
WB Left	0	2	35	N/A		0	3	68	N/A	
WB Thru	2	2	35	226	*	4	2	52	228	*
WB Right	3	7	156	N/A		2	5	107	N/A	

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	RTOR Reductions **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2

NO LEFT TURNS NORTHBOUND

Capacity	1500	1500

===
Critical Movement Analysis: Results Summary
===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	248	251
North/South Critical Volumes	724	732
Sum of Critical Volumes	972	982
Capacity	1,500	1,500
Intersection CMA Value	0.648	0.655
ATSAC/ATCS CMA Value	0.548	0.555
Intersection Level of Service	A	A

===
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 8 Pacific Avenue and Rose Avenue
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	0	0	0	N/A		9	0	9	N/A	*
NB Thru	1191	20	1211	645	*	1012	13	1025	577	
NB Right	76	3	79	N/A		118	2	120	N/A	
SB Left	91	4	95	N/A	*	143	12	155	N/A	
SB Thru	523	0	523	312		1280	0	1280	728	*
SB Right	5	0	5	N/A		22	0	22	N/A	
EB Left	22	0	22	N/A	*	23	0	23	N/A	*
EB Thru	24	0	24	51		61	0	61	90	
EB Right	5	0	5	N/A		6	0	6	N/A	
WB Left	35	0	35	N/A		68	0	68	N/A	
WB Thru	35	0	35	226	*	52	0	52	228	*
WB Right	156	0	156	N/A		107	0	107	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**RTOR Reductions PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
	NO LEFT TURNS NORTHBOUND	
Capacity	1500	1500

===
Critical Movement Analysis: Results Summary
===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	248	251
North/South Critical Volumes	740	738
Sum of Critical Volumes	987	988
Capacity	1,500	1,500
Intersection CMA Value	0.658	0.659
ATSAC/ATCS CMA Value	0.558	0.559
Intersection Level of Service	A	A
PROJECT IMPACT VALUE	0.010	0.004

===
Future Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 9 Pacific Avenue and Sunset Avenue
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	0	N/A		0	N/A	*
NB Thru	1276	638	*	925	463	
NB Right	0	N/A		0	N/A	
SB Left	0	N/A	*	0	N/A	
SB Thru	561	561		1336	668	*
SB Right	0	N/A		0	N/A	
EB Left	0	N/A	*	0	N/A	*
EB Thru	0	0		0	0	
EB Right	0	N/A		0	N/A	
WB Left	4	N/A		1	N/A	
WB Thru	0	17	*	0	18	*
WB Right	13	N/A		17	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	1	1
NB Right-Thru	0	0
NB Right	0	0
SB Left	0	0
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	RTOR Reductions **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Capacity	1200	1200

===

Critical Movement Analysis: Results Summary

===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	17	18
North/South Critical Volumes	638	668
Sum of Critical Volumes	655	686
Capacity	1,200	1,200
Intersection CMA Value	0.546	0.572
ATSAC CMA Value	0.546	0.572
Intersection Level of Service	A	A

===

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 9 Pacific Avenue and Sunset Avenue
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	0	0	N/A		0	0	0	N/A	*
NB Thru	21	64	1361	680	*	8	46	979	490	
NB Right	0	0	0	N/A		0	0	0	N/A	
SB Left	0	0	0	N/A	*	0	0	0	N/A	
SB Thru	11	28	600	300		25	67	1428	714	*
SB Right	0	0	0	N/A		0	0	0	N/A	
EB Left	0	0	0	N/A	*	0	0	0	N/A	*
EB Thru	0	0	0	0		0	0	0	0	
EB Right	0	0	0	N/A		0	0	0	N/A	
WB Left	0	0	4	N/A		0	0	1	N/A	
WB Thru	0	0	0	18	*	0	0	0	19	*
WB Right	0	1	14	N/A		0	1	18	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	1	1
NB Right-Thru	0	0
NB Right	0	0
SB Left	0	0
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Capacity	1200	1200

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	18	19
North/South Critical Volumes	680	714
Sum of Critical Volumes	698	733
Capacity	1,200	1,200
Intersection CMA Value	0.582	0.611
ATSAC CMA Value	0.582	0.611
Intersection Level of Service	A	B

==
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 9 Pacific Avenue and Sunset Avenue
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	0	0	0	N/A		0	0	0	N/A	*
NB Thru	1361	15	1376	688	*	979	10	989	495	
NB Right	0	0	0	N/A		0	0	0	N/A	
SB Left	0	0	0	N/A	*	0	0	0	N/A	
SB Thru	600	0	600	300		1428	0	1428	714	*
SB Right	0	0	0	N/A		0	0	0	N/A	
EB Left	0	0	0	N/A	*	0	0	0	N/A	*
EB Thru	0	0	0	0		0	0	0	0	
EB Right	0	0	0	N/A		0	0	0	N/A	
WB Left	4	4	8	N/A		1	3	4	N/A	
WB Thru	0	0	0	18	*	0	0	0	25	*
WB Right	14	-4	10	N/A		18	3	21	N/A	

	AM PEAK	PM PEAK
Movement	**Lanes**	**Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	1	1
NB Right-Thru	0	0
NB Right	0	0
SB Left	0	0
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	0	0
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach	**RTOR Reductions**	
Direction	**AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Capacity	1200	1200

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	18	25
North/South Critical Volumes	688	714
Sum of Critical Volumes	706	739
Capacity	1,200	1,200
Intersection CMA Value	0.588	0.616
ATSAC CMA Value	0.588	0.616
Intersection Level of Service	A	B
PROJECT IMPACT VALUE	0.006	0.005

==
Future Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 10 Pacific Avenue and Windward Avenue
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	3	N/A		31	N/A	*
NB Thru	942	481	*	762	415	
NB Right	17	N/A		36	N/A	
SB Left	22	N/A	*	68	N/A	
SB Thru	571	303		1152	621	*
SB Right	13	N/A		21	N/A	
EB Left	1	N/A	*	17	N/A	*
EB Thru	2	14		42	89	
EB Right	11	N/A		30	N/A	
WB Left	46	N/A		66	N/A	
WB Thru	28	188	*	42	190	*
WB Right	114	N/A		82	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	0	0
EB Right-Thru	1	1
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**RTOR Reductions PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	189	207
North/South Critical Volumes	503	652
Sum of Critical Volumes	692	859
Capacity	1,500	1,500
Intersection CMA Value	0.461	0.572
ATSAC/ATCS CMA Value	0.361	0.472
Intersection Level of Service	A	A

==

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 10 Pacific Avenue and Windward Avenue
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	0	3	N/A		0	2	33	N/A	*
NB Thru	0	47	989	505	*	0	38	800	435	
NB Right	0	1	18	N/A		0	2	38	N/A	
SB Left	0	1	23	N/A	*	0	3	71	N/A	
SB Thru	0	29	600	318		0	58	1210	652	*
SB Right	0	1	14	N/A		0	1	22	N/A	
EB Left	0	0	1	N/A	*	0	1	18	N/A	*
EB Thru	0	0	2	15		0	2	44	93	
EB Right	0	1	12	N/A		0	2	32	N/A	
WB Left	0	2	48	N/A		0	3	69	N/A	
WB Thru	0	1	29	197	*	0	2	44	200	*
WB Right	0	6	120	N/A		0	4	86	N/A	

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	0	0
EB Right-Thru	1	1
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	RTOR Reductions **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	198	217
North/South Critical Volumes	528	684
Sum of Critical Volumes	727	901
Capacity	1,500	1,500
Intersection CMA Value	0.484	0.601
ATSAC/ATCS CMA Value	0.384	0.501
Intersection Level of Service	A	A

==
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 10 Pacific Avenue and Windward Avenue
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	3	0	3	N/A		33	0	33	N/A	*
NB Thru	989	3	992	507	*	800	6	806	438	
NB Right	18	0	18	N/A		38	0	38	N/A	
SB Left	23	0	23	N/A	*	71	0	71	N/A	
SB Thru	600	5	605	321		1210	4	1214	654	*
SB Right	14	0	14	N/A		22	0	22	N/A	
EB Left	1	0	1	N/A	*	18	0	18	N/A	*
EB Thru	2	0	2	15		44	0	44	93	
EB Right	12	0	12	N/A		32	0	32	N/A	
WB Left	48	0	48	N/A		69	0	69	N/A	
WB Thru	29	0	29	197	*	44	0	44	200	*
WB Right	120	0	120	N/A		86	0	86	N/A	

	AM PEAK	PM PEAK
Movement	**Lanes**	**Lanes**
NB Left	0	0
NB Left-Thru	1	1
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	0	0
SB Left-Thru	1	1
SB Thru	0	0
SB Right-Thru	1	1
SB Right	0	0
EB Left	0	0
EB Left-Thru	0	0
EB Thru	0	0
EB Right-Thru	1	1
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	0	0

Approach	RTOR Reductions	
Direction	**AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	198	217
North/South Critical Volumes	530	686
Sum of Critical Volumes	728	903
Capacity	1,500	1,500
Intersection CMA Value	0.485	0.602
ATSAC/ATCS CMA Value	0.385	0.502
Intersection Level of Service	A	A
PROJECT IMPACT VALUE	0.001	0.001

==
Future Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 11 Pacific Avenue and Venice Boulevard (N)
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Crititcal**	**Counts**	**VPL**	**Crititcal**
NB Left	7	7		16	16	*
NB Thru	842	842	*	611	611	
NB Right	0	N/A		0	N/A	
SB Left	0	N/A	*	0	N/A	
SB Thru	482	482		1160	1160	*
SB Right	14	14		25	25	
EB Left	0	N/A		0	N/A	
EB Thru	0	N/A		0	N/A	
EB Right	0	N/A		0	N/A	
WB Left	122	122		166	166	
WB Thru	32	32		117	117	
WB Right	136	136	*	179	179	*

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	0	0
NB Right	0	0
SB Left	0	0
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	1	1
EB Left	0	0
EB Left-Thru	0	0
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	1	1
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Reductions AM PEAK**	**RTOR Reductions PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	136	179
North/South Critical Volumes	842	1,176
Sum of Critical Volumes	978	1,355
Capacity	1,500	1,500
Intersection CMA Value	0.652	0.903
ATSAC/ATCS CMA Value	0.552	0.803
Intersection Level of Service	A	D

==

Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 11 Pacific Avenue and Venice Boulevard (N)
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	0	7	7		0	1	17	17	*
NB Thru	20	42	904	904	*	6	31	648	648	
NB Right	0	0	0	N/A		0	0	0	N/A	
SB Left	0	0	0	N/A	*	0	0	0	N/A	
SB Thru	10	24	516	516		23	58	1241	1241	*
SB Right	2	1	17	17		2	1	28	28	
EB Left	0	0	0	N/A		0	0	0	N/A	
EB Thru	0	0	0	N/A		0	0	0	N/A	
EB Right	0	0	0	N/A		0	0	0	N/A	
WB Left	0	6	128	128		0	8	174	174	
WB Thru	8	2	42	42		8	6	131	131	
WB Right	1	7	144	144	*	5	9	193	193	*

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	0	0
NB Right	0	0
SB Left	0	0
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	1	1
EB Left	0	0
EB Left-Thru	0	0
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	1	1
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Reductions AM PEAK**	**RTOR Reductions PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	144	193
North/South Critical Volumes	904	1,258
Sum of Critical Volumes	1,048	1,451
Capacity	1,500	1,500
Intersection CMA Value	0.699	0.967
ATSAC/ATCS CMA Value	0.599	0.867
Intersection Level of Service	A	D

==
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 11 Pacific Avenue and Venice Boulevard (N)
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	7	0	7	7		17	0	17	17	*
NB Thru	904	3	907	907	*	648	6	654	654	
NB Right	0	0	0	N/A		0	0	0	N/A	
SB Left	0	0	0	N/A	*	0	0	0	N/A	
SB Thru	516	5	521	521		1241	4	1245	1245	*
SB Right	17	0	17	17		28	0	28	28	
EB Left	0	0	0	N/A		0	0	0	N/A	
EB Thru	0	0	0	N/A		0	0	0	N/A	
EB Right	0	0	0	N/A		0	0	0	N/A	
WB Left	128	0	128	128		174	0	174	174	
WB Thru	42	0	42	42		131	0	131	131	
WB Right	144	0	144	144	*	193	0	193	193	*

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	0	0
NB Right	0	0
SB Left	0	0
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	1	1
EB Left	0	0
EB Left-Thru	0	0
EB Thru	0	0
EB Right-Thru	0	0
EB Right	0	0
WB Left	1	1
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	1	1

Approach **Direction**	RTOR Reductions **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	144	193
North/South Critical Volumes	907	1,262
Sum of Critical Volumes	1,051	1,455
Capacity	1,500	1,500
Intersection CMA Value	0.701	0.970
ATSAC/ATCS CMA Value	0.601	0.870
Intersection Level of Service	B	D
PROJECT IMPACT VALUE	0.001	0.003

==
Future Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 12 Pacific Avenue and Venice Boulevard (S)
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Critictal**	**Counts**	**VPL**	**Critictal**
NB Left	0	N/A		0	N/A	*
NB Thru	785	969	*	519	734	
NB Right	184	N/A		215	N/A	
SB Left	147	147	*	238	238	
SB Thru	493	493		1068	1068	*
SB Right	0	N/A		0	N/A	
EB Left	79	N/A		95	N/A	
EB Thru	76	138	*	187	178	*
EB Right	120	N/A		73	N/A	
WB Left	0	N/A		0	N/A	
WB Thru	0	N/A		0	N/A	
WB Right	0	N/A		0	N/A	

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	0	0
NB Left-Thru	0	0
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	1	1
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach **Direction**	RTOR Reductions **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	138	178
North/South Critical Volumes	1,116	1,068
Sum of Critical Volumes	1,254	1,246
Capacity	1,500	1,500
Intersection CMA Value	0.836	0.830
ATSAC/ATCS CMA Value	0.736	0.730
Intersection Level of Service	C	C

==
Existing Conditions

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 12 Pacific Avenue and Venice Boulevard (S)
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	0	0	0	N/A		0	0	0	N/A	*
NB Thru	19	39	843	1036	*	2	26	547	773	
NB Right	0	9	193	N/A		0	11	226	N/A	
SB Left	6	7	160	160	*	4	12	254	254	
SB Thru	2	25	520	520		18	53	1139	1139	*
SB Right	0	0	0	N/A		0	0	0	N/A	
EB Left	1	4	84	N/A		4	5	104	N/A	
EB Thru	7	4	87	148	*	18	9	214	197	*
EB Right	0	6	126	N/A		0	4	77	N/A	
WB Left	0	0	0	N/A		0	0	0	N/A	
WB Thru	0	0	0	N/A		0	0	0	N/A	
WB Right	0	0	0	N/A		0	0	0	N/A	

Movement	AM PEAK **Lanes**	PM PEAK **Lanes**
NB Left	0	0
NB Left-Thru	0	0
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	1	1
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	RTOR Reductions **AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	148	197
North/South Critical Volumes	1,197	1,139
Sum of Critical Volumes	1,345	1,337
Capacity	1,500	1,500
Intersection CMA Value	0.897	0.891
ATSAC/ATCS CMA Value	0.797	0.791
Intersection Level of Service	C	C

==
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 12 Pacific Avenue and Venice Boulevard (S)
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Critictal**
NB Left	0	0	0	N/A		0	0	0	N/A	*
NB Thru	843	3	846	1039	*	547	6	553	779	
NB Right	193	0	193	N/A		226	0	226	N/A	
SB Left	160	0	160	160	*	254	0	254	254	
SB Thru	520	5	525	525		1139	4	1143	1143	*
SB Right	0	0	0	N/A		0	0	0	N/A	
EB Left	84	0	84	N/A		104	0	104	N/A	
EB Thru	87	0	87	148	*	214	0	214	197	*
EB Right	126	0	126	N/A		77	0	77	N/A	
WB Left	0	0	0	N/A		0	0	0	N/A	
WB Thru	0	0	0	N/A		0	0	0	N/A	
WB Right	0	0	0	N/A		0	0	0	N/A	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	0	0
NB Left-Thru	0	0
NB Thru	0	0
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	0	0
SB Right	0	0
EB Left	0	0
EB Left-Thru	1	1
EB Thru	0	0
EB Right-Thru	1	1
EB Right	0	0
WB Left	0	0
WB Left-Thru	0	0
WB Thru	0	0
WB Right-Thru	0	0
WB Right	0	0

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	148	197
North/South Critical Volumes	1,200	1,143
Sum of Critical Volumes	1,348	1,341
Capacity	1,500	1,500
Intersection CMA Value	0.899	0.894
ATSAC/ATCS CMA Value	0.799	0.794
Intersection Level of Service	C	C
PROJECT IMPACT VALUE	0.001	0.003

==

Future Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 13 Lincoln Boulevard and Rose Avenue
Scenario: Existing Conditions

	AM Peak Hour Traffic Volumes			PM Peak Hour Traffic Volumes		
Movement	**Counts**	**VPL**	**Crititcal**	**Counts**	**VPL**	**Crititcal**
NB Left	56	56		111	111	*
NB Thru	1832	925	*	1273	658	
NB Right	17	N/A		42	N/A	
SB Left	64	64	*	83	83	
SB Thru	1151	601		1627	872	*
SB Right	51	N/A		117	N/A	
EB Left	65	65	*	82	82	*
EB Thru	230	149		257	175	
EB Right	67	N/A		93	N/A	
WB Left	52	52		67	67	
WB Thru	272	272	*	229	229	*
WB Right	179	179		72	72	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	1	1
SB Right	0	0
EB Left	1	1
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	1	1
EB Right	0	0
WB Left	1	1
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Reductions AM PEAK**	**RTOR Reductions PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==

Critical Movement Analysis: Results Summary

==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	337	311
North/South Critical Volumes	989	983
Sum of Critical Volumes	1,326	1,294
Capacity	1,500	1,500
Intersection CMA Value	0.884	0.863
ATSAC/ATCS CMA Value	0.784	0.763
Intersection Level of Service	C	C

==

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 13 Lincoln Boulevard and Rose Avenue
Scenario: Future Conditions (2009), Without Project

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	14	3	73	73		32	6	149	149	*
NB Thru	147	92	2071	1048	*	151	64	1488	773	
NB Right	8	1	26	N/A		15	2	59	N/A	
SB Left	5	3	72	72	*	5	4	92	92	
SB Thru	67	58	1276	667		81	81	1789	963	*
SB Right	5	3	59	N/A		14	6	137	N/A	
EB Left	10	3	78	78	*	8	4	94	94	*
EB Thru	10	12	252	169		8	13	278	201	
EB Right	17	3	87	N/A		27	5	125	N/A	
WB Left	5	3	60	60		18	3	88	88	
WB Thru	1	14	287	287	*	14	11	254	254	*
WB Right	2	9	190	190		6	4	82	82	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	1	1
SB Right	0	0
EB Left	1	1
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	1	1
EB Right	0	0
WB Left	1	1
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Reductions AM PEAK**	**RTOR Reductions PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

==
Critical Movement Analysis: Results Summary
==

	AM PEAK	**PM PEAK**
East/West Critical Volumes	365	349
North/South Critical Volumes	1,120	1,112
Sum of Critical Volumes	1,485	1,460
Capacity	1,500	1,500
Intersection CMA Value	0.990	0.973
ATSAC/ATCS CMA Value	0.890	0.873
Intersection Level of Service	D	D

==
Future Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 13 Lincoln Boulevard and Rose Avenue
Scenario: Future Conditions (2009), With Project (Sunset/Main Access)

	AM Peak Hour Traffic Volumes					PM Peak Hour Traffic Volumes				
Movement	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Crititcal**	**W/O Proj.**	**Project**	**W/ Project**	**VPL**	**Crititcal**
NB Left	73	5	78	78		149	13	162	162	*
NB Thru	2071	0	2071	1048	*	1488	0	1488	773	
NB Right	26	0	26	N/A		59	0	59	N/A	
SB Left	72	0	72	72	*	92	0	92	92	
SB Thru	1276	0	1276	667		1789	0	1789	967	*
SB Right	59	-1	58	N/A		137	8	145	N/A	
EB Left	78	2	80	80	*	94	3	97	97	*
EB Thru	252	5	257	176		278	4	282	206	
EB Right	87	8	95	N/A		125	5	130	N/A	
WB Left	60	0	60	60		88	0	88	88	
WB Thru	287	3	290	290	*	254	6	260	260	*
WB Right	190	0	190	190		82	0	82	82	

Movement	**AM PEAK Lanes**	**PM PEAK Lanes**
NB Left	1	1
NB Left-Thru	0	0
NB Thru	1	1
NB Right-Thru	1	1
NB Right	0	0
SB Left	1	1
SB Left-Thru	0	0
SB Thru	1	1
SB Right-Thru	1	1
SB Right	0	0
EB Left	1	1
EB Left-Thru	0	0
EB Thru	1	1
EB Right-Thru	1	1
EB Right	0	0
WB Left	1	1
WB Left-Thru	0	0
WB Thru	1	1
WB Right-Thru	0	0
WB Right	1	1

Approach Direction	**RTOR Reductions AM PEAK**	**PM PEAK**
NorthBound	0	0
SouthBound	0	0
EastBound	0	0
WestBound	0	0
Number of Phases	2	2
Phasing		
Capacity	1500	1500

===
Critical Movement Analysis: Results Summary
===

	AM PEAK	**PM PEAK**
East/West Critical Volumes	370	358
North/South Critical Volumes	1,120	1,129
Sum of Critical Volumes	1,490	1,486
Capacity	1,500	1,500
Intersection CMA Value	0.994	0.991
ATSAC/ATCS CMA Value	0.894	0.891
Intersection Level of Service	D	D
PROJECT IMPACT VALUE	0.004	0.018

===
Future Conditions (2009), With Project (Sunset/Main Access)

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Main Street & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*Saturday Peak Hour*	Analysis Year	*2004*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	1	1	1	1	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	39	214	54	134	281	100	49	554	144	68	565	66
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 17.3	G = 0.0	G =	G =	G = 34.7	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 60.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	43	238	60	149	312	111	54	616	160	76	628	73
Lane group capacity, c	201	493	419	257	493	419	305	989	841	314	989	841
v/c ratio, X	0.21	0.48	0.14	0.58	0.63	0.26	0.18	0.62	0.19	0.24	0.63	0.09
Total green ratio, g/C	0.29	0.29	0.29	0.29	0.29	0.29	0.58	0.58	0.58	0.58	0.58	0.58
Uniform delay, d_1	16.2	17.7	15.8	18.2	18.6	16.5	5.9	8.3	6.0	6.2	8.4	5.6
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.11	0.11	0.17	0.21	0.11	0.11	0.21	0.11	0.11	0.22	0.11
Incremental delay, d_2	0.5	0.7	0.2	3.3	2.6	0.3	0.3	1.2	0.1	0.4	1.4	0.0
Initial queue delay, d_3												
Control delay	16.7	18.4	16.0	21.5	21.2	16.8	6.2	9.6	6.1	6.6	9.8	5.7
Lane group LOS	B	B	B	C	C	B	A	A	A	A	A	A
Approach delay		17.8			20.4			8.7			9.1	
Approach LOS		B			C			A			A	
Intersection delay		12.7			X_C = 0.63		Intersection LOS				B	

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Main Street & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*Saturday Peak Hour*	Analysis Year	*2009 without project*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	1	1	1	1	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	41	225	57	145	295	115	51	617	154	80	625	69
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 17.3	G = 0.0	G =	G =	G = 34.7	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 60.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	46	250	63	161	328	128	57	686	171	89	694	77
Lane group capacity, c	189	493	419	248	493	419	261	989	841	266	989	841
v/c ratio, X	0.24	0.51	0.15	0.65	0.67	0.31	0.22	0.69	0.20	0.33	0.70	0.09
Total green ratio, g/C	0.29	0.29	0.29	0.29	0.29	0.29	0.58	0.58	0.58	0.58	0.58	0.58
Uniform delay, d_1	16.3	17.8	15.9	18.7	18.8	16.7	6.1	8.9	6.0	6.6	9.0	5.6
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.12	0.11	0.23	0.24	0.11	0.11	0.26	0.11	0.11	0.27	0.11
Incremental delay, d_2	0.7	0.9	0.2	5.9	3.4	0.4	0.4	2.1	0.1	0.7	2.3	0.0
Initial queue delay, d_3												
Control delay	17.0	18.7	16.0	24.6	22.2	17.1	6.5	11.0	6.2	7.4	11.2	5.7
Lane group LOS	B	B	B	C	C	B	A	B	A	A	B	A
Approach delay	18.0			21.7			9.8			10.3		
Approach LOS	B			C			A			B		
Intersection delay	13.7			X_C = 0.69			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information		**Site Information**	
Analyst	*Jerry Overland*	Intersection	*Main Street & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*Saturday Peak Hour*	Analysis Year	*2009 with project*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	1	1	1	1	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	41	231	57	156	295	115	51	625	161	80	636	69
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 17.6	G = 0.0	G =	G =	G = 34.4	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 60.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	46	257	63	173	328	128	57	694	179	89	707	77
Lane group capacity, c	195	502	427	249	502	427	247	980	834	255	980	834
v/c ratio, X	0.24	0.51	0.15	0.69	0.65	0.30	0.23	0.71	0.21	0.35	0.72	0.09
Total green ratio, g/C	0.29	0.29	0.29	0.29	0.29	0.29	0.57	0.57	0.57	0.57	0.57	0.57
Uniform delay, d_1	16.1	17.6	15.7	18.8	18.5	16.4	6.3	9.2	6.2	6.8	9.3	5.8
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.12	0.11	0.26	0.23	0.11	0.11	0.27	0.11	0.11	0.28	0.11
Incremental delay, d_2	0.6	0.9	0.2	8.1	3.0	0.4	0.5	2.4	0.1	0.8	2.6	0.0
Initial queue delay, d_3												
Control delay	16.7	18.5	15.8	27.0	21.6	16.8	6.8	11.6	6.4	7.7	11.9	5.8
Lane group LOS	B	B	B	C	C	B	A	B	A	A	B	A
Approach delay	17.8			22.1			10.3			11.0		
Approach LOS	B			C			B			B		
Intersection delay	14.1			X_C = 0.71			Intersection LOS			B		

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 2 Main Street and Rose Avenue
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Critictal
NB Left	48	48	*
NB Thru	580	316	
NB Right	51	N/A	
SB Left	119	119	
SB Thru	623	663	*
SB Right	40	N/A	
EB Left	18	N/A	*
EB Thru	167	214	
EB Right	29	N/A	
WB Left	42	N/A	
WB Thru	185	308	*
WB Right	81	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	1
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	326
North/South Critical Volumes	711
Sum of Critical Volumes	1,037
Capacity	1,500
Intersection CMA Value	0.691
ATSAC/ATCS CMA Value	0.591
Intersection Level of Service	A

==

Existing Conditions (Weekend)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 2 Main Street and Rose Avenue
Scenario: Future Weekend Conditions (2009), Without Project

MID-DAY Peak Hour Traffic Volumes

Movement	Related	Growth	W/O Project	VPL	Critictal
NB Left	2	2	52	52	*
NB Thru	27	29	636	346	
NB Right	3	3	57	N/A	
SB Left	18	6	143	143	
SB Thru	24	31	678	720	*
SB Right	0	2	42	N/A	
EB Left	0	1	19	N/A	*
EB Thru	2	8	177	231	
EB Right	4	1	34	N/A	
WB Left	0	2	44	N/A	
WB Thru	9	9	203	349	*
WB Right	17	4	102	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	1
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	368
North/South Critical Volumes	773
Sum of Critical Volumes	1,141
Capacity	1,500
Intersection CMA Value	0.761
ATSAC/ATCS CMA Value	0.661
Intersection Level of Service	B

==
Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 2 Main Street and Rose Avenue
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Critictal
NB Left	52	0	52	52	*
NB Thru	636	15	651	360	
NB Right	57	13	70	N/A	
SB Left	143	0	143	143	
SB Thru	678	23	701	743	*
SB Right	42	0	42	N/A	
EB Left	19	0	19	N/A	*
EB Thru	177	1	178	241	
EB Right	34	9	43	N/A	
WB Left	44	19	63	N/A	
WB Thru	203	0	203	368	*
WB Right	102	0	102	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	1
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	387
North/South Critical Volumes	796
Sum of Critical Volumes	1,183
Capacity	1,500
Intersection CMA Value	0.789
ATSAC/ATCS CMA Value	0.689
Intersection Level of Service	B
PROJECT IMPACT VALUE	0.028

==

Future Weekend Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 3 Main Street and Sunset Avenue
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Critictal
NB Left	13	N/A	
NB Thru	640	345	*
NB Right	36	N/A	
SB Left	25	N/A	*
SB Thru	564	303	
SB Right	16	N/A	
EB Left	0	N/A	*
EB Thru	0	0	
EB Right	0	N/A	
WB Left	23	N/A	
WB Thru	5	79	*
WB Right	51	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	1
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1200

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	79
North/South Critical Volumes	370
Sum of Critical Volumes	449
Capacity	1,200
Intersection CMA Value	0.374
ATSAC CMA Value	0.374
Intersection Level of Service	A

==

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 3 Main Street and Sunset Avenue
Scenario: Future Weekend Conditions (2009), Without Project

MID-DAY Peak Hour Traffic Volumes

Movement	Related	Growth	W/O Project	VPL	Critictal
NB Left	0	1	14	N/A	
NB Thru	29	32	701	376	*
NB Right	0	2	38	N/A	
SB Left	5	1	31	N/A	*
SB Thru	21	28	613	331	
SB Right	0	1	17	N/A	
EB Left	0	0	0	N/A	*
EB Thru	0	0	0	0	
EB Right	0	0	0	N/A	
WB Left	0	1	24	N/A	
WB Thru	0	0	5	86	*
WB Right	3	3	57	N/A	

MID-DAY PEAK

Movement	Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	1
WB Thru	0
WB Right-Thru	0
WB Right	0

RTOR Reductions

Approach Direction	MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases	2
Phasing	
Capacity	1200

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	86
North/South Critical Volumes	407
Sum of Critical Volumes	493
Capacity	1,200
Intersection CMA Value	0.411
ATSAC CMA Value	0.411
Intersection Level of Service	A

==
Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 3 Main Street and Sunset Avenue
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Crictital
NB Left	14	20	34	N/A	
NB Thru	701	0	701	386	*
NB Right	38	0	38	N/A	
SB Left	31	0	31	N/A	*
SB Thru	613	15	628	356	
SB Right	17	36	53	N/A	
EB Left	0	28	28	28	*
EB Thru	0	0	0	15	
EB Right	0	15	15	N/A	
WB Left	24	6	30	N/A	
WB Thru	5	0	5	92	*
WB Right	57	0	57	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	1
EB Left-Thru	0
EB Thru	0
EB Right-Thru	1
EB Right	0
WB Left	0
WB Left-Thru	1
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases	2
Phasing	
Capacity	1200

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	120
North/South Critical Volumes	417
Sum of Critical Volumes	537
Capacity	1,200
Intersection CMA Value	0.448
ATSAC CMA Value	0.448
Intersection Level of Service	A
PROJECT IMPACT VALUE	0.037

==

Future Weekend Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 4 Main Street and Thorton Place
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Critictal
NB Left	6	N/A	
NB Thru	685	346	*
NB Right	0	N/A	
SB Left	0	N/A	*
SB Thru	655	329	
SB Right	2	N/A	
EB Left	2	N/A	
EB Thru	0	13	*
EB Right	11	N/A	
WB Left	0	N/A	
WB Thru	0	N/A	
WB Right	0	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1200

===
Critical Movement Analysis: Results Summary
===

	MID-DAY PEAK
East/West Critical Volumes	13
North/South Critical Volumes	346
Sum of Critical Volumes	359
Capacity	1,200
Intersection CMA Value	0.299
ATSAC CMA Value	0.299
Intersection Level of Service	A

===

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 4 Main Street and Thorton Place
Scenario: Future Weekend Conditions (2009), Without Project

MID-DAY Peak Hour Traffic Volumes

Movement	Related	Growth	W/O Project	VPL	Critictal
NB Left	0	0	6	N/A	
NB Thru	37	34	756	381	*
NB Right	0	0	0	N/A	
SB Left	0	0	0	N/A	*
SB Thru	32	33	720	361	
SB Right	0	0	2	N/A	
EB Left	0	0	2	N/A	
EB Thru	0	0	0	14	*
EB Right	0	1	12	N/A	
WB Left	0	0	0	N/A	
WB Thru	0	0	0	N/A	
WB Right	0	0	0	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases	2
Phasing	
Capacity	1200

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	14
North/South Critical Volumes	381
Sum of Critical Volumes	395
Capacity	1,200
Intersection CMA Value	0.329
ATSAC CMA Value	0.329
Intersection Level of Service	A

==

Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 4 Main Street and Thorton Place
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Critictal
NB Left	6	0	6	N/A	
NB Thru	756	20	776	391	*
NB Right	0	0	0	N/A	
SB Left	0	0	0	N/A	
SB Thru	720	37	757	379	
SB Right	2	0	2	N/A	
EB Left	2	0	2	N/A	
EB Thru	0	0	0	14	*
EB Right	12	0	12	N/A	
WB Left	0	0	0	N/A	
WB Thru	0	0	0	N/A	
WB Right	0	0	0	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1200

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	14
North/South Critical Volumes	391
Sum of Critical Volumes	405
Capacity	1,200
Intersection CMA Value	0.337
ATSAC CMA Value	0.337
Intersection Level of Service	A
PROJECT IMPACT VALUE	0.008

==

Future Weekend Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 5 Main Street and Abbot Kinney Boulevard
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Critictal
NB Left	23	23	
NB Thru	315	173	*
NB Right	31	N/A	
SB Left	321	321	*
SB Thru	360	188	
SB Right	16	N/A	
EB Left	31	N/A	*
EB Thru	120	173	
EB Right	22	N/A	
WB Left	42	N/A	
WB Thru	120	120	
WB Right	385	385	*

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	1
WB Thru	0
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	416
North/South Critical Volumes	494
Sum of Critical Volumes	910
Capacity	1,500
Intersection CMA Value	0.607
ATSAC/ATCS CMA Value	0.507
Intersection Level of Service	A

==

Existing Conditions (Weekend)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 5 Main Street and Abbot Kinney Boulevard
Scenario: Future Weekend Conditions (2009), Without Project

Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
			MID-DAY Peak Hour Traffic Volumes		
NB Left	0	1	24	24	
NB Thru	7	16	338	187	*
NB Right	4	2	37	N/A	
SB Left	24	16	361	361	*
SB Thru	7	18	385	201	
SB Right	0	1	17	N/A	
EB Left	0	2	33	N/A	*
EB Thru	12	6	138	194	
EB Right	0	1	23	N/A	
WB Left	4	2	48	N/A	
WB Thru	8	6	134	134	
WB Right	24	19	428	428	*

Movement	**MID-DAY PEAK Lanes**
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	1
WB Thru	0
WB Right-Thru	0
WB Right	1

Approach Direction	**RTOR Reductions MID-DAY PEAK**
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0
Number of Phases	2
Phasing	
Capacity	1500

===

Critical Movement Analysis: Results Summary

===

	MID-DAY PEAK
East/West Critical Volumes	461
North/South Critical Volumes	548
Sum of Critical Volumes	1,009
Capacity	1,500
Intersection CMA Value	0.673
ATSAC/ATCS CMA Value	0.573
Intersection Level of Service	A

===

Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 5 Main Street and Abbot Kinney Boulevard
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Critictal
NB Left	24	0	24	24	
NB Thru	338	0	338	187	*
NB Right	37	0	37	N/A	
SB Left	361	23	384	384	*
SB Thru	385	0	385	207	
SB Right	17	13	30	N/A	
EB Left	33	3	36	N/A	*
EB Thru	138	0	138	197	
EB Right	23	0	23	N/A	
WB Left	48	0	48	N/A	
WB Thru	134	0	134	134	
WB Right	428	17	445	445	*

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	1
WB Thru	0
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0
Number of Phases	2
Phasing	
Capacity	1500

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	481
North/South Critical Volumes	571
Sum of Critical Volumes	1,052
Capacity	1,500
Intersection CMA Value	0.701
ATSAC/ATCS CMA Value	0.601
Intersection Level of Service	B
PROJECT IMPACT VALUE	0.028

==

Future Weekend Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 6 Venice Boulevard and Abbot Kinney Boulevard
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Critictal
NB Left	208	208	*
NB Thru	367	420	
NB Right	53	N/A	
SB Left	114	114	
SB Thru	323	418	*
SB Right	95	N/A	
EB Left	233	233	*
EB Thru	881	441	
EB Right	211	211	
WB Left	67	67	
WB Thru	709	355	*
WB Right	60	60	

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	0
EB Left	1
EB Left-Thru	0
EB Thru	2
EB Right-Thru	0
EB Right	1
WB Left	1
WB Left-Thru	0
WB Thru	2
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

===
Critical Movement Analysis: Results Summary
===

	MID-DAY PEAK
East/West Critical Volumes	588
North/South Critical Volumes	626
Sum of Critical Volumes	1,214
Capacity	1,500
Intersection CMA Value	0.809
ATSAC/ATCS CMA Value	0.709
Intersection Level of Service	C

===

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 6 Venice Boulevard and Abbot Kinney Boulevard
Scenario: Future Weekend Conditions (2009), Without Project

MID-DAY Peak Hour Traffic Volumes

Movement	Related	Growth	W/O Project	VPL	Critictal
NB Left	0	10	218	218	*
NB Thru	14	18	399	455	
NB Right	0	3	56	N/A	
SB Left	6	6	126	126	
SB Thru	20	16	359	461	*
SB Right	2	5	102	N/A	
EB Left	0	12	245	245	*
EB Thru	17	44	942	471	
EB Right	0	11	222	222	
WB Left	0	3	70	70	
WB Thru	29	35	773	387	*
WB Right	14	3	77	77	

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	0
EB Left	1
EB Left-Thru	0
EB Thru	2
EB Right-Thru	0
EB Right	1
WB Left	1
WB Left-Thru	0
WB Thru	2
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

===
Critical Movement Analysis: Results Summary
===

	MID-DAY PEAK
East/West Critical Volumes	631
North/South Critical Volumes	679
Sum of Critical Volumes	1,311
Capacity	1,500
Intersection CMA Value	0.874
ATSAC/ATCS CMA Value	0.774
Intersection Level of Service	C

===
Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 6 Venice Boulevard and Abbot Kinney Boulevard
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Critictal
NB Left	218	0	218	218	*
NB Thru	399	8	407	463	
NB Right	56	0	56	N/A	
SB Left	126	10	136	136	
SB Thru	359	5	364	466	*
SB Right	102	0	102	N/A	
EB Left	245	0	245	245	*
EB Thru	942	0	942	471	
EB Right	222	0	222	222	
WB Left	70	0	70	70	
WB Thru	773	0	773	387	*
WB Right	77	15	92	92	

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	0
EB Left	1
EB Left-Thru	0
EB Thru	2
EB Right-Thru	0
EB Right	1
WB Left	1
WB Left-Thru	0
WB Thru	2
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

===
Critical Movement Analysis: Results Summary
===

	MID-DAY PEAK
East/West Critical Volumes	631
North/South Critical Volumes	684
Sum of Critical Volumes	1,316
Capacity	1,500
Intersection CMA Value	0.877
ATSAC/ATCS CMA Value	0.777
Intersection Level of Service	C
PROJECT IMPACT VALUE	0.003

===
Future Weekend Conditions (2009), With Project (Sunset/Main Access)

HCS2000™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*Jerry Overland*	Intersection	*Neilson Way & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*Saturday Peak Hour*	Analysis Year	*2004*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*1*	*0*	*1*	*1*	*0*	*1*	*2*	*0*	*1*	*2*	*0*
Lane group		*LTR*		*L*	*TR*		*L*	*TR*		*L*	*TR*	
Volume, V (vph)	*18*	*92*	*16*	*135*	*147*	*76*	*34*	*919*	*99*	*103*	*956*	*30*
% Heavy vehicles, %HV	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Pretimed (P) or actuated (A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Start-up lost time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of effective green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type, AT		*3*		*3*	*3*		*3*	*3*		*3*	*3*	
Unit extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/metering, I		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial unmet demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane width		*12.0*		*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B		*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Min. time for pedestrians, G_p	*3.2*			*3.2*			*3.2*			*3.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *12.9*	G = *0.0*	G =	G =	G = *39.1*	G =	G =	G =
	Y = *4*	Y =	Y =	Y =	Y = *4*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		*140*		*150*	*247*		*38*	*1131*		*114*	*1095*	
Lane group capacity, c		*272*		*243*	*349*		*247*	*2087*		*235*	*2107*	
v/c ratio, X		*0.51*		*0.62*	*0.71*		*0.15*	*0.54*		*0.49*	*0.52*	
Total green ratio, g/C		*0.21*		*0.21*	*0.21*		*0.65*	*0.65*		*0.65*	*0.65*	
Uniform delay, d_1		*20.8*		*21.3*	*21.8*		*4.0*	*5.6*		*5.3*	*5.5*	
Progression factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay calibration, k		*0.12*		*0.20*	*0.27*		*0.11*	*0.14*		*0.11*	*0.13*	
Incremental delay, d_2		*1.7*		*4.7*	*6.5*		*0.3*	*0.3*		*1.6*	*0.2*	
Initial queue delay, d_3												
Control delay		*22.5*		*26.0*	*28.3*		*4.3*	*5.9*		*6.9*	*5.7*	
Lane group LOS		*C*		*C*	*C*		*A*	*A*		*A*	*A*	
Approach delay	*22.5*			*27.4*			*5.9*			*5.8*		
Approach LOS	*C*			*C*			*A*			*A*		
Intersection delay	*9.6*			$X_C = 0.58$			Intersection LOS			*A*		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*Jerry Overland*	Intersection	*Neilson Way & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*Saturday Peak Hour*	Analysis Year	*2009 without project*
		Project ID	*RAD Sunset*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	1	0	1	1	0	1	2	0	1	2	0
Lane group		LTR		L	TR		L	TR		L	TR	
Volume, V (vph)	19	97	17	142	154	80	36	983	104	108	1015	32
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of effective green, e		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type, AT		3		3	3		3	3		3	3	
Unit extension, UE		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/metering, I		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Initial unmet demand, Q_b		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width		12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B		0		0	0		0	0		0	0	
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 13.3	G = 0.0	G =	G =	G = 38.7	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		148		158	260		40	1208		120	1164	
Lane group capacity, c		278		245	360		220	2065		206	2086	
v/c ratio, X		0.53		0.64	0.72		0.18	0.58		0.58	0.56	
Total green ratio, g/C		0.22		0.22	0.22		0.65	0.65		0.65	0.65	
Uniform delay, d_1		20.6		21.2	21.6		4.3	6.1		6.1	5.9	
Progression factor, PF		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay calibration, k		0.14		0.22	0.28		0.11	0.18		0.17	0.16	
Incremental delay, d_2		2.0		5.7	7.0		0.4	0.4		4.2	0.3	
Initial queue delay, d_3												
Control delay		22.6		27.0	28.6		4.7	6.5		10.2	6.2	
Lane group LOS		C		C	C		A	A		B	A	
Approach delay		22.6			28.0			6.4			6.6	
Approach LOS		C			C			A			A	
Intersection delay		10.2			X_C = 0.62		Intersection LOS				B	

HCS2000™ DETAILED REPORT

General Information		**Site Information**	
Analyst	*Jerry Overland*	Intersection	*Neilson Way & Ocean Park Blvd.*
Agency or Co.	*OTC Inc.*	Area Type	*CBD or Similar*
Date Performed	*4/28/2004*	Jurisdiction	*City of Santa Monica*
Time Period	*Saturday Peak Hour*	Analysis Year	*2009 with project*
		Project ID	*RAD Sunset (with Sunset & Main)*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	1	0	1	1	0	1	2	0	1	2	0
Lane group		LTR		L	TR		L	TR		L	TR	
Volume, V (vph)	19	97	17	142	154	80	36	993	110	108	1023	32
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of effective green, e		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type, AT		3		3	3		3	3		3	3	
Unit extension, UE		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/metering, I		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Initial unmet demand, Q_b		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane width		12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B		0		0	0		0	0		0	0	
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 13.3	G = 0.0	G =	G =	G = 38.7	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		148		158	260		40	1225		120	1173	
Lane group capacity, c		278		245	360		217	2064		201	2086	
v/c ratio, X		0.53		0.64	0.72		0.18	0.59		0.60	0.56	
Total green ratio, g/C		0.22		0.22	0.22		0.65	0.65		0.65	0.65	
Uniform delay, d_1		20.6		21.2	21.6		4.3	6.1		6.1	5.9	
Progression factor, PF		1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay calibration, k		0.14		0.22	0.28		0.11	0.18		0.19	0.16	
Incremental delay, d_2		2.0		5.7	7.0		0.4	0.5		4.8	0.4	
Initial queue delay, d_3												
Control delay		22.6		27.0	28.6		4.7	6.6		10.9	6.3	
Lane group LOS		C		C	C		A	A		B	A	
Approach delay		22.6			28.0			6.5			6.7	
Approach LOS		C			C			A			A	
Intersection delay		10.2			X_C = 0.63		Intersection LOS				B	

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 8 Pacific Avenue and Rose Avenue
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Critictal
NB Left	13	N/A	
NB Thru	912	510	*
NB Right	107	N/A	
SB Left	77	N/A	*
SB Thru	844	491	
SB Right	61	N/A	
EB Left	30	N/A	*
EB Thru	63	113	
EB Right	20	N/A	
WB Left	89	N/A	
WB Thru	83	304	*
WB Right	132	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	0
EB Thru	1
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
NO LEFT TURNS NORTHBOUND

Capacity 1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	334
North/South Critical Volumes	587
Sum of Critical Volumes	921
Capacity	1,500
Intersection CMA Value	0.614
ATSAC/ATCS CMA Value	0.514
Intersection Level of Service	A

==

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 8 Pacific Avenue and Rose Avenue
Scenario: Future Weekend Conditions (2009), Without Project

MID-DAY Peak Hour Traffic Volumes

Movement	Related	Growth	W/O Project	VPL	Critictal
NB Left	0	1	14	N/A	
NB Thru	37	46	995	553	*
NB Right	0	5	112	N/A	
SB Left	4	4	85	N/A	*
SB Thru	41	42	927	538	
SB Right	0	3	64	N/A	
EB Left	0	2	32	N/A	*
EB Thru	2	3	68	121	
EB Right	0	1	21	N/A	
WB Left	3	4	96	N/A	
WB Thru	0	4	87	324	*
WB Right	2	7	141	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	0
EB Thru	1
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
NO LEFT TURNS NORTHBOUND

Capacity 1500

===
Critical Movement Analysis: Results Summary
===

	MID-DAY PEAK
East/West Critical Volumes	356
North/South Critical Volumes	638
Sum of Critical Volumes	994
Capacity	1,500
Intersection CMA Value	0.663
ATSAC/ATCS CMA Value	0.563
Intersection Level of Service	A

===
Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 8 Pacific Avenue and Rose Avenue
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Critictal
NB Left	14	0	14	N/A	
NB Thru	995	16	1011	562	*
NB Right	112	2	114	N/A	
SB Left	85	8	93	N/A	*
SB Thru	927	0	927	542	
SB Right	64	0	64	N/A	
EB Left	32	0	32	N/A	*
EB Thru	68	0	68	121	
EB Right	21	0	21	N/A	
WB Left	96	0	96	N/A	
WB Thru	87	0	87	324	*
WB Right	141	0	141	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	0
EB Thru	1
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
NO LEFT TURNS NORTHBOUND

Capacity 1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	356
North/South Critical Volumes	655
Sum of Critical Volumes	1,011
Capacity	1,500
Intersection CMA Value	0.674
ATSAC/ATCS CMA Value	0.574
Intersection Level of Service	A
PROJECT IMPACT VALUE	0.011

==
Future Weekend Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 9 Pacific Avenue and Sunset Avenue
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	**Counts**	**VPL**	**Critictal**
NB Left	9	N/A	
NB Thru	908	459	*
NB Right	0	N/A	
SB Left	0	N/A	*
SB Thru	964	488	
SB Right	11	N/A	
EB Left	0	N/A	*
EB Thru	0	0	
EB Right	0	N/A	
WB Left	8	N/A	
WB Thru	1	47	*
WB Right	38	N/A	

Movement	**MID-DAY PEAK Lanes**
NB Left	0
NB Left-Thru	1
NB Thru	1
NB Right-Thru	0
NB Right	0
SB Left	0
SB Left-Thru	0
SB Thru	1
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	0
EB Thru	1
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	0

Approach Direction	**RTOR Reductions MID-DAY PEAK**
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2

Capacity 1200

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	47
North/South Critical Volumes	459
Sum of Critical Volumes	506
Capacity	1,200
Intersection CMA Value	0.421
ATSAC CMA Value	0.421
Intersection Level of Service	A

==

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 9 Pacific Avenue and Sunset Avenue
Scenario: Future Weekend Conditions (2009), Without Project

MID-DAY Peak Hour Traffic Volumes

Movement	Related	Growth	W/O Project	VPL	Critictal
NB Left	0	0	9	N/A	
NB Thru	27	45	980	495	*
NB Right	0	0	0	N/A	
SB Left	0	0	0	N/A	*
SB Thru	39	48	1051	531	
SB Right	0	1	12	N/A	
EB Left	0	0	0	N/A	*
EB Thru	0	0	0	0	
EB Right	0	0	0	N/A	
WB Left	0	0	8	N/A	
WB Thru	0	0	1	49	*
WB Right	0	2	40	N/A	

MID-DAY PEAK

Movement	Lanes
NB Left	0
NB Left-Thru	1
NB Thru	1
NB Right-Thru	0
NB Right	0
SB Left	0
SB Left-Thru	0
SB Thru	1
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	0
EB Thru	1
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	0

RTOR Reductions

Approach Direction	MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2

Capacity 1200

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	49
North/South Critical Volumes	495
Sum of Critical Volumes	544
Capacity	1,200
Intersection CMA Value	0.454
ATSAC CMA Value	0.454
Intersection Level of Service	A

==
Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 9 Pacific Avenue and Sunset Avenue
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Critictal
NB Left	9	0	9	N/A	
NB Thru	980	13	993	501	*
NB Right	0	0	0	N/A	
SB Left	0	0	0	N/A	*
SB Thru	1051	0	1051	531	
SB Right	12	0	12	N/A	
EB Left	0	0	0	N/A	*
EB Thru	0	0	0	0	
EB Right	0	0	0	N/A	
WB Left	8	5	13	N/A	
WB Thru	1	0	1	57	*
WB Right	40	3	43	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	1
NB Right-Thru	0
NB Right	0
SB Left	0
SB Left-Thru	0
SB Thru	1
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	0
EB Thru	1
EB Right-Thru	0
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0
Number of Phases	2
Capacity	1200

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	57
North/South Critical Volumes	501
Sum of Critical Volumes	559
Capacity	1,200
Intersection CMA Value	0.466
ATSAC CMA Value	0.466
Intersection Level of Service	A
PROJECT IMPACT VALUE	0.012

==

Future Weekend Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 10 Pacific Avenue and Windward Avenue
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Critictal
NB Left	62	N/A	
NB Thru	793	476	*
NB Right	97	N/A	
SB Left	87	N/A	*
SB Thru	762	459	
SB Right	69	N/A	
EB Left	40	N/A	*
EB Thru	57	146	
EB Right	49	N/A	
WB Left	89	N/A	
WB Thru	69	248	*
WB Right	90	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	0
EB Thru	0
EB Right-Thru	1
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases	2
Phasing	
Capacity	1500

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	288
North/South Critical Volumes	563
Sum of Critical Volumes	851
Capacity	1,500
Intersection CMA Value	0.567
ATSAC/ATCS CMA Value	0.467
Intersection Level of Service	A

==

Existing Conditions (Weekend)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 10 Pacific Avenue and Windward Avenue
Scenario: Future Weekend Conditions (2009), Without Project

MID-DAY Peak Hour Traffic Volumes

Movement	Related	Growth	W/O Project	VPL	Critictal
NB Left	0	3	65	N/A	
NB Thru	39	40	872	521	*
NB Right	4	5	106	N/A	
SB Left	0	4	91	N/A	*
SB Thru	42	38	842	503	
SB Right	0	3	72	N/A	
EB Left	0	2	42	N/A	*
EB Thru	0	3	60	153	
EB Right	0	2	51	N/A	
WB Left	2	4	95	N/A	
WB Thru	0	3	72	262	*
WB Right	0	5	95	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	0
EB Thru	0
EB Right-Thru	1
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0
Number of Phases	2
Phasing	
Capacity	1500

===

Critical Movement Analysis: Results Summary

===

	MID-DAY PEAK
East/West Critical Volumes	304
North/South Critical Volumes	613
Sum of Critical Volumes	917
Capacity	1,500
Intersection CMA Value	0.611
ATSAC/ATCS CMA Value	0.511
Intersection Level of Service	A

===

Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 10 Pacific Avenue and Windward Avenue
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Critictal
NB Left	65	0	65	N/A	
NB Thru	872	4	876	523	*
NB Right	106	0	106	N/A	
SB Left	91	0	91	N/A	*
SB Thru	842	4	846	505	
SB Right	72	0	72	N/A	
EB Left	42	0	42	N/A	*
EB Thru	60	0	60	153	
EB Right	51	0	51	N/A	
WB Left	95	0	95	N/A	
WB Thru	72	0	72	262	*
WB Right	95	0	95	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	1
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	0
SB Left-Thru	1
SB Thru	0
SB Right-Thru	1
SB Right	0
EB Left	0
EB Left-Thru	0
EB Thru	0
EB Right-Thru	1
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0
Number of Phases	2
Phasing	
Capacity	1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	304
North/South Critical Volumes	615
Sum of Critical Volumes	919
Capacity	1,500
Intersection CMA Value	0.613
ATSAC/ATCS CMA Value	0.513
Intersection Level of Service	A
PROJECT IMPACT VALUE	0.002

==
Future Weekend Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 11 Pacific Avenue and Venice Boulevard (N)
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Critictal
NB Left	5	5	*
NB Thru	464	464	
NB Right	0	N/A	
SB Left	0	N/A	
SB Thru	826	826	*
SB Right	48	48	
EB Left	0	N/A	
EB Thru	0	N/A	
EB Right	0	N/A	
WB Left	216	216	
WB Thru	346	346	
WB Right	468	468	*

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	0
NB Right	0
SB Left	0
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	1
EB Left	0
EB Left-Thru	0
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	1
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	468
North/South Critical Volumes	831
Sum of Critical Volumes	1,299
Capacity	1,500
Intersection CMA Value	0.866
ATSAC/ATCS CMA Value	0.766
Intersection Level of Service	C

==

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 11 Pacific Avenue and Venice Boulevard (N)
Scenario: Future Weekend Conditions (2009), Without Project

MID-DAY Peak Hour Traffic Volumes

Movement	Related	Growth	W/O Project	VPL	Crictical
NB Left	0	0	5	5	*
NB Thru	11	23	498	498	
NB Right	0	0	0	N/A	
SB Left	0	0	0	N/A	
SB Thru	42	41	909	909	*
SB Right	5	2	55	55	
EB Left	0	0	0	N/A	
EB Thru	0	0	0	N/A	
EB Right	0	0	0	N/A	
WB Left	0	11	227	227	
WB Thru	11	17	374	374	
WB Right	8	23	499	499	*

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	0
NB Right	0
SB Left	0
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	1
EB Left	0
EB Left-Thru	0
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	1
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	499
North/South Critical Volumes	915
Sum of Critical Volumes	1,414
Capacity	1,500
Intersection CMA Value	0.943
ATSAC/ATCS CMA Value	0.843
Intersection Level of Service	D

==
Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 11 Pacific Avenue and Venice Boulevard (N)
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Critictal
NB Left	5	0	5	5	*
NB Thru	498	4	502	502	
NB Right	0	0	0	N/A	
SB Left	0	0	0	N/A	
SB Thru	909	4	913	913	*
SB Right	55	0	55	55	
EB Left	0	0	0	N/A	
EB Thru	0	0	0	N/A	
EB Right	0	0	0	N/A	
WB Left	227	0	227	227	
WB Thru	374	0	374	374	
WB Right	499	0	499	499	*

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	0
NB Right	0
SB Left	0
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	1
EB Left	0
EB Left-Thru	0
EB Thru	0
EB Right-Thru	0
EB Right	0
WB Left	1
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	499
North/South Critical Volumes	919
Sum of Critical Volumes	1,418
Capacity	1,500
Intersection CMA Value	0.945
ATSAC/ATCS CMA Value	0.845
Intersection Level of Service	D
PROJECT IMPACT VALUE	0.002

==
Future Weekend Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 12 Pacific Avenue and Venice Boulevard (S)
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Crititcal
NB Left	0	N/A	
NB Thru	411	810	*
NB Right	399	N/A	
SB Left	183	183	*
SB Thru	835	835	
SB Right	0	N/A	
EB Left	67	N/A	
EB Thru	285	254	*
EB Right	156	N/A	
WB Left	0	N/A	
WB Thru	0	N/A	
WB Right	0	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	0
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	1
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	254
North/South Critical Volumes	993
Sum of Critical Volumes	1,247
Capacity	1,500
Intersection CMA Value	0.831
ATSAC/ATCS CMA Value	0.731
Intersection Level of Service	C

==

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 12 Pacific Avenue and Venice Boulevard (S)
Scenario: Future Weekend Conditions (2009), Without Project

MID-DAY Peak Hour Traffic Volumes

Movement	Related	Growth	W/O Project	VPL	Critictal
NB Left	0	0	0	N/A	
NB Thru	31	21	463	882	*
NB Right	0	20	419	N/A	
SB Left	3	9	195	195	*
SB Thru	7	42	884	884	
SB Right	0	0	0	N/A	
EB Left	0	3	70	N/A	
EB Thru	13	14	312	273	*
EB Right	0	8	164	N/A	
WB Left	0	0	0	N/A	
WB Thru	0	0	0	N/A	
WB Right	0	0	0	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	0
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	1
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0
Number of Phases	2
Phasing	
Capacity	1500

===

Critical Movement Analysis: Results Summary

===

	MID-DAY PEAK
East/West Critical Volumes	273
North/South Critical Volumes	1,077
Sum of Critical Volumes	1,350
Capacity	1,500
Intersection CMA Value	0.900
ATSAC/ATCS CMA Value	0.800
Intersection Level of Service	C

===

Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 12 Pacific Avenue and Venice Boulevard (S)
Scenario: Future WeekendConditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Critictal
NB Left	0	0	0	N/A	
NB Thru	463	4	467	886	*
NB Right	419	0	419	N/A	
SB Left	195	0	195	195	*
SB Thru	884	4	888	888	
SB Right	0	0	0	N/A	
EB Left	70	0	70	N/A	
EB Thru	312	0	312	273	*
EB Right	164	0	164	N/A	
WB Left	0	0	0	N/A	
WB Thru	0	0	0	N/A	
WB Right	0	0	0	N/A	

Movement	MID-DAY PEAK Lanes
NB Left	0
NB Left-Thru	0
NB Thru	0
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	0
SB Right	0
EB Left	0
EB Left-Thru	1
EB Thru	0
EB Right-Thru	1
EB Right	0
WB Left	0
WB Left-Thru	0
WB Thru	0
WB Right-Thru	0
WB Right	0

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0
Number of Phases	2
Phasing	
Capacity	1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	273
North/South Critical Volumes	1,081
Sum of Critical Volumes	1,354
Capacity	1,500
Intersection CMA Value	0.903
ATSAC/ATCS CMA Value	0.803
Intersection Level of Service	D
PROJECT IMPACT VALUE	0.003

==
Future Weekend Conditions (2009), With Project (Sunset/Main Access)

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 13 Lincoln Boulevard and Rose Avenue
Scenario: Existing Conditions (Weekend)

MID-DAY Peak Hour Traffic Volumes

Movement	Counts	VPL	Critictal
NB Left	106	106	*
NB Thru	1437	760	
NB Right	83	N/A	
SB Left	59	59	
SB Thru	1593	797	*
SB Right*	126	N/A	
EB Left	284	284	*
EB Thru	148	162	
EB Right	176	N/A	
WB Left	64	64	
WB Thru	175	175	*
WB Right	83	83	

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	1
SB Right	0
EB Left	1
EB Left-Thru	0
EB Thru	1
EB Right-Thru	1
EB Right	0
WB Left	1
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

==
Critical Movement Analysis: Results Summary
==

	MID-DAY PEAK
East/West Critical Volumes	459
North/South Critical Volumes	903
Sum of Critical Volumes	1,362
Capacity	1,500
Intersection CMA Value	0.908
ATSAC/ATCS CMA Value	0.808
Intersection Level of Service	D

==
Existing Conditions

* S/B FUNCTIONAL RIGHT-TURN LANE

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET
Project: RAD Sunset

Intersection: 13 Lincoln Boulevard and Rose Avenue
Scenario: Future Weekend Conditions (2009), Without Project

		MID-DAY Peak Hour Traffic Volumes			
Movement	**Related**	**Growth**	**W/O Project**	**VPL**	**Critictal**
NB Left	28	5	139	139	*
NB Thru	139	72	1648	873	
NB Right	11	4	98	N/A	
SB Left	4	3	66	66	
SB Thru	49	80	1722	934	*
SB Right	14	6	146	N/A	
EB Left	9	14	307	307	*
EB Thru	9	7	164	187	
EB Right	24	9	209	N/A	
WB Left	13	3	80	80	
WB Thru	14	9	198	198	*
WB Right	5	4	92	92	

	MID-DAY PEAK
Movement	**Lanes**
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	1
SB Right	0
EB Left	1
EB Left-Thru	0
EB Thru	1
EB Right-Thru	1
EB Right	0
WB Left	1
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	1

Approach	RTOR Reductions
Direction	**MID-DAY PEAK**
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases	2
Phasing	
Capacity	1500

==

Critical Movement Analysis: Results Summary

==

	MID-DAY PEAK
East/West Critical Volumes	505
North/South Critical Volumes	1,073
Sum of Critical Volumes	1,578
Capacity	1,500
Intersection CMA Value	1.052
ATSAC/ATCS CMA Value	0.952
Intersection Level of Service	E

==

Future Weekend Conditions (2009), Without Project

Overland Traffic Consultants, Inc.

INTERSECTION CMA WORKSHEET

Project: RAD Sunset

Intersection: 13 Lincoln Boulevard and Rose Avenue
Scenario: Future Weekend Conditions (2009), With Project (Sunset/Main Access)

MID-DAY Peak Hour Traffic Volumes

Movement	W/O Proj.	Project	W/ Project	VPL	Crititcal
NB Left	139	4	143	143	*
NB Thru	1648	0	1648	873	
NB Right	98	0	98	N/A	
SB Left	66	0	66	66	
SB Thru	1722	0	1722	938	*
SB Right	146	8	154	N/A	
EB Left	307	5	312	312	*
EB Thru	164	4	168	191	
EB Right	209	5	214	N/A	
WB Left	80	0	80	80	
WB Thru	198	4	202	202	*
WB Right	92	0	92	92	

Movement	MID-DAY PEAK Lanes
NB Left	1
NB Left-Thru	0
NB Thru	1
NB Right-Thru	1
NB Right	0
SB Left	1
SB Left-Thru	0
SB Thru	1
SB Right-Thru	1
SB Right	0
EB Left	1
EB Left-Thru	0
EB Thru	1
EB Right-Thru	1
EB Right	0
WB Left	1
WB Left-Thru	0
WB Thru	1
WB Right-Thru	0
WB Right	1

Approach Direction	RTOR Reductions MID-DAY PEAK
NorthBound	0
SouthBound	0
EastBound	0
WestBound	0

Number of Phases 2
Phasing

Capacity 1500

===
Critical Movement Analysis: Results Summary
===

	MID-DAY PEAK
East/West Critical Volumes	514
North/South Critical Volumes	1,081
Sum of Critical Volumes	1,595
Capacity	1,500
Intersection CMA Value	1.063
ATSAC/ATCS CMA Value	0.963
Intersection Level of Service	E
PROJECT IMPACT VALUE	0.011

===
Future Weekend Conditions (2009), With Project (Sunset/Main Access)

APPENDIX G – WATER AND WASTEWATER:

WEST LOS ANGELES TRANSPORTATION FACILITY

G1 – UTILITY STUDY FOR METROPOLITAN TRANSIT AUTHORITY,
DIVISION 6 BUS SERVICE FACILITY LOCATED AT
JEFFERSON BOULEVARD AND RODEO ROAD,
LOS ANGELES,
APRIL 30, 2004.

SUNSET AVENUE PROJECT

G2 – UTILITY STUDY FOR METROPOLITAN TRANSIT AUTHORITY,
DIVISION 6 "THE DEPOT" APARTMENTS LOCATED AT 100 SUNSET AVENUE,
LOS ANGELES,
APRIL 30, 2004.

West Los Angeles Transportation Facility

G1 – Utility Study for Metropolitan Transit Authority, Division 6 Bus Service Facility Located at Jefferson Boulevard and Rodeo Road, Los Angeles,

April 30, 2004.

Metropolitan Transit Authority, Division 6
Bus Service Facility
Located at Jefferson Boulevard and Rodeo Road, Los Angeles.

UTILITY STUDY

Project No. 18750

May 24th, 2004

Prepared by:
Mollenhauer Group
411 West Fifth Street
Los Angeles, CA 90013

Metropolitan Transit Authority, Division 6
Bus Service Facility
Located at Jefferson Boulevard and Rodeo Road, Los Angeles.
Storm Water Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority Division 6 Bus repair facility project consists of the following; one large bus repair shop building (48,300 SF), parking on the main building roof and second story parking facility located along the east side of the property, A large parking lot for Buses, Fuel facilities, cleaning facilities and other small support structures that are consistent with maintaining and operating a large bus fleet. This is based on plans provided by Whitfield Associates on March 10, 2004.

The Bus Service Facility is located on the east side of Jefferson Boulevard, just 660 feet north of the intersection of Rodeo Road at its southern most point. The site is composed of two lots, Numbers 17 and 18, with 3.08 and 1.545 acres respectively, for a total site area of 4.635 acres.

The existing site drains into two pipe systems (see attached storm water sketch ST-1). Runoff from the northern part of the site is collected into a 10 inch storm drain pipe. The pipe outlets into the back of a standard #40 Catch Basin located along the east side of Jefferson Boulevard. The catch basin has on 18-inch RCP storm drain outlet that drains to the west under Jefferson Boulevard and outlets into Ballona Creek just west of Jefferson Boulevard. This cross culvert is located approximately 100 feet south of the northern property line.

Runoff from the southern part of the site is collected into a 12 inch storm drain pipe. The pipe outlets into the back of a standard #40 Catch Basin located along the east side of Jefferson Boulevard. The catch basin has on 27-inch RCP storm drain outlet that drains southern property line.

The proposed storm drainage facilities will continue to divide the site into two complementary systems, each composed of a network of Roof Drains, Drain inlets, field drains. These systems will continue to tie into the existing catch basins along Jefferson Boulevard. Each system will employ at storm water treatment unit sized to treat its proportion of the total site design storm (0.75-inch) flow of 0.807 cubic feet per second. This will result in a total volume of 10,828 cubic feet of water treated per design storm.

Metropolitan Transit Authority, Division 6
Bus Service Facility
Located at Jefferson Boulevard and Rodeo Road, Los Angeles.
Water Service Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority Division 6 Bus repair facility project consists of the following; one large bus repair shop building (48,300 SF), parking on the main building roof and second story parking facility located along the east side of the property, A large parking lot for Buses, Fuel facilities, cleaning facilities and other small support structures that are consistent with maintaining and operating a large bus fleet.

The Bus Service Facility is located on the east side of Jefferson Boulevard, just 660 feet north of the intersection of Rodeo Road at its southern most point. The site is composed of two lots, Numbers 17 and 18, with 3.08 and 1.545 acres respectively, for a total site area of 4.635 acres. This is based on plans provided by Whitfield Associates on March 10, 2004.

Water service to the entire proposed project is provided by the City of Los Angeles Department of Water and Power.

City of Los Angeles Department of Water and Power (LADWP) water mains exist both along the west property frontage on Jefferson Boulevard and also on the north property line along the private road “Liberty Way” (See attach water sketch, W-1). The water main in Jefferson Boulevard is 8-inch Asbestos Concrete pipe across the whole frontage. The main is located 15 feet west out into Jefferson Boulevard from our west property line. The water main in Liberty Way is 6-inche pipe all the way from La Cienega Blvd to the northeast corner of the property. It then is reduced to a 2 inch main across the northern property line to where it joins the 8-inch main in Jefferson Blvd. These lines and the 8-inch main in Rodeo Road and 12-inch main in La Cienega Blvd form a loop.

There is an existing 6-inch water service off of the water main in Jefferson Boulevard up by the northwest corner that serves the subject property. There is an existing fire hydrant located just south of this water service. There is also an existing fire hydrant on Liberty Way located approximately 275 feet east of the northeast property corner.

For this report we have proposed that the facility will require, at maximum, 395 Gallons per minute (GPM) for domestic flow and 475 GPM for fire service flow. LADWP provided us with A Fire Service Pressure Flow Report in response to our Service Advisory Request. This report tells us the water is available and list what the pressure would be at various flow rates up to the maximum for the size of service. For this project location there is minimum of 97 pounds per square inch (PSI) pressure available at a flow rate of 600 GPM.

Metropolitan Transit Authority, Division 6
Bus Service Facility
Located at Jefferson Boulevard and Rodeo Road, Los Angeles.
Sewer Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority Division 6 Bus repair facility project consists of the following; one large bus repair shop building (48,300 SF), parking on the main building roof and second story parking facility located along the east side of the property, A large parking lot for Buses, Fuel facilities, cleaning facilities and other small support structures that are consistent with maintaining and operating a large bus fleet.

The Bus Service Facility is located on the east side of Jefferson Boulevard, just 660 feet north of the intersection of Rodeo Road at its southern most point. The site is composed of two lots, Numbers 17 and 18, with 3.08 and 1.545 acres respectively, for a total site area of 4.635 acres. This is based on plans provided by Whitfield Associates on March 10, 2004.

The sanitary service to the entire proposed project is provided by the City of Los Angeles Bureau of Public Works (LABPW).

There is the Sanitary Sewer La Cienega Trunk line that runs right through the property on an easement that starts at the north property line about the midpoint, heads down to the southeast for a short bit and then continues to about the Southwest corner of the property (see attached sewer sketch, S-1). There is an existing 8-inch sewer lateral off of this trunk line that starts at the North lot line jog area and continues to the east in Liberty Way for approximately 925 feet.

The proposed facilities will generate an estimated flow of 3,864 Gallons per day (GPD). This will connect to the existing 8-inch sewer lateral in Liberty Way. The City of Los Angeles Bureau of Sanitation gauged this sewer and recorded the existing flow at 20.0% of full. When the proposed estimate flow for the project is added to the existing the combined flow 20.6% of Full. The Bureau has determined that there is Capacity available in the system. A copy of the approved Sewer Availability Report is attached (SS-2).

Metropolitan Transit Authority, Division 6
Bus Service Facility
Located at Jefferson Boulevard and Rodeo Road, Los Angeles.
Gas Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority Division 6 Bus repair facility project consists of the following; one large bus repair shop building (48,300 SF), parking on the main building roof and second story parking facility located along the east side of the property, A large parking lot for Buses, Fuel facilities, cleaning facilities and other small support structures that are consistent with maintaining and operating a large bus fleet.

The Bus Service Facility is located on the east side of Jefferson Boulevard, just 660 feet north of the intersection of Rodeo Road at its southern most point. The site is composed of two lots, Numbers 17 and 18, with 3.08 and 1.545 acres respectively, for a total site area of 4.635 acres. This is based on plans provided by Whitfield Associates on March 10, 2004.

The existing gas facilities are based on City substructure map 4998. Gas facilities in the immediate vicinity of the project site are only present along the North property line on Liberty Way. Southern California Gas Company has a 3" main located in Liberty way that is 2.5 feet south of the North property line. (see attached gas. G-1) this main starts at the jog point of the North property line and continues to the east to La Cienega Boulevard. Once in La Cienega Boulevard the 3 inch gas main joins a 4-inch gas main that ties into a 6-inch distribution system.

Once the facility demand is proved by the Mechanical Engineer, the proper gas service size can be installed from the 3 inch gas line on Liberty Way.

Metropolitan Transit Authority, Division 6
Bus Service Facility
Located at Jefferson Boulevard and Rodeo Road, Los Angeles.
Electrical Service Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority Division 6 Bus repair facility project consists of the following; one large bus repair shop building (48,300 SF), parking on the main building roof and second story parking facility located along the east side of the property, A large parking lot for Buses, Fuel facilities, cleaning facilities and other small support structures that are consistent with maintaining and operating a large bus fleet.

The Bus Service Facility is located on the east side of Jefferson Boulevard, just 660 feet north of the intersection of Rodeo Road at its southern most point. The site is composed of two lots, Numbers 17 and 18, with 3.08 and 1.545 acres respectively, for a total site area of 4.635 acres. This is based on plans provided by Whitfield Associates on March 10, 2004.

Electrical service to the entire proposed project is provided by the City of Los Angeles Department of Water and Power.

City of Los Angeles Department of Water and Power (LADWP) electric maintains a transmission line along the north property line in Liberty Way "private drive". This line is a 4.8 KW line that connects to the distribution network on La Cienaga Boulevard to the west of our site and services properties that border Liberty Way. From this line a service line extends from the end of Liberty Way, to Jefferson Boulevard to the east. Then it turns south and then enters the property where it connects to 3 transformers. One of the existing transformers steps the electricity down to 240 volts at 1 Phase, the other two transformers are tied together and step the 4.8 KV line down to 240 volts at 3 phase. LADWP also maintains transmission lines along Rodeo Road to the south.

Under the proposed plans for the Bus facility these existing service transformers will have to be evaluated to see if they can deliver the projects load. The proposed building will have to evaluate to see if the service line has to be moved. The LADWP will conduct a capacity study once our total site electrical load is known by the electrician.

SUNSET AVENUE PROJECT

G2 – UTILITY STUDY FOR METROPOLITAN TRANSIT AUTHORITY,
DIVISION 6 "THE DEPOT" APARTMENTS LOCATED AT 100 SUNSET AVENUE,
LOS ANGELES,
APRIL 30, 2004.

Metropolitan Transit Authority, Division 6
"The Depot" Apartments
Located at 100 Sunset Avenues, Los Angeles.

UTILITY STUDY

Project No. 18636

May 24th, 2004

Prepared by:
Mollenhauer Group
411 West Fifth Street
Los Angeles, CA 90013

Metropolitan Transit Authority,
The Depot Apartments
Located at 100 Sunset Avenues, Los Angeles.
Storm Water Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority "The Depot" Housing complex project consists of the following; two levels of subterranean parking, two main building of 4 levels facing Main Street on top of the parking and another 9 buildings, of levels each, through out the site on top of the parking. The two main buildings are composed of 1,350 Square feet of Commercial space on the ground level and 76 apartments. An additional 128 apartments are located in the other 9 buildings, for a total of 204 apartment units on the entire site. This is based on plans provided by Koning Eizenberg Architecture dated March 10, 2004.

The proposed building site is located on the west side of Sunset Avenue between Pacific Avenue and Main Street. The site is bordered by; Sunset Avenue to the west, Main Street to the north, Thornton Place to the east and Pacific Avenue to the south. The total site area is 3.13 acres.

The existing site drains in a catch basin located on Main Street in the Southeast corner of the property (see storm water Sketch, ST-1) The water form the site is collected in a series of Drain inlets and then conveyed to the catch basin by a pipe system. This Catch Basin is the low spot for the all the streets adjacent to the property. Form the high corner of Sunset Ave and Pacific Ave, water flows to the east on Sunset Ave and South on Main Street to the catch basin or South on Pacific Ave and east on Thornton Place. This catch basin outlets into a 12 inch storm drain that goes southeast to where it ties into a 30-inch storm Drain main line.

The proposed storm drainage facilities will be a network of pipes that connect all the Roof Drains, Drain Inlets and field drains and connect them to a storm water treatment unit. This system will continue to tie into the existing catch basin on the corner of Main Street and Thornton Place. The system will employ at storm water treatment unit sized to treat the design storm (0.75-inch) flow of 0.568 cubic feet per second. This will result in a total volume of 6985 cubic feet of water treated per design storm.

Metropolitan Transit Authority, Division 6
The Depot Apartments
Located at 100 Sunset Avenues, Los Angeles.
Water Service Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority "The Depot" Housing complex project consists of the following; two levels of subterranean parking, two main building of 4 levels facing Main Street on top of the parking and another 9 buildings, of levels each, through out the site on top of the parking. The two main buildings are composed of 1,350 Square feet of Commercial space on the ground level and 76 apartments. An additional 128 apartments are located in the other 9 buildings, for a total of 204 apartment units on the entire site. This is based on plans provided by Koning Eizenberg Architecture dated March 10, 2004.

The proposed building site is located on the west side of Sunset Avenue between Pacific Avenue and Main Street. The site is bordered by; Sunset Avenue to the west, Main Street to the north, Thornton Place to the east and Pacific Avenue to the south. The total site area is 3.13 acres.

Water service to the entire proposed project is provided by the City of Los Angeles Department of Water and Power.

City of Los Angeles Department of Water and Power (LADWP) water mains exist on three sides of the project, (see attach water sketch, W-1). There is an 8-inch cast iron pipe main located in Main Street. There are two water mains in Sunset, a 4-inch on the south side, and a 6 inch located on the north side of Sunset Avenue. There is a 12-inch main line located in Pacific Avenue.

The site is currently serviced by a 4-inch water service and a ¾-inch water service off of Main Street. As shown on Sketch W-1.

The proposed Developments maximum water demands will be 395 Gallons per minute (GPM) for domestic or 475 GPM for fire service. LADWP provided us with the Fire Service Pressure Flow Report in response to our SAR request. The report states there is 72 psi pressure available at the flow rate of 600 GPM. A copy of the City of Los Angeles Fire Service Pressure Report is attached (W-2).

Metropolitan Transit Authority, Division 6
The Depot Apartments
Located at 100 Sunset Avenues, Los Angeles.
Sewer Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority "The Depot" Housing complex project consists of the following; two levels of subterranean parking, two main building of 4 levels facing Main Street on top of the parking and another 9 buildings, of levels each, through out the site on top of the parking. The two main buildings are composed of 1,350 Square feet of Commercial space on the ground level and 76 apartments. An additional 128 apartments are located in the other 9 buildings, for a total of 204 apartment units on the entire site. This is based on plans provided by Koning Eizenberg Architecture dated March 10, 2004.

The proposed building site is located on the west side of Sunset Avenue between Pacific Avenue and Main Street. The site is bordered by; Sunset Avenue to the west, Main Street to the north, Thornton Place to the east and Pacific Avenue to the south. The total site area is 3.13 acres.

The sanitary service to the entire proposed project is provided by the City of Los Angeles Bureau Department of Public Works (LABPW).

The site is currently served by a sewer service located on the South east corner of the property by the intersection of Main Street and Thornton Place where it joins a 6" main line. There is a different sewer main that starts approximately 60 ft north on Main Street from the northeast property corner. This is also a 6-inch main line and it runs to the east up Sunset Avenue.

We were concerned about the capacity of these two existing 6-inch sewers due to their size, slope and the additional 35,000 Gallons per Day (GPD) from the project. The LABPW conducted a capacity study of the two near by systems (As shown on sketch SS-1). This study included gauging the existing flows in the main street system and the Sunset Ave system. Each system failed when evaluated on its own ability to carry the projects design flow. The LABPW has confirmed that there is enough total sewer capacity for the project if it is split between the two systems 50 / 50 (See attached approved sewer availability letter SS-2). The split criteria is noted in the remarks section of the signed Sewer Availability Report.

Metropolitan Transit Authority, Division 6
The Depot Apartments
Located at 100 Sunset Avenues, Los Angeles.
Gas Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority "The Depot" Housing complex project consists of the following; two levels of subterranean parking, two main building of 4 levels facing Main Street on top of the parking and another 9 buildings, of levels each, through out the site on top of the parking. The two main buildings are composed of 1,350 Square feet of Commercial space on the ground level and 76 apartments. An additional 128 apartments are located in the other 9 buildings, for a total of 204 apartment units on the entire site. This is based on plans provided by Koning Eizenberg Architecture dated March 10, 2004.

The proposed building site is located on the west side of Sunset Avenue between Pacific Avenue and Main Street. The site is bordered by; Sunset Avenue to the west, Main Street to the north, Thornton Place to the east and Pacific Avenue to the south. The total site area is 3.13 acres.

The existing gas facilities are based on City substructure map 110-144 & 108-141. Gas facilities in the immediate vicinity of the project site are only present along the west property line on Pacific Avenue. Southern California Gas Company has a 4" main located in Pacific Avenue that is 11 feet east of the west property line, (See attached gas sketch G-1). This main runs the whole length of Pacific Avenue adjacent to the property.

Metropolitan Transit Authority, Division 6
The Depot Apartments
Located at 100 Sunset Avenues, Los Angeles.
Electrical Infrastructure
May 24th, 2004

The planned Metropolitan Transit Authority "The Depot" Housing complex project consists of the following; two levels of subterranean parking, two main building of 4 levels facing Main Street on top of the parking and another 9 buildings, of levels each, through out the site on top of the parking. The two main buildings are composed of 1,350 Square feet of Commercial space on the ground level and 76 apartments. An additional 128 apartments are located in the other 9 buildings, for a total of 204 apartment units on the entire site. This is based on plans provided by Koning Eizenberg Architecture dated March 10, 2004.

The proposed building site is located on the west side of Sunset Avenue between Pacific Avenue and Main Street. The site is bordered by; Sunset Avenue to the west, Main Street to the north, Thornton Place to the east and Pacific Avenue to the south. The total site area is 3.13 acres.

Electrical service to the entire proposed project is provided by the City of Los Angeles Department of Water and Power.

City of Los Angeles Department of Water and Power (LADWP) electric maintains a transmission lines along the west property line on Main Street. This transmission line is 4.8 KV. There is also Transmission lines on the far side of Pacific Avenue. This line is also a 4.8 KV line. The current service comes off the Main Street transmission line to a set of transformers on the northwest corner of Main Street and Thornton Place. These transformers service the property and supply 240 volts at 3 phase.

Under the proposed plans for "The Depot" the existing transformers will need to be moved to accommodate the proposed building. The existing service transformers will have to be evaluated to see if they can deliver the proposed projects new load or they will have to upgrade. The proposed load for the complete site will need to be submitted to LADWP as soon as our proposed electrical load is known. A capacity study will be conducted by LADWP at that time.

Appendix H – Motions:

West Los Angeles Transportation Facility

H1 – Motion by Los Angeles County
Supervisor Yvonne B. Burke, Agenda Item No. 26,
September 25, 2003.

H2 – Motion by City of Los Angeles
Mayor & Metro Board Director,
James K. Hahn, Regular Board Meeting,
December 4, 2003.

West Los Angeles Transportation Facility

H1 – Motion by Los Angeles County Supervisor Yvonne B. Burke, Agenda Item No. 26, September 25, 2003.

Motion by Supervisor Yvonne B. Burke **September 25, 2003**

Agenda Item No. 26

While we all certainly realize how important it is for this agency to modernize and expand its bus facilities in order to incorporate new technology and meet growing demands for transit; it is equally important that we balance that need with the responsibility to ensure that such a facility will not only be compatible with the surrounding communities, but compliment them as well. After all, we are looking at a proposed facility that will operate 24 hours per day, 7 days-a-week being retrofitted into these surrounding communities. In essence, the MTA is undertaking the development and construction of a "prototype" for future bus and rail maintenance facilities that may be contemplated in the already developed densely populated urban areas.

As an MTA Board member, I also have a responsibility not only to the constituents of the surrounding communities, but also to my fellow elected representatives, city, state, and federal who represent this area, as well.

Over the past several months as MTA has sought to develop and bring this issue forward to the Board for consideration, I have voiced my concerns over the need to ensure that noise, traffic and air quality issues be mitigated to the fullest extend needed. I am willing to lend my conditional and qualified support to this project on the basis that in the preparation of the Environmental Impact Report (EIR) staff will return to this board with an EIR that clearly mitigates noise, traffic and air quality to the levels described in the recommendations stated below. It is imperative that we ensure the needs of the surrounding communities are being met.

I, Therefore, Move that the Board Approve the Development Exchange Agreements as reflected in item No. 26 subject to the following conditions:

MTA staff, and the developer will continue to work closely with the community throughout the EIR process and potential construction.

- MTA staff will assemble and convene a Design Review committee made up of representatives from Blair Hills, Cameo Woods and East Culver city as well as representatives from the neighboring commercial community.

Traffic impacts identified through the EIR must be fully mitigated, including (but not limited to)

- MTA buses not in service, must stay off La Cienega south of Jefferson, and off of Rodeo Road between La Cienega and Jefferson during peak periods.
- MTA busses shall further avoid using Rodeo Road, west of La Cienega, during the hours from 9:00PM to 7:00Am.

- Noise Mitigations must be put in place to ensure that the facility does not increase the ambient noise levels identified during the EIR in the neighboring residential areas, particularly Cameo Woods, Blair Hills, Baldwin Gardens, and East Culver City especially between the hours of 9:00 PM and 7:00 AM.

- Additionally, noise mitigations shall be included to prevent and avoid loud impact noises during those periods, as well.

- Noise mitigations shall also be included dealing specifically with noise associated with employees and cars entering and leaving the parking facility in the late night and early morning hours especially during the change of shift periods.

H2 – Motion by City of Los Angeles Mayor & Metro Board Director, James K. Hahn, Regular Board Meeting, December 4, 2003.

Motion
By Director James K. Hahn

37

Many complex environmental issues, such as air quality, stormwater runoff, and the push for renewable energy sources, impact Southern California. As a result, all business practices and new developments that affect the different environmental media are drawing increased scrutiny from the regulatory community. In response to these pressures, there have been many examples of great leadership within Southern California, and Los Angeles County in particular. Such examples include the MTA conversion of the majority of its diesel fleet to compressed natural gas (CNG), the City of Los Angeles and the Los Angeles Community College District adopting the Leadership in Energy and Environmental Design (LEED™) sustainable building rating system, and the Los Angeles Department of Water and Power increase in its renewable energy portfolio and sustained rebate offers for the use of solar power.

As a member of the MTA Board, I am interested in exploring the possibility of the MTA blazing more trails in the interest of the environment, especially with a 21st Century proposal like that for Division 6.

I, Therefore, Move that the Board direct MTA Staff to explore the feasibility of, and report back in 60 days on, the inclusion of sustainable building practices into the design for this facility, and for subsequent MTA developments of this magnitude, including, but not limited to such measures as:

- LEED certification for the design of the main building structure at the site.
- The installation of photovoltaic (solar) panels for future energy savings.
    - Consider their use as mechanisms to provide shade for parked buses and/or employee vehicles.
    - Determine how much DWP rebates would be able to offset the installation costs.
- The implementation of Stormwater Best Management Practices (BMPs) in order to reduce the amount of, and improve the quality of, runoff into the City storm drain system, which drains into Ballona Creek, and subsequently to the Santa Monica Bay.
    - Consider options for on-site water retention and reuse.