

**APPENDIX B**  
**TRAFFIC IMPACT ANALYSIS**

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**DRAFT**  
**TRAFFIC IMPACT ANALYSIS**  
**SHIPYARD SEDIMENT REMEDIATION PROJECT**  
**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**  
**SAN DIEGO REGION**

LSA

May 2011

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**SHIPYARD SEDIMENT REMEDIATION PROJECT**  
**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**  
**SAN DIEGO REGION**

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**LSA**

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## INTRODUCTION

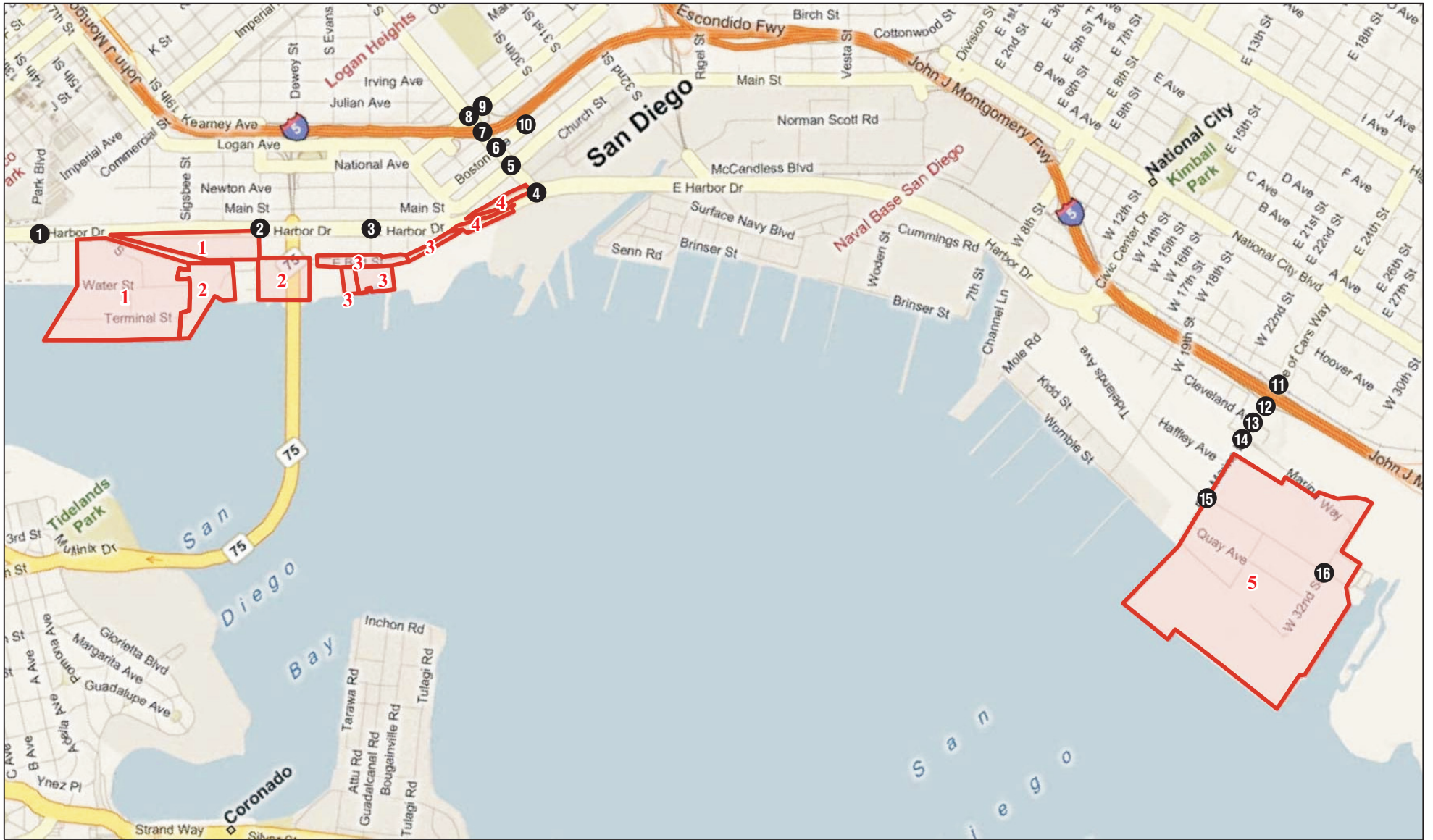
LSA Associates, Inc. (LSA) is pleased to provide this traffic analysis for the proposed Shipyard Sediment Remediation Project. The purpose of the following analysis is to identify the short-term and long-term traffic impacts associated with project build-out. This traffic study has been prepared in accordance with the methodologies and procedures outlined in the City of San Diego *Traffic Impact Study Guidelines*, San Diego Traffic Engineers' Council (SANTEC) *Traffic Impact Study Guidelines*, the Highway Capacity Manual 2000 (HCM) published by the Transportation Research Board, and applicable provisions from the California Environmental Quality Act (CEQA). It should be noted that the City of National City follows the SANTEC *Traffic Impact Study Guidelines*.

## PROJECT DESCRIPTION

The proposed project is the dredging of sediment adjacent to shipyards in the San Diego Bay, the dewatering, solidification and possible solidification of the dredged material on-shore, potential treatment of decanted water, and the transport of the removed material to an appropriate landfill for disposal. The proposed project includes the dredging and removal of approximately 143,400 cubic yards of contaminated sediment from the Shipyard Sediment Site. The project consists of marine sediments in the bottom bay waters that contain elevated levels of pollutants above San Diego Bay background conditions. The purpose of the project is to implement a Tentative Cleanup and Abatement Order issued by the California Regional Water Quality Control Board, San Diego Region (hereinafter the San Diego Water Board). The San Diego Water Board is the Lead Agency under California Environmental Quality Act (CEQA) for the proposed project.

The removal of the marine sediments will require upland areas for dewatering, solidification and stockpiling of the materials, and potential treatment of decant waters prior to off-site disposal. Therefore, in addition to the open waters of the Shipyard Sediment Site, five upland areas have been identified by the San Diego Water Board as potential sediment staging areas. Each of the potential staging areas has more defined usable areas, further described below. Figure 1 shows the potential sediment staging locations.

- **Staging Area 1:** 10<sup>th</sup> Avenue Marine Terminal and Adjacent Parking (approximately 49.66 potentially usable acres).
- **Staging Area 2:** Commercial Berthing Pier and Parking Lots Adjacent to Coronado Bridge (approximately 11.66 potentially usable acres).
- **Staging Area 3:** SDG&E/BAE/BAE and NASSCO Parking Lot (approximately 7.27 potentially usable acres).
- **Staging Area 4:** NASSCO/NASSCO Parking and Parking Lot North of Harbor Drive (approximately 3.85 potentially usable acres).



LSA

LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection



SOURCE: Bing Maps (2008)

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FIGURE 1

*San Diego Sediment Project*  
 Potential Sediment Staging Locations Index  
 and Study Area Intersections



- **Staging Area 5:** 24<sup>th</sup> Street Marine Terminal and Adjacent Parking Lots (approximately 145.31 potentially usable acres).

The five potential Staging Areas consist primarily of leasehold lands and associated parking areas in the immediate vicinity of the Shipyard Sediment Site. The potential usable areas within each potential Staging Area are comprised of open, paved portions that could be used for the dewatering, solidifying and drying of the dredged marine sediments. Staging Areas 1 through 4 are located within the City of San Diego and are designated in the City's General Plan as Industrial Employment. Staging Area 5 is located within the City of National City and is designated in the City's existing General Plan as Industrial–Tidelands Manufacturing and is under the jurisdiction of the San Diego Unified Port District. National City is currently updating its General Plan; the proposed Land Use designation for Staging Area 5 in the updated General Plan is San Diego Unified Port District (land uses governed by the San Diego Port Master Plan).

Once the dredge materials have been dried and tested, they will be loaded onto trucks for disposal at an approved landfill. For purposes of this project, it is assumed that 85 percent of the material will be transported from the staging area to Otay Landfill, approximately 15 miles southeast of the Shipyard Sediment Site. Although the sediment is not known to be classified as California hazardous material, it will be tested upon removal and prior to disposal. It is assumed for the purposes of this PEIR that up to 15 percent of the material will require transport to a hazardous waste facility (a Class III facility), most likely the Kettleman Hills Landfill in Kings County, California, near Bakersfield.

The number of truck trips necessary to remove the treated dredge material is based on several factors. The average truck weight during a recent dredging project at BAE Systems was 21 tons per truck. The industry standard metric is 1.6 tons per cubic yard of sediment. Geosyntec Inc. estimates that 50 truck trips per day is the feasible maximum number of trucks that can operate at the treatment site. The entreated dredge quantity is 143,400 cubic yards. As a result of the increase in bulk that would occur after treatment with binding agents, the total treated dredge quantity to be transported off site is approximately 164,910 cubic yards. With 21 tons (or 13.1 cubic yards) of material per truck, and 50 truck trips per day, the total duration of the dredge-and-haul activity is approximately 50 weeks. The duration of the dredge-and-haul activity is assumed to include several weeks of equipment set up and staging area preparation; therefore, a 54-week or 12.5-month schedule is anticipated.

Trucks departing from potential Staging Areas 1 through 4 would access the Interstate 5 (I-5) south via East Harbor Drive and 28<sup>th</sup> Street; trucks departing from Staging Area 5 would access the I-5 south either directly from Bay Marina Drive or from West 32<sup>nd</sup> Street to Marina Way to Bay Marina Drive. The preferred most direct route to Otay Landfill is via I-5 south to Highway State Route 54 (SR-54) east, to Interstate 805 (I-805) south. Although the sediment is not known to be classified as California hazardous material, it will be tested upon removal and prior to disposal. It is assumed for the purposes of this study that up to 15

percent of the material will require transport to a Class III facility, most likely the Kettleman Hills Landfill in Kings County, California, near Bakersfield. Based on the excavation quantity of 143,400 cubic yards, and accounting for an additional 15 percent of bulk material due to the dewatering and treatment process, it is estimated that up to 250 truck trips per week could be required over an approximately 12.5-month period to remove the material. These estimates are a worst-case scenario and will be finalized during the design phase.

## **REGULATORY SETTING**

### **Regional Transportation Plan**

The Regional Transportation Plan (RTP), prepared and adopted by the San Diego Association of Governments (SANDAG) is the region's long-range mobility plan. The RTP plans for and identifies projects for multiple modes of transportation in order to achieve a balanced regional system. It establishes the basis for state funding of local and regional transportation projects, and is a prerequisite for federal funding. SANDAG prioritizes and allocates the expenditure of regional, state, and federal transportation funds to implement RTP projects.

**Congestion Management Plan.** The region's Congestion Management Program (CMP), also prepared by SANDAG, serves as a short-term element of the RTP. It focuses on actions that can be implemented in advance of the longer-range transportation solutions contained within the RTP. The CMP establishes programs for mitigating the traffic impacts of new development and monitoring the performance of system roads relative to Level of Service (LOS) standards. It links land use, transportation, and air quality concerns.

### **Bayshore Bikeway Plan**

The Bayshore Bikeway is a designated 24-mile bikeway route around San Diego Bay. Planning for the Bikeway began in 1975 with a feasibility study prepared by Caltrans and funded by National City. The stated objective of the study was "to determine an acceptable route for bicyclists to traverse the southern regions of San Diego Bay." The final study, released in 1976, recommended 11 miles of bicycle paths and 14 miles of bike lanes and bike routes providing convenient and scenic bicycle transportation and recreation around the bay. Currently, the Bayshore Bikeway route consists of approximately 12 miles of offstreet bicycle paths, and about 12 miles of on-street sections designated as either bicycle lanes or bicycle routes. SANDAG is developing additional improvements to the bikeway based on the Bayshore Bikeway Plan, which was adopted by SANDAG in 2006, to identify opportunities to improve the bikeway along the east side of the Bay. More specifically, SANDAG is undertaking engineering and environmental studies for the next project, which would extend the bike path north along the east side of the San Diego Bay through Chula Vista and National City to 32<sup>nd</sup> Street in the City of San Diego. A new section of bike path from

Palomar Street to H Street in Chula Vista is scheduled for construction in the summer of 2011. SANDAG also is pursuing funding for improvements beginning at Marina Way in National City north to 32<sup>nd</sup> Street in San Diego. Construction is anticipated to begin in summer 2012.

## City General Plans

**City of San Diego Mobility Element.** The Mobility Element, the RTP and the CMP all highlight the importance of integrating transportation and land use planning decisions, and using multi-modal strategies to reduce congestion and increase travel choices. However, the Mobility Element more specifically plans for the City of San Diego's transportation goals and needs. An overall goal of the Mobility Element is to further the attainment of a balanced, multi-modal transportation network that also minimizes environmental and neighborhood impacts. A balanced network is one in which each mode, or type of transportation, is able to contribute to an efficient network of services meeting varied user needs.

**Barrio Logan Community Plan.** Community Plans in the City of San Diego establish individual communities' land use designations and policies guiding development. The Barrio Logan Community Plan ensures consistency with overall guiding principles, land use policies, and other goals found in the City's General Plan. The Barrio Logan/Harbor 101 Community Plan was adopted in 1978. Because of the community's geographical location on the San Diego waterfront, proximity to downtown San Diego, and its older urban and mixed-use characteristics that have been described at length, transportation plays a major role in the community's development. Practically all known forms of transportation have an important role in the community and its future development. Transportation modes for the Barrio Logan/Harbor 101 community fall into the following categories: Automobile Transportation (freeways, major streets, collector streets, and local streets), Public Transportation in the form of rail (MTDB) and Bus Transportation, Industry-related Transportation (rail, trucking, and shipping), and Pedestrian/Bicycle Open Space-Related Transportation (recreational transit, bicycle, and pedestrian). According to the Community Plan, because of the many existing transportation modes in the community, major circulation conflicts exist. The City is currently updating the Barrio Logan Community Plan. The preferred land use map and plan are anticipated to be ready for review in late fall 2011.

**National City General Plan.** The National City General Plan was approved in 1996. The General Plan contains land use and development policies that serve as the foundation for all planning decisions in the City. The combined General Plan/Zoning Map recognizes the rights-of-way of I-5, I-805, and the San Diego Trolley. National City is currently in the process of updating its General Plan. The update considers the interconnectedness of planning issues, responds to diverse community needs, identifies realistic implementing actions, and establishes a monitoring and evaluation process to track progress toward

reaching goals and objectives. Once approved, the updated Circulation Element will be a transportation plan for the movement of people and goods and it will identify the general location and extent of existing and proposed major roadways, transportation routes, terminals, air and water ports, and pedestrian and bikeway facilities.

## **METHODOLOGY**

The following traffic analysis was conducted according to the methodologies and procedures outlined in the City of San Diego *Traffic Impact Study Guidelines*, SANTEC *Traffic Impact Study Guidelines*, the HCM 2000 published by the Transportation Research Board, and applicable provisions from CEQA.

### **Project Study Area**

The study area analyzed in this report includes the following intersections and roadway segments. In addition to the potential sediment staging locations, previously referenced Figure 1 also shows the locations of the study area intersections and the roadway segments analyzed in this report.

#### *Intersections*

1. Park Boulevard/Harbor Drive;
2. Cesar Chavez Parkway/Harbor Drive;
3. Sampson Street/Harbor Drive;
4. 28<sup>th</sup> Street/Harbor Drive;
5. 28<sup>th</sup> Street/Main Street;
6. 28<sup>th</sup> Street/Boston Avenue;
7. I-5 Southbound Off-Ramp/28<sup>th</sup> Street;
8. 28<sup>th</sup> Street/National Avenue;
9. I-5 Northbound Ramps/National Avenue;
10. I-5 Southbound Ramps/Boston Avenue;
11. I-5 Northbound Ramps/Mile of Cars Way;
12. I-5 Southbound Ramps/Mile of Cars Way;
13. Cleveland Street/Bay Marina Drive;
14. 32nd Street/Bay Marina Drive;
15. Tidelands Avenue/Bay Marina Drive; and

16. Tidelands Avenue/W. 32<sup>nd</sup> Street.

*Roadway Segments*

1. Harbor Drive between Park Boulevard and Cesar Chavez Parkway;
2. Harbor Drive between Cesar Chavez Parkway and Sampson Street;
3. Harbor Drive between Sampson Street and 28<sup>th</sup> Street;
4. Harbor Drive between 28<sup>th</sup> Street and 32<sup>nd</sup> Street;
5. 28<sup>th</sup> Street between Harbor Drive and Main Street;
6. 28<sup>th</sup> Street between Main Street and Boston Avenue;
7. 28<sup>th</sup> Street between Boston Avenue and National Avenue;
8. National Avenue between 28<sup>th</sup> Street and I-5 Northbound Ramps;
9. Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp;
10. 24<sup>th</sup> Street between I-5 Northbound Ramps and I-5 Southbound Ramps;
11. 24<sup>th</sup> Street between I-5 Southbound Ramps and Cleveland Street;
12. 24<sup>th</sup> Street between Cleveland Street and W. 32<sup>nd</sup> Street;
13. 24<sup>th</sup> Street between W. 32<sup>nd</sup> Street and Tidelands Avenue;
14. W. 32<sup>nd</sup> Street between 24<sup>th</sup> Street and Tideland Avenue; and
15. Tidelands Avenue between 24<sup>th</sup> Street and W. 32<sup>nd</sup> Street.

Daily, a.m., and p.m. peak-hour (7 a.m.–9 a.m. and 4 p.m.–6 p.m.) turn volumes for the study area intersections and roadway segments were collected by National Data and Surveying Services (NDS) in March 2011. The existing traffic counts are provided as Attachment A.

**Intersection Level of Service Methodology.** The HCM 2000 methodology has been used to determine the intersection level of service (LOS) at signalized intersections within the study area. The resulting delay is expressed in terms of LOS, where LOS A represents free-flow activity and LOS F represents overcapacity operation. LOS is a qualitative assessment of the quantitative effects of such factors as traffic volume, roadway geometrics, speed, delay, and maneuverability on roadway and intersection operations.

The relationship between delay and LOS at signalized intersections is summarized below. Intersections with LOS D are considered the upper limit of satisfactory conditions.

LOS	Unsignalized Intersection Delay per Vehicle (sec)	Signalized Intersection Delay per Vehicle (sec)
A	≤10.0	≤10.0
B	>10.0 and ≤15.0	>10.0 and ≤20.0
C	>15.0 and ≤25.0	>20.0 and ≤35.0
D	>25.0 and ≤35.0	>35.0 and ≤55.0
E	>35.0 and ≤50.0	>55.0 and ≤80.0
F	>50.0	>80.0

Source: Highway Capacity Manual 2000

**Roadway Segment LOS Methodology.** Roadway segments were analyzed on a daily basis by comparing the Average Daily Traffic (ADT) volume to the City of San Diego Proposed Level of Service Standards – Street Segment Average Daily Trip Thresholds for Staging Areas 1 through 4. The City of National City has amended the SANTEC roadway capacities; these are analyzed separately for Staging Area Five. These tables are provided in Attachment B and provide LOS estimates based on traffic volumes and roadway characteristics. This analysis focuses on the performance of specific Major and Collector roadways; therefore, the daily volumes for Major and Collector roadways are summarized below.

Street Classification	Lanes	Capacity (LOS A)	Capacity (LOS B)	Capacity (LOS C)	Capacity (LOS D)	Capacity (LOS E)
<i>City of San Diego</i>						
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Collector (w/ TWLT)	4	10,000	14,000	20,000	25,000	30,000
Collector (w/ TWLT)	3	7,500	10,500	15,000	18,750	22,500
Collector (no TWLT)	3	3,750	5,250	7,500	9,750	11,250
Collector (no TWLT)	2	2,500	3,500	5,000	6,500	8,000
<i>City of National City</i>						
Major Arterial	4	0–15,000	15,001–21,000	21,001–30,000	30,001–35,000	35,001–40,000
Collector	4	0–7,000	7,001–10,000	10,001–14,000	14,001–17,000	17,001–20,000
Collector	2	0–4,000	4,001–5,500	5,501–7,500	7,501–9,000	9,000–10,000

Notes: TWLT = Two-way left-turn lane.

Sources: City of San Diego *Traffic Impact Study Guidelines*, San Diego Traffic Engineers' Council (SANTEC) *Traffic Impact Study Guidelines*.

The table below identifies threshold changes in delay or volume-to-capacity (v/c) ratios that define an impact for intersections and roadway segments. Changes in delay or v/c ratios are only considered significant if the existing LOS is E or F.

LOS With Project	Intersection Delay (seconds)	Roadway Segments v/c Increase
<i>City of San Diego</i>		
E	>2.0	>0.02
F	>1.0	>0.01
<i>City of National City</i>		
E or F	>2.0	>0.02

Sources: City of San Diego *Traffic Impact Study Guidelines*, San Diego Traffic Engineers' Council (SANTEC) *Traffic Impact Study Guidelines*

## EXISTING CONDITIONS

### Existing Circulation System

Key roadways in the vicinity of the proposed project area as follows:

- Interstate 5.** I-5 is located to the east of the project site and is classified and functions as an 8-lane freeway with four main lanes of traffic in each direction. Direct access to the project site from I-5 is provided via northbound and southbound on-/off-ramps at 24<sup>th</sup> Street, northbound on-/off-ramps at National Avenue, and a southbound on-ramp at Boston Avenue.
- Harbor Drive.** Harbor Drive functions as an east-west, 4-lane major arterial between Sigsbee Street and Vesta Street. The road has a raised or landscaped median along the entire length of the segment. Harbor Drive is a designated truck route and has a class II bikeway with bike lanes along both sides of the road. The street has intermittent curbs, sidewalks, and parallel parking along the northern side of the road. The southern side of Harbor Dive has limited curbs and sidewalks. Parallel parking is intermittently permitted between Schley Street and 32<sup>nd</sup> Street. The posted speed limit is 40 and 45 mph.
- 28<sup>th</sup> Street.** 28<sup>th</sup> Street is located southeast of the project site and functions as a north-south, 4-lane collector between Boston Avenue and Main Street and a 4-lane with raised median major arterial between Main Street and Harbor Drive. Between National Avenue and Boston Avenue, 28<sup>th</sup> Street functions as a three-lane collector with two northbound lanes and a southbound lane. This street is a designated truck route. Sidewalks and curbs line both sides of the street for the entire length of the segment. Parallel parking is available on both sides of the street between Main Street and Harbor Drive. The NASSCO shipyard is located at the southern end of 28<sup>th</sup> Street. South of Main Street, Naval Base San Diego fronts on the east side of 28<sup>th</sup> Street, including an access gate to the base. I-5 on- and off-ramps connect 28<sup>th</sup> Street to I-5 near the northern end of the

segment. The Traffic Study for the proposed Barrio Logan Community Plan update recommends that 28<sup>th</sup> Street between Harbor Drive and the I-5 ramps be classified as a 4-lane major arterial.

- **Boston Avenue.** Boston Avenue functions as an east-west, 2-lane collector between 28<sup>th</sup> Street and 32<sup>nd</sup> Street. This road has sidewalks, curbs, and parallel parking spaces on both sides of the street. A southbound I-5 on-ramp is located at the intersection with 29<sup>th</sup> Street.
- **National Avenue.** National Avenue functions as an east-west, 2-lane collector between 16<sup>th</sup> Street and 27<sup>th</sup> Street and a 4-lane collector between Commercial Street and 16<sup>th</sup> Street. Trucks above five tons are prohibited by signage to travel along National Avenue. An eastbound State Route 75 (SR-75) off-ramp is located along National Avenue between Cesar Chavez Parkway and Evans Street. This segment of National Avenue has sidewalks, curbs, and parallel parking on both sides of the road. Diagonal parking is provided on National Avenue on the south side of the street for portions of the segment between Beardsley Street and Evans Street.
- **Cesar Chavez Parkway.** Cesar Chavez Parkway functions as a north-south, 4-lane collector between Logan Avenue and National Avenue and between Main Street and Harbor Drive. This road functions as a 3-lane collector between Logan Avenue and Kearny Avenue and between National Avenue and Main Street. Cesar Chavez Parkway is lined with sidewalks and curbs on both sides of the road, for the entire length of the street. Parallel parking is available on the west side of the street between National Avenue and Main Street. Signs prohibit trucks above five tons from traveling along Cesar Chavez Parkway. A northbound I-5 on-ramp is located at the intersection of Cesar Chavez Parkway and Kearny Avenue. A westbound SR-75 on-ramp is located at the intersection of Cesar Chavez Parkway and Logan Avenue.
- **Sampson Street.** Sampson Street functions as a north-south, 2-lane collector between I-5 and Harbor Drive. Sidewalks, curbs, and parallel parking spaces are located on both sides of the road. Trucks above five tons are prohibited by signage to travel along Sampson Street.
- **Main Street.** Main Street functions as an east-west, 2-lane collector between Beardsley Street and 26<sup>th</sup> Street and between Rigel Street and Yama Street. Main Street functions as a 3-lane collector between 26<sup>th</sup> Street and 27<sup>th</sup> Street and between 29<sup>th</sup> Street and 32<sup>nd</sup> Street, and a 4-lane collector between 27<sup>th</sup> Street and 29<sup>th</sup> Street and between 32<sup>nd</sup> Street and Rigel Street. Curbs and sidewalks are located on both sides of the road, along the entire length of the segment. Signs prohibit trucks over five tons from traveling on Main Street, west of 26<sup>th</sup> Street. A northbound Interstate 15 (I-15) on-ramp and a southbound I-15 off-ramp are located between 32<sup>nd</sup> Street and Rigel Street. Southbound I-5 on and off-ramps are also located near the intersection with Yama Street. Main Street is a designated class III bikeway. Parallel parking is intermittently permitted along both sides of the road.
- **24<sup>th</sup> Street.** 24<sup>th</sup> Street (also known as Bay Marina Drive) is a 4-lane east-west collector between Tidelands Avenue and Harrison Avenue and a 4-lane east-west arterial between



Harrison Avenue and Highland Avenue. At the intersection with Tidelands Avenue, 24<sup>th</sup> Street has sidewalks and curbs.

- **Tidelands Avenue.** Tidelands Avenue is a 2-lane north-south collector. At the intersection with 24<sup>th</sup> Street, Tidelands Avenue has sidewalks and curbs.

### **Existing Intersection LOS Analysis**

Figure 2 presents the existing a.m. and p.m. peak-hour trips from Attachment A. These peak-hour trips are used to calculate (or determine) the existing LOS. The existing LOS calculation worksheets are provided as Attachment C. Table A summarizes the results of the existing a.m. and p.m. peak-hour LOS analysis for the study area intersections. As Table A indicates, all study area intersections operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour, with the exception of I-5 Southbound Ramp/Boston Avenue (LOS E during p.m. peak hour).

Figure 3 presents the existing average daily trips at the study area roadway segments. Table B summarizes the daily traffic volumes and v/c ratios for the area roadway segments in the existing condition from Attachment A. As Table B illustrates, all study area roadway segments operate at an acceptable LOS (LOS D or better), with the exception of National Avenue between 28<sup>th</sup> Street and I-5 Northbound Ramps (LOS F), and Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp (LOS F).

## **HAUL TRUCK, DELIVERY TRUCK, AND EMPLOYEE TRAFFIC**

### **Project Trip Generation**

To determine the project traffic destined to the Staging Area and landfills, the project applicant provided traffic data that included the number of delivery vehicles, haul vehicles, and employees. Based on these data, a total of approximately 50 haul trucks, 8 delivery trucks, and 29 employees will be destined to the project site on the busiest day. For a conservative approach, a 10-hour shift was used to capture both a.m. and p.m. peak hours. The 10-hour shift is scheduled to start at 7:00 a.m. and end at 5:30 p.m. To convert the daily truck traffic to peak hour truck traffic, LSA divided the daily trips by 10 hours and split the ingress and egress evenly since it is anticipated that haul trucks will travel back and forth throughout the day. Of the 50 haul trucks, 5 will access the site during the a.m. peak hour, and 5 will access the site during the p.m. peak hour. Of the 8 delivery trucks, 1 will access the site during the a.m. peak hour, and 1 will access the site during the p.m. peak hour. The remaining 40 haul trucks and 6 delivery trucks will access the site during the off-peak hours of 9:00 a.m. to 4:00 p.m. Employees are expected to arrive to the project site in the morning and leave at the end of the day. For purposes of this analysis, the haul and delivery truck trips were converted to passenger car equivalent (PCE) trips at a ratio of 2.5 passenger cars

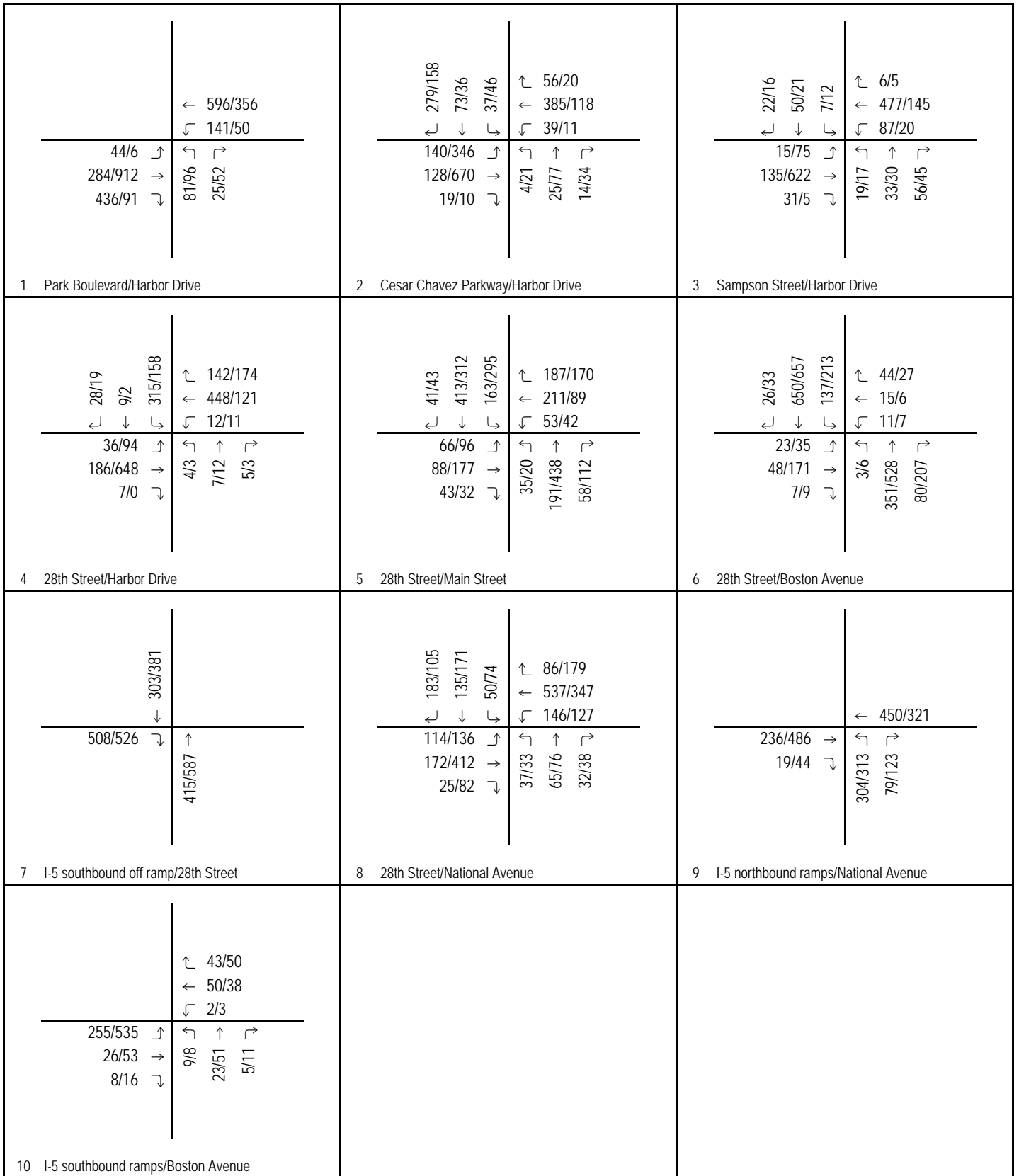


FIGURE 2A

LSA

123/456 AM/PM Volumes

San Diego Sediment Project  
Existing Peak Hour Traffic Volumes (City of San Diego Locations)

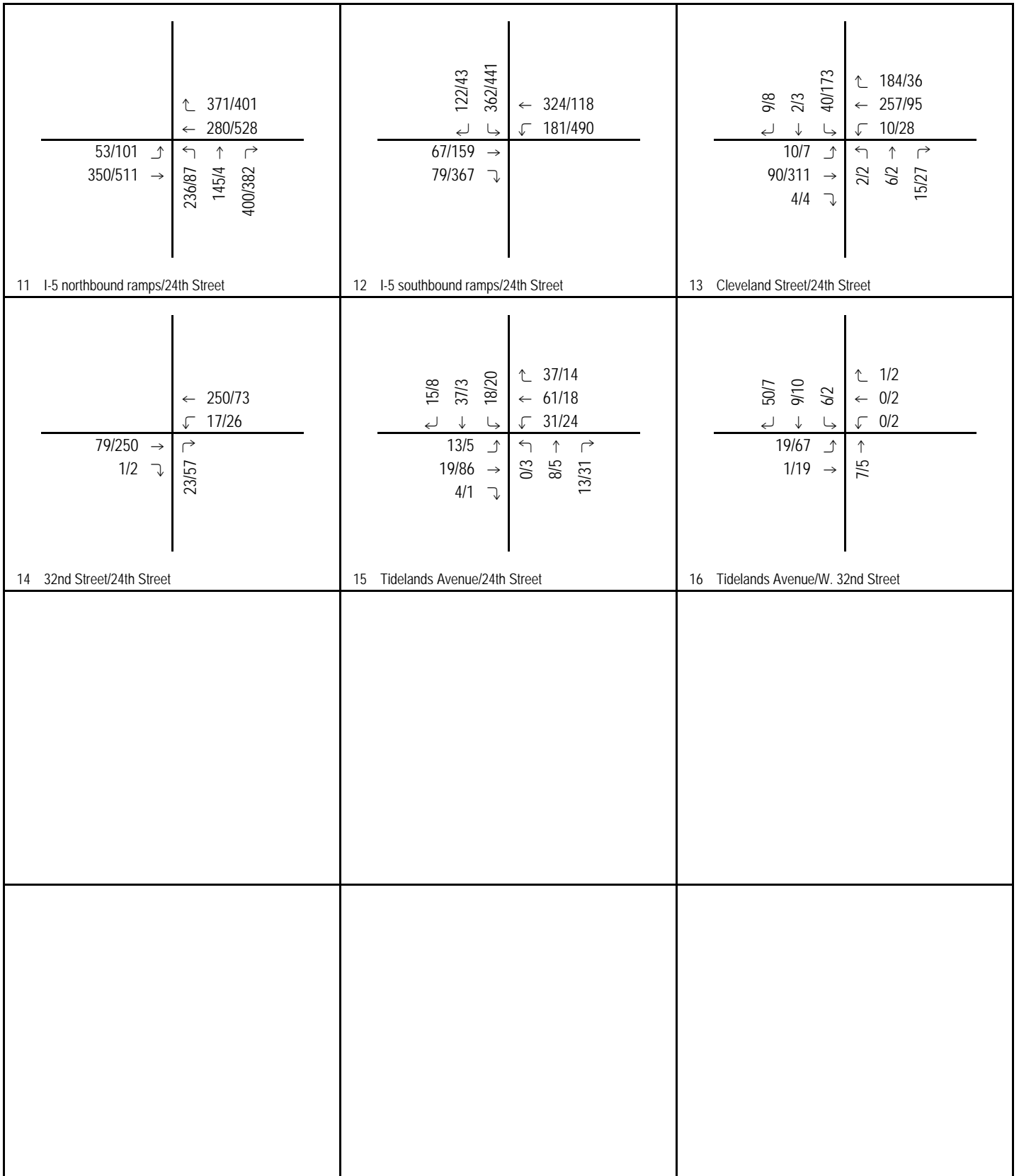


FIGURE 2B

LSA

123/456 AM/PM Volumes

San Diego Sediment Project  
Existing Peak Hour Traffic Volumes (City of National City Locations)

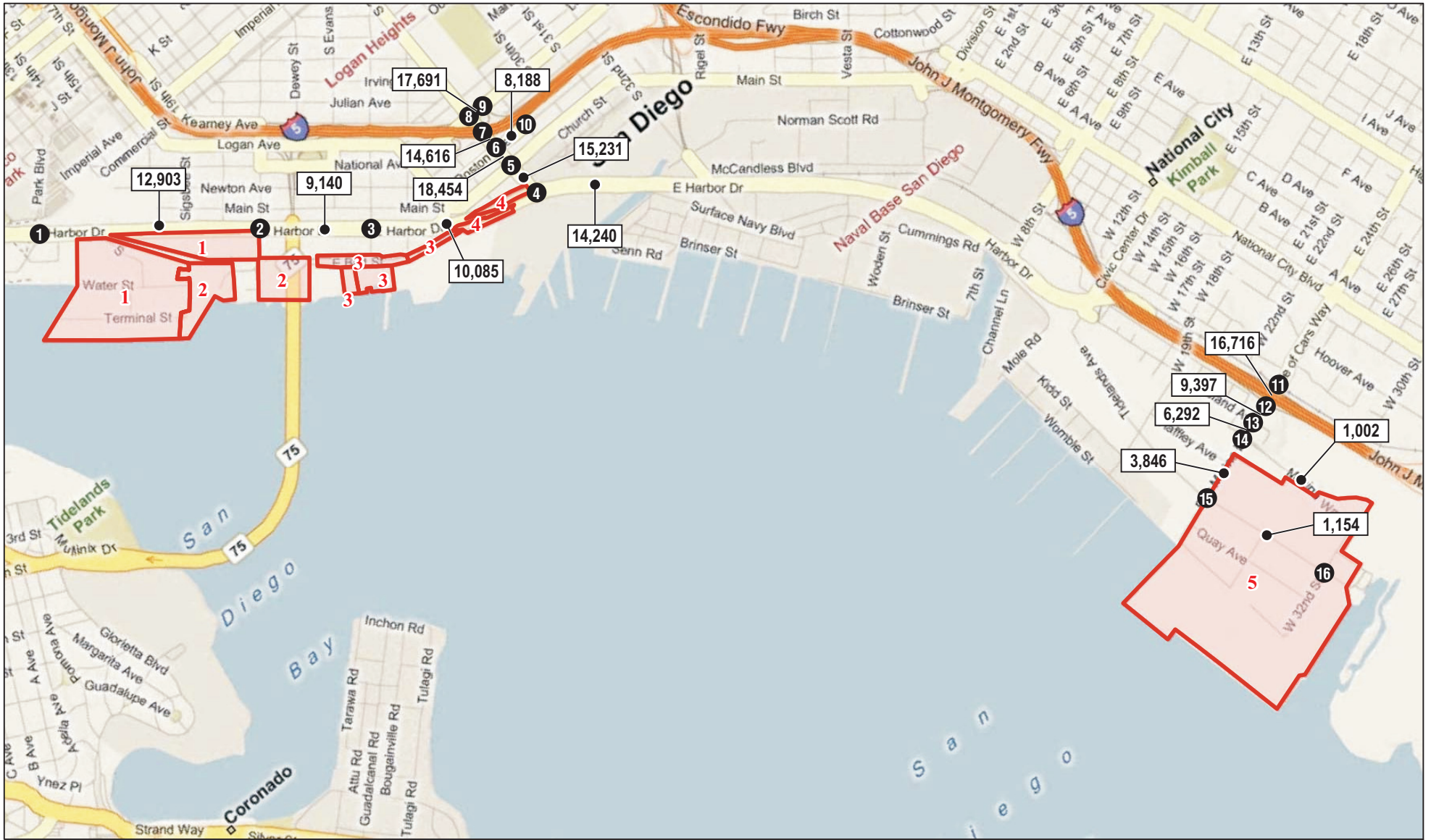
**Table A - Existing Peak Hour Intersection Level of Service Summary**

Intersection	Control Type	Existing Condition			
		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
1 Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B
2 Cesar Chavez Parkway/Harbor Drive	Signalized	31.4	C	25.8	C
3 Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B
4 28th Street/Harbor Drive	Signalized	27.9	C	22.2	C
5 28th Street/Main Street	Signalized	30.0	C	33.3	C
6 28th Street/Boston Avenue	Signalized	18.4	B	26.0	C
7 28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-
8 28th Street/National Avenue	Signalized	33.7	C	31.3	C
9 I-5 Northbound Ramps/National Avenue	Signalized	18.6	B	18.8	B
10 I-5 Southbound On-Ramp/Boston Avenue	Unsignalized	15.2	C	49.2	E
11 I-5 Northbound Ramps/24th Street	Signalized	25.3	C	22.3	C
12 I-5 Southbound Ramps/24th Street	Signalized	23.5	C	27.7	C
13 Cleveland Street/24th Street	Unsignalized	8.9	A	10.0	B
14 W. 32nd Street/24th Street	Signalized	11.3	B	19.2	B
15 Tidelands Avenue/24th Street	Signalized	26.4	C	29.9	B
16 Tidelands Avenue/W. 32nd Street	Unsignalized	7.3	A	8.0	A

Source: LSA Associates, March 2011

Notes:

 Exceeds level of service criteria



LSA

LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection
- X,XXX Average Daily Traffic Volume



SOURCE: Bing Maps (2008)

I:\SWB1001\G\Existing ADT.cdr (3/31/2011)

FIGURE 3

San Diego Sediment Project  
Existing Daily Traffic Volumes

**Table B - Existing Roadway Segment Level of Service Summary**

Roadway	Segment	Roadway Classification	Capacity	Existing		
				Volume	LOS	V/C
Harbor Boulevard	Park Boulevard and Cesar Chavez Parkway	4 Lane Major Arterial	40,000	12,903	A	0.32
	Cesar Chavez Parkway and Sampson Street	4 Lane Major Arterial	40,000	9,140	A	0.23
	Sampson Street and 28th Street	4 Lane Major Arterial	40,000	10,085	A	0.25
	28th Street and 32nd Street	4 Lane Major Arterial	40,000	14,240	B	0.36
28th Street	Harbor Boulevard and Main Street	4 Lane Major Arterial	40,000	15,231	B	0.38
	Main Street and Boston Avenue	4 Lane Collector (with TWLT)	30,000	18,454	C	0.62
	Boston Avenue and National Avenue	3 Lane Collector (with TWLT)	22,500	14,616	C	0.65
National Avenue	28th Street and I-5 Northbound Ramps	3 Lane Collector (no TWLT)	11,250	<b>17,691</b>	<b>F</b>	<b>1.57</b>
Boston Avenue	28th Street and I-5 Southbound Ramps	2 Lane Collector (no TWLT)	8,000	<b>8,188</b>	<b>F</b>	<b>1.02</b>
24th Street	I-5 Northbound Ramps and I-5 Southbound	4 Lane Major Arterial	40,000	16,716	B	0.42
	I-5 Southbound Ramps and Cleveland Street	4 Lane Major Arterial	40,000	9,397	A	0.23
	Cleveland Street and W. 32nd Street	4 Lane Major Arterial	40,000	6,292	A	0.16
	W. 32nd Street and Tidelands Avenue	4 Lane Collector (no TWLT)	15,000	3,846	A	0.26
W. 32nd Street	24th Street and Tidelands Avenue	2 Lane Collector	8,000	1,002	A	0.13
Tidelands Avenue	24th Street and W. 32nd Street	2 Lane Collector	8,000	1,154	A	0.14

Source: LSA Associates, March 2011

- Exceeds level of service criteria  
 Significant Impact

per truck, consistent with the guidance in the HCM. Table C provides the project trip generation to and from the project site.

### **Project Trip Distribution**

Once the dredge materials have been dried and tested at the Staging Area, they will be loaded onto trucks for disposal at an approved landfill. For purposes of this project, it is assumed that 85 percent of the material will be transported from the staging area to Otay Landfill, approximately 15 miles southeast of the Shipyard Sediment Site. Trucks departing from potential Staging Areas 1 through 4 would access the I-5 south via E. Harbor Drive and 28<sup>th</sup> Street; trucks departing from Staging Area 5 would access the I-5 south either directly from 24<sup>th</sup> Street-Bay Marina Drive or from W. 32<sup>nd</sup> Street to 24<sup>th</sup> Street-Marina Way to Bay Marina Drive. The preferred route to Otay Landfill is via I-5 south to Highway 54 east, to I-805 south. Although the sediment is not known to be classified as California hazardous material, it will be tested upon removal and prior to disposal.

It is assumed for the purposes of this study that up to 15 percent of the material will require transport to a Class III facility, most likely the Kettleman Hills Landfill in Kings County, California, near Bakersfield. Based on the excavation quantity of 143,400 cubic yards, and accounting for an additional 15 percent of bulk material due to the dewatering and treatment process, it is estimated that up to 250 truck trips per week could be required over an approximately 12.5-month period to remove the material. These estimates are a worst-case scenario and will be finalized during the design phase.

The trip distribution for employees was determined based on existing counts at the northbound and southbound I-5 Ramps. For Staging Areas 1 through 4, approximately 60 percent are destined toward the north and 40 percent are destined toward the south along I-5. For Staging Area 5, approximately 35 percent are destined toward the north and 65 percent are destined toward the south along I-5. Table D provides the trip distribution of the project traffic within the circulation system for each staging area.

## **EXISTING CONDITIONS WITH PROJECT TRAFFIC**

Traffic generated during the haul period was added to the existing traffic volumes at the study area intersections and roadway segments for each staging area.

### **Staging Areas 1 and 2**

It is anticipated that Staging Areas 1 and 2 will utilize the same driveway to access the project site (i.e., Cesar Chavez Parkway/Harbor Boulevard). Therefore, the level of service would be identical for both staging areas. Trucks departing from potential Staging Areas 1 and 2 would access I-5 north and south via Harbor Drive and 28<sup>th</sup> Street. Figure 4 presents

**Table C - Project Trip Generation Summary**

TRIP GENERATION (PCE)	AM PEAK HOUR		PM PEAK HOUR		ADT
	IN	OUT	IN	OUT	
Staging Areas 1, 2, 3, & 5	44	15	15	44	348
Staging Area 4A (75%)	33	11	11	33	261
Staging Area 4B (25%)	11	4	4	11	87

Source: LSA Associates, March 2011



**Table D - Project Trip Distribution Summary**

<b>Vehicle Type/Direction</b>	<b>Percentage</b>
<b><i>Deliver/Haul Trucks</i></b>	
Northbound on the I-5	15%
Southbound on the I-5	85%
<b><i>TOTAL</i></b>	<b><i>100%</i></b>
<b><i>Employee Trips (Staging Areas 1-4)</i></b>	
Northbound on the I-5	60%
Southbound on the I-5	40%
<b><i>TOTAL</i></b>	<b><i>100%</i></b>
<b><i>Employee Trips (Staging Area 5)</i></b>	
Eastbound on the SR-78	35%
Westbound from W. Valley Parkway	65%
<b><i>TOTAL</i></b>	<b><i>100%</i></b>

Source: LSA Associates, March 2011

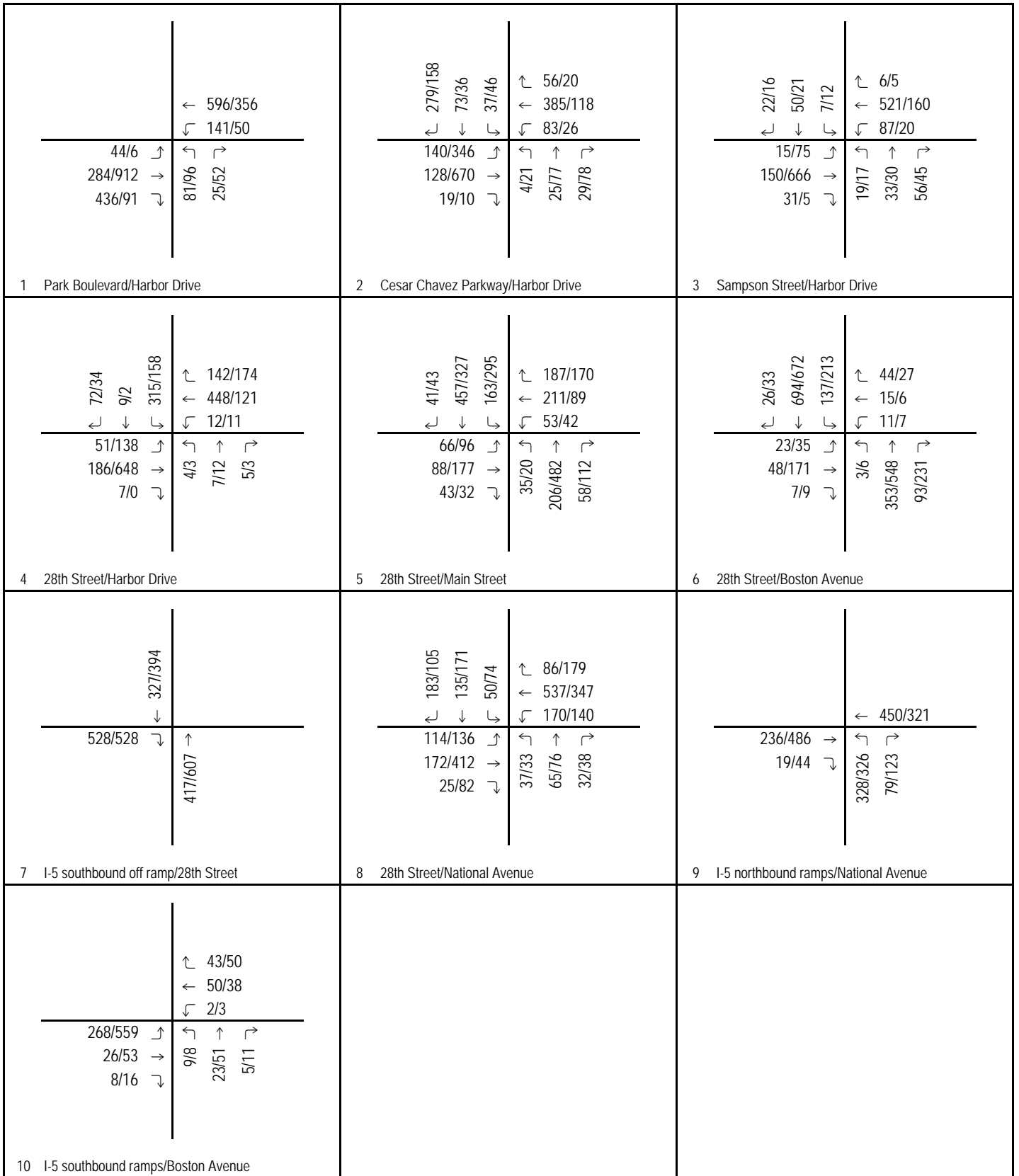


FIGURE 4

LSA

123/456 AM/PM Volumes

San Diego Sediment Project  
Existing + Project Peak Hour Traffic Volumes (Staging Areas 1 & 2)

the existing plus project a.m. and p.m. peak hour trips. Table E summarizes the results of the existing plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections. The LOS worksheets are provided as Attachment D. As Table E indicates, all study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour with implementation of the proposed project, with the exception of I-5 Southbound Ramp/Boston Avenue (LOS F during p.m. peak hour). The addition of project traffic will increase the vehicle delay greater than one second at this intersection. As such, the project traffic will create a significant impact at this intersection in the existing plus project condition, based on the City's significance criteria.

Figure 5 presents the existing plus project average daily trips. Table F summarizes the daily traffic volumes and v/c ratios for the study area roadway segments in the existing condition with the addition of project traffic. Based on this analysis, the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the addition of project traffic, with the exception of National Avenue between 28<sup>th</sup> Street and I-5 Northbound Ramps (LOS F), and Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp (LOS F). The addition of project traffic will not increase the v/c ratio greater than 0.01 along National Avenue between 28<sup>th</sup> Street and I-5 Northbound Ramps. However, implementation of the project would cause a significant impact along Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp.

### **Staging Area 3**

It is anticipated that Staging Area 3 will utilize the intersection of Sampson Avenue to access the project site. Trucks departing from potential Staging Area 3 would access I-5 north and south via Harbor Drive and 28<sup>th</sup> Street. Figure 6 presents the existing plus project a.m. and p.m. peak hour trips. Table G summarizes the results of the existing plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections. The LOS worksheets are provided as Attachment E. As Table G indicates, all study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour with implementation of the proposed project, with the exception of I-5 Southbound Ramp/Boston Avenue (LOS F during p.m. peak hour). The addition of project traffic will increase the vehicle delay greater than one second at this intersection. As such, the project traffic will create a significant impact at this intersection in the existing plus project condition, based on the City's significance criteria.

Figure 7 presents the existing plus project average daily trips. Table H summarizes the daily traffic volumes and v/c ratios for the study area roadway segments in the existing condition with the addition of project traffic. Based on this analysis, the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the addition of project traffic, with the exception of National Avenue between 28<sup>th</sup> Street and I-5 Northbound Ramps (LOS F), and Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp (LOS F). The addition of project traffic will not increase the v/c ratio greater than 0.01 along National Avenue between

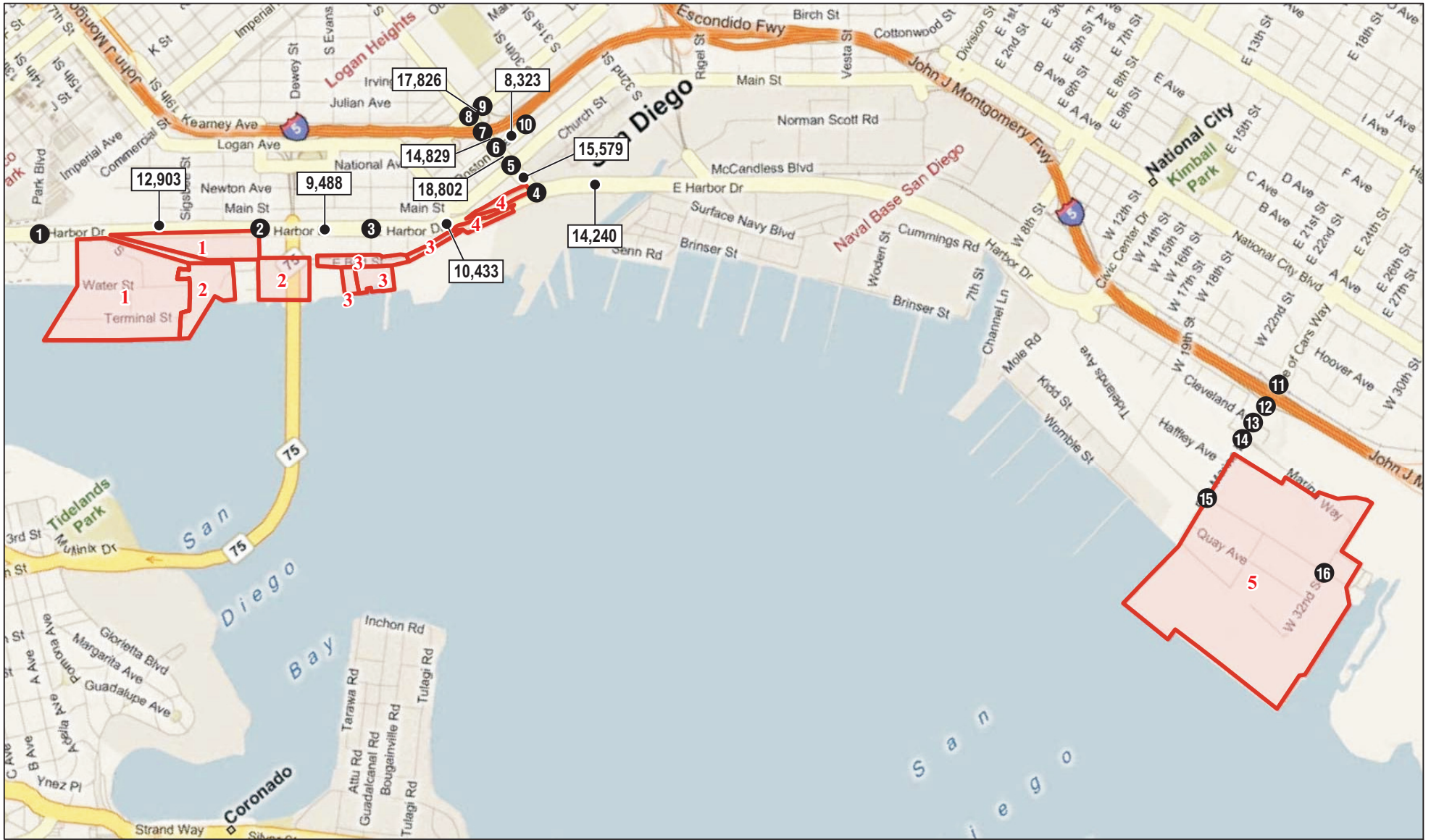
**Table E - Staging Areas 1 and 2 Existing Plus Project Peak Hour Intersection Level of Service Summary**

Intersection	Control Type	Existing Condition				Existing Plus Project Condition						
		AM Peak Hour		PM Peak Hour		AM Peak Hour		△	PM Peak Hour		△	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS		Delay (sec)	LOS		
1 Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B	15.0	B	0.0		13.9	B	0.0
2 Cesar Chavez Parkway/Harbor Drive	Signalized	31.4	C	25.8	C	31.5	C	0.1		26.4	C	0.6
3 Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B	19.9	B	-0.5		17.0	B	-0.3
4 28th Street/Harbor Drive	Signalized	27.9	C	22.2	C	28.6	C	0.7		23.3	C	1.1
5 28th Street/Main Street	Signalized	30.0	C	33.3	C	29.8	C	-0.2		33.3	C	0.0
6 28th Street/Boston Avenue	Signalized	18.4	B	26.0	C	18.0	B	-0.4		25.9	C	-0.1
7 28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-	-	-	-		-	-	-
8 28th Street/National Avenue	Signalized	33.7	C	31.3	C	33.7	C	0.0		31.6	C	0.3
9 I-5 Northbound Ramps/National Avenue	Signalized	18.6	B	18.8	B	19.1	B	0.5		19.1	B	0.3
10 I-5 Southbound On-Ramp/Boston Avenue	Unsignalized	15.2	C	49.2	E	15.6	C	0.4		56.3	F	7.1

Source: LSA Associates, March 2011

Notes:

- Exceeds level of service criteria  
 Significant Impact



LSA

LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection
- X,XXX Average Daily Traffic Volume



SOURCE: Bing Maps (2008)

I:\SWB1001\G\Existing+Proj ADT-Areas 1&2.cdr (3/31/2011)

FIGURE 5

*San Diego Sediment Project*  
Existing Plus Project Daily Traffic Volumes  
Staging Areas 1 and 2

**Table F - Staging Areas 1 and 2 Existing Plus Project Roadway Segment Level of Service Summary**

Roadway	Segment	Roadway Classification	Capacity	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
Harbor Boulevard	Park Boulevard and Cesar Chavez Parkway	4 Lane Major Arterial	40,000	12,903	A	0.32	0	12,903	A	0.32	0.00
	Cesar Chavez Parkway and Sampson Street	4 Lane Major Arterial	40,000	9,140	A	0.23	348	9,488	A	0.24	0.01
	Sampson Street and 28th Street	4 Lane Major Arterial	40,000	10,085	A	0.25	348	10,433	A	0.26	0.01
	28th Street and 32nd Street	4 Lane Major Arterial	40,000	14,240	B	0.36	0	14,240	B	0.36	0.00
28th Street	Harbor Boulevard and Main Street	4 Lane Major Arterial	40,000	15,231	B	0.38	348	15,579	B	0.39	0.01
	Main Street and Boston Avenue	4 Lane Collector (with TWLT)	30,000	18,454	C	0.62	348	18,802	C	0.63	0.01
	Boston Avenue and National Avenue	3 Lane Collector (with TWLT)	22,500	14,616	C	0.65	213	14,829	C	0.66	0.01
National Avenue	28th Street and I-5 Northbound Ramps	3 Lane Collector (no TWLT)	11,250	<b>17,691</b>	<b>F</b>	<b>1.57</b>	135	<b>17,826</b>	<b>F</b>	<b>1.58</b>	0.01
Boston Avenue	28th Street and I-5 Southbound On-Ramp	2 Lane Collector (no TWLT)	8,000	<b>8,188</b>	<b>F</b>	<b>1.02</b>	135	<b>8,323</b>	<b>F</b>	<b>1.04</b>	0.02

Source: LSA Associates, March 2011

- Exceeds level of service criteria  
 Significant Impact

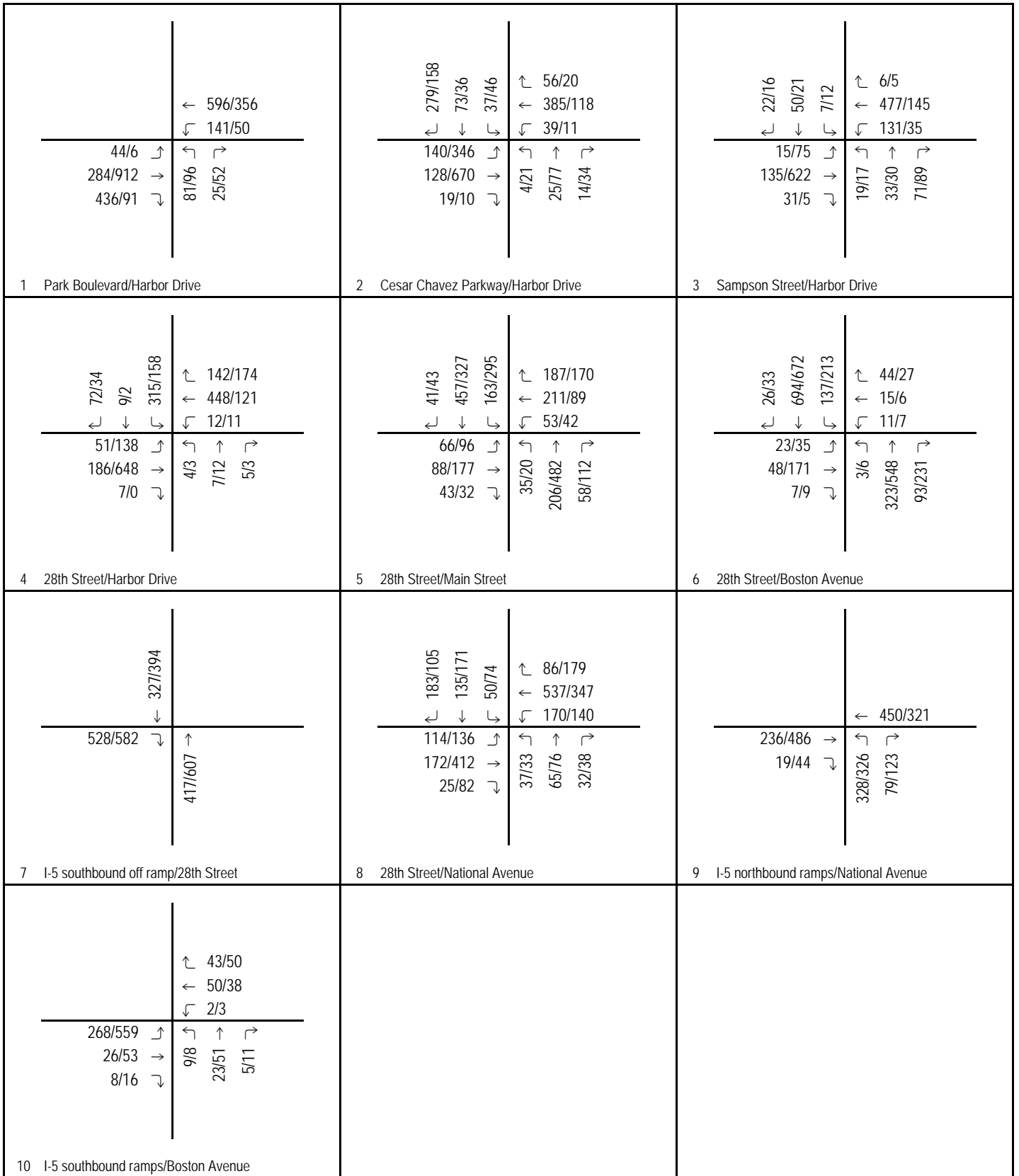


FIGURE 6

LSA

123/456 AM/PM Volumes

San Diego Sediment Project  
Existing + Project Peak Hour Traffic Volumes (Staging Area 3)

**Table G - Staging Area 3 Existing Plus Project Peak Hour Intersection Level of Service Summary**

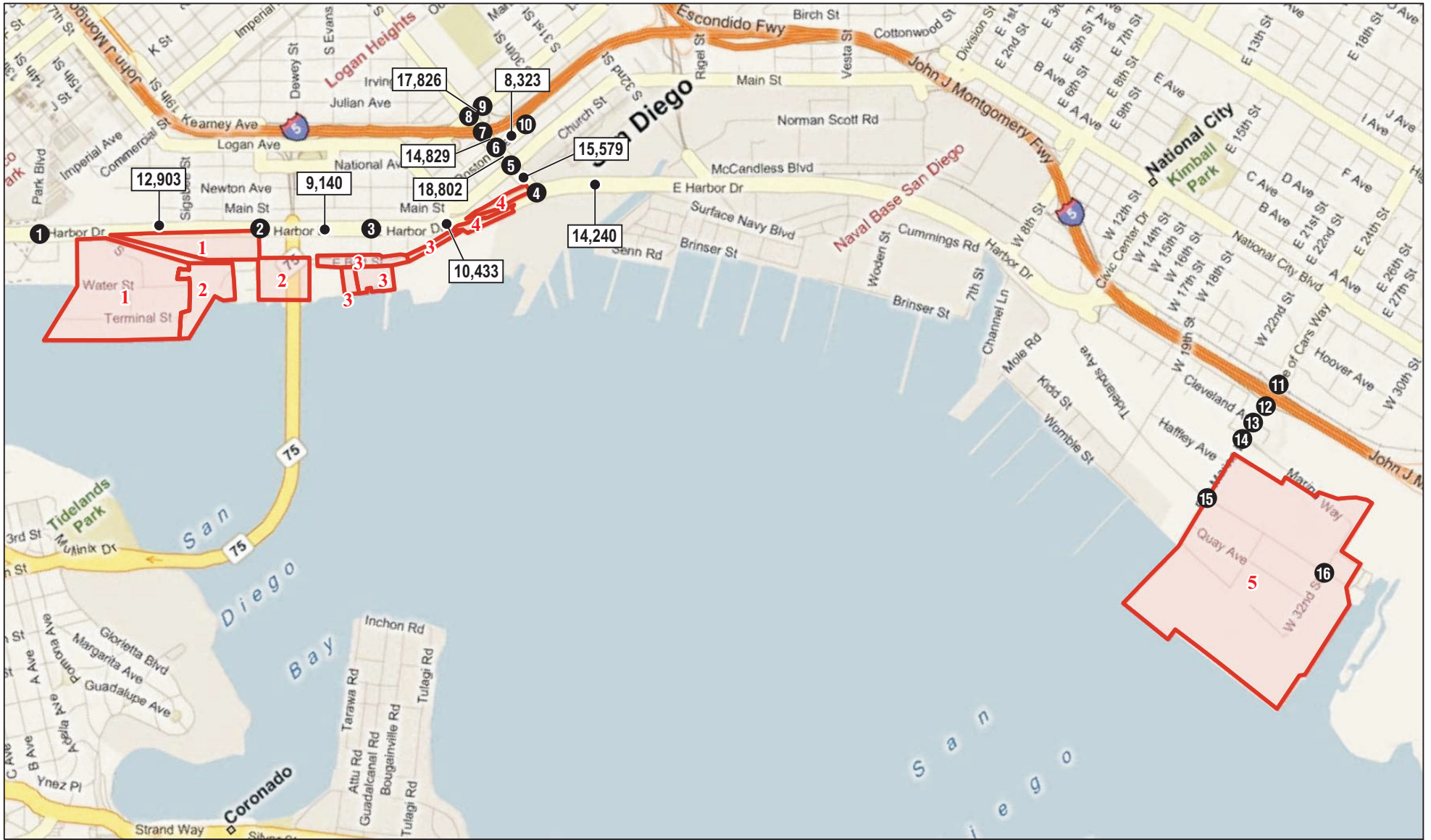
Intersection	Control Type	Existing Condition				Existing Plus Project Condition						
		AM Peak Hour		PM Peak Hour		AM Peak Hour		△	PM Peak Hour		△	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS		Delay (sec)	LOS		
1 Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B	15.0	B	0.0	13.9	B	0.0	
2 Cesar Chavez Parkway/Harbor Drive	Signalized	31.4	C	25.8	C	31.4	C	0.0	25.8	C	0.0	
3 Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B	21.7	B	1.3	20.4	B	3.1	
4 28th Street/Harbor Drive	Signalized	27.9	C	22.2	C	28.6	C	0.7	23.3	C	1.1	
5 28th Street/Main Street	Signalized	30.0	C	33.3	C	29.8	C	-0.2	33.3	C	0.0	
6 28th Street/Boston Avenue	Signalized	18.4	B	26.0	C	18.0	B	-0.4	25.9	C	-0.1	
7 28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-	-	-	-	-	-	-	
8 28th Street/National Avenue	Signalized	33.7	C	31.3	C	33.7	C	0.0	31.6	C	0.3	
9 I-5 Northbound Ramps/National Avenue	Signalized	18.6	B	18.8	B	19.1	B	0.5	19.1	B	0.3	
10 I-5 Southbound On-Ramp/Boston Avenue	Unsignalized	15.2	C	49.2	E	15.6	C	0.4	56.3	F	7.1	

Source: LSA Associates, March 2011

Notes:

- Exceeds level of service criteria  
 Significant Impact





LSA

LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection
- X,XXX Average Daily Traffic Volume



SOURCE: Bing Maps (2008)

I:\SWB1001\G\Existing+Proj ADT-Area 3.cdr (3/31/2011)

FIGURE 7

*San Diego Sediment Project*  
Existing Plus Project Daily Traffic Volumes  
Staging Area 3

**Table H - Staging Area 3 Existing Plus Project Roadway Segment Level of Service Summary**

Roadway	Segment	Roadway Classification	Capacity	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
Harbor Boulevard	Park Boulevard and Cesar Chavez Parkway	4 Lane Major Arterial	40,000	12,903	A	0.32	0	12,903	A	0.32	0.00
	Cesar Chavez Parkway and Sampson Street	4 Lane Major Arterial	40,000	9,140	A	0.23	0	9,140	A	0.23	0.00
	Sampson Street and 28th Street	4 Lane Major Arterial	40,000	10,085	A	0.25	348	10,433	A	0.26	0.01
	28th Street and 32nd Street	4 Lane Major Arterial	40,000	14,240	B	0.36	0	14,240	B	0.36	0.00
28th Street	Harbor Boulevard and Main Street	4 Lane Major Arterial	40,000	15,231	B	0.38	348	15,579	B	0.39	0.01
	Main Street and Boston Avenue	4 Lane Collector (with TWLT)	30,000	18,454	C	0.62	348	18,802	C	0.63	0.01
	Boston Avenue and National Avenue	3 Lane Collector (with TWLT)	22,500	14,616	C	0.65	213	14,829	C	0.66	0.01
National Avenue	28th Street and I-5 Northbound Ramps	3 Lane Collector (no TWLT)	11,250	<b>17,691</b>	<b>F</b>	<b>1.57</b>	135	<b>17,826</b>	<b>F</b>	<b>1.58</b>	0.01
Boston Avenue	28th Street and I-5 Southbound On-Ramp	2 Lane Collector (no TWLT)	8,000	<b>8,188</b>	<b>F</b>	<b>1.02</b>	135	<b>8,323</b>	<b>F</b>	<b>1.04</b>	0.02

Source: LSA Associates, March 2011

- Exceeds level of service criteria  
 Significant Impact

28<sup>th</sup> Street and I-5 Northbound Ramps. However, implementation of the project would cause a significant impact along Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp.

#### **Staging Area 4**

Staging Area 4 consists of two existing NASSCO parking lots. The north parking lot is larger than the south lot. To determine the amount of traffic destined to the north and south lots, the project trips were split based on the size of each parking lot as 75 percent and 25 percent, respectively. The trips associated with the south lot would access I-5 north and south via Harbor Drive and 28<sup>th</sup> Street. Before the trips can reach the I-5 ramps, the trips associated with the north lot would have to travel west along Harbor Drive, make a U-turn at the intersection of Sampson Street, then continue east along Harbor Drive and north along 28<sup>th</sup> Street. Figure 8 presents the existing plus project a.m. and p.m. peak hour trips. Table I summarizes the results of the existing plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections. The LOS worksheets are provided as Attachment F. As Table I indicates, all study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour with implementation of the proposed project, with the exception of I-5 Southbound Ramp/Boston Avenue (LOS F during p.m. peak hour). The addition of project traffic will increase the vehicle delay greater than one second at this intersection. As such, the project traffic will create a significant impact at this intersection in the existing plus project condition, based on the City's significance criteria.

Figure 9 presents the existing plus project average daily trips. Table J summarizes the daily traffic volumes and v/c ratios for the study area roadway segments in the existing condition with the addition of project traffic. Based on this analysis, the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the addition of project traffic, with the exception of National Avenue between 28<sup>th</sup> Street and I-5 Northbound Ramps (LOS F), and Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp (LOS F). The addition of project traffic will not increase the v/c ratio greater than 0.01 along National Avenue between 28<sup>th</sup> Street and I-5 Northbound Ramps. However, implementation of the project would cause a significant impact along Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp.

#### **Staging Area 5**

It is anticipated that Staging Area 5 will utilize the intersections of Tidelands Avenue/24<sup>th</sup> Street and Tidelands Avenue/W.32<sup>nd</sup> Street to access the project site. Trucks departing from potential Staging Area 5 would access I-5 north and south either directly from 24<sup>th</sup> Street-Bay Marina Drive or from W. 32<sup>nd</sup> Street to 24<sup>th</sup> Street-Marina Way to Bay Marina Drive. Figure 10 presents the existing plus project a.m. and p.m. peak hour trips. Table K summarizes the results of the existing plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections. The LOS worksheets are provided as Attachment G.

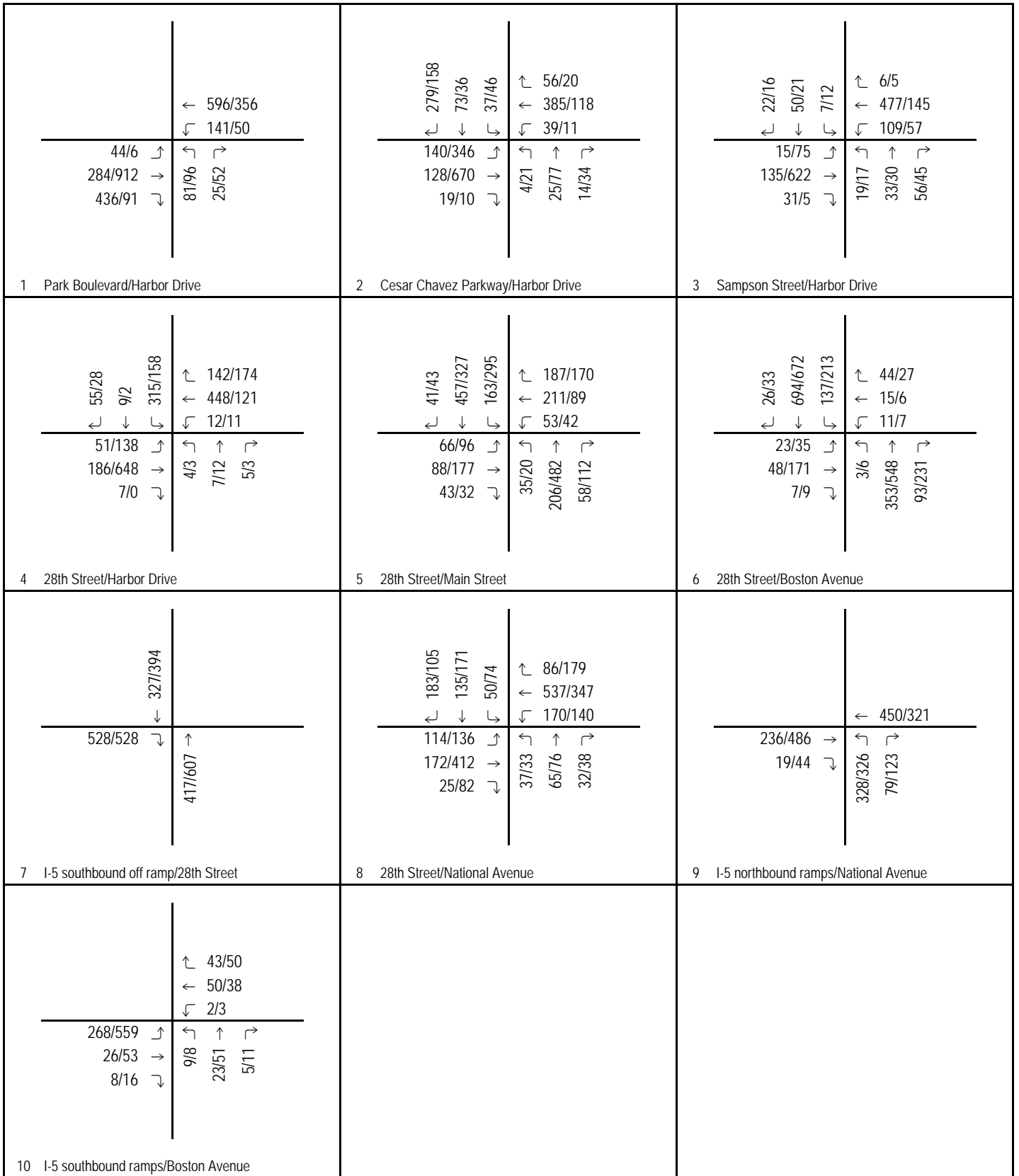


FIGURE 8

LSA

123/456 AM/PM Volumes

San Diego Sediment Project  
Existing + Project Peak Hour Traffic Volumes (Staging Area 4)

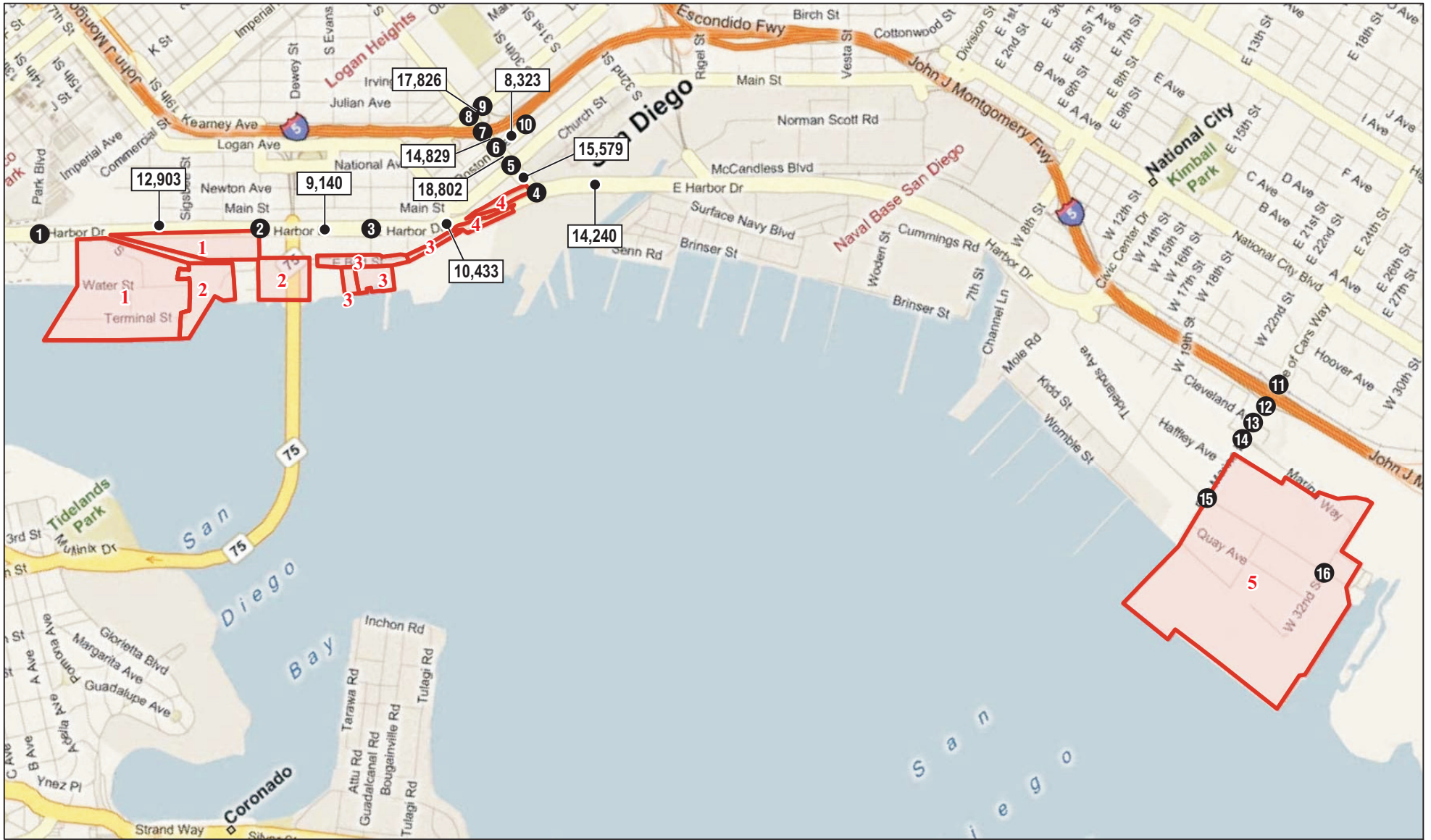
**Table I - Staging Area 4 Existing Plus Project Peak Hour Intersection Level of Service Summary**

Intersection	Control Type	Existing Condition				Existing Plus Project Condition						
		AM Peak Hour		PM Peak Hour		AM Peak Hour		△	PM Peak Hour		△	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS		Delay (sec)	LOS		
1 Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B	15.0	B	0.0	13.9	B	0.0	
2 Cesar Chavez Parkway/Harbor Drive	Signalized	31.4	C	25.8	C	31.4	C	0.0	25.8	C	0.0	
3 Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B	20.8	B	0.4	19.5	B	2.2	
4 28th Street/Harbor Drive	Signalized	27.9	C	22.2	C	28.6	C	0.7	23.2	C	1.0	
5 28th Street/Main Street	Signalized	30.0	C	33.3	C	29.8	C	-0.2	33.3	C	0.0	
6 28th Street/Boston Avenue	Signalized	18.4	B	26.0	C	18.0	B	-0.4	25.9	C	-0.1	
7 28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-	-	-	-	-	-	-	
8 28th Street/National Avenue	Signalized	33.7	C	31.3	C	33.7	C	0.0	31.6	C	0.3	
9 I-5 Northbound Ramps/National Avenue	Signalized	18.6	B	18.8	B	19.1	B	0.5	19.1	B	0.3	
10 I-5 Southbound On-Ramp/Boston Avenue	Unsignalized	15.2	C	49.2	E	15.6	C	0.4	56.3	F	7.1	

Source: LSA Associates, March 2011

Notes:

- Exceeds level of service criteria  
 Significant Impact



LSA

LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection
- X,XXX Average Daily Traffic Volume



SOURCE: Bing Maps (2008)

I:\SWB1001\G\Existing+Proj ADT-Area 4.cdr (3/31/2011)

FIGURE 9

*San Diego Sediment Project*  
Existing Plus Project Daily Traffic Volumes  
Staging Area 4

**Table J - Staging Area 4 Existing Plus Project Roadway Segment Level of Service Summary**

Roadway	Segment	Roadway Classification	Capacity	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
Harbor Boulevard	Park Boulevard and Cesar Chavez Parkway	4 Lane Major Arterial	40,000	12,903	A	0.32	0	12,903	A	0.32	0.00
	Cesar Chavez Parkway and Sampson Street	4 Lane Major Arterial	40,000	9,140	A	0.23	0	9,140	A	0.23	0.00
	Sampson Street and 28th Street	4 Lane Major Arterial	40,000	10,085	A	0.25	348	10,433	A	0.26	0.01
	28th Street and 32nd Street	4 Lane Major Arterial	40,000	14,240	B	0.36	0	14,240	B	0.36	0.00
28th Street	Harbor Boulevard and Main Street	4 Lane Major Arterial	40,000	15,231	B	0.38	348	15,579	B	0.39	0.01
	Main Street and Boston Avenue	4 Lane Collector (with TWLT)	30,000	18,454	C	0.62	348	18,802	C	0.63	0.01
	Boston Avenue and National Avenue	3 Lane Collector (with TWLT)	22,500	14,616	C	0.65	213	14,829	C	0.66	0.01
National Avenue	28th Street and I-5 Northbound Ramps	3 Lane Collector (no TWLT)	11,250	<b>17,691</b>	<b>F</b>	<b>1.57</b>	135	<b>17,826</b>	<b>F</b>	<b>1.58</b>	0.01
Boston Avenue	28th Street and I-5 Southbound On-Ramp	2 Lane Collector (no TWLT)	8,000	<b>8,188</b>	<b>F</b>	<b>1.02</b>	135	<b>8,323</b>	<b>F</b>	<b>1.04</b>	0.02

Source: LSA Associates, March 2011

- Exceeds level of service criteria  
 Significant Impact

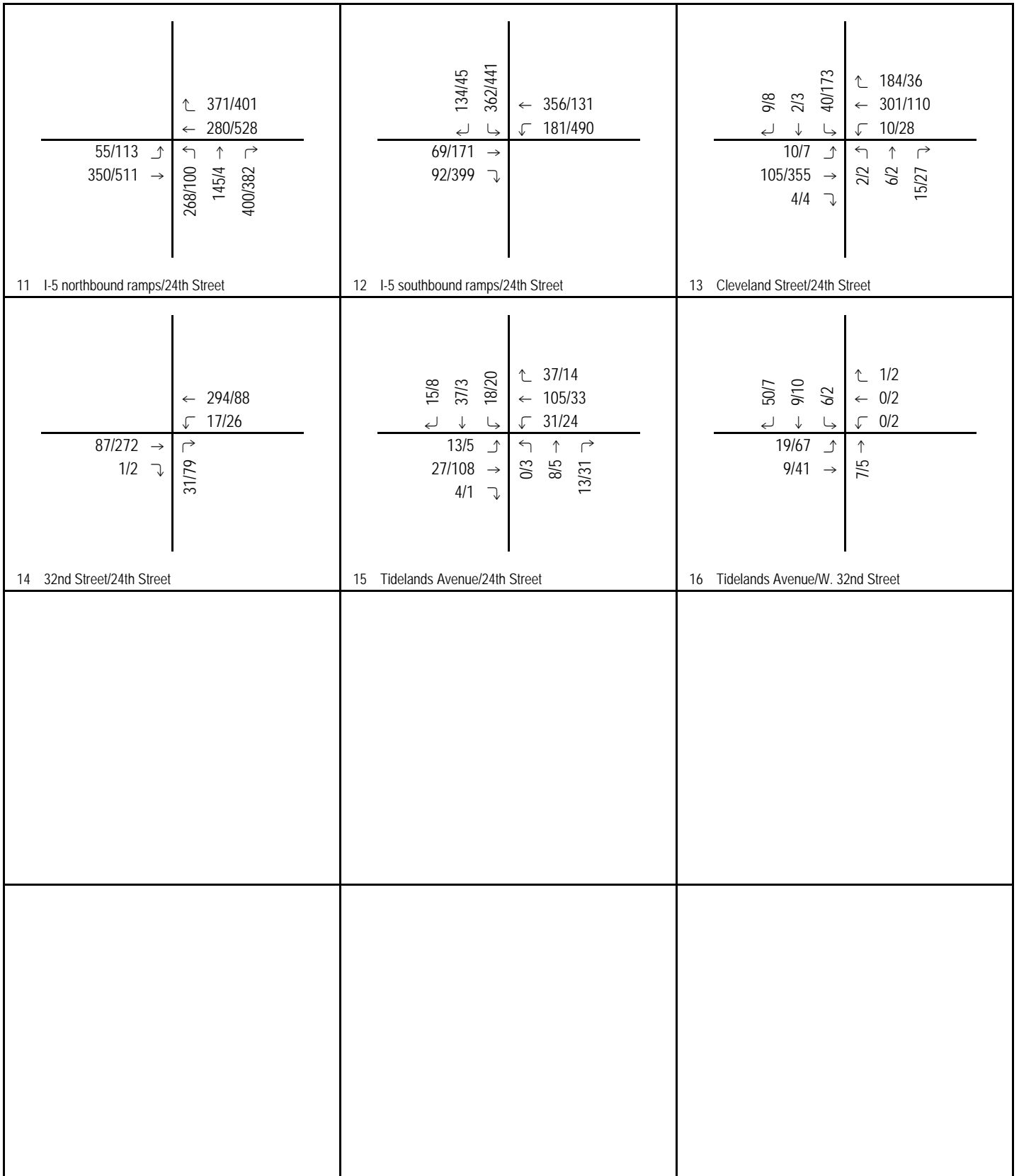


FIGURE 10

LSA

123/456 AM/PM Volumes

San Diego Sediment Project  
Existing + Project Peak Hour Traffic Volumes (Staging Area 5)



**Table K - Staging Area 5 Existing Plus Project Peak Hour Intersection Level of Service Summary**

Intersection	Control Type	Existing Condition				Existing Plus Project Condition					
		AM Peak Hour		PM Peak Hour		AM Peak Hour		△	PM Peak Hour		△
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS		Delay (sec)	LOS	
11 I-5 Northbound Ramps/24th Street	Signalized	25.3	C	22.3	C	25.5	C	0.2	22.9	C	0.6
12 I-5 Southbound Ramps/24th Street	Signalized	23.5	C	27.7	C	23.4	C	-0.1	28.0	C	0.3
13 Cleveland Street/24th Street	Unsignalized	8.9	A	10.0	B	9.2	A	0.3	10.3	B	0.3
14 W. 32nd Street/24th Street	Signalized	11.3	B	19.2	B	11.9	B	0.6	20.7	C	1.5
15 Tidelands Avenue/24th Street	Signalized	26.4	C	29.9	B	24.5	C	-1.9	28.7	C	-1.2
16 Tidelands Avenue/W. 32nd Street	Unsignalized	7.3	A	8.0	A	7.3	A	0.0	7.9	A	-0.1

Source: LSA Associates, March 2011

Notes:

- Exceeds level of service criteria  
 Significant Impact

As this table indicates, all study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour with implementation of the proposed project.

Figure 11 presents the existing plus project average daily trips. Table L summarizes the daily traffic volumes and v/c ratios for the study area roadway segments in the existing condition with the addition of project traffic. Based on this analysis, the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the addition of project traffic.

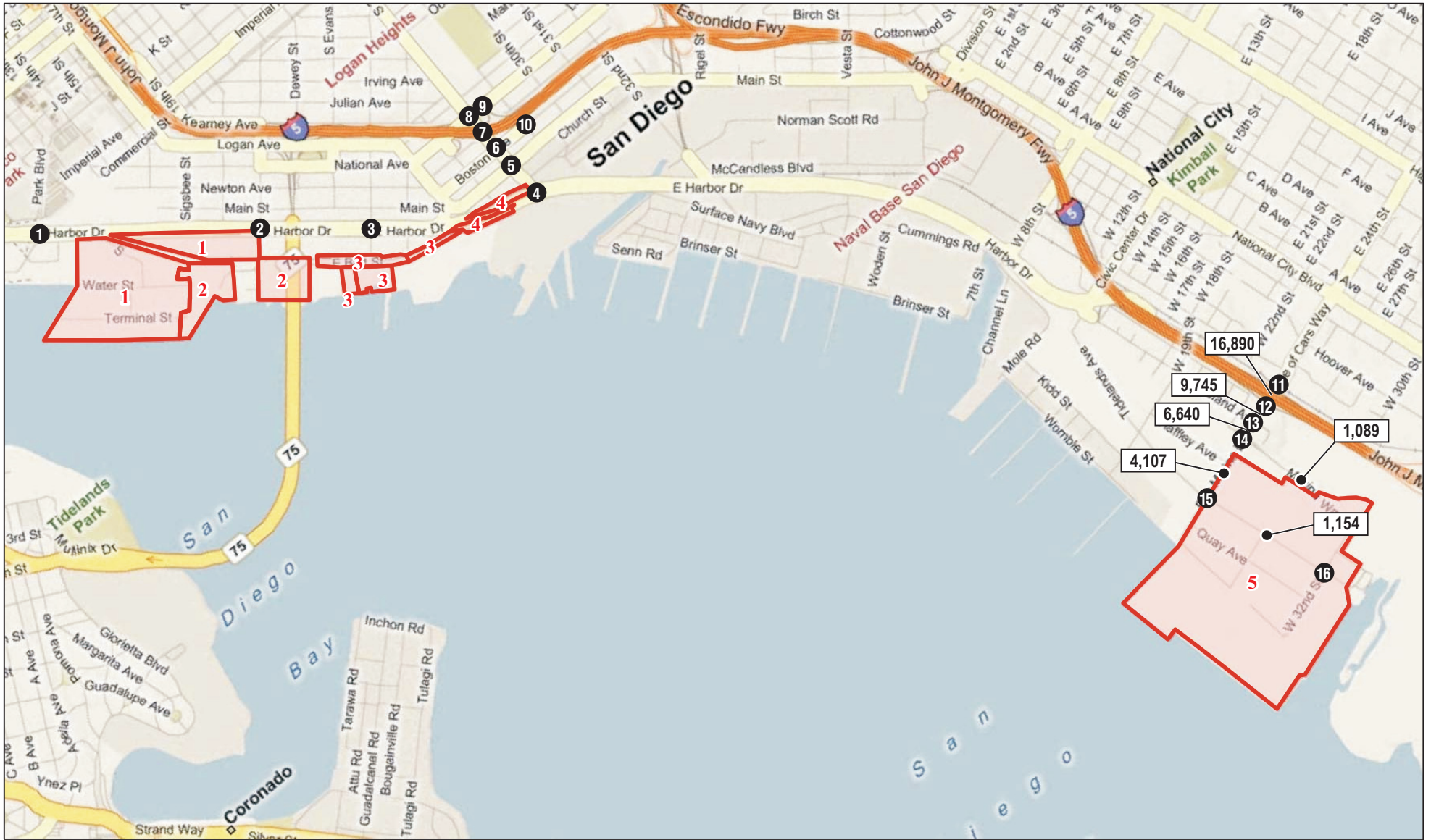
### **Bayshore Bikeway**

The Bayshore Bikeway consists of bike routes along Harbor Drive and Tidelands Avenue. Based on the results of the roadway segment analysis, Harbor Drive and Tidelands Avenue are forecast to operate at acceptable LOS (LOS A or B) with the implementation of the proposed project. Therefore, bike safety and bike routes would not be significantly affected with the addition of project traffic. No bike route detours are warranted with the project.

## **MITIGATION APPROACH**

With the implementation of project traffic, significant impacts are forecast at the intersection of I-5 Southbound Ramp/Boston Avenue and the roadway segment of Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp for Staging Areas 1 through 4. The draft Barrio Logan Community Plan Update (CPU), March 2011, acknowledges that the intersection of I-5 Southbound Ramp/Boston Avenue currently operates at unacceptable LOS (LOS F during p.m. peak hour). The draft CPU recommends the signalization of this intersection. The draft CPU also acknowledges that the roadway segment of Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp currently operates at LOS F. Boston Avenue is desired by the community of Barrio Logan to be a more pedestrian and bicycle-friendly corridor. The widening of this roadway to improve vehicular circulation was not desired by the community. The vehicular operations along this facility could be congested during peak periods and vehicular speeds would be low. The draft CPU states that additional widening is not recommended.

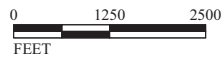
Instead of contributing to capital improvements to mitigate the affected locations (such as signalization of the intersection or temporary roadway widening), an alternative option would be to reroute project traffic away from Boston Avenue. The project traffic can be rerouted south of Staging Areas 1 through 4 along Harbor Drive to the I-5 Northbound and Southbound Ramps at Civic Center Drive.



LSA

LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection
- X,XXX Average Daily Traffic Volume



SOURCE: Bing Maps (2008)

I:\SWB1001\G\Existing+Proj ADT-Area 5.odr (3/31/2011)

FIGURE 11

*San Diego Sediment Project*  
Existing Plus Project Daily Traffic Volumes  
Staging Area 5

**Table L - Staging Area 5 Existing Plus Project Roadway Segment Level of Service Summary**

Roadway	Segment	Roadway Classification	Capacity	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
24th Street	I-5 Northbound Ramps and I-5 Southbound Ramps	4 Lane Major Arterial	40,000	16,716	B	0.42	174	16,890	B	0.42	0.00
	I-5 Southbound Ramps and Cleveland Street	4 Lane Major Arterial	40,000	9,397	A	0.23	348	9,745	A	0.24	0.01
	Cleveland Street and W. 32nd Street	4 Lane Major Arterial	40,000	6,292	A	0.16	348	6,640	A	0.17	0.01
	W. 32nd Street and Tidelands Avenue	4 Lane Collector (no TWLT)	20,000	3,846	A	0.19	261	4,107	A	0.21	0.01
W. 32nd Street	24th Street and Tidelands Avenue	2 Lane Collector	10,000	1,002	A	0.10	87	1,089	A	0.11	0.01
Tidelands Avenue	24th Street and W. 32nd Street	2 Lane Collector	10,000	1,154	A	0.12	0	1,154	A	0.12	0.00

Source: LSA Associates, March 2011

- Exceeds level of service criteria  
 Significant Impact

## CONCLUSION

Based on the results of this traffic analysis, significant impacts are forecast at the intersection of I-5 Southbound Ramp/Boston Avenue and the roadway segment of Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp for Staging Areas 1 through 4. The draft CPU acknowledges that the intersection of I-5 Southbound Ramp/Boston Avenue currently operates at unacceptable LOS (LOS F during p.m. peak hour). The draft CPU recommends the signalization of this intersection. The draft CPU also acknowledges that the roadway segment of Boston Avenue between 28<sup>th</sup> Street and I-5 Southbound Ramp currently operates at unacceptable LOS (LOS F). Boston Avenue is desired by the community of Barrio Logan to be a more pedestrian and bicycle-friendly corridor. The widening of this roadway to improve vehicular circulation was not desired by the community. The vehicular operations along this facility could be congested during peak periods and vehicular speeds would be low. The draft CPU states that additional widening is not recommended.

The anticipated haul, delivery, and employee traffic to and from the project site can be accommodated without causing a significant impact for Staging Area 5, based on the existing traffic conditions in the study area. Evaluation of the intersection and roadway LOS shows that the addition of the project's traffic to the existing traffic volumes will not cause a significant increase in delay at the study area intersections or an increase in v/c ratio on the roadway segments, according to the City's performance criteria. As a result, no improvements would be warranted during the haul period for Staging Area 5.

**ATTACHMENT A**  
**EXISTING TRAFFIC COUNTS**

# ITM Peak Hour Summary

Prepared by:



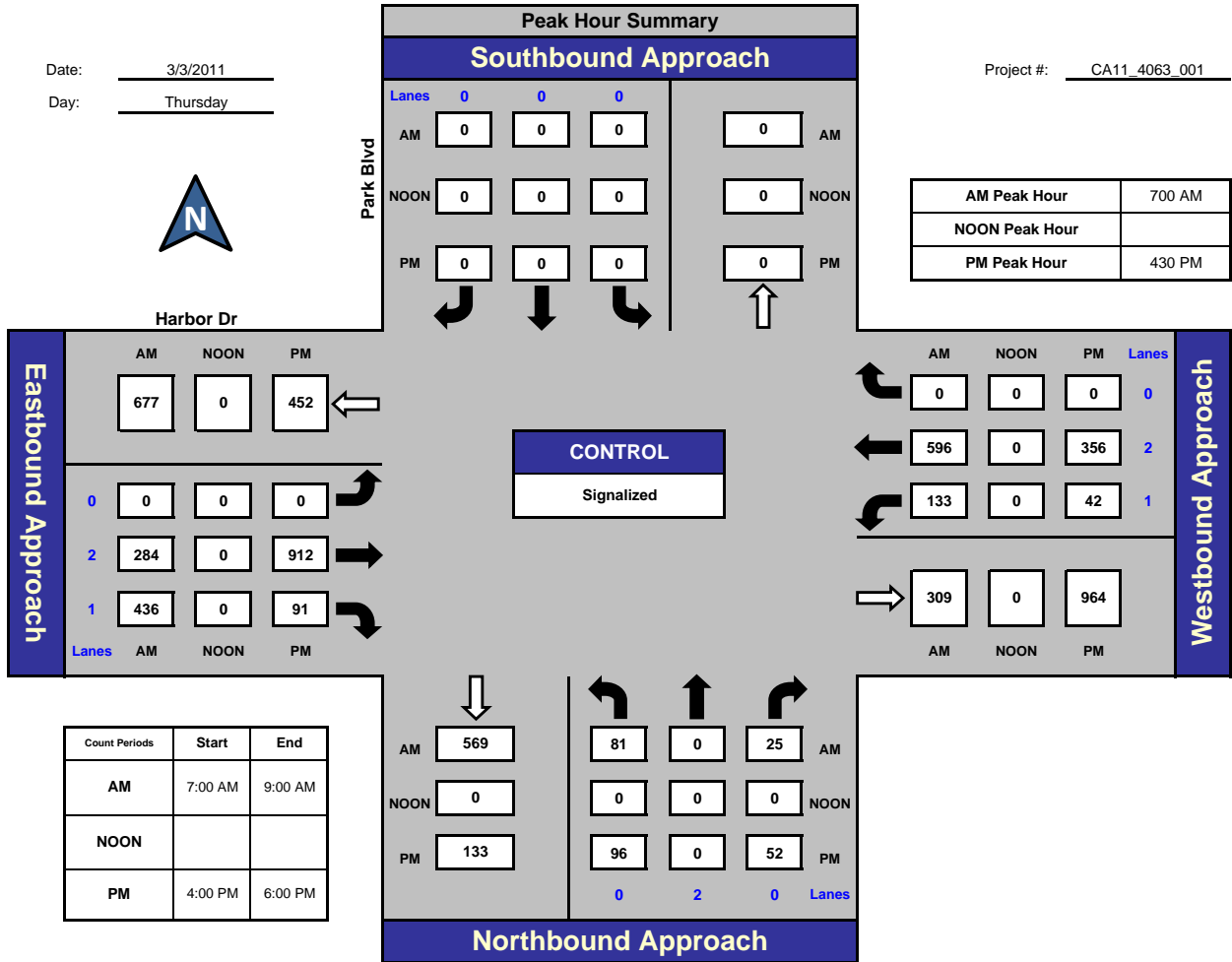
National Data & Surveying Services

## Park Blvd and Harbor Dr, City of San Diego

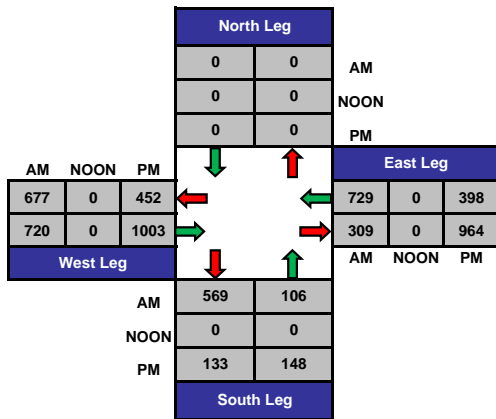
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Day: Thursday

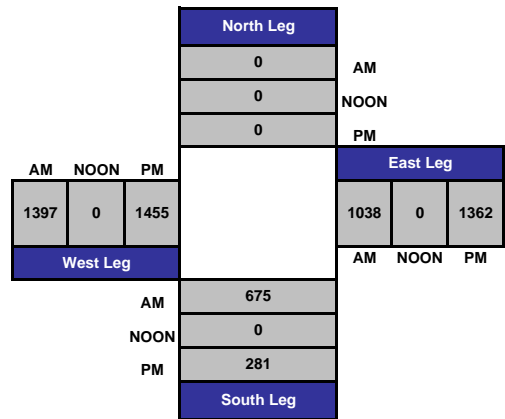
Project #: CA11\_4063\_001



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

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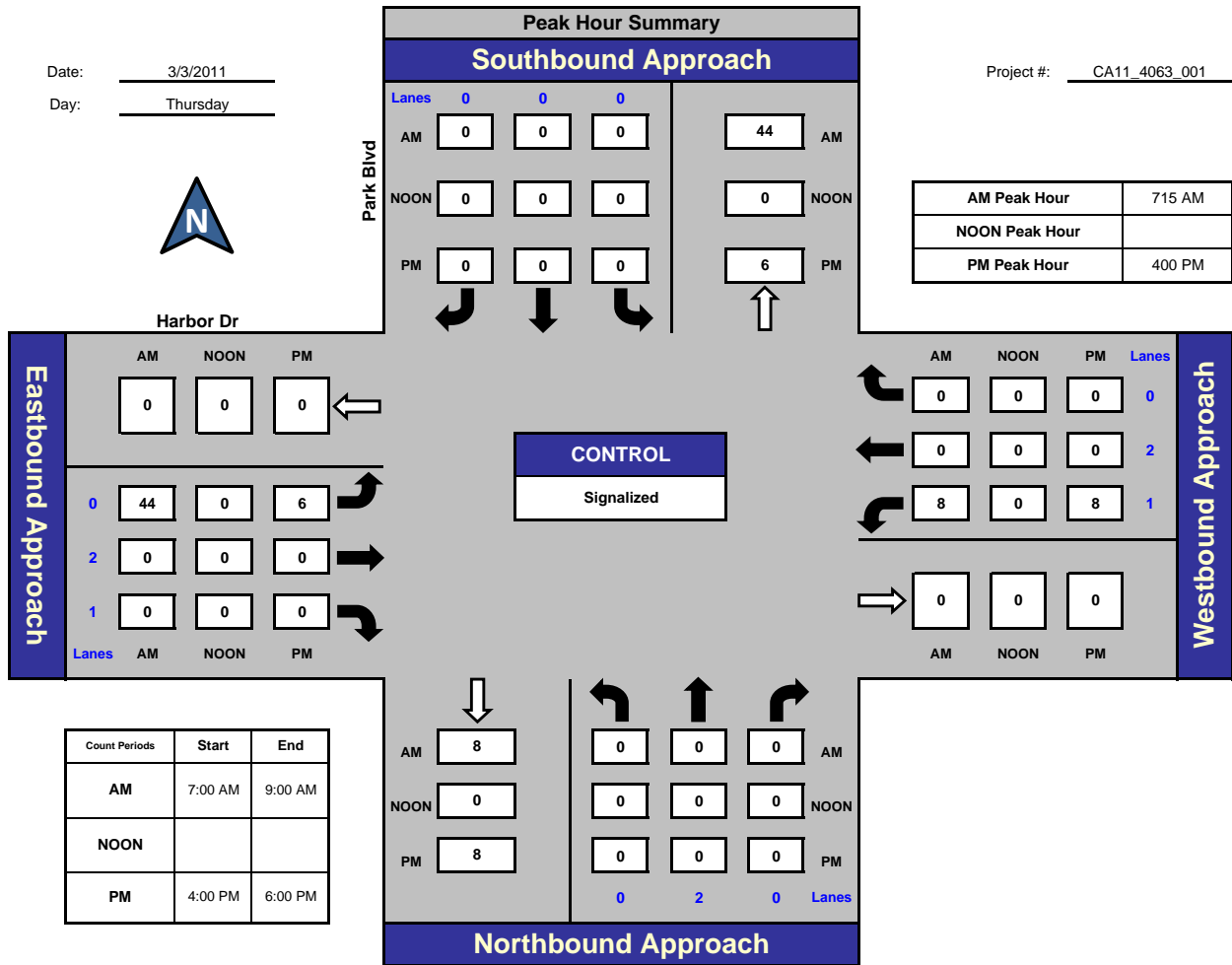
National Data & Surveying Services

## Park Blvd and Harbor Dr, City of San Diego

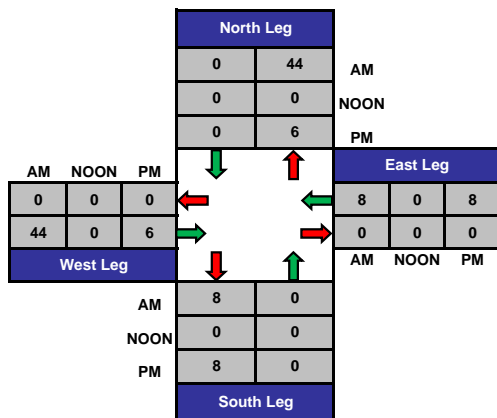
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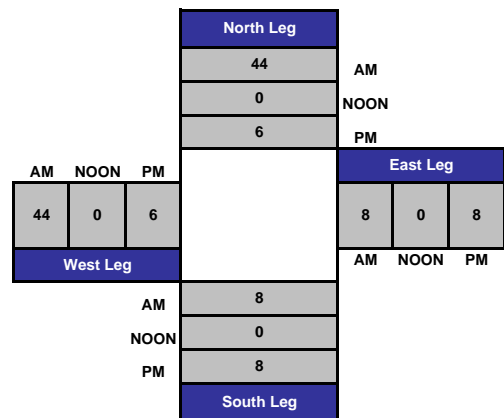
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### Total Ins & Outs



### Total Volume Per Leg





# ITM Peak Hour Summary

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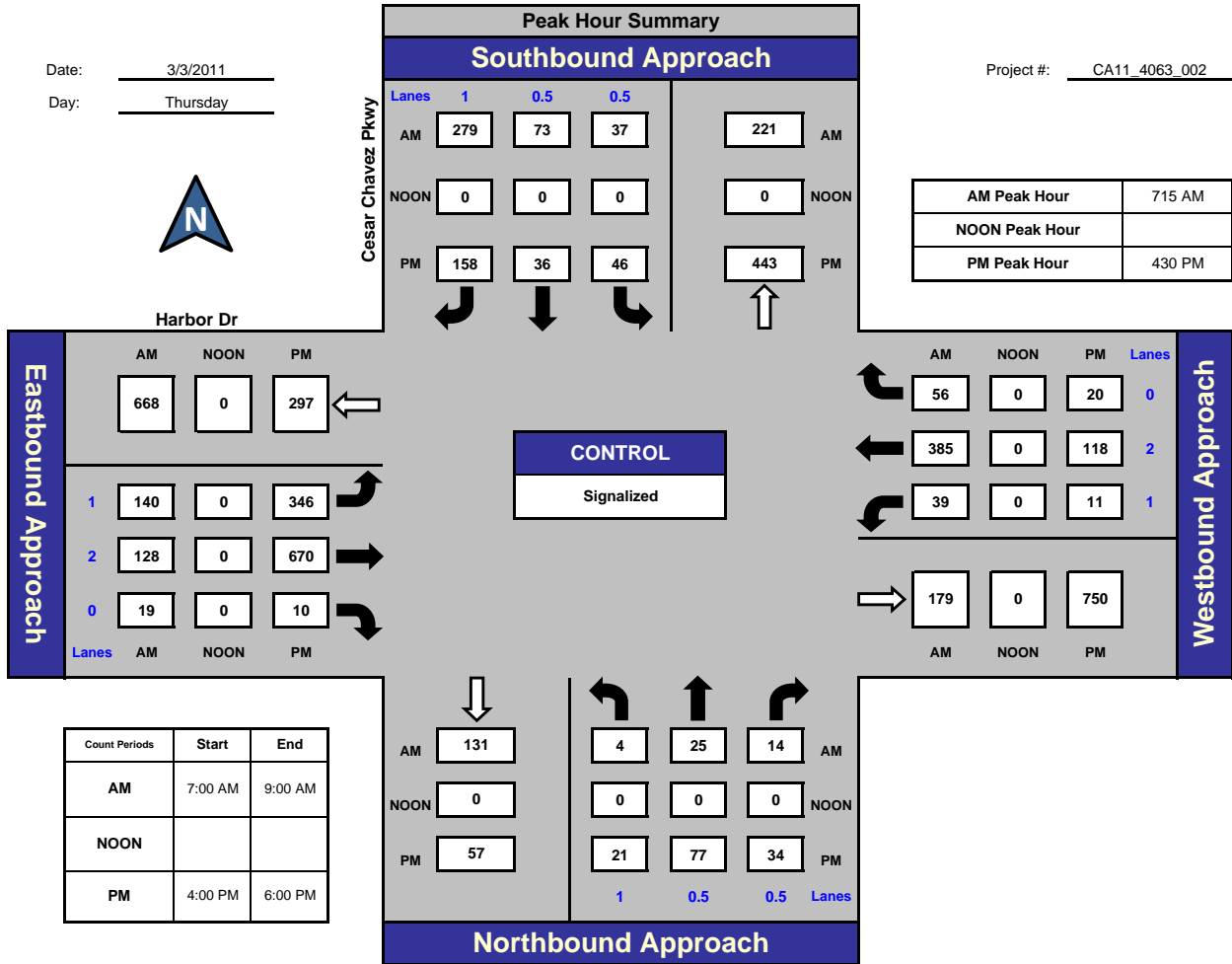
National Data & Surveying Services

## Cesar Chavez Pkwy and Harbor Dr., City of San Diego

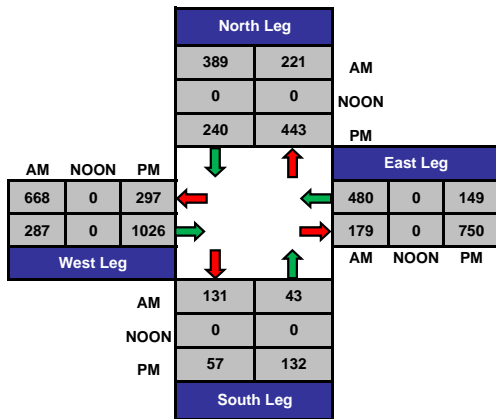
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Day: Thursday

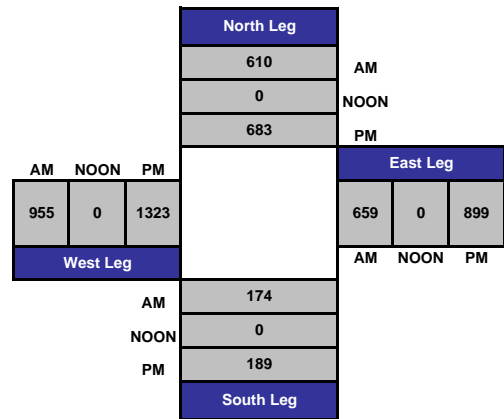
Project #: CA11\_4063\_002



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

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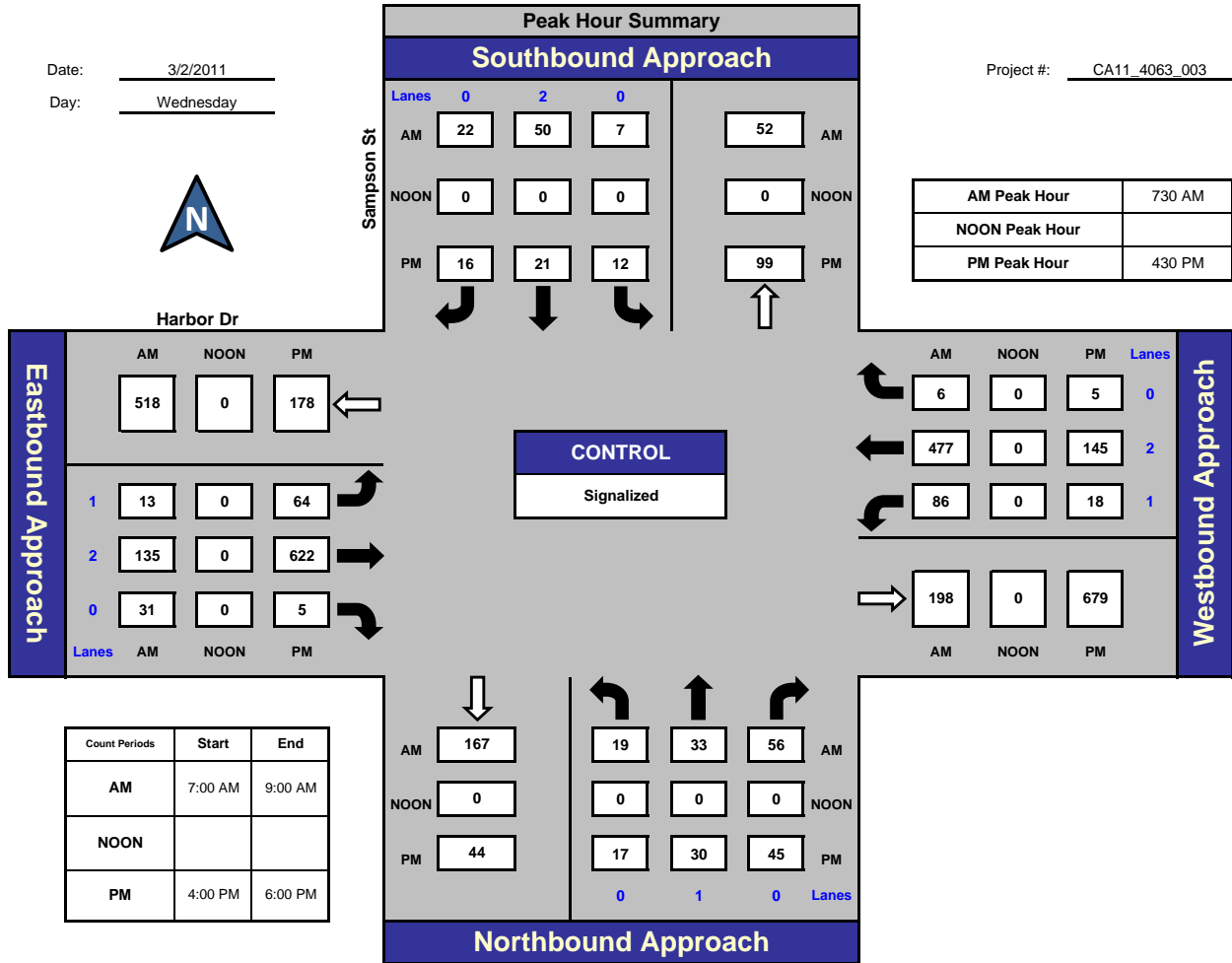
National Data & Surveying Services

## Sampson St and Harbor Dr, City of San Diego

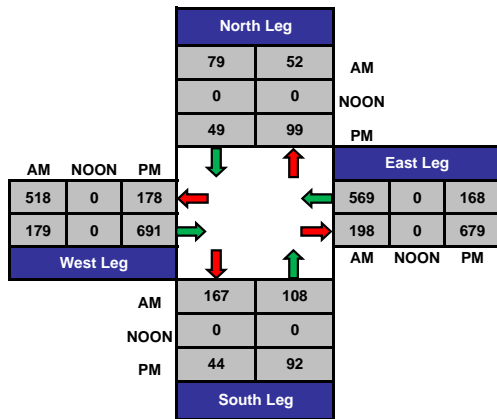
Date: 3/2/2011

Day: Wednesday

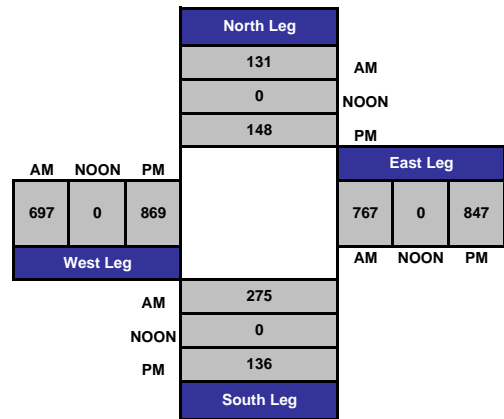
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Total Ins & Outs



Total Volume Per Leg



# ITM Peak Hour Summary

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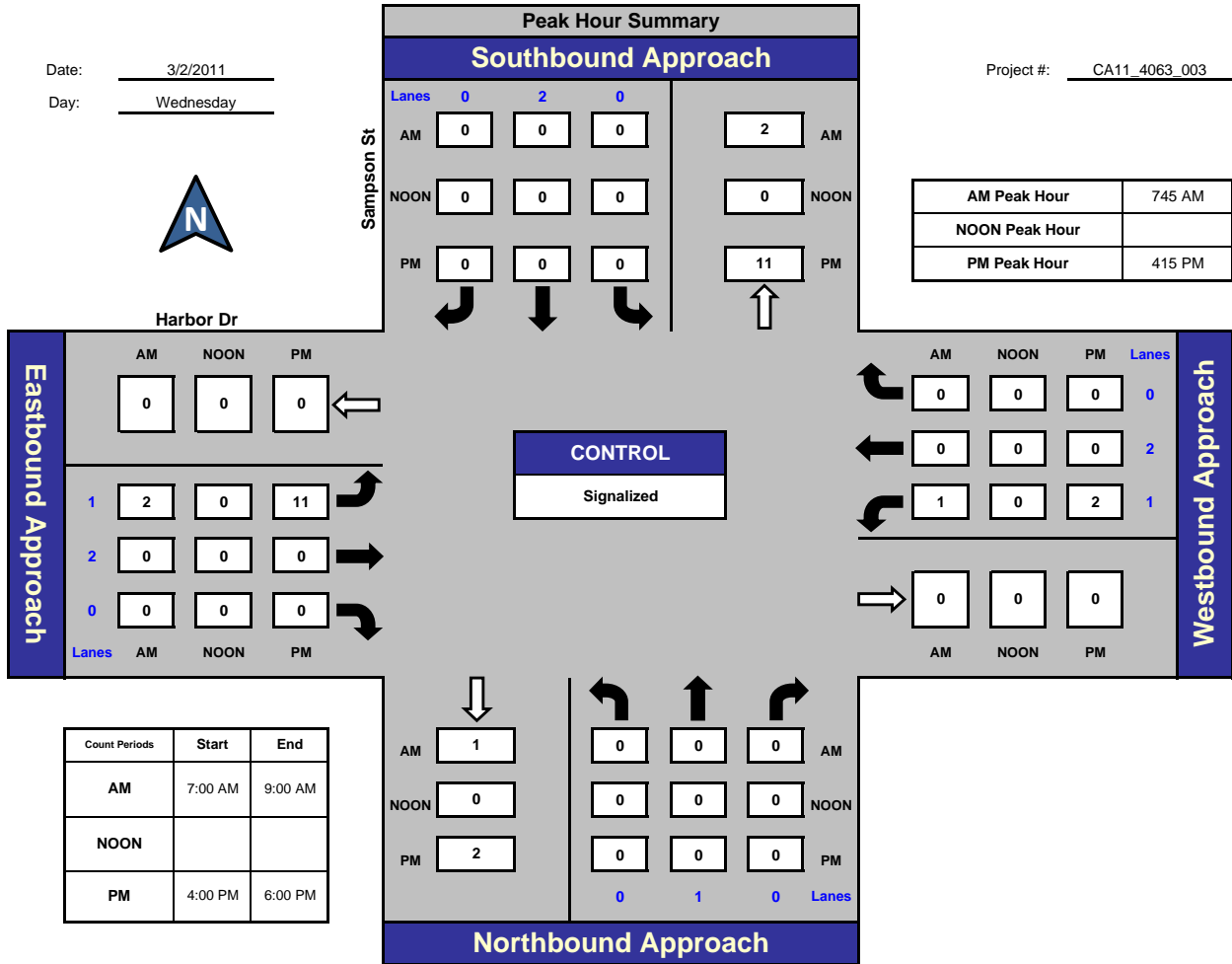
National Data & Surveying Services

## Sampson St and Harbor Dr, City of San Diego

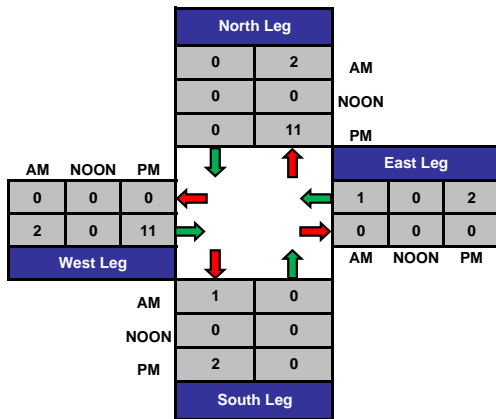
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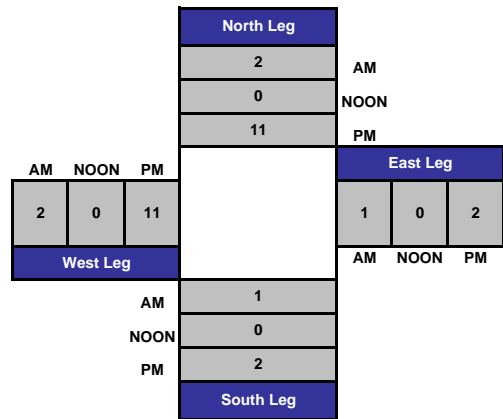
Project #: CA11\_4063\_003



Total Ins & Outs



Total Volume Per Leg



# ITM Peak Hour Summary

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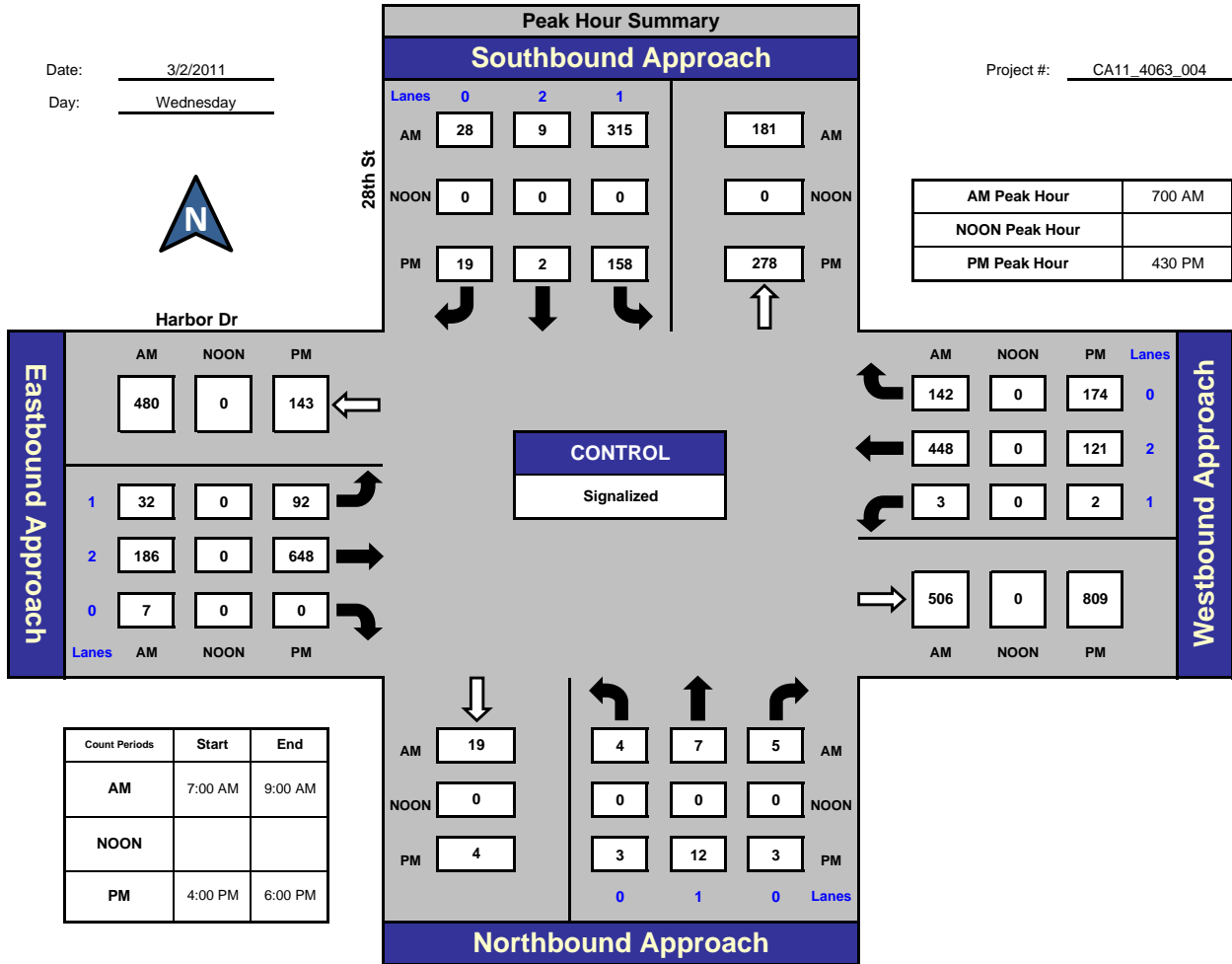
National Data & Surveying Services

## 28th St and Harbor Dr, City of San Diego

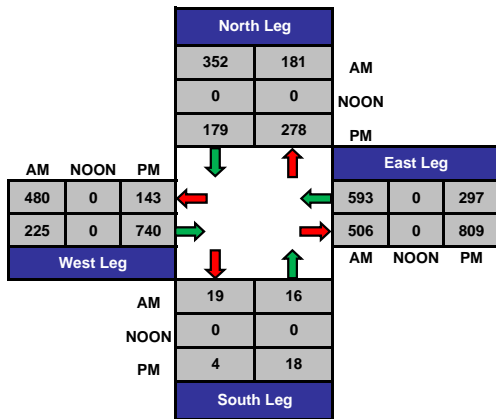
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Day: Wednesday

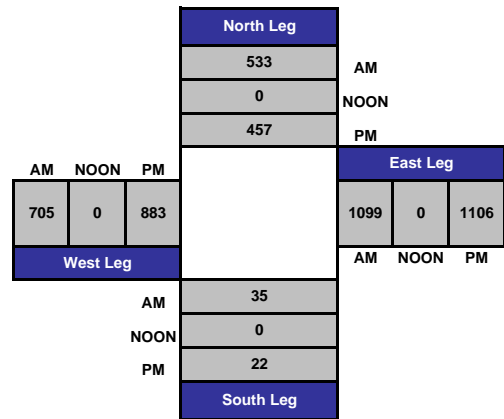
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### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

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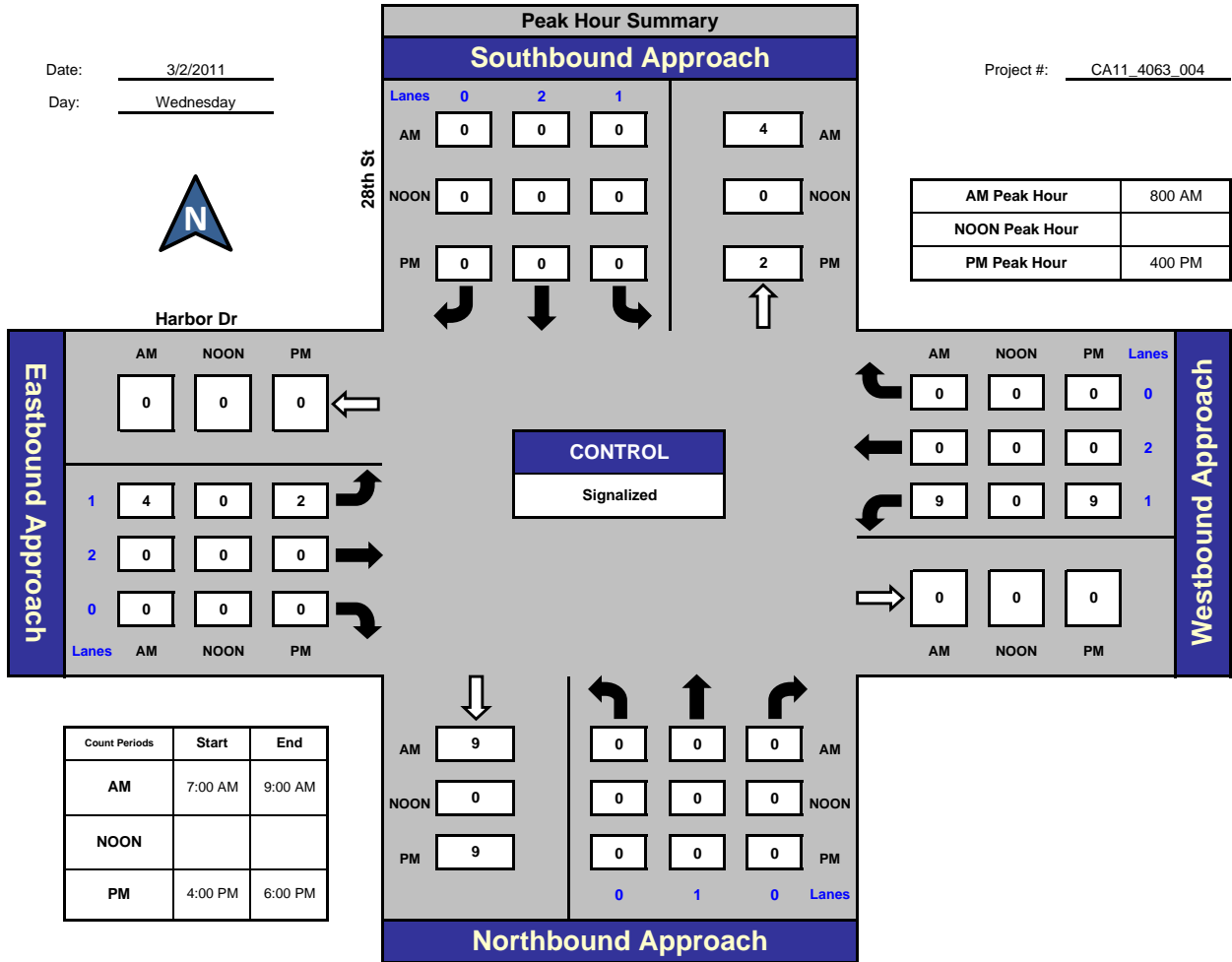
National Data & Surveying Services

## 28th St and Harbor Dr, City of San Diego

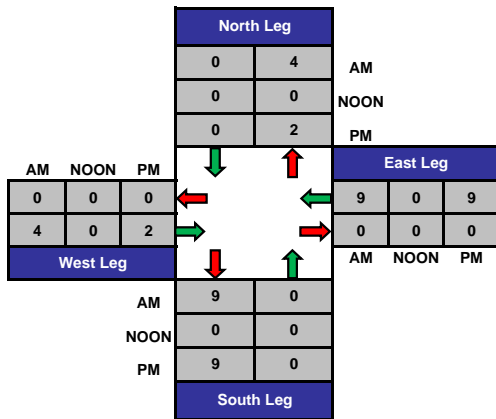
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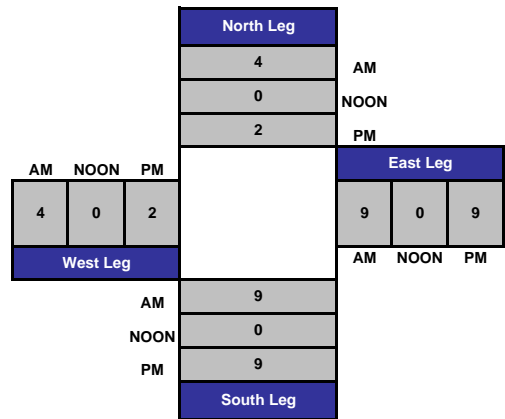
Project #: CA11\_4063\_004



Total Ins & Outs



Total Volume Per Leg



# ITM Peak Hour Summary

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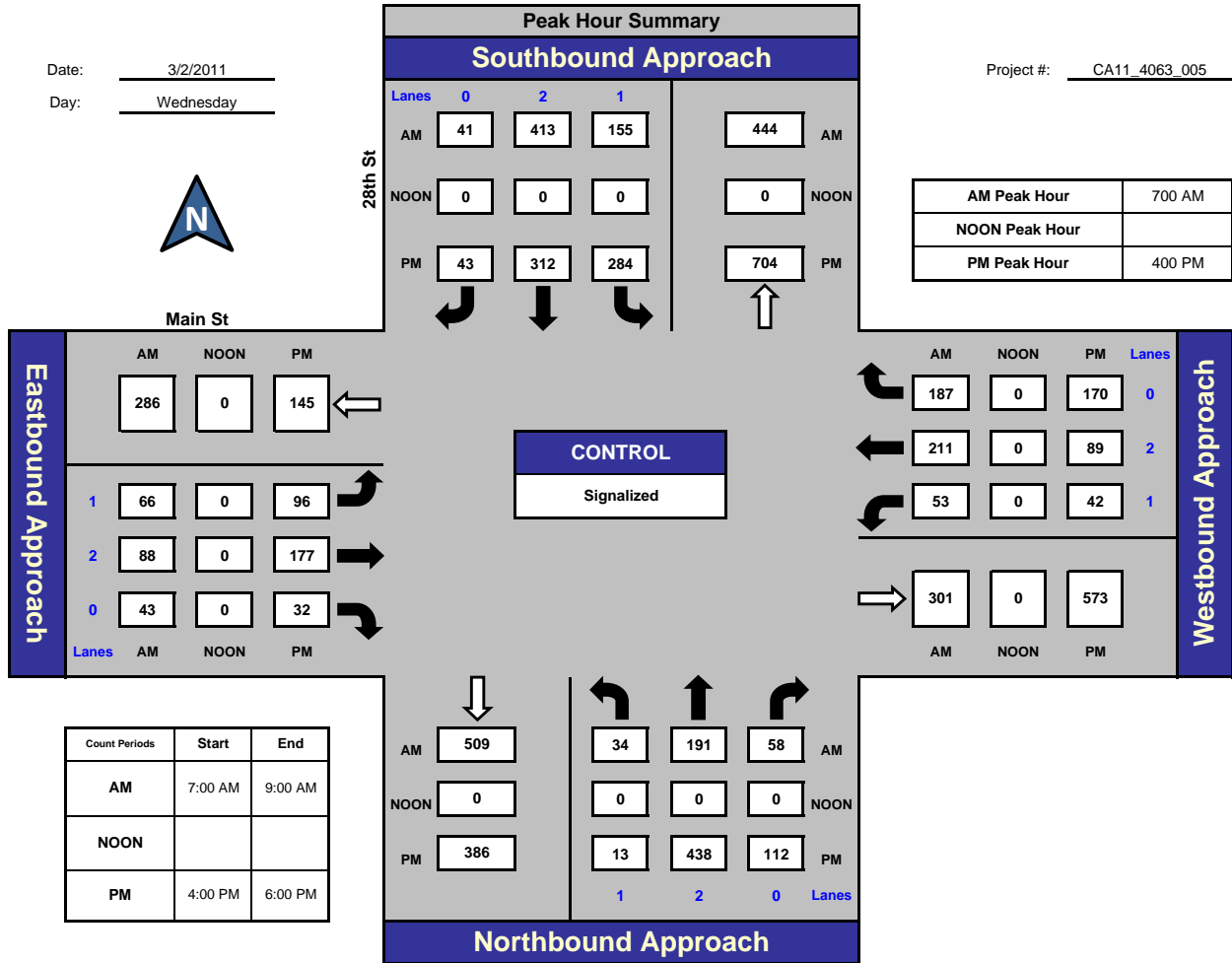
National Data & Surveying Services

## 28th St and Main St, City of San Diego

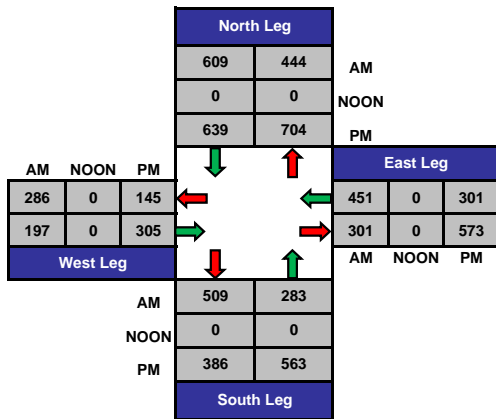
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Day: Wednesday

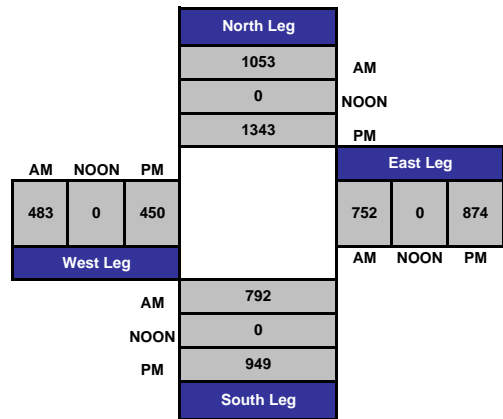
Project #: CA11\_4063\_005



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

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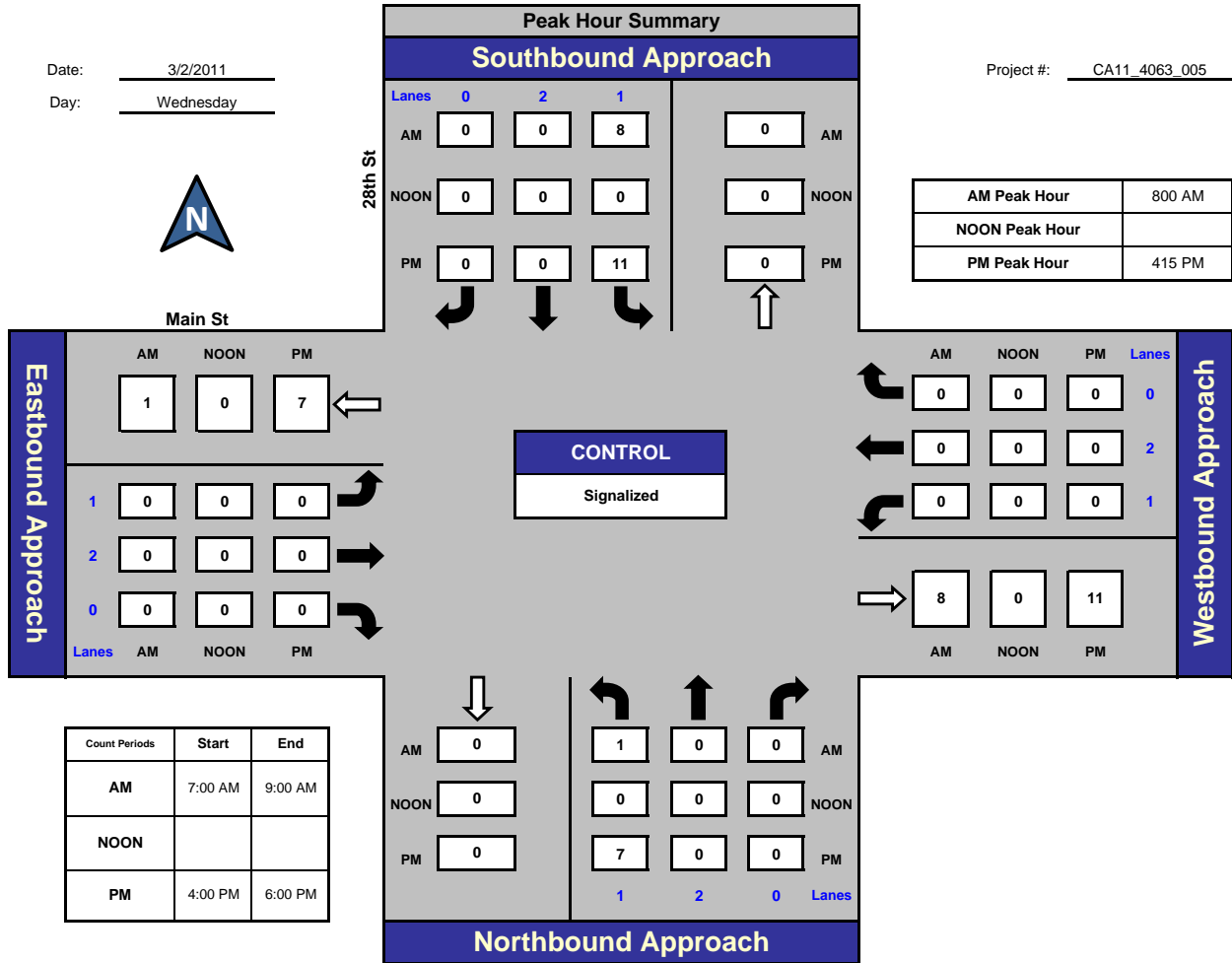
National Data & Surveying Services

## 28th St and Main St, City of San Diego

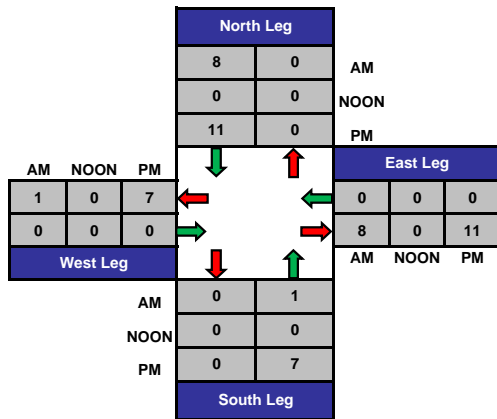
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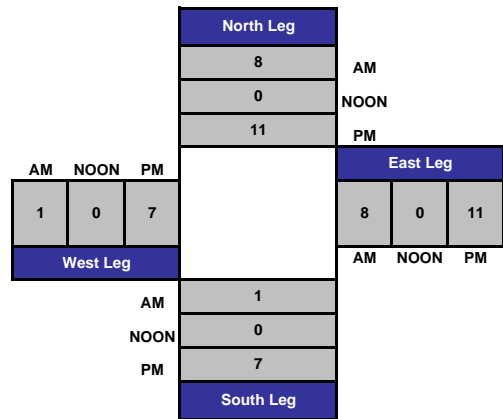
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**Total Ins & Outs**



**Total Volume Per Leg**



# ITM Peak Hour Summary

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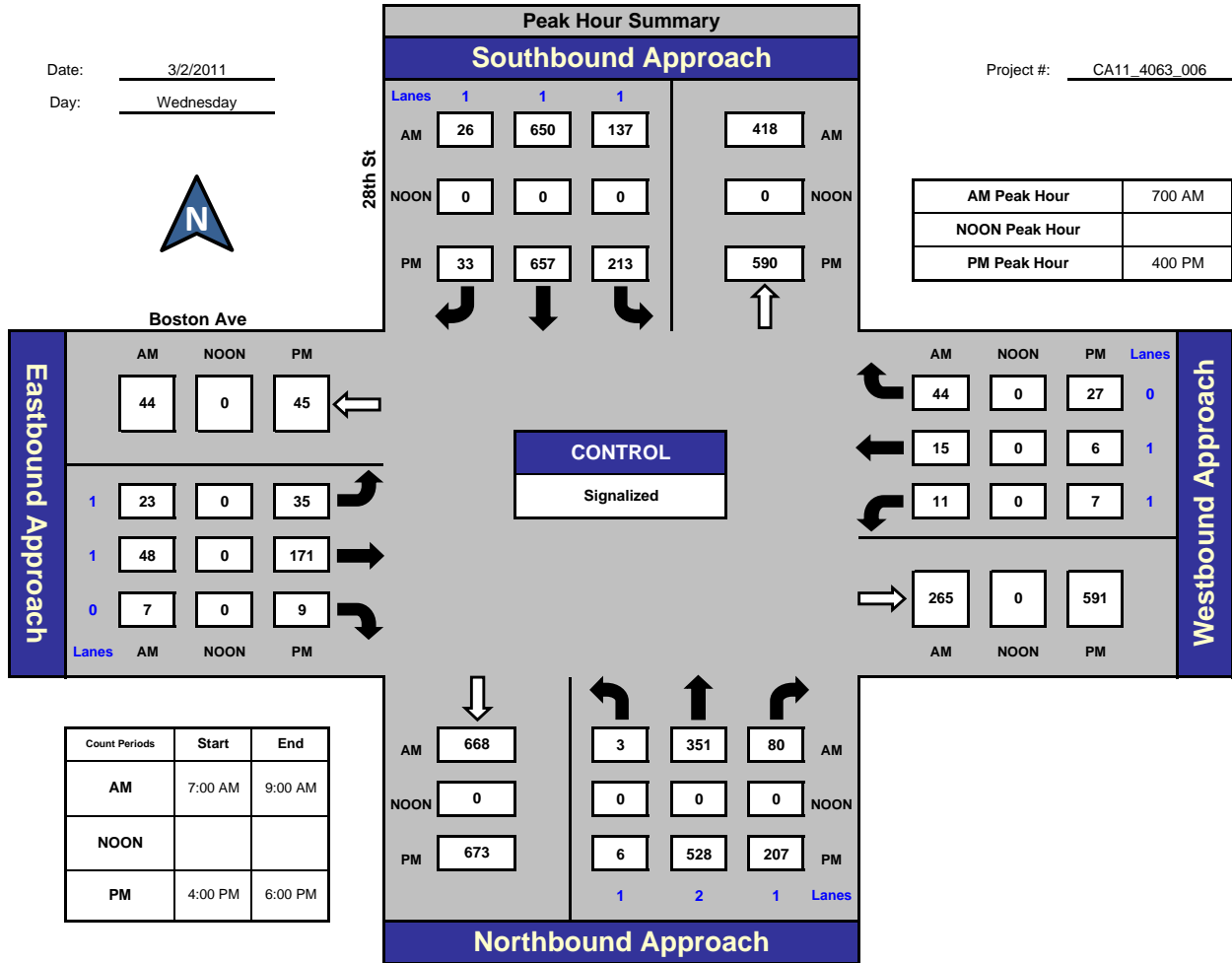
National Data & Surveying Services

## 28th St and Boston Ave, City of San Diego

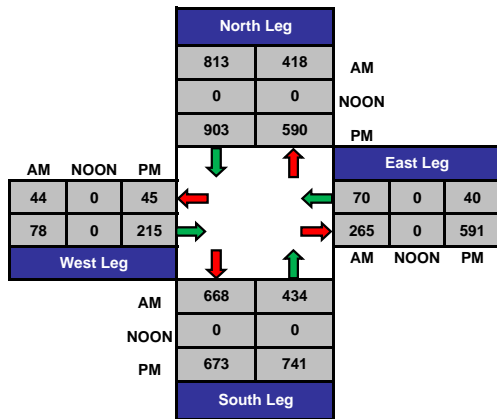
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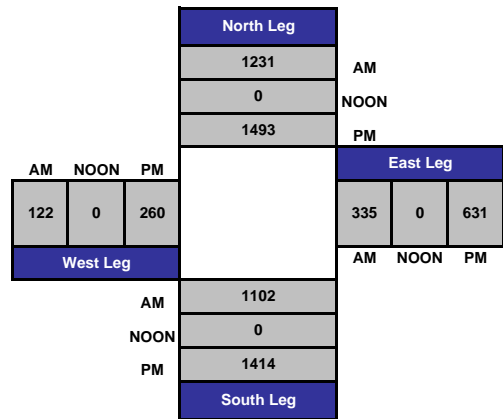
Project #: CA11\_4063\_006



### Total Ins & Outs



### Total Volume Per Leg





# ITM Peak Hour Summary

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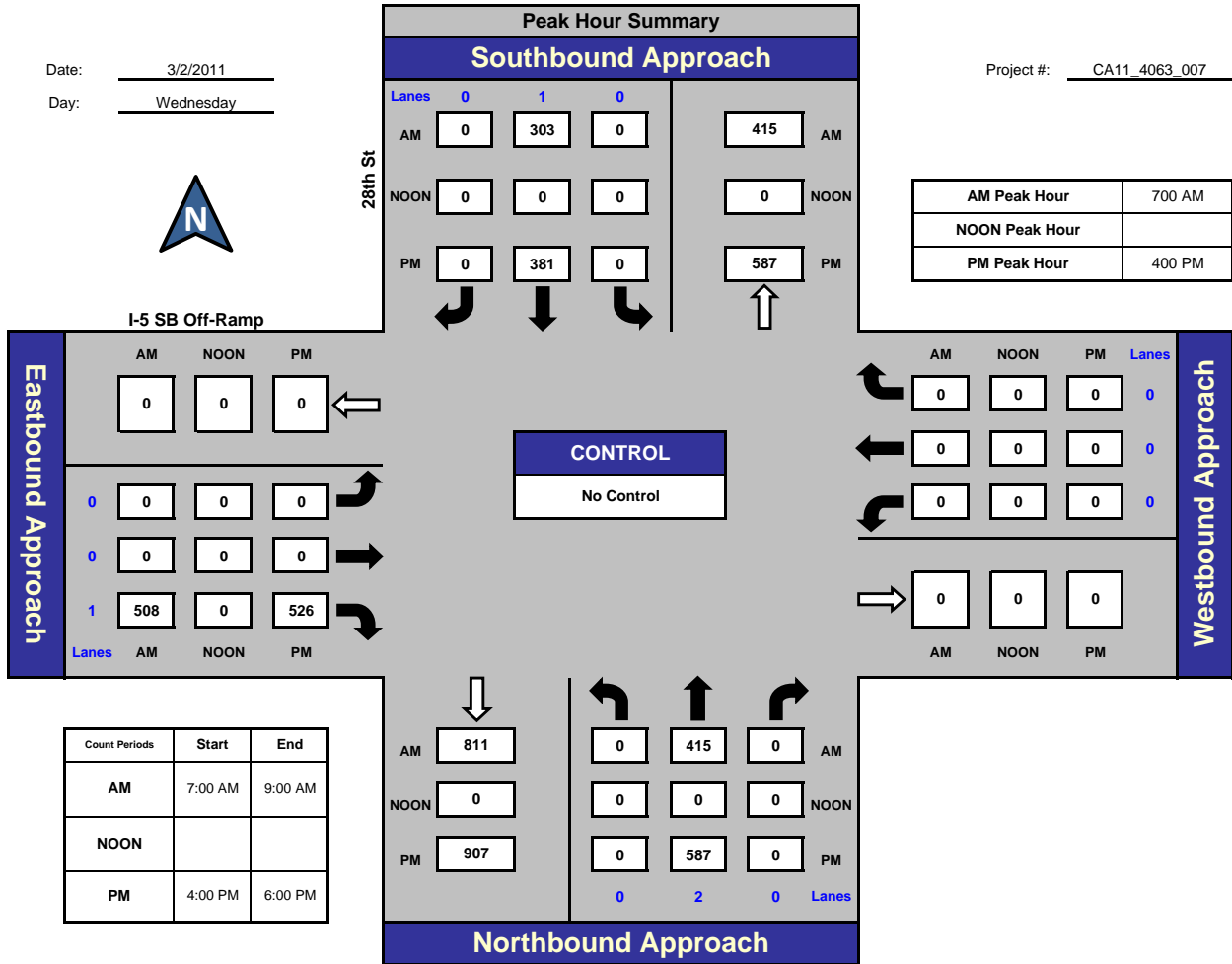
National Data & Surveying Services

## 28th St and I-5 SB Off-Ramp, City of San Diego

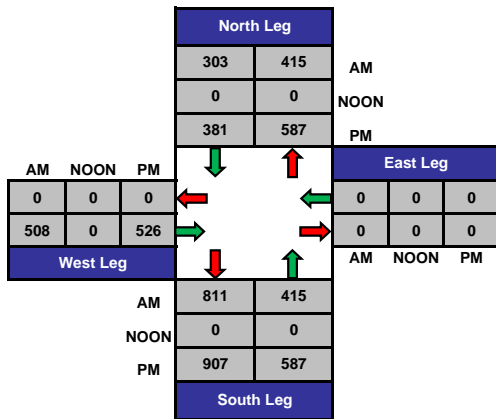
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Day: Wednesday

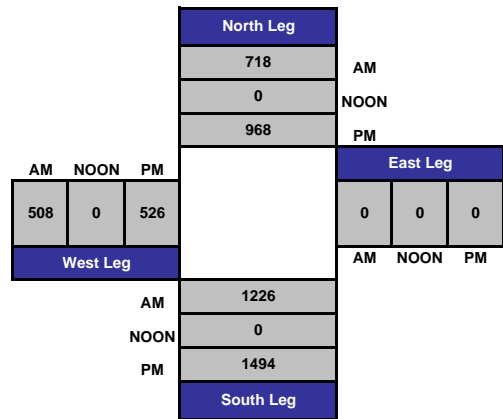
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### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

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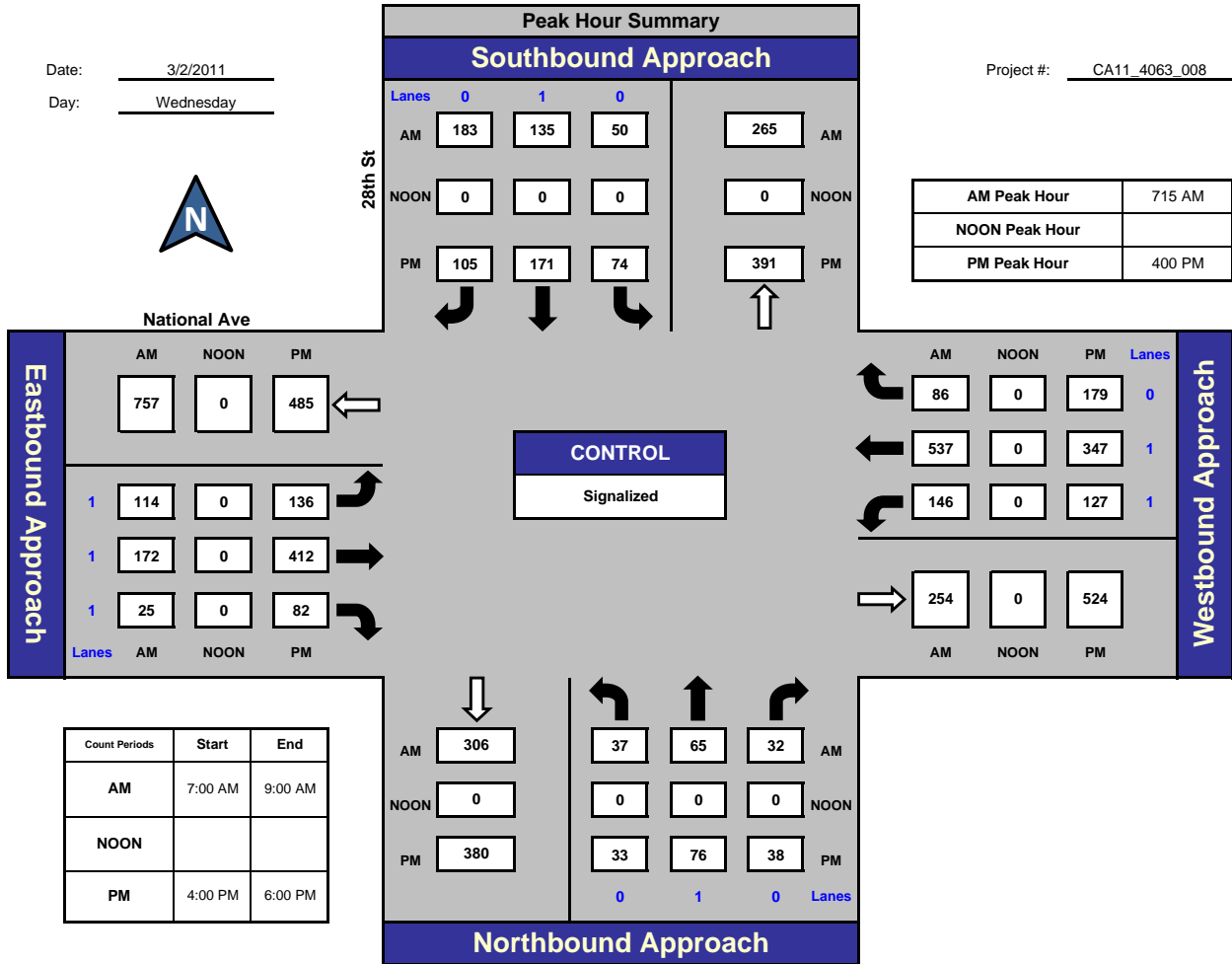
National Data & Surveying Services

## 28th St and National Ave, City of San Diego

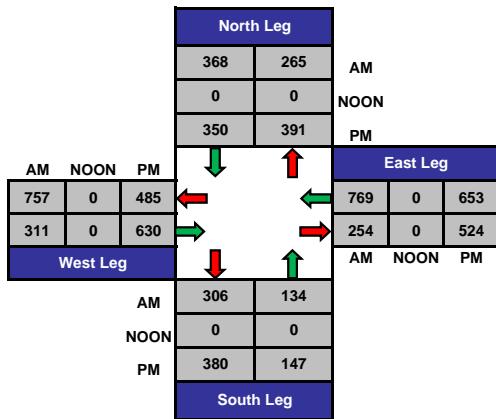
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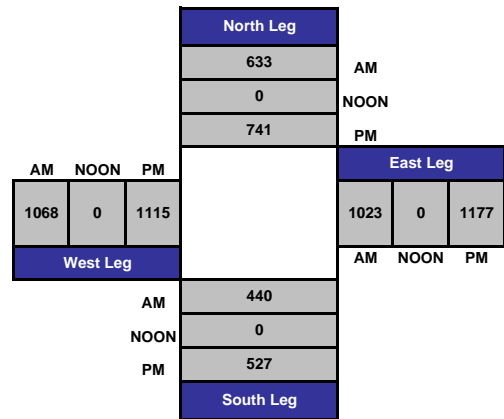
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### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

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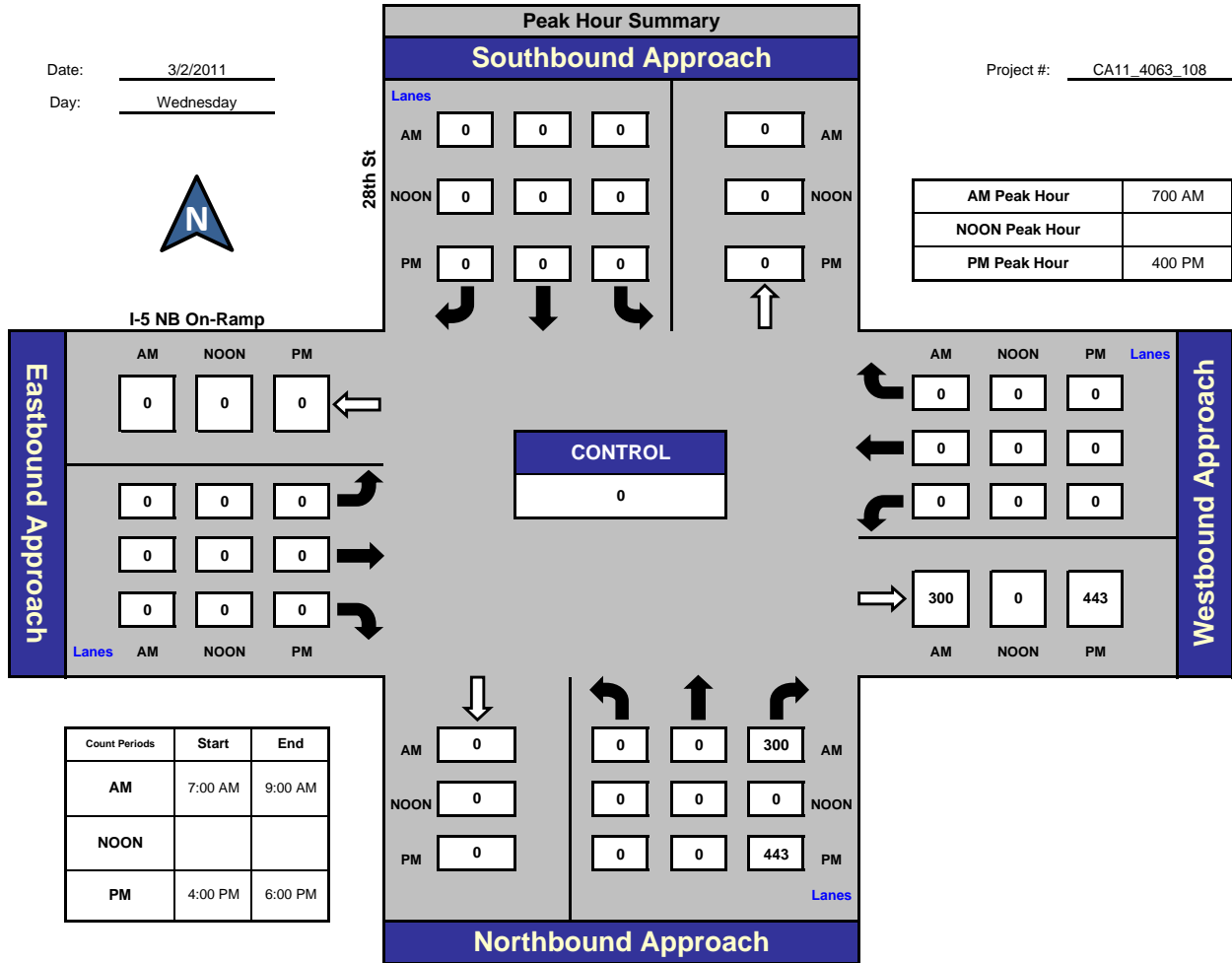
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## 28th St and I-5 NB On-Ramp, City of San Diego

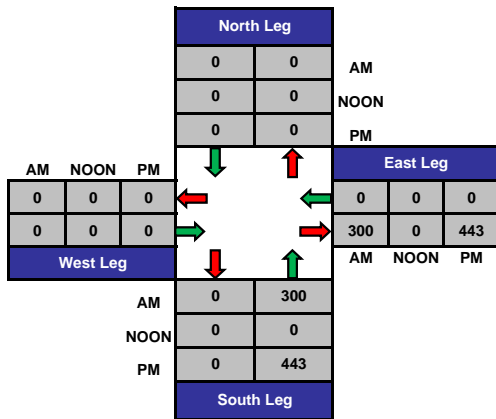
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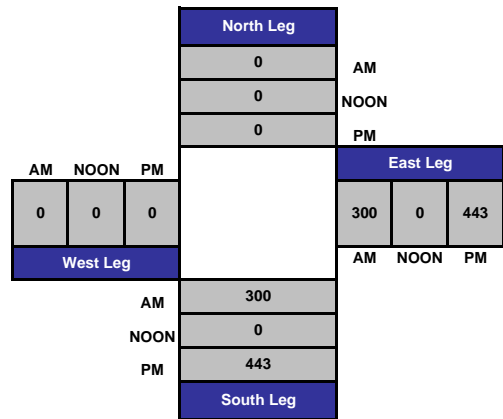
Project #: CA11\_4063\_108



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

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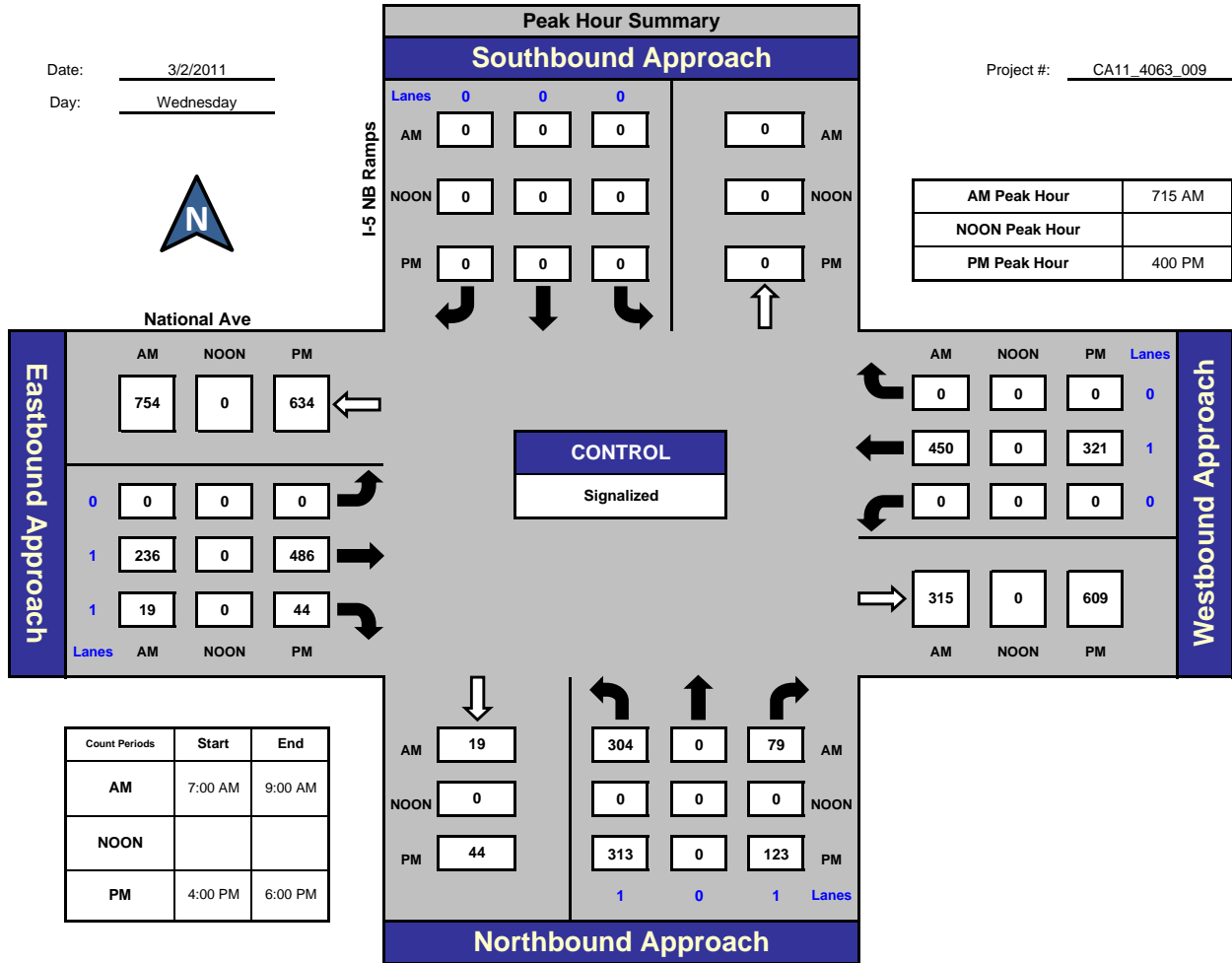
National Data & Surveying Services

## I-5 NB Ramps and National Ave., City of San Diego

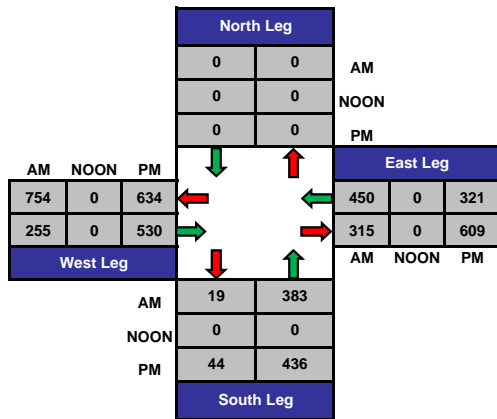
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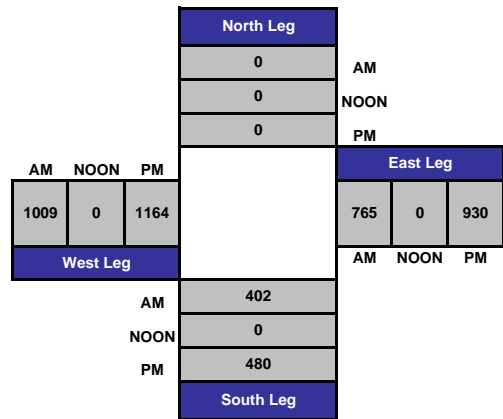
Project #: CA11\_4063\_009



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

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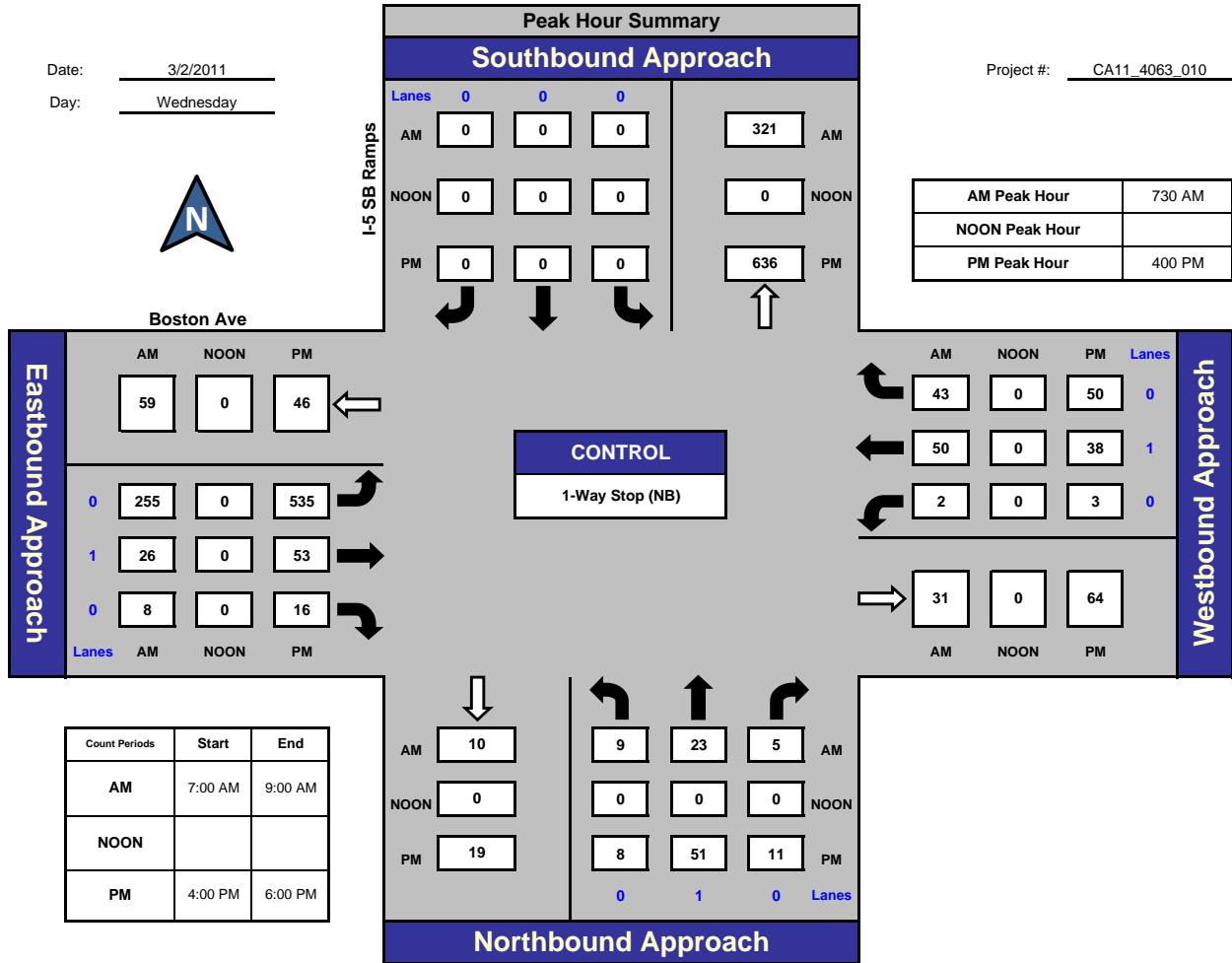
National Data & Surveying Services

## I-5 SB Ramps and Boston Ave, City of San Diego

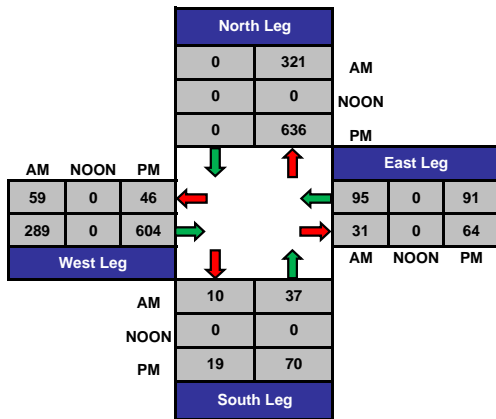
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Day: Wednesday

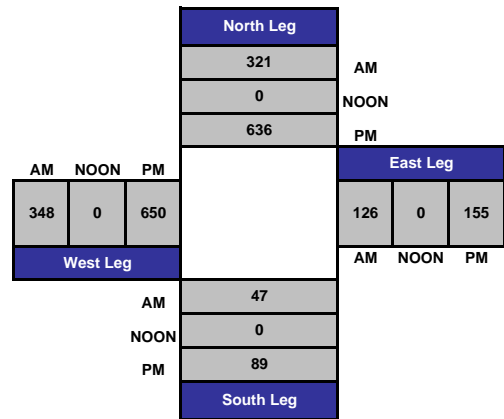
Project #: CA11\_4063\_010



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

Prepared by:



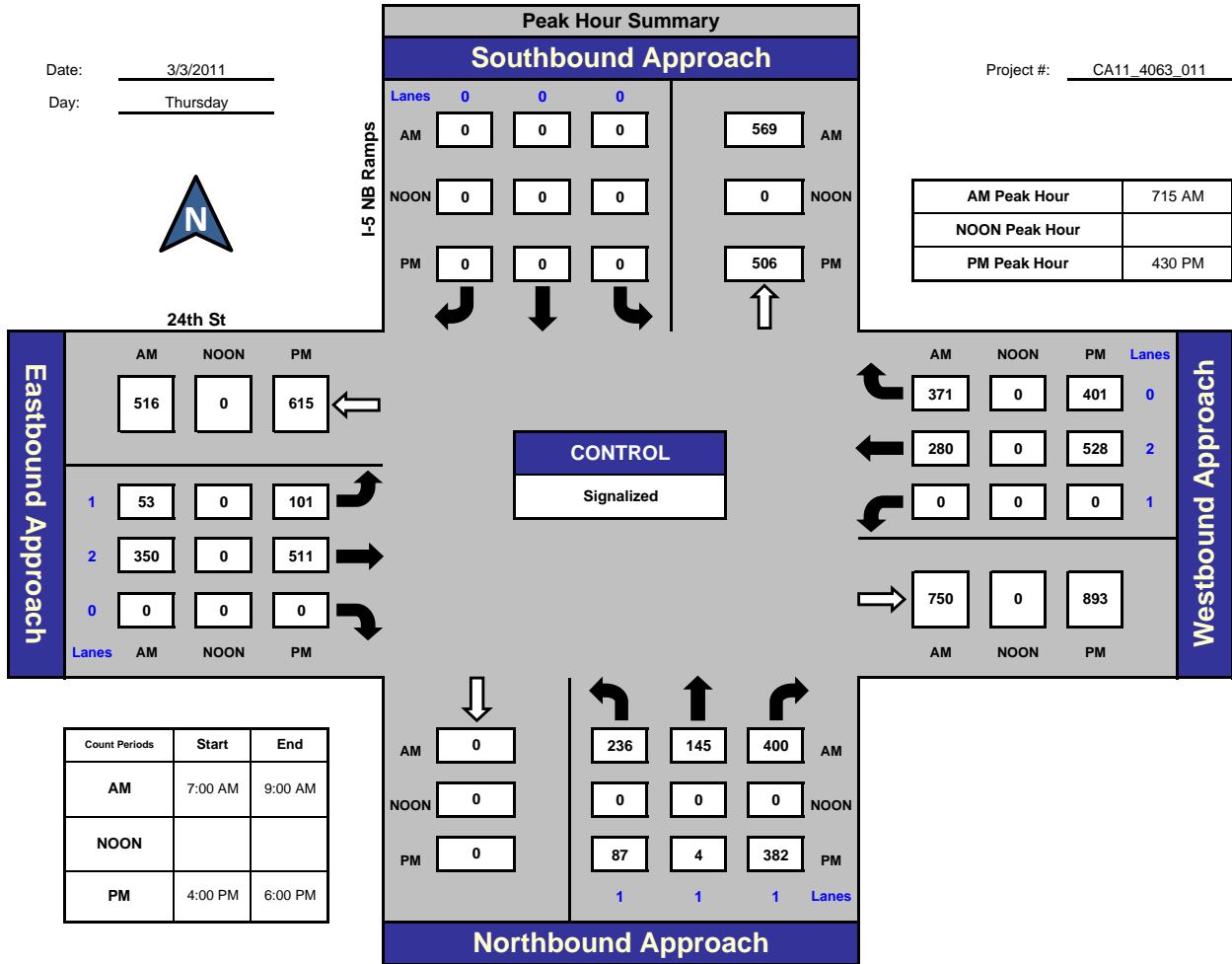
National Data & Surveying Services

## I-5 NB Ramps and 24th St., City of San Diego

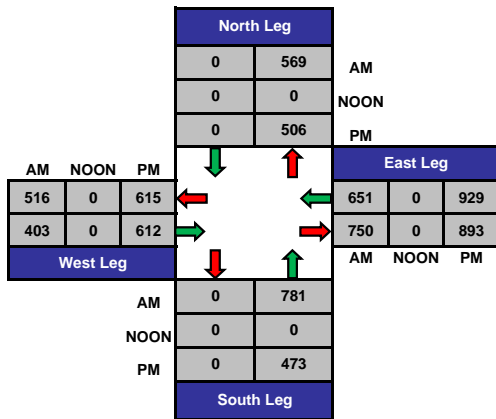
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Day: Thursday

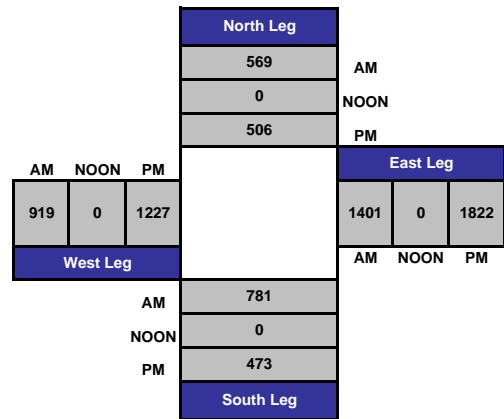
Project #: CA11\_4063\_011



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

Prepared by:



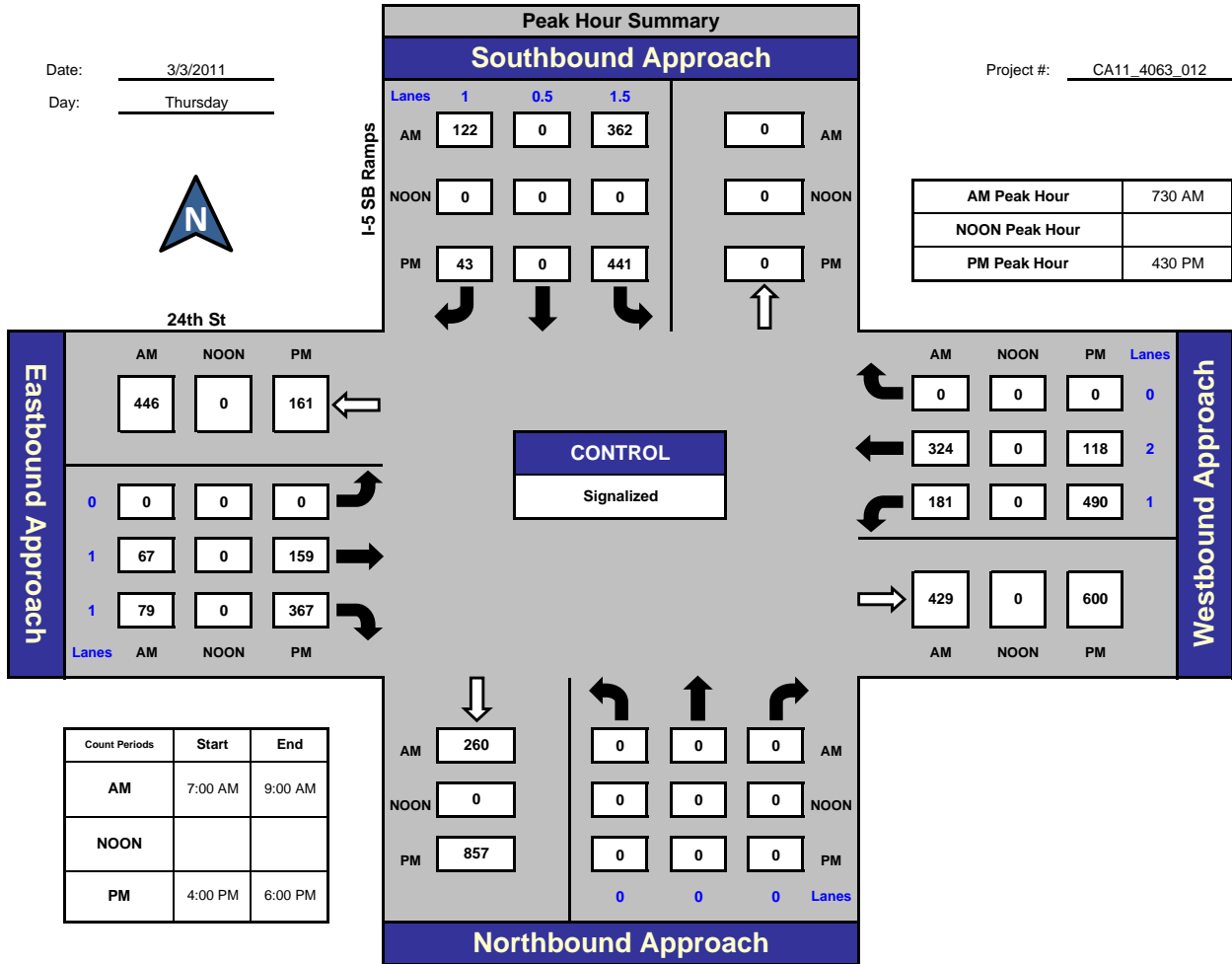
National Data & Surveying Services

## I-5 SB Ramps and 24th St., City of San Diego

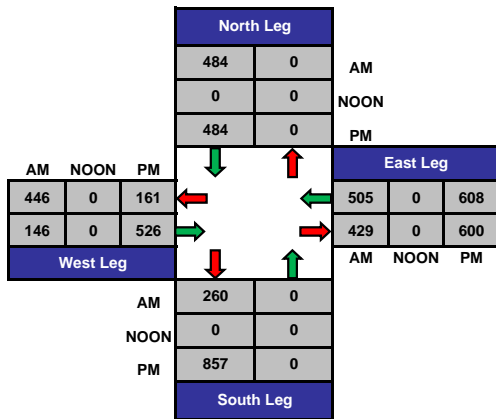
Date: 3/3/2011

Day: Thursday

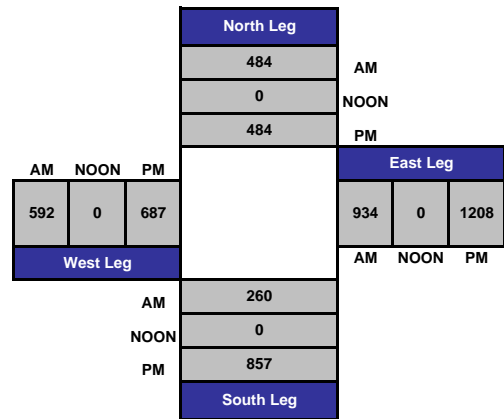
Project #: CA11\_4063\_012



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

Prepared by:



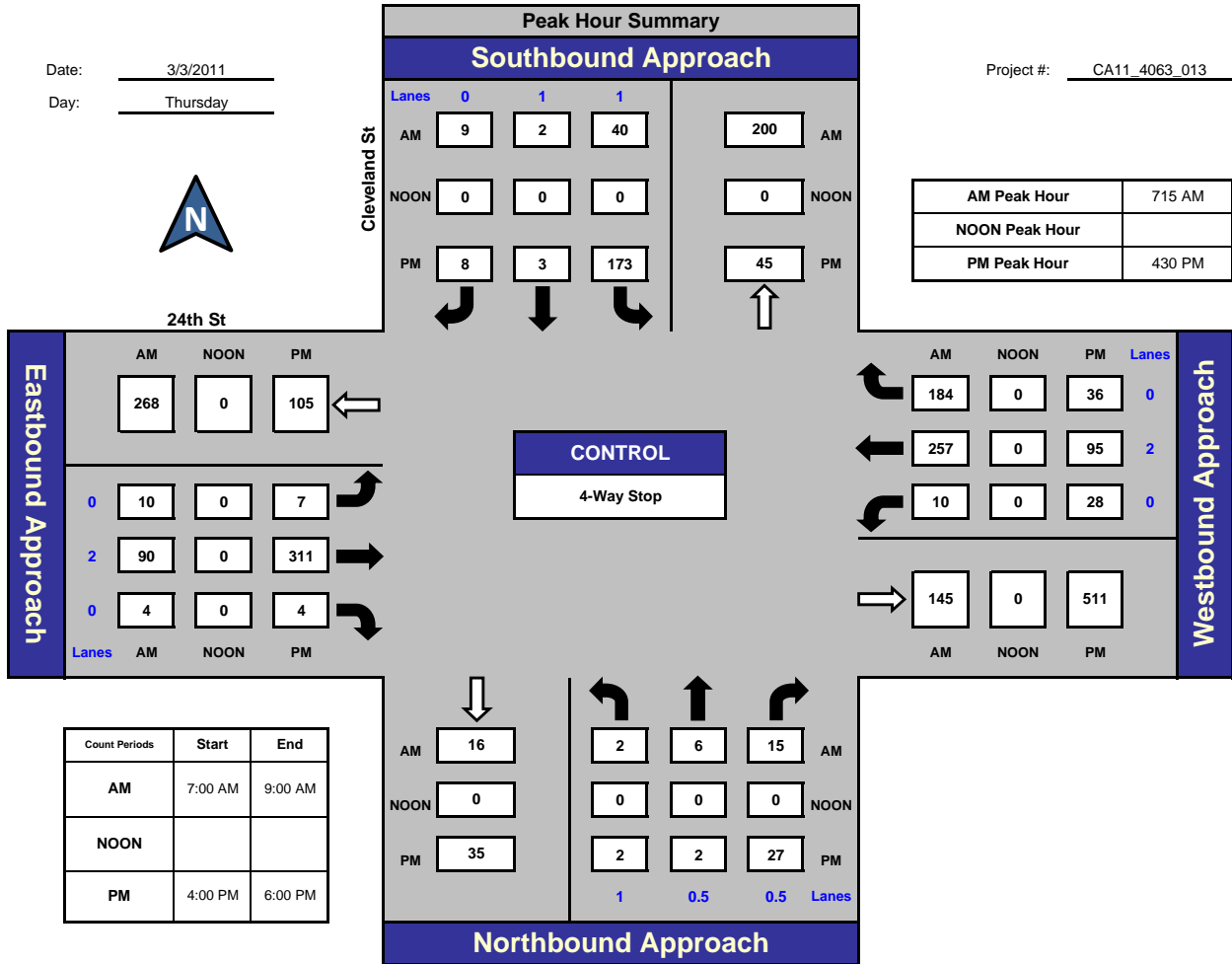
National Data & Surveying Services

## Cleveland St and 24th St, City of San Diego

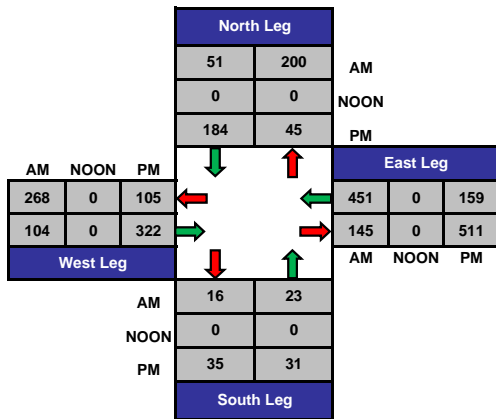
Date: 3/3/2011

Day: Thursday

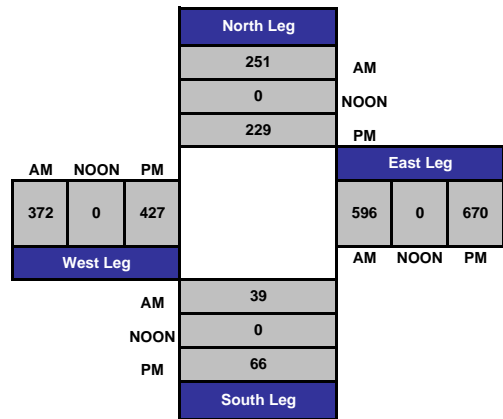
Project #: CA11\_4063\_013



### Total Ins & Outs



### Total Volume Per Leg





# ITM Peak Hour Summary

Prepared by:



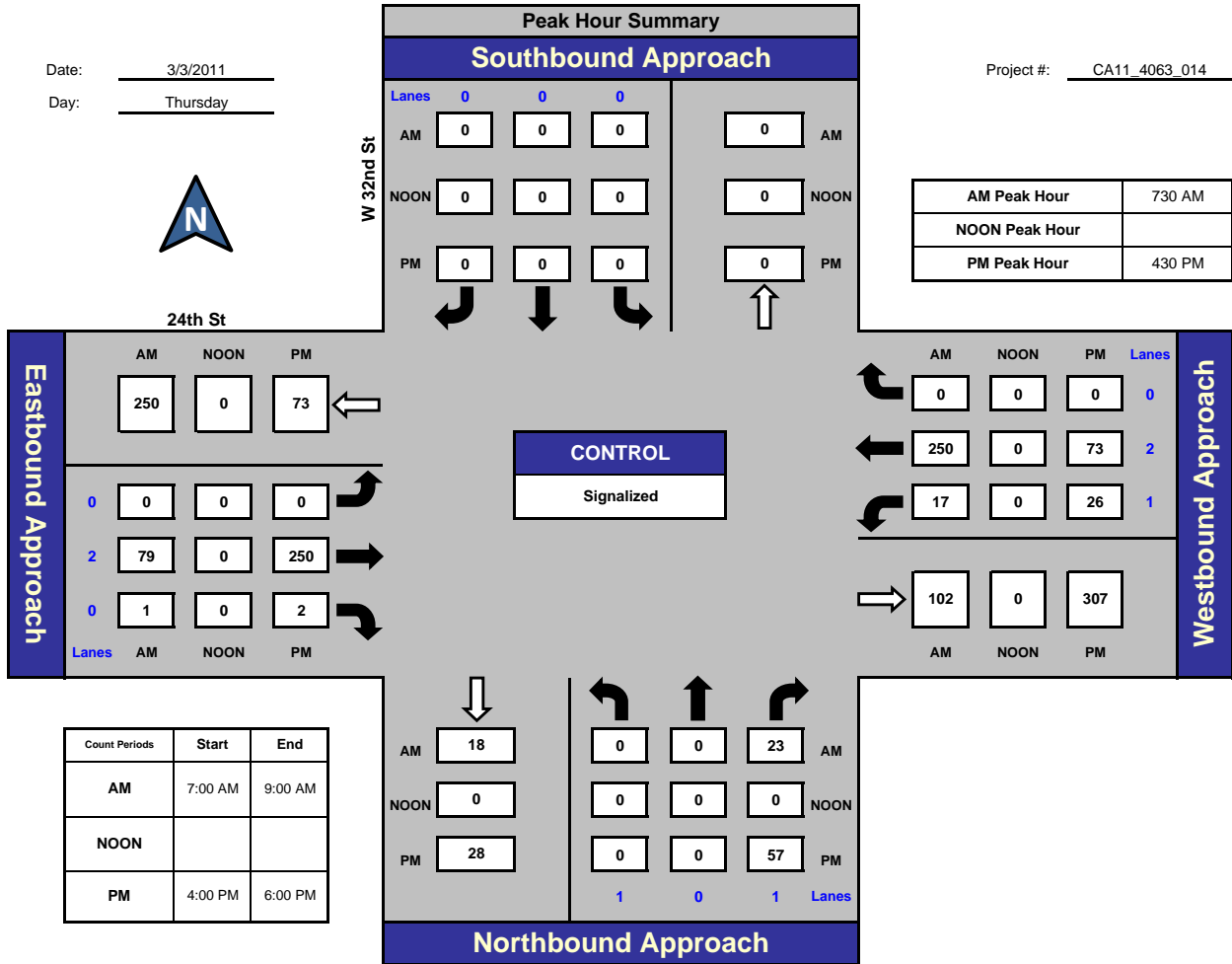
National Data & Surveying Services

## W 32nd St and 24th St, City of San Diego

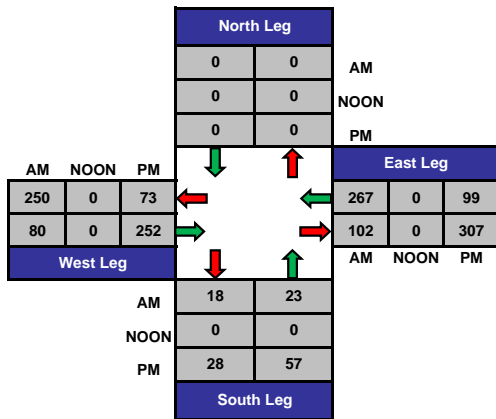
Date: 3/3/2011

Day: Thursday

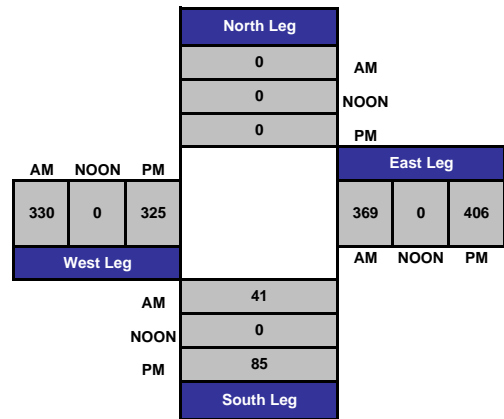
Project #: CA11\_4063\_014



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

Prepared by:



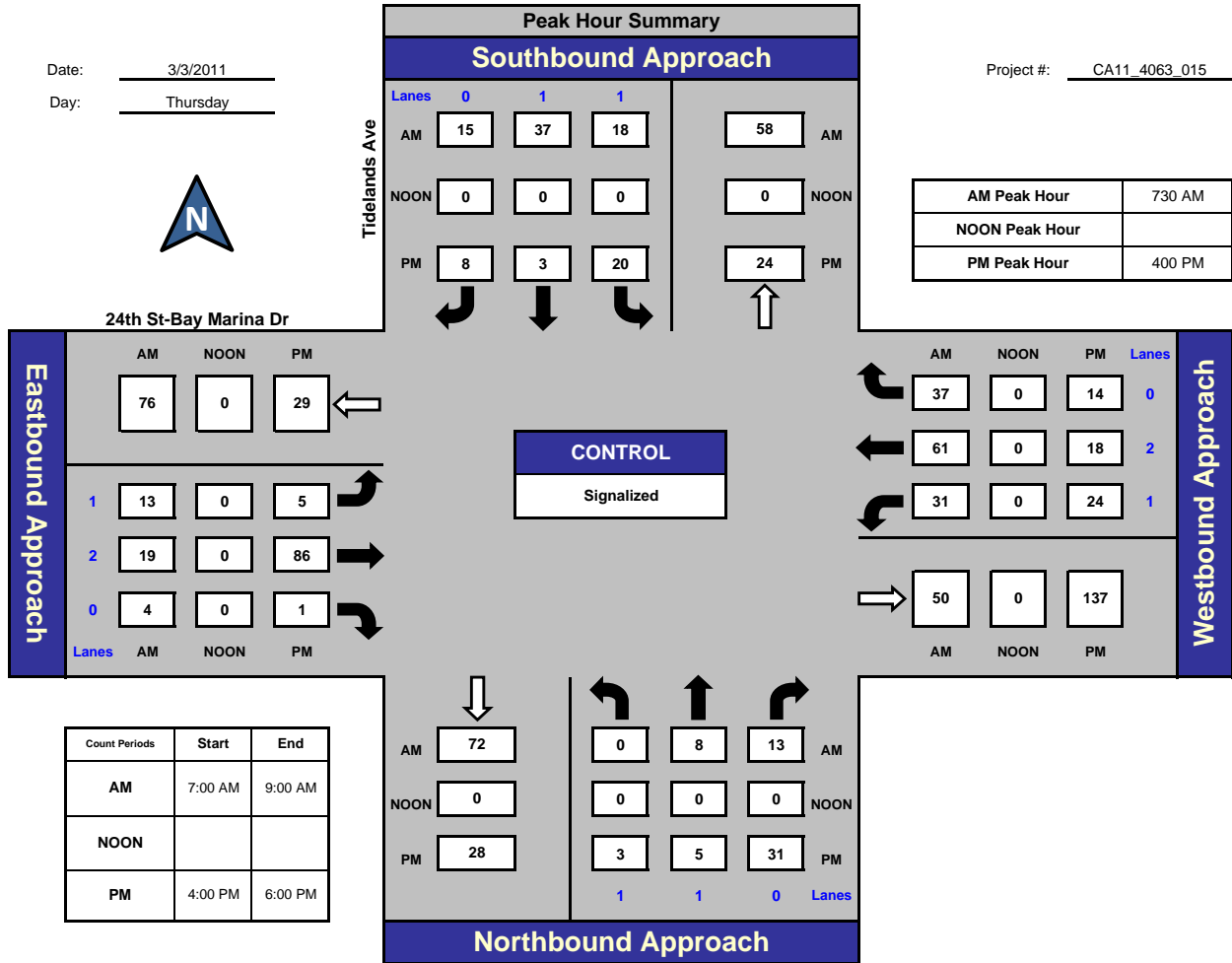
National Data & Surveying Services

## Tidelands Ave and 24th St-Bay Marina Dr., City of San Diego

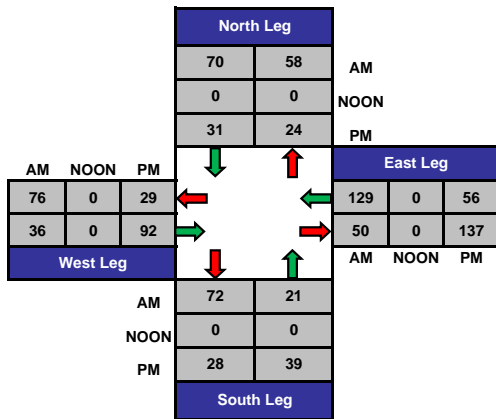
Date: 3/3/2011

Day: Thursday

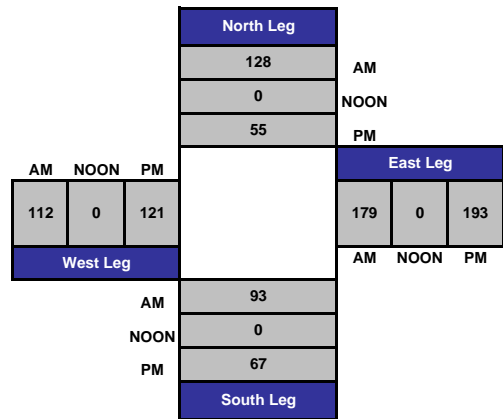
Project #: CA11\_4063\_015



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

Prepared by:



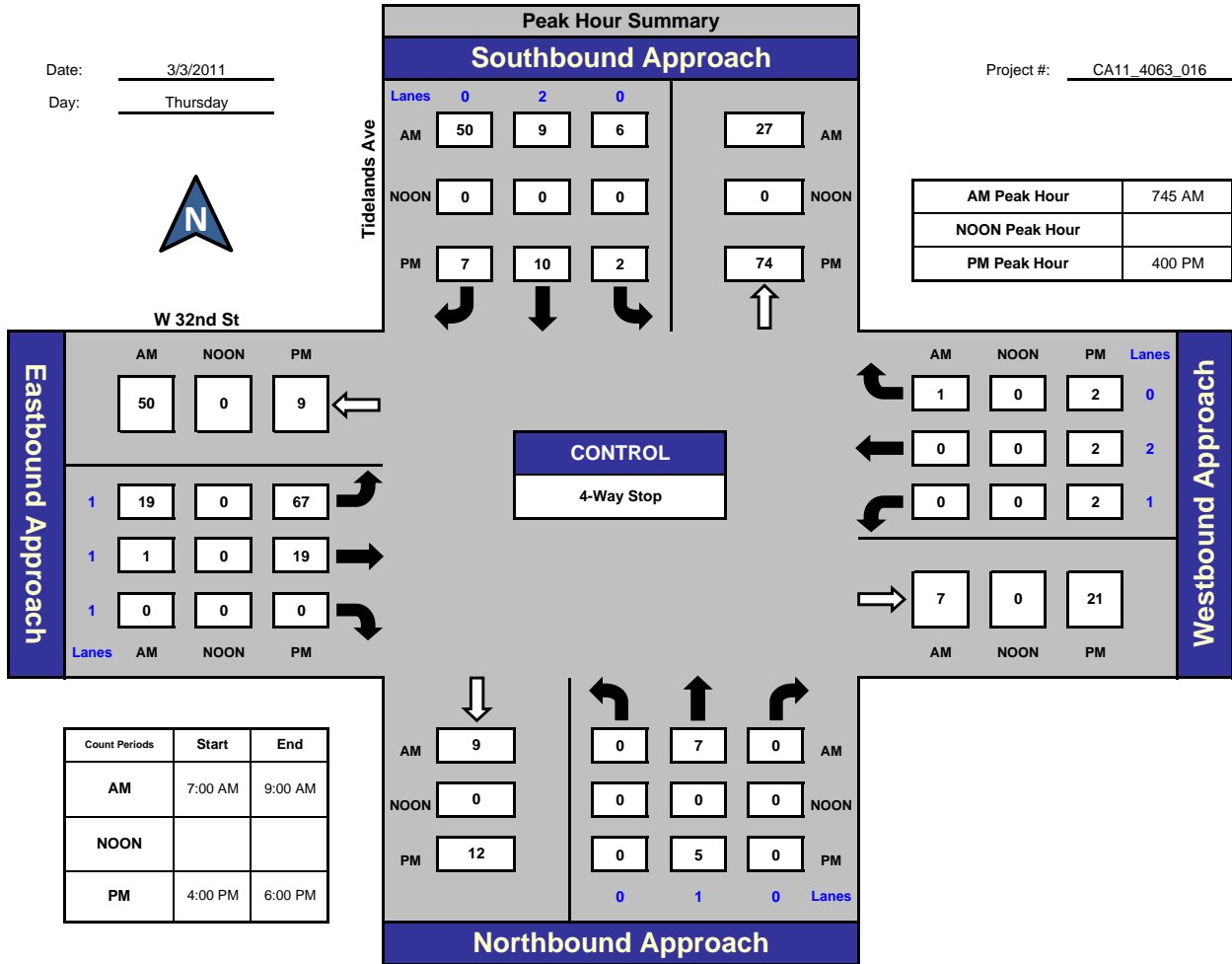
National Data & Surveying Services

## Tidelands Ave and W 32nd St, City of San Diego

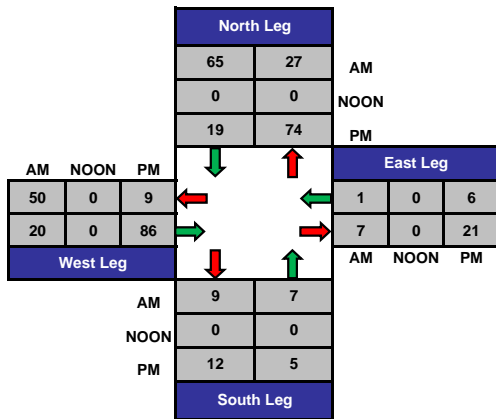
Date: 3/3/2011

Day: Thursday

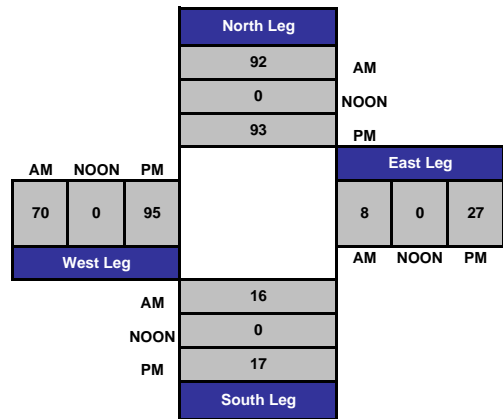
Project #: CA11\_4063\_016



### Total Ins & Outs



### Total Volume Per Leg



**VOLUME**

Harbor Dr between Park Blvd &amp; Cesar Chavez Pkwy

Day: Thursday

Date: 3/3/2011

City: San Diego

Project #: CA11\_4064\_001

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	7,099	5,804	12,903					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			36	9	45	12:00			99	67	166			
00:15			24	12	36	12:15			140	86	226			
00:30			14	7	21	12:30			98	82	180			
00:45			14	88	4	32	12:45		109	446	70	305	179	751
01:00			13	6	19	13:00			78	70	148			
01:15			11	6	17	13:15			99	76	175			
01:30			5	5	10	13:30			115	76	191			
01:45			8	37	7	24	13:45		120	412	69	291	189	703
02:00			7	4	11	14:00			115	73	188			
02:15			7	4	11	14:15			102	91	193			
02:30			1	3	4	14:30			152	94	246			
02:45			2	17	6	17	14:45		133	502	117	375	250	877
03:00			1	6	7	15:00			107	95	202			
03:15			5	9	14	15:15			124	89	213			
03:30			2	6	8	15:30			156	94	250			
03:45			1	9	17	38	15:45		147	534	113	391	260	925
04:00			9	15	24	16:00			184	93	277			
04:15			9	19	28	16:15			181	91	272			
04:30			12	40	52	16:30			278	108	386			
04:45			18	48	43	117	16:45		258	901	74	366	332	1267
05:00			14	35	49	17:00			240	96	336			
05:15			32	50	82	17:15			252	89	341			
05:30			39	62	101	17:30			208	78	286			
05:45			55	140	74	221	17:45		153	853	81	344	234	1197
06:00			65	56	121	18:00			116	70	186			
06:15			64	97	161	18:15			83	66	149			
06:30			63	130	193	18:30			72	51	123			
06:45			50	242	134	417	18:45		64	335	52	239	116	574
07:00			76	134	210	19:00			71	37	108			
07:15			55	183	238	19:15			54	36	90			
07:30			92	206	298	19:30			57	35	92			
07:45			74	297	199	722	19:45		47	229	31	139	78	368
08:00			51	160	211	20:00			49	30	79			
08:15			65	121	186	20:15			32	36	68			
08:30			61	92	153	20:30			38	28	66			
08:45			67	244	102	475	20:45		45	164	23	117	68	281
09:00			85	79	164	21:00			42	31	73			
09:15			66	74	140	21:15			60	27	87			
09:30			76	75	151	21:30			36	23	59			
09:45			77	304	92	320	21:45		40	178	29	110	69	288
10:00			84	68	152	22:00			52	20	72			
10:15			89	54	143	22:15			44	23	67			
10:30			74	73	147	22:30			46	31	77			
10:45			95	342	66	261	22:45		39	181	26	100	65	281
11:00			76	79	155	23:00			53	16	69			
11:15			80	84	164	23:15			36	13	49			
11:30			130	81	211	23:30			75	17	92			
11:45			105	391	81	325	23:45		41	205	12	58	53	263
<b>TOTALS</b>			2159	2969	<b>5128</b>	<b>TOTALS</b>			4940	2835	<b>7775</b>			
<b>SPLIT %</b>			42.1%	57.9%	<b>39.7%</b>	<b>SPLIT %</b>			63.5%	36.5%	<b>60.3%</b>			

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	7,099	5,804	12,903		
AM Peak Hour			11:30	07:15	07:15	PM Peak Hour			16:30	15:45	16:30
AM Pk Volume			474	748	1020	PM Pk Volume			1028	405	1395
Pk Hr Factor			0.846	0.908	0.856	Pk Hr Factor			0.924	0.896	0.903
7 - 9 Volume	0	0	541	1197	1738	4 - 6 Volume	0	0	1754	710	2464
7 - 9 Peak Hour			07:00	07:15	07:15	4 - 6 Peak Hour			16:30	16:15	16:30
7 - 9 Pk Volume	0	0	297	748	1020	4 - 6 Pk Volume	0	0	1028	369	1395
Pk Hr Factor	0.000	0.000	0.807	0.908	0.856	Pk Hr Factor	0.000	0.000	0.924	0.854	0.903

### VOLUME

Harbor Dr between Cesar Chavez Pkwy & Sampson St

Day: Tuesday  
Date: 3/8/2011

City: San Diego  
Project #: CA11\_4064\_002

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	5,401	3,739	9,140					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			19	14	33	12:00			88	50	138			
00:15			22	12	34	12:15			63	53	116			
00:30			20	12	32	12:30			77	53	130			
00:45			17	78	9	47	12:45		67	295	38	194	105	489
01:00			21	10	31	13:00			60	47	107			
01:15			19	12	31	13:15			67	54	121			
01:30			18	12	30	13:30			57	62	119			
01:45			12	70	10	44	13:45		65	249	46	209	111	458
02:00			14	9	23	14:00			73	40	113			
02:15			12	6	18	14:15			95	53	148			
02:30			11	7	18	14:30			75	66	141			
02:45			7	44	2	24	14:45		104	347	77	236	181	583
03:00			2	10	12	15:00			104	77	181			
03:15			3	1	4	15:15			77	68	145			
03:30			2	2	4	15:30			95	79	174			
03:45			9	16	3	16	15:45		89	365	66	290	155	655
04:00			13	16	29	16:00			133	50	183			
04:15			17	6	23	16:15			145	50	195			
04:30			19	15	34	16:30			171	57	228			
04:45			25	74	10	47	16:45		172	621	46	203	218	824
05:00			29	17	46	17:00			191	46	237			
05:15			49	19	68	17:15			208	49	257			
05:30			91	27	118	17:30			185	47	232			
05:45			95	264	25	88	17:45		111	695	30	172	141	867
06:00			90	43	133	18:00			122	32	154			
06:15			80	41	121	18:15			68	20	88			
06:30			82	67	149	18:30			47	28	75			
06:45			58	310	63	214	18:45		41	278	23	103	64	381
07:00			44	71	115	19:00			32	33	65			
07:15			73	130	203	19:15			37	19	56			
07:30			47	136	183	19:30			21	23	44			
07:45			62	226	121	458	19:45		32	122	26	101	58	223
08:00			42	131	173	20:00			41	15	56			
08:15			45	142	187	20:15			18	14	32			
08:30			57	92	149	20:30			28	18	46			
08:45			65	209	74	439	20:45		15	102	9	56	24	158
09:00			58	46	104	21:00			20	22	42			
09:15			45	49	94	21:15			29	24	53			
09:30			76	43	119	21:30			20	9	29			
09:45			58	237	55	193	21:45		15	84	16	71	31	155
10:00			76	41	117	22:00			22	21	43			
10:15			68	63	131	22:15			25	6	31			
10:30			72	53	125	22:30			16	15	31			
10:45			72	288	60	217	22:45		26	89	12	54	38	143
11:00			62	71	133	23:00			24	10	34			
11:15			59	45	104	23:15			14	5	19			
11:30			64	59	123	23:30			23	6	29			
11:45			68	253	57	232	23:45		24	85	10	31	34	116
<b>TOTALS</b>			2069	2019	4088	<b>TOTALS</b>			3332	1720	5052			
<b>SPLIT %</b>			50.6%	49.4%	44.7%	<b>SPLIT %</b>			66.0%	34.0%	55.3%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	5,401	3,739	9,140

AM Peak Hour			05:30	07:30	07:15	PM Peak Hour			16:45	14:45	16:45
AM Pk Volume			356	530	742	PM Pk Volume			756	301	944
Pk Hr Factor			0.937	0.933	0.914	Pk Hr Factor			0.909	0.953	0.918
7 - 9 Volume	0	0	435	897	1332	4 - 6 Volume	0	0	1316	375	1691
7 - 9 Peak Hour			07:00	07:30	07:15	4 - 6 Peak Hour			16:45	16:00	16:45
7 - 9 Pk Volume	0	0	226	530	742	4 - 6 Pk Volume	0	0	756	203	944
Pk Hr Factor	0.000	0.000	0.774	0.933	0.914	Pk Hr Factor	0.000	0.000	0.909	0.890	0.918

### VOLUME

Harbor Dr between Sampson St & 28th St

Day: Thursday  
Date: 3/3/2011

City: San Diego  
Project #: CA11\_4064\_003

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	5,888	4,197	10,085					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			32	11	43	12:00			69	72	141			
00:15			11	8	19	12:15			79	71	150			
00:30			24	17	41	12:30			65	74	139			
00:45			11	78	12	48	23	126	70	283	48	265	118	548
01:00			8	8	16	13:00			80	41	121			
01:15			5	3	8	13:15			73	66	139			
01:30			32	5	37	13:30			108	51	159			
01:45			10	55	6	22	16	77	82	343	59	217	141	560
02:00			9	3	12	14:00			93	76	169			
02:15			11	0	11	14:15			91	85	176			
02:30			6	4	10	14:30			175	95	270			
02:45			9	35	1	8	10	43	237	596	73	329	310	925
03:00			1	4	5	15:00			165	98	263			
03:15			3	5	8	15:15			142	84	226			
03:30			3	2	5	15:30			153	76	229			
03:45			1	8	14	25	15	33	149	609	63	321	212	930
04:00			7	12	19	16:00			146	42	188			
04:15			6	24	30	16:15			132	32	164			
04:30			10	53	63	16:30			189	46	235			
04:45			14	37	41	130	55	167	174	641	39	159	213	800
05:00			20	54	74	17:00			209	38	247			
05:15			47	60	107	17:15			187	34	221			
05:30			66	72	138	17:30			156	40	196			
05:45			91	224	46	232	137	456	99	651	34	146	133	797
06:00			104	41	145	18:00			78	34	112			
06:15			97	70	167	18:15			40	22	62			
06:30			80	81	161	18:30			34	25	59			
06:45			53	334	75	267	128	601	32	184	29	110	61	294
07:00			50	89	139	19:00			33	19	52			
07:15			53	127	180	19:15			37	19	56			
07:30			46	148	194	19:30			48	18	66			
07:45			62	211	177	541	239	752	23	141	22	78	45	219
08:00			43	125	168	20:00			33	22	55			
08:15			51	89	140	20:15			25	13	38			
08:30			65	76	141	20:30			19	12	31			
08:45			53	212	57	347	110	559	22	99	15	62	37	161
09:00			66	58	124	21:00			31	15	46			
09:15			70	67	137	21:15			17	11	28			
09:30			78	61	139	21:30			18	12	30			
09:45			52	266	58	244	110	510	18	84	17	55	35	139
10:00			72	68	140	22:00			28	12	40			
10:15			67	57	124	22:15			22	14	36			
10:30			76	53	129	22:30			40	7	47			
10:45			76	291	57	235	133	526	14	104	11	44	25	148
11:00			81	75	156	23:00			19	6	25			
11:15			80	61	141	23:15			17	10	27			
11:30			62	79	141	23:30			50	10	60			
11:45			67	290	60	275	127	565	26	112	11	37	37	149
<b>TOTALS</b>			2041	2374	4415	<b>TOTALS</b>			3847	1823	5670			
<b>SPLIT %</b>			46.2%	53.8%	43.8%	<b>SPLIT %</b>			67.8%	32.2%	56.2%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	5,888	4,197	10,085

AM Peak Hour			05:45	07:15	07:15	PM Peak Hour			16:30	14:15	14:30
AM Pk Volume			372	577	781	PM Pk Volume			759	351	1069
Pk Hr Factor			0.894	0.815	0.817	Pk Hr Factor			0.908	0.895	0.862
7 - 9 Volume	0	0	423	888	1311	4 - 6 Volume	0	0	1292	305	1597
7 - 9 Peak Hour			07:45	07:15	07:15	4 - 6 Peak Hour			16:30	16:00	16:30
7 - 9 Pk Volume	0	0	221	577	781	4 - 6 Pk Volume	0	0	759	159	916
Pk Hr Factor	0.000	0.000	0.850	0.815	0.817	Pk Hr Factor	0.000	0.000	0.908	0.864	0.927

**VOLUME**

Harbor Dr between 28th St &amp; 32nd St

Day: Thursday

Date: 3/3/2011

City: San Diego

Project #: CA11\_4064\_004

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	8,109	6,131	14,240					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			30	6	36	12:00			87	99	186			
00:15			17	12	29	12:15			105	89	194			
00:30			43	7	50	12:30			84	112	196			
00:45			17	107	4	29	12:45		125	401	73	373	198	774
01:00			14	0	14	13:00			77	90	167			
01:15			3	4	7	13:15			97	100	197			
01:30			11	3	14	13:30			123	86	209			
01:45			7	35	4	11	13:45		94	391	92	368	186	759
02:00			7	4	11	14:00			98	112	210			
02:15			12	4	16	14:15			111	113	224			
02:30			5	6	11	14:30			234	116	350			
02:45			2	26	9	23	14:45		324	767	83	424	407	1191
03:00			6	9	15	15:00			327	85	412			
03:15			3	10	13	15:15			300	107	407			
03:30			4	12	16	15:30			230	106	336			
03:45			6	19	33	64	15:45		226	1083	72	370	298	1453
04:00			24	41	65	16:00			221	66	287			
04:15			16	53	69	16:15			230	68	298			
04:30			28	79	107	16:30			225	68	293			
04:45			46	114	104	277	16:45		267	943	65	267	332	1210
05:00			51	159	210	17:00			248	88	336			
05:15			76	187	263	17:15			268	61	329			
05:30			81	184	265	17:30			218	56	274			
05:45			132	340	134	664	17:45		152	886	58	263	210	1149
06:00			148	88	236	18:00			108	69	177			
06:15			155	77	232	18:15			70	48	118			
06:30			126	96	222	18:30			43	35	78			
06:45			89	518	100	361	18:45		33	254	34	186	67	440
07:00			80	117	197	19:00			35	25	60			
07:15			66	149	215	19:15			47	36	83			
07:30			67	173	240	19:30			45	21	66			
07:45			64	277	183	622	19:45		40	167	23	105	63	272
08:00			73	132	205	20:00			38	25	63			
08:15			47	111	158	20:15			28	20	48			
08:30			57	95	152	20:30			22	17	39			
08:45			91	268	69	407	20:45		24	112	23	85	47	197
09:00			85	76	161	21:00			33	23	56			
09:15			79	76	155	21:15			16	15	31			
09:30			88	80	168	21:30			20	16	36			
09:45			78	330	79	311	21:45		15	84	18	72	33	156
10:00			81	95	176	22:00			34	19	53			
10:15			94	88	182	22:15			21	20	41			
10:30			85	74	159	22:30			33	8	41			
10:45			102	362	102	359	22:45		15	103	13	60	28	163
11:00			96	104	200	23:00			25	13	38			
11:15			117	104	221	23:15			19	14	33			
11:30			85	92	177	23:30			54	8	62			
11:45			99	397	88	388	23:45		27	125	7	42	34	167
<b>TOTALS</b>			2793	3516	<b>6309</b>	<b>TOTALS</b>			5316	2615	<b>7931</b>			
<b>SPLIT %</b>			44.3%	55.7%	<b>44.3%</b>	<b>SPLIT %</b>			67.0%	33.0%	<b>55.7%</b>			

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	8,109	6,131	14,240		
AM Peak Hour			05:45	05:00	05:15	PM Peak Hour			14:30	13:45	14:30
AM Pk Volume			561	664	1030	PM Pk Volume			1185	433	1576
Pk Hr Factor			0.905	0.888	0.968	Pk Hr Factor			0.906	0.933	0.956
7 - 9 Volume	0	0	545	1029	1574	4 - 6 Volume	0	0	1829	530	2359
7 - 9 Peak Hour			07:00	07:15	07:15	4 - 6 Peak Hour			16:30	16:15	16:30
7 - 9 Pk Volume	0	0	277	637	907	4 - 6 Pk Volume	0	0	1008	289	1290
Pk Hr Factor	0.000	0.000	0.866	0.870	0.918	Pk Hr Factor	0.000	0.000	0.940	0.821	0.960

**VOLUME**

28th St between Harbor Dr &amp; Main St

Day: Thursday  
Date: 3/3/2011City: San Diego  
Project #: CA11\_4064\_005

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,611	7,620	0	0	15,231		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	20	11			31	12:00	171	130			301
00:15	8	12			20	12:15	152	164			316
00:30	53	5			58	12:30	136	152			288
00:45	22	103	10	38	32	12:45	183	642	150	596	333
01:00	2	11			13	13:00	160	115			275
01:15	11	3			14	13:15	163	139			302
01:30	29	6			35	13:30	165	126			291
01:45	9	51	12	32	21	13:45	160	648	114	494	274
02:00	16	1			17	14:00	141	106			247
02:15	6	4			10	14:15	131	97			228
02:30	11	7			18	14:30	163	99			262
02:45	15	48	7	19	22	14:45	174	609	108	410	282
03:00	5	6			11	15:00	175	89			264
03:15	8	14			22	15:15	179	110			289
03:30	11	22			33	15:30	157	120			277
03:45	5	29	32	74	37	15:45	143	654	103	422	246
04:00	12	31			43	16:00	181	80			261
04:15	16	49			65	16:15	132	95			227
04:30	9	79			88	16:30	160	89			249
04:45	11	48	96	255	107	16:45	121	594	78	342	199
05:00	19	83			102	17:00	134	59			193
05:15	26	150			176	17:15	130	92			222
05:30	52	242			294	17:30	73	79			152
05:45	61	158	278	753	339	17:45	87	424	82	312	169
06:00	58	194			252	18:00	87	77			164
06:15	58	209			267	18:15	91	52			143
06:30	53	172			225	18:30	71	38			109
06:45	55	224	149	724	204	18:45	84	333	51	218	135
07:00	92	169			261	19:00	67	38			105
07:15	64	142			206	19:15	52	35			87
07:30	81	136			217	19:30	69	43			112
07:45	56	293	86	533	142	19:45	42	230	45	161	87
08:00	50	97			147	20:00	58	25			83
08:15	65	107			172	20:15	35	24			59
08:30	79	102			181	20:30	41	33			74
08:45	76	270	97	403	173	20:45	32	166	22	104	54
09:00	98	95			193	21:00	44	27			71
09:15	122	100			222	21:15	19	18			37
09:30	116	94			210	21:30	40	21			61
09:45	109	445	124	413	233	21:45	27	130	30	96	57
10:00	108	116			224	22:00	22	23			45
10:15	137	114			251	22:15	22	18			40
10:30	143	132			275	22:30	38	13			51
10:45	158	546	126	488	284	22:45	25	107	13	67	38
11:00	209	139			348	23:00	22	10			32
11:15	159	144			303	23:15	14	12			26
11:30	206	167			373	23:30	56	16			72
11:45	175	749	168	618	343	23:45	18	110	10	48	28
<b>TOTALS</b>	2964	4350			<b>7314</b>	<b>TOTALS</b>	4647	3270			<b>7917</b>
<b>SPLIT %</b>	40.5%	59.5%			<b>48.0%</b>	<b>SPLIT %</b>	58.7%	41.3%			<b>52.0%</b>

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,611	7,620	0	0	15,231		
AM Peak Hour	11:00	05:30			11:00	PM Peak Hour	14:30	12:00	12:00		
AM Pk Volume	749	923			1367	PM Pk Volume	691	596	1238		
Pk Hr Factor	0.896	0.830			0.916	Pk Hr Factor	0.965	0.909	0.929		
7 - 9 Volume	563	936	0	0	1499	4 - 6 Volume	1018	654	0	0	1672
7 - 9 Peak Hour	07:00	07:00			07:00	4 - 6 Peak Hour	16:00	16:00			16:00
7 - 9 Pk Volume	293	533	0	0	826	4 - 6 Pk Volume	594	342	0	0	936
Pk Hr Factor	0.796	0.788	0.000	0.000	0.791	Pk Hr Factor	0.820	0.900	0.000	0.000	0.897



**VOLUME**

28th St between Main St &amp; Boston Ave

Day: Thursday  
Date: 3/3/2011City: San Diego  
Project #: CA11\_4064\_006

DAILY TOTALS					NB	SB	EB	WB	Total		
					9,671	8,783	0	0	18,454		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	16	21			37	12:00	189	129			318
00:15	22	20			42	12:15	175	155			330
00:30	49	15			64	12:30	172	136			308
00:45	35	122	13	69	48	12:45	175	711	141	561	316
01:00	20	11			31	13:00	174	138			312
01:15	13	17			30	13:15	196	153			349
01:30	39	11			50	13:30	165	117			282
01:45	17	89	17	56	34	13:45	177	712	129	537	306
02:00	17	12			29	14:00	193	120			313
02:15	17	12			29	14:15	162	126			288
02:30	9	7			16	14:30	233	122			355
02:45	18	61	7	38	25	14:45	231	819	108	476	339
03:00	5	9			14	15:00	251	137			388
03:15	6	22			28	15:15	224	132			356
03:30	12	33			45	15:30	239	142			381
03:45	13	36	29	93	42	15:45	178	892	139	550	317
04:00	23	40			63	16:00	196	135			331
04:15	18	53			71	16:15	170	159			329
04:30	25	74			99	16:30	206	150			356
04:45	31	97	92	259	123	16:45	184	756	138	582	322
05:00	29	101			130	17:00	188	135			323
05:15	31	146			177	17:15	182	148			330
05:30	67	185			252	17:30	109	140			249
05:45	72	199	188	620	260	17:45	133	612	133	556	266
06:00	72	159			231	18:00	135	118			253
06:15	80	149			229	18:15	116	84			200
06:30	98	155			253	18:30	99	63			162
06:45	83	333	150	613	233	18:45	116	466	76	341	192
07:00	120	155			275	19:00	94	47			141
07:15	79	144			223	19:15	79	61			140
07:30	126	130			256	19:30	74	52			126
07:45	90	415	121	550	211	19:45	64	311	56	216	120
08:00	70	111			181	20:00	62	56			118
08:15	91	136			227	20:15	70	39			109
08:30	115	127			242	20:30	59	43			102
08:45	99	375	131	505	230	20:45	54	245	31	169	85
09:00	112	114			226	21:00	50	26			76
09:15	123	137			260	21:15	45	37			82
09:30	129	112			241	21:30	45	38			83
09:45	146	510	146	509	292	21:45	42	182	30	131	72
10:00	146	116			262	22:00	40	38			78
10:15	150	124			274	22:15	21	32			53
10:30	156	130			286	22:30	60	27			87
10:45	158	610	144	514	302	22:45	33	154	28	125	61
11:00	191	138			329	23:00	32	19			51
11:15	215	144			359	23:15	30	26			56
11:30	197	177			374	23:30	51	21			72
11:45	221	824	167	626	388	23:45	27	140	21	87	48
<b>TOTALS</b>	<b>3671</b>	<b>4452</b>			<b>8123</b>	<b>TOTALS</b>	<b>6000</b>	<b>4331</b>			<b>10331</b>
<b>SPLIT %</b>	<b>45.2%</b>	<b>54.8%</b>			<b>44.0%</b>	<b>SPLIT %</b>	<b>58.1%</b>	<b>41.9%</b>			<b>56.0%</b>

DAILY TOTALS					NB	SB	EB	WB	Total
					9,671	8,783	0	0	18,454
AM Peak Hour	11:00	05:30			11:00	PM Peak Hour	14:45	15:45	14:45
AM Pk Volume	824	681			1450	PM Pk Volume	945	583	1464
Pk Hr Factor	0.932	0.906			0.934	Pk Hr Factor	0.941	0.917	0.943
7 - 9 Volume	790	1055	0	0	1845	4 - 6 Volume	1368	1138	2506
7 - 9 Peak Hour	07:00	07:00			07:00	4 - 6 Peak Hour	16:30	16:00	16:00
7 - 9 Pk Volume	415	550	0	0	965	4 - 6 Pk Volume	760	582	1338
Pk Hr Factor	0.823	0.887	0.000	0.000	0.877	Pk Hr Factor	0.922	0.915	0.940

**VOLUME**

28th St between Boston Ave &amp; National Ave

Day: Thursday  
Date: 3/3/2011City: San Diego  
Project #: CA11\_4064\_007

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,943	6,673	0	0	14,616		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	12	13			25	12:00	157	117			274
00:15	9	22			31	12:15	147	126			273
00:30	8	9			17	12:30	135	116			251
00:45	11	40	14	58	25	98	150	589	109	468	259
01:00	9	5			14	13:00	146	117			263
01:15	10	15			25	13:15	155	106			261
01:30	13	10			23	13:30	137	123			260
01:45	7	39	7	37	14	76	134	572	114	460	248
02:00	8	3			11	14:00	151	100			251
02:15	12	13			25	14:15	130	94			224
02:30	6	7			13	14:30	164	121			285
02:45	4	30	9	32	13	62	184	629	108	423	292
03:00	6	6			12	15:00	206	120			326
03:15	5	27			32	15:15	222	117			339
03:30	11	26			37	15:30	169	135			304
03:45	5	27	21	80	26	107	171	768	122	494	293
04:00	6	25			31	16:00	161	115			276
04:15	8	33			41	16:15	150	112			262
04:30	20	54			74	16:30	161	98			259
04:45	24	58	55	167	79	225	148	620	94	419	242
05:00	20	69			89	17:00	147	101			248
05:15	28	75			103	17:15	143	90			233
05:30	55	113			168	17:30	114	110			224
05:45	45	148	117	374	162	522	121	525	110	411	231
06:00	70	89			159	18:00	125	102			227
06:15	66	80			146	18:15	100	89			189
06:30	93	73			166	18:30	88	81			169
06:45	84	313	93	335	177	648	93	406	73	345	166
07:00	105	70			175	19:00	81	72			153
07:15	91	58			149	19:15	59	63			122
07:30	114	81			195	19:30	52	53			105
07:45	90	400	90	299	180	699	57	249	66	254	123
08:00	77	70			147	20:00	47	55			102
08:15	81	101			182	20:15	56	47			103
08:30	107	87			194	20:30	78	40			118
08:45	103	368	87	345	190	713	48	229	38	180	86
09:00	89	89			178	21:00	35	32			67
09:15	107	96			203	21:15	41	64			105
09:30	99	87			186	21:30	32	50			82
09:45	119	414	85	357	204	771	31	139	30	176	61
10:00	130	99			229	22:00	19	30			49
10:15	126	86			212	22:15	14	26			40
10:30	145	78			223	22:30	22	24			46
10:45	147	548	90	353	237	901	23	78	42	122	65
11:00	163	93			256	23:00	20	21			41
11:15	162	115			277	23:15	8	10			18
11:30	164	105			269	23:30	26	11			37
11:45	191	680	114	427	305	1107	20	74	15	57	35
<b>TOTALS</b>	<b>3065</b>	<b>2864</b>			<b>5929</b>	<b>TOTALS</b>	<b>4878</b>	<b>3809</b>			<b>8687</b>
<b>SPLIT %</b>	<b>51.7%</b>	<b>48.3%</b>			<b>40.6%</b>	<b>SPLIT %</b>	<b>56.2%</b>	<b>43.8%</b>			<b>59.4%</b>

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,943	6,673	0	0	14,616		
AM Peak Hour	11:00	11:45			11:15	PM Peak Hour	14:45	15:00			15:00
AM Pk Volume	680	473			1125	PM Pk Volume	781	494			1262
Pk Hr Factor	0.890	0.938			0.922	Pk Hr Factor	0.880	0.915			0.931
7 - 9 Volume	768	644	0	0	1412	4 - 6 Volume	1145	830	0	0	1975
7 - 9 Peak Hour	07:00	07:45			08:00	4 - 6 Peak Hour	16:00	16:00			16:00
7 - 9 Pk Volume	400	348	0	0	713	4 - 6 Pk Volume	620	419	0	0	1039
Pk Hr Factor	0.877	0.861	0.000	0.000	0.919	Pk Hr Factor	0.963	0.911	0.000	0.000	0.941

### VOLUME

## National Ave between 28th St & I-5 NB Ramps

Day: Thursday  
Date: 3/3/2011

City: San Diego  
Project #: CA11\_4064\_008

DAILY TOTALS					NB	SB	EB	WB	Total			
					0	0	5,206	12,485	17,691			
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00			9	25	34	12:00			92	162	254	
00:15			6	23	29	12:15			93	203	296	
00:30			13	17	30	12:30			93	193	286	
00:45			11	39	14	12:45			93	371	230	788
01:00			6	15	21	13:00			94	242	336	
01:15			6	18	24	13:15			78	213	291	
01:30			3	14	17	13:30			72	252	324	
01:45			7	22	12	13:45			75	319	225	932
02:00			8	6	14	14:00			105	202	307	
02:15			3	14	17	14:15			68	243	311	
02:30			1	16	17	14:30			136	228	364	
02:45			2	14	15	14:45			139	448	228	901
03:00			4	19	23	15:00			141	212	353	
03:15			0	32	32	15:15			148	204	352	
03:30			3	35	38	15:30			107	216	323	
03:45			1	8	41	15:45			137	533	188	820
04:00			2	59	61	16:00			134	184	318	
04:15			4	98	102	16:15			104	182	286	
04:30			1	134	135	16:30			141	174	315	
04:45			4	11	171	16:45			125	504	130	670
05:00			4	187	191	17:00			155	145	300	
05:15			9	239	248	17:15			95	161	256	
05:30			14	252	266	17:30			107	142	249	
05:45			26	53	205	17:45			109	466	150	598
06:00			35	169	204	18:00			98	155	253	
06:15			34	178	212	18:15			90	136	226	
06:30			20	168	188	18:30			64	138	202	
06:45			34	123	212	18:45			67	319	112	541
07:00			35	193	228	19:00			50	110	160	
07:15			54	212	266	19:15			35	89	124	
07:30			55	204	259	19:30			37	99	136	
07:45			61	205	189	19:45			42	164	90	388
08:00			63	185	248	20:00			47	77	124	
08:15			52	211	263	20:15			37	70	107	
08:30			59	180	239	20:30			42	76	118	
08:45			70	244	175	20:45			36	162	68	291
09:00			73	159	232	21:00			32	72	104	
09:15			70	166	236	21:15			29	68	97	
09:30			75	140	215	21:30			27	88	115	
09:45			88	306	173	21:45			38	126	76	304
10:00			62	170	232	22:00			31	40	71	
10:15			67	147	214	22:15			24	52	76	
10:30			65	170	235	22:30			22	44	66	
10:45			70	264	157	22:45			17	94	47	183
11:00			75	176	251	23:00			12	24	36	
11:15			84	168	252	23:15			16	23	39	
11:30			89	229	318	23:30			15	28	43	
11:45			109	357	175	23:45			11	54	27	102
<b>TOTALS</b>			1646	5967	7613	<b>TOTALS</b>			3560	6518	10078	
<b>SPLIT %</b>			21.6%	78.4%	43.0%	<b>SPLIT %</b>			35.3%	64.7%	57.0%	

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	5,206	12,485	17,691		
AM Peak Hour			11:45	05:00	11:30	PM Peak Hour			14:30	12:45	14:30
AM Pk Volume			387	883	1152	PM Pk Volume			564	937	1436
Pk Hr Factor			0.888	0.876	0.906	Pk Hr Factor			0.953	0.930	0.978
7 - 9 Volume	0	0	449	1549	1998	4 - 6 Volume	0	0	970	1268	2238
7 - 9 Peak Hour			08:00	07:00	07:15	4 - 6 Peak Hour			16:15	16:00	16:00
7 - 9 Pk Volume	0	0	244	798	1023	4 - 6 Pk Volume	0	0	525	670	1174
Pk Hr Factor	0.000	0.000	0.871	0.941	0.961	Pk Hr Factor	0.000	0.000	0.847	0.910	0.923

**VOLUME**

Boston Ave between 28th St &amp; I-5 SB Ramps

Day: Thursday

Date: 3/3/2011

City: San Diego

Project #: CA11\_4064\_009

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	7,392	796	8,188					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			23	0	23	12:00			128	9	137			
00:15			14	2	16	12:15			115	13	128			
00:30			56	3	59	12:30			102	14	116			
00:45			29	122	1	6	12:45		98	443	10	46	108	489
01:00			13	1	14	13:00			105	13	118			
01:15			7	0	7	13:15			118	14	132			
01:30			36	5	41	13:30			130	11	141			
01:45			10	66	2	8	13:45		126	479	12	50	138	529
02:00			9	0	9	14:00			125	9	134			
02:15			8	0	8	14:15			111	6	117			
02:30			7	0	7	14:30			255	13	268			
02:45			12	36	3	3	14:45		282	773	20	48	302	821
03:00			5	0	5	15:00			310	17	327			
03:15			4	0	4	15:15			265	29	294			
03:30			7	2	9	15:30			190	11	201			
03:45			9	25	6	8	15:45		161	926	9	66	170	992
04:00			18	2	20	16:00			147	14	161			
04:15			14	2	16	16:15			132	7	139			
04:30			10	8	18	16:30			137	9	146			
04:45			27	69	4	16	16:45		143	559	14	44	157	603
05:00			16	4	20	17:00			143	11	154			
05:15			24	6	30	17:15			139	11	150			
05:30			49	11	60	17:30			106	12	118			
05:45			71	160	13	34	17:45		114	502	9	43	123	545
06:00			73	19	92	18:00			95	9	104			
06:15			48	9	57	18:15			89	9	98			
06:30			49	9	58	18:30			84	9	93			
06:45			53	223	9	46	18:45		73	341	9	36	82	377
07:00			75	14	89	19:00			82	11	93			
07:15			51	17	68	19:15			79	10	89			
07:30			84	25	109	19:30			61	5	66			
07:45			87	297	14	70	19:45		64	286	7	33	71	319
08:00			70	13	83	20:00			51	0	51			
08:15			74	11	85	20:15			57	6	63			
08:30			80	11	91	20:30			63	4	67			
08:45			55	279	11	46	20:45		52	223	6	16	58	239
09:00			82	13	95	21:00			40	5	45			
09:15			90	13	103	21:15			43	3	46			
09:30			74	9	83	21:30			59	8	67			
09:45			99	345	8	43	21:45		24	166	3	19	27	185
10:00			102	11	113	22:00			33	3	36			
10:15			95	14	109	22:15			27	3	30			
10:30			88	9	97	22:30			58	3	61			
10:45			80	365	14	48	22:45		40	158	3	12	43	170
11:00			95	9	104	23:00			32	5	37			
11:15			126	14	140	23:15			20	2	22			
11:30			100	11	111	23:30			36	0	36			
11:45			118	439	13	47	23:45		22	110	1	8	23	118
<b>TOTALS</b>			2426	375	2801	<b>TOTALS</b>			4966	421	5387			
<b>SPLIT %</b>			86.6%	13.4%	34.2%	<b>SPLIT %</b>			92.2%	7.8%	65.8%			

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	7,392	796	8,188		
AM Peak Hour			11:15	07:00	11:15	PM Peak Hour			14:30	14:30	14:30
AM Pk Volume			472	70	519	PM Pk Volume			1112	79	1191
Pk Hr Factor			0.922	0.700	0.927	Pk Hr Factor			0.897	0.681	0.911
7 - 9 Volume	0	0	576	116	692	4 - 6 Volume	0	0	1061	87	1148
7 - 9 Peak Hour			07:30	07:00	07:30	4 - 6 Peak Hour			16:30	16:45	16:30
7 - 9 Pk Volume	0	0	315	70	378	4 - 6 Pk Volume	0	0	562	48	607
Pk Hr Factor	0.000	0.000	0.905	0.700	0.867	Pk Hr Factor	0.000	0.000	0.983	0.857	0.967

### VOLUME

24th St between I-5 NB Ramps & I-5 SB Ramps

Day: Tuesday  
Date: 3/8/2011

City: San Diego  
Project #: CA11\_4064\_010

DAILY TOTALS					NB	SB						Total		
					0	0						16,716		
							8,109			8,607				
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			19	17	36	12:00			144	167	311			
00:15			25	19	44	12:15			139	186	325			
00:30			23	16	39	12:30			145	179	324			
00:45			12	79	13	65	25	144	149	577	174	706	323	1283
01:00			6	14	20	13:00			134	152	286			
01:15			7	13	20	13:15			133	161	294			
01:30			14	11	25	13:30			133	122	255			
01:45			22	49	9	47	31	96	155	555	133	568	288	1123
02:00			8	15	23	14:00			147	123	270			
02:15			6	21	27	14:15			164	128	292			
02:30			7	22	29	14:30			177	133	310			
02:45			5	26	42	100	47	126	226	714	120	504	346	1218
03:00			3	6	9	15:00			189	124	313			
03:15			11	8	19	15:15			177	147	324			
03:30			8	15	23	15:30			230	156	386			
03:45			9	31	28	57	37	88	152	748	146	573	298	1321
04:00			8	32	40	16:00			187	132	319			
04:15			17	41	58	16:15			167	162	329			
04:30			4	39	43	16:30			195	175	370			
04:45			9	38	85	197	94	235	148	697	117	586	265	1283
05:00			23	34	57	17:00			161	155	316			
05:15			27	58	85	17:15			158	152	310			
05:30			39	120	159	17:30			131	111	242			
05:45			36	125	157	369	193	494	123	573	94	512	217	1085
06:00			38	113	151	18:00			114	134	248			
06:15			65	124	189	18:15			88	103	191			
06:30			54	131	185	18:30			95	105	200			
06:45			59	216	164	532	223	748	91	388	70	412	161	800
07:00			73	108	181	19:00			76	90	166			
07:15			90	125	215	19:15			75	68	143			
07:30			106	139	245	19:30			43	58	101			
07:45			133	402	181	553	314	955	60	254	66	282	126	536
08:00			114	146	260	20:00			50	64	114			
08:15			118	117	235	20:15			70	54	124			
08:30			118	133	251	20:30			58	66	124			
08:45			125	475	78	474	203	949	42	220	71	255	113	475
09:00			109	105	214	21:00			59	75	134			
09:15			110	94	204	21:15			39	41	80			
09:30			133	112	245	21:30			40	44	84			
09:45			107	459	124	435	231	894	32	170	34	194	66	364
10:00			118	93	211	22:00			33	31	64			
10:15			116	127	243	22:15			39	34	73			
10:30			124	109	233	22:30			32	21	53			
10:45			122	480	139	468	261	948	27	131	24	110	51	241
11:00			139	134	273	23:00			29	19	48			
11:15			159	149	308	23:15			23	16	39			
11:30			184	123	307	23:30			19	15	34			
11:45			130	612	129	535	259	1147	19	90	23	73	42	163
<b>TOTALS</b>			2992	3832	6824	<b>TOTALS</b>			5117	4775	9892			
<b>SPLIT %</b>			43.8%	56.2%	40.8%	<b>SPLIT %</b>			51.7%	48.3%	59.2%			

DAILY TOTALS					NB	SB						Total
					0	0						16,716
							8,109			8,607		

AM Peak Hour			11:15	11:45	11:45	PM Peak Hour			14:45	12:00	14:45
AM Pk Volume			617	661	1219	PM Pk Volume			822	706	1369
Pk Hr Factor			0.838	0.888	0.938	Pk Hr Factor			0.893	0.949	0.887
7 - 9 Volume	0	0	877	1027	1904	4 - 6 Volume	0	0	1270	1098	2368
7 - 9 Peak Hour			07:45	07:15	07:45	4 - 6 Peak Hour			16:00	16:15	16:00
7 - 9 Pk Volume	0	0	483	591	1060	4 - 6 Pk Volume	0	0	697	609	1283
Pk Hr Factor	0.000	0.000	0.908	0.816	0.844	Pk Hr Factor	0.000	0.000	0.894	0.870	0.867

### VOLUME

24th St between I-5 SB Ramps & Cleveland St

Day: Thursday  
Date: 3/3/2011

City: San Diego  
Project #: CA11\_4064\_011

DAILY TOTALS					NB	SB	EB	WB	Total			
					0	0	4,570	4,827	9,397			
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00			10	11	21	12:00			92	76	168	
00:15			2	6	8	12:15			84	112	196	
00:30			3	3	6	12:30			81	87	168	
00:45			6	21	22	12:45			87	344	109	384
01:00			7	3	10	13:00			118	104	222	
01:15			9	4	13	13:15			85	86	171	
01:30			1	6	7	13:30			107	69	176	
01:45			2	19	4	13:45			65	375	75	334
02:00			2	4	6	14:00			68	63	131	
02:15			4	6	10	14:15			78	81	159	
02:30			7	10	17	14:30			126	62	188	
02:45			6	19	44	14:45			92	364	64	270
03:00			14	9	23	15:00			99	69	168	
03:15			10	3	13	15:15			121	59	180	
03:30			9	6	15	15:30			158	58	216	
03:45			10	43	29	15:45			108	486	47	233
04:00			9	21	30	16:00			130	49	179	
04:15			14	37	51	16:15			87	53	140	
04:30			14	23	37	16:30			155	44	199	
04:45			6	43	41	16:45			93	465	36	182
05:00			8	36	44	17:00			151	48	199	
05:15			8	61	69	17:15			108	52	160	
05:30			10	94	104	17:30			94	20	114	
05:45			22	48	146	17:45			78	431	29	149
06:00			19	96	115	18:00			91	40	131	
06:15			29	113	142	18:15			54	20	74	
06:30			46	120	166	18:30			32	32	64	
06:45			38	132	156	18:45			21	198	30	122
07:00			39	119	158	19:00			41	17	58	
07:15			30	100	130	19:15			22	21	43	
07:30			36	120	156	19:30			21	26	47	
07:45			47	152	143	19:45			22	106	22	86
08:00			42	109	151	20:00			21	17	38	
08:15			38	90	128	20:15			20	19	39	
08:30			31	83	114	20:30			20	24	44	
08:45			48	159	81	20:45			24	85	14	74
09:00			60	88	148	21:00			25	13	38	
09:15			56	71	127	21:15			9	11	20	
09:30			54	77	131	21:30			28	14	42	
09:45			61	231	76	21:45			14	76	12	50
10:00			78	69	147	22:00			58	19	77	
10:15			58	68	126	22:15			15	6	21	
10:30			72	56	128	22:30			11	8	19	
10:45			73	281	61	22:45			21	105	8	41
11:00			65	89	154	23:00			11	8	19	
11:15			80	103	183	23:15			10	11	21	
11:30			112	76	188	23:30			4	10	14	
11:45			99	356	94	23:45			6	31	6	35
<b>TOTALS</b>			1504	2867	<b>4371</b>	<b>TOTALS</b>			3066	1960	<b>5026</b>	
<b>SPLIT %</b>			34.4%	65.6%	<b>46.5%</b>	<b>SPLIT %</b>			61.0%	39.0%	<b>53.5%</b>	

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	4,570	4,827	9,397

AM Peak Hour			11:30	06:15	11:30	PM Peak Hour			15:15	12:15	12:15
AM Pk Volume			387	508	745	PM Pk Volume			517	412	782
Pk Hr Factor			0.864	0.814	0.950	Pk Hr Factor			0.818	0.920	0.881
7 - 9 Volume	0	0	311	845	1156	4 - 6 Volume	0	0	896	331	1227
7 - 9 Peak Hour			07:30	07:00	07:00	4 - 6 Peak Hour			16:30	16:00	16:30
7 - 9 Pk Volume	0	0	163	482	634	4 - 6 Pk Volume	0	0	507	182	687
Pk Hr Factor	0.000	0.000	0.867	0.843	0.834	Pk Hr Factor	0.000	0.000	0.818	0.858	0.863

**VOLUME**

24th St between Cleveland St &amp; W 32nd St

Day: Tuesday  
Date: 3/8/2011City: San Diego  
Project #: CA11\_4064\_012

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	2,941	3,351	6,292					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			5	4	9	12:00			57	68	125			
00:15			6	1	7	12:15			47	67	114			
00:30			1	8	9	12:30			55	82	137			
00:45			0	12	2	12:45			49	208	91	308	140	516
01:00			1	2	3	13:00			76	62	138			
01:15			0	9	9	13:15			56	60	116			
01:30			3	4	7	13:30			70	54	124			
01:45			7	11	1	13:45			68	270	55	231	123	501
02:00			2	7	9	14:00			41	37	78			
02:15			4	18	22	14:15			62	58	120			
02:30			1	22	23	14:30			122	53	175			
02:45			0	7	30	14:45			76	301	56	204	132	505
03:00			2	8	10	15:00			68	43	111			
03:15			7	5	12	15:15			70	35	105			
03:30			6	6	12	15:30			122	60	182			
03:45			5	20	10	15:45			58	318	31	169	89	487
04:00			3	7	10	16:00			62	29	91			
04:15			11	12	23	16:15			80	27	107			
04:30			10	16	26	16:30			116	19	135			
04:45			4	28	41	16:45			44	302	19	94	63	396
05:00			16	23	39	17:00			74	28	102			
05:15			8	34	42	17:15			50	25	75			
05:30			20	70	90	17:30			64	21	85			
05:45			27	71	93	17:45			36	224	23	97	59	321
06:00			16	73	89	18:00			35	19	54			
06:15			22	58	80	18:15			12	11	23			
06:30			26	84	110	18:30			21	12	33			
06:45			23	87	109	18:45			16	84	13	55	29	139
07:00			20	72	92	19:00			19	13	32			
07:15			32	74	106	19:15			16	6	22			
07:30			30	78	108	19:30			11	11	22			
07:45			26	108	103	19:45			10	56	16	46	26	102
08:00			24	77	101	20:00			13	8	21			
08:15			38	63	101	20:15			9	14	23			
08:30			32	55	87	20:30			15	3	18			
08:45			23	117	45	20:45			24	61	8	33	32	94
09:00			17	51	68	21:00			7	7	14			
09:15			27	42	69	21:15			14	6	20			
09:30			34	63	97	21:30			15	10	25			
09:45			27	105	71	21:45			4	40	7	30	11	70
10:00			27	43	70	22:00			29	8	37			
10:15			33	81	114	22:15			12	1	13			
10:30			45	60	105	22:30			1	1	2			
10:45			43	148	50	22:45			2	44	9	19	11	63
11:00			46	54	100	23:00			9	2	11			
11:15			67	59	126	23:15			3	6	9			
11:30			113	72	185	23:30			7	1	8			
11:45			71	297	84	23:45			3	22	2	11	5	33
<b>TOTALS</b>				1011	2054	<b>3065</b>	<b>TOTALS</b>			1930	1297	<b>3227</b>		
<b>SPLIT %</b>				33.0%	67.0%	<b>48.7%</b>	<b>SPLIT %</b>			59.8%	40.2%	<b>51.3%</b>		

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	2,941	3,351	6,292		
AM Peak Hour			11:15	06:30	11:15	PM Peak Hour			14:30	12:00	14:15
AM Pk Volume			308	339	591	PM Pk Volume			336	308	538
Pk Hr Factor			0.681	0.778	0.799	Pk Hr Factor			0.689	0.846	0.769
7 - 9 Volume	0	0	225	567	792	4 - 6 Volume	0	0	526	191	717
7 - 9 Peak Hour			07:45	07:15	07:15	4 - 6 Peak Hour			16:15	17:00	16:15
7 - 9 Pk Volume	0	0	120	332	444	4 - 6 Pk Volume	0	0	314	97	407
Pk Hr Factor	0.000	0.000	0.789	0.806	0.860	Pk Hr Factor	0.000	0.000	0.677	0.866	0.754

### VOLUME

24th St between W 32nd St & Tidelands Ave

Day: Thursday  
Date: 3/3/2011

City: San Diego  
Project #: CA11\_4064\_013

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	1,880	1,966	3,846					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			2	0	2	12:00			42	35	77			
00:15			0	0	0	12:15			32	35	67			
00:30			0	1	1	12:30			38	30	68			
00:45			4	6	1	12:45			42	154	40	140	82	294
01:00			0	1	1	13:00			46	49	95			
01:15			1	3	4	13:15			44	37	81			
01:30			0	0	0	13:30			36	23	59			
01:45			2	3	2	13:45			42	168	26	135	68	303
02:00			1	0	1	14:00			22	24	46			
02:15			2	3	5	14:15			34	38	72			
02:30			0	0	0	14:30			67	23	90			
02:45			0	3	4	14:45			55	178	29	114	84	292
03:00			5	3	8	15:00			49	44	93			
03:15			8	0	8	15:15			41	18	59			
03:30			0	1	1	15:30			57	21	78			
03:45			2	15	5	15:45			48	195	9	92	57	287
04:00			4	2	6	16:00			46	15	61			
04:15			4	4	8	16:15			20	8	28			
04:30			6	3	9	16:30			69	17	86			
04:45			5	19	10	16:45			41	176	14	54	55	230
05:00			3	10	13	17:00			43	13	56			
05:15			5	26	31	17:15			15	22	37			
05:30			8	53	61	17:30			24	7	31			
05:45			11	27	78	17:45			24	106	11	53	35	159
06:00			1	51	52	18:00			32	18	50			
06:15			14	58	72	18:15			12	6	18			
06:30			21	68	89	18:30			8	4	12			
06:45			16	52	73	18:45			3	55	3	31	6	86
07:00			13	57	70	19:00			9	11	20			
07:15			15	31	46	19:15			4	7	11			
07:30			21	58	79	19:30			5	3	8			
07:45			23	72	51	19:45			8	26	7	28	15	54
08:00			28	41	69	20:00			7	6	13			
08:15			30	28	58	20:15			3	4	7			
08:30			18	31	49	20:30			13	8	21			
08:45			30	106	50	20:45			4	27	9	27	13	54
09:00			36	44	80	21:00			6	4	10			
09:15			43	35	78	21:15			1	5	6			
09:30			30	23	53	21:30			3	6	9			
09:45			44	153	20	21:45			2	12	0	15	2	27
10:00			33	30	63	22:00			9	7	16			
10:15			39	34	73	22:15			1	0	1			
10:30			28	30	58	22:30			3	4	7			
10:45			28	128	33	22:45			17	30	1	12	18	42
11:00			29	36	65	23:00			2	6	8			
11:15			49	59	108	23:15			1	11	12			
11:30			42	56	98	23:30			0	4	4			
11:45			46	166	38	23:45			0	3	0	21	0	24
<b>TOTALS</b>			750	1244	1994	<b>TOTALS</b>			1130	722	1852			
<b>SPLIT %</b>			37.6%	62.4%	51.8%	<b>SPLIT %</b>			61.0%	39.0%	48.2%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	1,880	1,966	3,846

AM Peak Hour			11:15	06:15	11:15	PM Peak Hour			14:30	12:30	14:15
AM Pk Volume			179	256	367	PM Pk Volume			212	156	339
Pk Hr Factor			0.913	0.877	0.850	Pk Hr Factor			0.791	0.796	0.911
7 - 9 Volume	0	0	178	347	525	4 - 6 Volume	0	0	282	107	389
7 - 9 Peak Hour			08:00	07:00	07:30	4 - 6 Peak Hour			16:00	16:30	16:30
7 - 9 Pk Volume	0	0	106	197	280	4 - 6 Pk Volume	0	0	176	66	234
Pk Hr Factor	0.000	0.000	0.883	0.849	0.886	Pk Hr Factor	0.000	0.000	0.638	0.750	0.680



**VOLUME**

W 32nd St between 24th St &amp; Tidelands Ave

Day: Thursday  
Date: 3/3/2011City: San Diego  
Project #: CA11\_4064\_014

DAILY TOTALS					NB	SB	EB	WB	Total		
					551	451	0	0	1,002		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	0	2			2	12:00	13	9			22
00:15	2	1			3	12:15	18	14			32
00:30	0	0			0	12:30	13	8			21
00:45	1	3	0	3	6	12:45	14	58	12	43	101
01:00	0	0			0	13:00	1	3			4
01:15	0	0			0	13:15	11	8			19
01:30	0	0			0	13:30	10	7			17
01:45	0	0			0	13:45	12	34	7	25	59
02:00	0	0			0	14:00	14	5			19
02:15	0	0			0	14:15	8	5			13
02:30	0	0			0	14:30	15	11			26
02:45	0	0			0	14:45	9	46	13	34	80
03:00	0	0			0	15:00	15	5			20
03:15	0	0			0	15:15	12	6			18
03:30	1	1			2	15:30	14	11			25
03:45	0	1	0	1	2	15:45	9	50	8	30	80
04:00	0	0			0	16:00	8	8			16
04:15	0	0			0	16:15	8	13			21
04:30	0	0			0	16:30	28	5			33
04:45	0	0			0	16:45	8	52	10	36	88
05:00	0	1			1	17:00	9	15			24
05:15	1	2			3	17:15	15	6			21
05:30	0	3			3	17:30	19	4			23
05:45	4	5	5	11	16	17:45	11	54	6	31	85
06:00	5	2			7	18:00	5	9			14
06:15	5	5			10	18:15	9	5			14
06:30	6	1			7	18:30	7	6			13
06:45	2	18	3	11	29	18:45	4	25	4	24	49
07:00	2	5			7	19:00	4	6			10
07:15	9	7			16	19:15	3	3			6
07:30	7	1			8	19:30	5	3			8
07:45	5	23	4	17	40	19:45	3	15	4	16	31
08:00	9	5			14	20:00	1	3			4
08:15	6	9			15	20:15	0	4			4
08:30	6	6			12	20:30	1	4			5
08:45	9	30	7	27	57	20:45	4	6	2	13	19
09:00	11	7			18	21:00	7	2			9
09:15	13	14			27	21:15	1	2			3
09:30	1	11			12	21:30	4	0			4
09:45	6	31	20	52	83	21:45	4	16	0	4	20
10:00	4	8			12	22:00	6	1			7
10:15	10	6			16	22:15	2	0			2
10:30	11	6			17	22:30	1	1			2
10:45	11	36	9	29	65	22:45	3	12	0	2	14
11:00	9	9			18	23:00	0	0			0
11:15	7	13			20	23:15	0	0			0
11:30	9	11			20	23:30	0	2			2
11:45	11	36	7	40	76	23:45	0	0	2		2
<b>TOTALS</b>	<b>183</b>	<b>191</b>			<b>374</b>	<b>TOTALS</b>	<b>368</b>	<b>260</b>			<b>628</b>
<b>SPLIT %</b>	<b>48.9%</b>	<b>51.1%</b>			<b>37.3%</b>	<b>SPLIT %</b>	<b>58.6%</b>	<b>41.4%</b>			<b>62.7%</b>

DAILY TOTALS					NB	SB	EB	WB	Total		
					551	451	0	0	1,002		
AM Peak Hour	11:45	09:15			11:45	PM Peak Hour	16:30	12:00	12:00		
AM Pk Volume	55	53			93	PM Pk Volume	60	43	101		
Pk Hr Factor	0.764	0.663			0.727	Pk Hr Factor	0.536	0.768	0.789		
7 - 9 Volume	53	44	0	0	97	4 - 6 Volume	106	67	0	0	173
7 - 9 Peak Hour	07:15	08:00			08:00	4 - 6 Peak Hour	16:30	16:15			16:15
7 - 9 Pk Volume	30	27	0	0	57	4 - 6 Pk Volume	60	43	0	0	96
Pk Hr Factor	0.833	0.750	0.000	0.000	0.891	Pk Hr Factor	0.536	0.717	0.000	0.000	0.727

### VOLUME

Tidelands Ave between 24th St & W 32nd St

Day: Thursday  
Date: 3/3/2011

City: San Diego  
Project #: CA11\_4064\_015

DAILY TOTALS					NB	SB	EB	WB	Total		
					638	516	0	0	1,154		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	0	2			2	12:00	12	6			18
00:15	0	0			0	12:15	9	12			21
00:30	0	0			0	12:30	19	5			24
00:45	0	0	2		0	12:45	12	7	30		19
01:00	0	0			0	13:00	12	7			19
01:15	1	0			1	13:15	11	11			22
01:30	0	0			0	13:30	5	13			18
01:45	0	1	0		0	13:45	8	36	6	37	14
02:00	1	0			1	14:00	3	9			12
02:15	0	1			1	14:15	4	2			6
02:30	0	0			0	14:30	12	6			18
02:45	0	1	0	1	0	14:45	11	30	9	26	20
03:00	0	0			0	15:00	2	14			16
03:15	1	0			1	15:15	37	6			43
03:30	0	0			0	15:30	23	8			31
03:45	0	1	0		0	15:45	33	95	4	32	37
04:00	0	0			0	16:00	43	3			46
04:15	3	0			3	16:15	23	4			27
04:30	0	1			1	16:30	17	7			24
04:45	1	4	1	2	2	16:45	5	88	8	22	13
05:00	0	1			1	17:00	2	4			6
05:15	0	7			7	17:15	1	7			8
05:30	3	14			17	17:30	4	7			11
05:45	1	4	9	31	10	17:45	8	15	8	26	16
06:00	2	1			3	18:00	12	5			17
06:15	0	2			2	18:15	9	2			11
06:30	1	4			5	18:30	0	2			2
06:45	2	5	3	10	5	18:45	12	33	4	13	16
07:00	7	3			10	19:00	3	6			9
07:15	6	4			10	19:15	5	1			6
07:30	17	11			28	19:30	5	2			7
07:45	11	41	16	34	27	19:45	1	14	5	14	6
08:00	5	14			19	20:00	6	4			10
08:15	8	19			27	20:15	5	3			8
08:30	10	23			33	20:30	1	2			3
08:45	6	29	20	76	26	20:45	4	16	3	12	7
09:00	7	4			11	21:00	3	1			4
09:15	9	11			20	21:15	1	0			1
09:30	22	6			28	21:30	0	0			0
09:45	21	59	15	36	36	21:45	2	6	0	1	2
10:00	9	9			18	22:00	5	2			7
10:15	4	6			10	22:15	5	0			5
10:30	12	12			24	22:30	4	3			7
10:45	4	29	11	38	15	22:45	19	33	3	8	22
11:00	9	8			17	23:00	0	11			11
11:15	12	20			32	23:15	4	1			5
11:30	9	9			18	23:30	1	1			2
11:45	11	41	15	52	26	23:45	0	5	0	13	0
<b>TOTALS</b>	<b>215</b>	<b>282</b>			<b>497</b>	<b>TOTALS</b>	<b>423</b>	<b>234</b>			<b>657</b>
<b>SPLIT %</b>	<b>43.3%</b>	<b>56.7%</b>			<b>43.1%</b>	<b>SPLIT %</b>	<b>64.4%</b>	<b>35.6%</b>			<b>56.9%</b>

DAILY TOTALS					NB	SB	EB	WB	Total		
					638	516	0	0	1,154		
AM Peak Hour	09:15	08:00		07:45	PM Peak Hour	15:15	13:15		15:15		
AM Pk Volume	61	76		106	PM Pk Volume	136	39		157		
Pk Hr Factor	0.693	0.826		0.803	Pk Hr Factor	0.791	0.750		0.853		
7 - 9 Volume	70	110	0	0	180	4 - 6 Volume	103	48	0	0	151
7 - 9 Peak Hour	07:00	08:00		07:45	4 - 6 Peak Hour	16:00	16:30				16:00
7 - 9 Pk Volume	41	76	0	0	106	4 - 6 Pk Volume	88	26	0	0	110
Pk Hr Factor	0.603	0.826	0.000	0.000	0.803	Pk Hr Factor	0.512	0.813	0.000	0.000	0.598

**ATTACHMENT B**

**CITY OF SAN DIEGO AND CITY OF NATIONAL CITY PROPOSED  
LOS STANDARDS**

**TABLE 2**  
**Roadway Classifications, Levels of Service (LOS)**  
**and Average Daily Traffic (ADT)**

STREET CLASSIFICATION	LANES	CROSS SECTIONS	LEVEL OF SERVICE				
			A	B	C	D	E
Freeway	8 lanes		60,000	84,000	120,000	140,000	150,000
Freeway	6 lanes		45,000	63,000	90,000	110,000	120,000
Freeway	4 lanes		30,000	42,000	60,000	70,000	80,000
Expressway	6 lanes	102/122	30,000	42,000	60,000	70,000	80,000
Primary Arterial	6 lanes	102/122	25,000	35,000	50,000	55,000	60,000
Major Arterial	6 lanes	102/122	20,000	28,000	40,000	45,000	50,000
Major Arterial	4 lanes	78/98	15,000	21,000	30,000	35,000	40,000
Collector	4 lanes	72/92	10,000	14,000	20,000	25,000	30,000
Collector (no center lane) continuous left-turn lane)	4 lanes 2 lanes	64/84 50/70	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2 lanes	40/60	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 lanes	50/70	2,500	3,500	5,000	6,500	8,000
Collector (multifamily)	2 lanes	40/60	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 lanes	36/56	—	—	2,200	—	—

**LEGEND:**

XXX/XXX = Curb to curb width (feet)/right-of-way width (feet): based on the City of San Diego Street Design Manual

XX/XXX= Approximate recommended ADT based on the City of San Diego Street Design Manual.

**NOTES:**

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline.
2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

**TABLE 3.2:  
 CIRCULATION ELEMENT ROADWAY CLASSIFICATIONS  
 CAPACITY AND LEVEL OF SERVICE STANDARDS**

Street Classification	Lanes	Level of Service*					
		A	B	C	D	E	F
Major Arterial	6	0-20,000	20,001-28,000	28,001-40,000	40,001-45,000	45,001-40,000	50,001+
Major Arterial	4	0-15,000	15,001-21,000	21,001-30,000	30,001-35,000	35,001-40,000	40,001+
Secondary Arterial	4	0-10,000	10,001-14,000	14,001-20,000	20,001-25,000	25,001-30,000	30,001+
Collector	4	0-7,000	7,001-10,000	10,001-14,000	14,001-17,000	17,001-20,000	20,001+
Collector	2+1	0-5,000	5,001-7,000	7,001-10,000	10,001-13,000	13,001-15,000	15,000+
Collector	2	0-4,000	4,001-5,500	5,501-7,500	7,501-9,000	9,001-10,000	10,001+

\* Approximate recommended Average Daily Traffic based upon the City of San Diego Street Design Manual, and adopted by the City of National City.

**ATTACHMENT C**  
**EXISTING LOS WORKSHEETS**

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Park Boulevard/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 12 Average Delay (sec/veh): 15.0
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Protected), Rights (Include), Min. Green (5), Y+R (4.0), and Lanes (1 0 1 0 0).

Volume Module table with 13 columns for each bound and lane. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns. Rows include Sat/Lane (1900), Adjustment (0.91), Lanes (1.62), and Final Sat. (2800).

Capacity Analysis Module table with 13 columns. Rows include Vol/Sat (0.03), Crit Moves (\*\*\*\*), Green/Cycle (0.07), Volume/Cap (0.49), Delay/Veh (46.5), User DelAdj (1.00), AdjDel/Veh (46.5), LOS by Move (D A D A A A), and HCM2kAvgQ (2 0 3 0 0).

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Cesar Chavez Parkway/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.512
Loss Time (sec): 16 Average Delay (sec/veh): 31.4
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows for various adjustment factors like Growth Adj, PHF Adj, etc.

Saturation Flow Module: Table with 12 columns for saturation flow values and 4 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns for capacity analysis metrics and 10 rows for Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Sampson Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.265
Loss Time (sec): 16 Average Delay (sec/veh): 20.4
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 10 rows of adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 28th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.423
Loss Time (sec): 16 Average Delay (sec/veh): 27.9
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 12 rows of adjustment factors like Growth Adj, PHF Adj, etc.

Saturation Flow Module table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 28th Street/Main Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.388
Loss Time (sec): 16 Average Delay (sec/veh): 30.0
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 11 rows of adjustment factors like Growth Adj, PHF Adj, etc.

Saturation Flow Module table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.306
Loss Time (sec): 16 Average Delay (sec/veh): 18.4
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 11 rows of adjustment factors like Growth Adj, PHF Adj, etc.

Saturation Flow Module table with 12 columns and 4 rows showing saturation flow rates and adjustments.

Capacity Analysis Module table with 12 columns and 10 rows showing capacity analysis metrics like Vol/Sat, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #7 28th Street/I-5 southbound ramp
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, Min. Green, and Lanes.

Table with 12 columns representing different volume adjustments. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Table with 12 columns. Row: Capacity Module: Cnflct Vol: 0 0 0 0 0 0 0 0 0 0 0 0. Row: Potent Cap.: 0 0 0 0 0 0 0 0 0 0 0 0.

Level Of Service Module:
LOS by Move:
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: 0 0 0 0 0 0 0 0 0 0 0 0

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.781
Loss Time (sec): 16 Average Delay (sec/veh): 33.7
Optimal Cycle: 82 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement types and 12 rows of adjustment factors like Growth Adj, PHF Adj, etc.

Saturation Flow Module table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 I-5 northbound ramps/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.493
Loss Time (sec): 12 Average Delay (sec/veh): 18.6
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 13 rows including Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 4 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #10 I-5 southbound ramp/Boston Avenue

Average Delay (sec/veh): 6.1 Worst Case Level Of Service: C[ 15.2]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns representing different traffic movements and rows for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module table with 13 columns and rows for Critical Gp and FollowUpTim.

Capacity Module table with 13 columns and rows for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level Of Service Module table with 13 columns and rows for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #11 I-5 northbound ramps/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.718
Loss Time (sec): 12 Average Delay (sec/veh): 25.3
Optimal Cycle: 62 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement and lane configurations. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 I-5 southbound ramps/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.288
Loss Time (sec): 12 Average Delay (sec/veh): 23.5
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Split Phase, Protected), Rights (Include, Ignore), Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 13 rows including Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #13 Cleveland Street/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.308
Loss Time (sec): 0 Average Delay (sec/veh): 8.9
Optimal Cycle: 0 Level Of Service: A

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5), and Lanes (1 0 0 1 0).

Volume Module table with 13 columns and 13 rows including Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 3 rows including Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 13 rows including Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #14 W. 32nd Street/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.113
Loss Time (sec): 12 Average Delay (sec/veh): 11.3
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 12 rows of adjustment factors like Growth Adj, PHF Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows showing saturation flow rates and adjustments.

Capacity Analysis Module table with 13 columns and 10 rows showing capacity analysis metrics like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #15 Tidelands Avenue/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.087
Loss Time (sec): 16 Average Delay (sec/veh): 26.4
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 10 rows of adjustment factors like Growth Adj, PHF Adj, etc.

Saturation Flow Module: Table with 12 columns and 4 rows showing saturation flow rates and adjustment factors.

Capacity Analysis Module: Table with 12 columns and 10 rows showing capacity analysis metrics like Vol/Sat, Green/Cycle, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #16 Tidelands Avenue/W. 32nd Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.066
Loss Time (sec): 0 Average Delay (sec/veh): 7.3
Optimal Cycle: 0 Level Of Service: A

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5), and Lanes (0 0 1 0 0).

Volume Module: Table with 13 columns for volume adjustments. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 13 columns for saturation flow. Rows include Adjustment (1.00), Lanes (0.00), and Final Sat. (0 770 0).

Capacity Analysis Module: Table with 13 columns for capacity analysis. Rows include Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Park Boulevard/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.425
Loss Time (sec): 12 Average Delay (sec/veh): 13.9
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Protected), Rights (Include), Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 11 rows of adjustment factors like Base Vol, Growth Adj, PHF Adj, etc.

Saturation Flow Module table with 12 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Cesar Chavez Parkway/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.457
Loss Time (sec): 16 Average Delay (sec/veh): 25.8
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Protected), Rights (Include), Min. Green (5), Y+R (4.0), and Lanes (1 0 0 1 0).

Volume Module table with 12 columns for each bound and lane. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns. Rows include Sat/Lane (1900), Adjustment (0.93), Lanes (1.00), and Final Sat. (1769).

Capacity Analysis Module table with 12 columns. Rows include Vol/Sat (0.01), Crit Moves (\*\*\*\*), Green/Cycle (0.05), Volume/Cap (0.26), Delay/Veh (47.3), User DelAdj (1.00), AdjDel/Veh (47.3), LOS by Move (D D D D C C B B B D D D), and HCM2kAvgQ (1 4 4 3 2 5 8 8 8 0 2 2).

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Sampson Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.323
Loss Time (sec): 16 Average Delay (sec/veh): 17.3
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 10 rows of adjustment factors like Growth Adj, PHF Adj, etc.

Saturation Flow Module table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 28th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.384
Loss Time (sec): 16 Average Delay (sec/veh): 22.2
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 11 rows of adjustment factors like Growth Adj, User Adj, PHF Adj, etc.

Saturation Flow Module: Table with 12 columns and 4 rows showing saturation flow rates and adjustment factors.

Capacity Analysis Module: Table with 12 columns and 10 rows showing capacity analysis metrics like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 28th Street/Main Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.622
Loss Time (sec): 16 Average Delay (sec/veh): 33.3
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 11 rows of adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 12 columns and 4 rows showing saturation flow rates and adjustments.

Capacity Analysis Module table with 12 columns and 10 rows showing volume-to-saturation ratios, critical moves, and delay metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.477
Loss Time (sec): 16 Average Delay (sec/veh): 26.0
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Protected), Rights (Include), Min. Green (5), Y+R (4.0), and Lanes (1 0 2 0 1).

Volume Module table with 12 columns for each bound and movement. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns. Rows include Sat/Lane (1900), Adjustment (0.93), Lanes (1.00), and Final Sat. (1769).

Capacity Analysis Module table with 12 columns. Rows include Vol/Sat (0.00), Crit Moves (\*\*\*\*), Green/Cycle (0.11), Volume/Cap (0.03), Delay/Veh (39.8), User DelAdj (1.00), AdjDel/Veh (39.8), LOS by Move (D C C C B B D D D D D), and HCM2kAvgQ (0 7 5 6 8 8 1 6 6 0 1 1).

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #7 28th Street/I-5 southbound ramp
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module table with 12 columns. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Capacity Module table with 12 columns. Rows include Cnflct Vol and Potent Cap.:

Level Of Service Module:
LOS by Move:
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: 0 0 0 0 0 0 0 0 0 0 0 0

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.731
Loss Time (sec): 16 Average Delay (sec/veh): 31.3
Optimal Cycle: 74 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Permitted/Protected), Rights (Include), Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 12 rows of adjustment factors like Base Vol, Growth Adj, PHF Adj, etc.

Saturation Flow Module table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 I-5 northbound ramps/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.526
Loss Time (sec): 12 Average Delay (sec/veh): 18.8
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows for various adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows for Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #10 I-5 southbound ramp/Boston Avenue

Average Delay (sec/veh): 10.6 Worst Case Level Of Service: E[ 49.2]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns and 10 rows including Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module table with 13 columns and 2 rows including Critical Gp and FollowUpTim.

Capacity Module table with 13 columns and 4 rows including Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level Of Service Module table with 13 columns and 10 rows including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #11 I-5 northbound ramps/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.589
Loss Time (sec): 12 Average Delay (sec/veh): 22.3
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 13 columns and 10 rows of capacity and delay analysis data.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 I-5 southbound ramps/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.588
Loss Time (sec): 12 Average Delay (sec/veh): 27.7
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Split Phase, Protected), Rights (Include, Ignore), Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns for movement types. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns for movement types. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns for movement types. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #13 Cleveland Street/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.323
Loss Time (sec): 0 Average Delay (sec/veh): 10.0
Optimal Cycle: 0 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5), and Lanes (1 0 0 1 0).

Volume Module table with 13 columns for volume adjustments. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns. Rows include Adjustment (1.00), Lanes (1.00), and Final Sat. (517, 43, 578).

Capacity Analysis Module table with 13 columns. Rows include Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #14 W. 32nd Street/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.190
Loss Time (sec): 12 Average Delay (sec/veh): 19.2
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 13 rows including Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 4 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #15 Tidelands Avenue/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.117
Loss Time (sec): 16 Average Delay (sec/veh): 29.9
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Protected), Rights (Include), Min. Green (5), Y+R (4.0), and Lanes (1 0 0 1 0).

Volume Module table with 13 columns for different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns. Rows include Sat/Lane (1900), Adjustment (0.93), Lanes (1.00), and Final Sat. (1769).

Capacity Analysis Module table with 13 columns. Rows include Vol/Sat (0.00), Crit Moves (\*\*\*\*), Green/Cycle (0.20), Volume/Cap (0.01), Delay/Veh (32.4), User DelAdj (1.00), AdjDel/Veh (32.4), LOS by Move (C), and HCM2kAvgQ (0).

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #16 Tidelands Avenue/W. 32nd Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.096
Loss Time (sec): 0 Average Delay (sec/veh): 8.0
Optimal Cycle: 0 Level Of Service: A

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5), and Lanes (0 0 1 0 0).

Volume Module table with 13 columns and 13 rows. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 3 rows. Rows include Adjustment (1.00), Lanes (0.00), and Final Sat. (0 738).

Capacity Analysis Module table with 13 columns and 13 rows. Rows include Vol/Sat (xxxx), Crit Moves (\*\*\*\*), Delay/Veh (0.0), Delay Adj (1.00), AdjDel/Veh (0.0), LOS by Move (\* A), ApproachDel (7.8), Delay Adj (1.00), ApprAdjDel (7.8), LOS by Appr (A), and AllWayAvgQ (0.0).

Note: Queue reported is the number of cars per lane.

**ATTACHMENT D**

**EXISTING WITH PROJECT TRAFFIC  
LOS WORKSHEETS (STAGING AREAS 1 & 2)**

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Park Boulevard/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 12 Average Delay (sec/veh): 15.0
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 13 columns and 10 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Cesar Chavez Parkway/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.512
Loss Time (sec): 16 Average Delay (sec/veh): 31.5
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 15 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 12 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Sampson Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.280
Loss Time (sec): 16 Average Delay (sec/veh): 19.9
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 28th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.433
Loss Time (sec): 16 Average Delay (sec/veh): 28.6
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 28th Street/Main Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.403
Loss Time (sec): 16 Average Delay (sec/veh): 29.8
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 13 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.322
Loss Time (sec): 16 Average Delay (sec/veh): 18.0
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 10 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 28th Street/I-5 southbound ramp
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 12 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Capacity Module: Table with 12 columns for capacity-related metrics like Cnflict Vol, Potent Cap.

Level Of Service Module: LOS by Move: Table with 4 columns for movement types and Shared Cap.

\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.781
Loss Time (sec): 16 Average Delay (sec/veh): 33.7
Optimal Cycle: 82 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns for movement types and 12 rows for various volume and adjustment metrics.

Saturation Flow Module table with 12 columns for movement types and 5 rows for saturation flow metrics.

Capacity Analysis Module table with 12 columns for movement types and 12 rows for capacity and delay metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 I-5 northbound ramps/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 12 Average Delay (sec/veh): 19.1
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #10 I-5 southbound ramp/Boston Avenue
\*\*\*\*\*

Average Delay (sec/veh): 6.3 Worst Case Level Of Service: C[ 15.6]
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns for different traffic movements and 13 rows for various volume metrics like Base Vol, Growth Adj, etc.

Critical Gap Module: Table with 13 columns for different traffic movements and 2 rows for Critical Gp and FollowUpTim.

Capacity Module: Table with 13 columns for different traffic movements and 4 rows for Capacity metrics like Cnflct Vol, Potent Cap., etc.

Level Of Service Module: Table with 13 columns for different traffic movements and 8 rows for LOS metrics like 2Way95thQ, Control Del, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Park Boulevard/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.425
Loss Time (sec): 12 Average Delay (sec/veh): 13.9
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic flows and 13 rows of volume-related metrics.

Saturation Flow Module table with 13 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 13 columns and 10 rows of capacity analysis data.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Cesar Chavez Parkway/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.457
Loss Time (sec): 16 Average Delay (sec/veh): 26.4
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement directions and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 10 rows of capacity analysis data.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

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Intersection #3 Sampson Street/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.339
Loss Time (sec): 16 Average Delay (sec/veh): 17.0
Optimal Cycle: 60 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 28th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.384
Loss Time (sec): 16 Average Delay (sec/veh): 23.3
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and rows for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 28th Street/Main Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.638
Loss Time (sec): 16 Average Delay (sec/veh): 33.3
Optimal Cycle: 61 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 13 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.485
Loss Time (sec): 16 Average Delay (sec/veh): 25.9
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement directions. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

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Intersection #7 28th Street/I-5 southbound ramp
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\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 12 columns for different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Capacity Module: Table with 12 columns for capacity components like Cnflict Vol, Potent Cap.

Level Of Service Module: LOS by Move: Table with 4 columns for movement types and Shared Cap.

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San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.731
Loss Time (sec): 16 Average Delay (sec/veh): 31.6
Optimal Cycle: 74 Level Of Service: C

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with columns for movement and rows for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with columns for movement and rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for movement and rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 I-5 northbound ramps/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.535
Loss Time (sec): 12 Average Delay (sec/veh): 19.1
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Split Phase, Permitted), Rights (Include, Ignore), Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 I-5 southbound ramp/Boston Avenue

Average Delay (sec/veh): 11.3 Worst Case Level Of Service: F[ 56.3]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns for traffic volumes and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module table with 13 columns for critical gap and follow-up time values.

Capacity Module table with 13 columns for conflict volume, potent capacity, move capacity, and volume/capacity.

Level of Service Module table with 13 columns for delay, LOS by move, shared capacity, and approach delay/LOS.

Note: Queue reported is the number of cars per lane.

**ATTACHMENT E**

**EXISTING WITH PROJECT TRAFFIC  
LOS WORKSHEETS (STAGING AREA 3)**

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Park Boulevard/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 12 Average Delay (sec/veh): 15.0
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 13 columns and 10 rows of capacity analysis data.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Cesar Chavez Parkway/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.512
Loss Time (sec): 16 Average Delay (sec/veh): 31.4
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing lane volumes and 13 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Sampson Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.276
Loss Time (sec): 16 Average Delay (sec/veh): 21.7
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 10 rows of capacity analysis data.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

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Intersection #4 28th Street/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.433
Loss Time (sec): 16 Average Delay (sec/veh): 28.6
Optimal Cycle: 60 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 12 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module: Table with 12 columns and 4 rows showing saturation flow rates and adjustments.

Capacity Analysis Module: Table with 12 columns and 10 rows showing capacity analysis metrics like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 28th Street/Main Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.403
Loss Time (sec): 16 Average Delay (sec/veh): 29.8
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 13 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.322
Loss Time (sec): 16 Average Delay (sec/veh): 18.0
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 11 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

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Intersection #7 28th Street/I-5 southbound ramp
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Capacity Module: Table with 13 columns for capacity-related metrics like Cnflict Vol, Potent Cap.

Level Of Service Module: LOS by Move: Table with 4 columns for movement types and Shared Cap.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #8 28th Street/National Avenue
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.781
Loss Time (sec): 16 Average Delay (sec/veh): 33.7
Optimal Cycle: 82 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different movement types. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

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Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 I-5 northbound ramps/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 12 Average Delay (sec/veh): 19.1
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and rows for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 I-5 southbound ramp/Boston Avenue

Average Delay (sec/veh): 6.3 Worst Case Level Of Service: C[ 15.6]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns representing different traffic volumes and adjustment factors.

Critical Gap Module table with 13 columns showing critical gap and follow-up time values.

Capacity Module table with 13 columns showing conflict volume, potent capacity, move capacity, and volume/capacity ratios.

Level Of Service Module table with 13 columns showing delay, LOS by move, shared capacity, and approach delay.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Park Boulevard/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.425
Loss Time (sec): 12 Average Delay (sec/veh): 13.9
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic volumes and adjustment factors.

Saturation Flow Module table with 13 columns representing saturation flow rates and adjustments.

Capacity Analysis Module table with 13 columns representing capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Cesar Chavez Parkway/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.457
Loss Time (sec): 16 Average Delay (sec/veh): 25.8
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement directions and 14 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 11 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Sampson Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.369
Loss Time (sec): 16 Average Delay (sec/veh): 20.4
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing lane movements and 14 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow metrics.

Capacity Analysis Module table with 12 columns and 11 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 28th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.384
Loss Time (sec): 16 Average Delay (sec/veh): 23.3
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 15 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 28th Street/Main Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.638
Loss Time (sec): 16 Average Delay (sec/veh): 33.3
Optimal Cycle: 61 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement directions and 13 rows of volume and adjustment data.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow and adjustment data.

Capacity Analysis Module table with 12 columns and 11 rows of capacity and delay analysis data.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.485
Loss Time (sec): 16 Average Delay (sec/veh): 25.9
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement directions and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 10 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

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Intersection #7 28th Street/I-5 southbound ramp
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Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Capacity Module: Table with 12 columns representing different traffic movements. Rows include Cnflict Vol and Potent Cap.:

Level Of Service Module:
LOS by Move:
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: 0 0 0 0 0 0 0 0 0 0 0 0

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San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.731
Loss Time (sec): 16 Average Delay (sec/veh): 31.6
Optimal Cycle: 74 Level Of Service: C

Table with columns for Approach (North, South, East, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Y+R, and Lanes.

Table for Volume Module showing Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Table for Saturation Flow Module showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Table for Capacity Analysis Module showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 I-5 northbound ramps/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.535
Loss Time (sec): 12 Average Delay (sec/veh): 19.1
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 I-5 southbound ramp/Boston Avenue

Average Delay (sec/veh): 11.3 Worst Case Level Of Service: F[ 56.3]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns for volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns for gap components like Critical Gp, FollowUpTim.

Capacity Module: Table with 13 columns for capacity components like Cnflct Vol, Potent Cap., Move Cap., etc.

Level Of Service Module: Table with 13 columns for LOS components like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.



**ATTACHMENT F**

**EXISTING WITH PROJECT TRAFFIC  
LOS WORKSHEETS (STAGING AREA 4)**

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Park Boulevard/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 12 Average Delay (sec/veh): 15.0
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Cesar Chavez Parkway/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.512
Loss Time (sec): 16 Average Delay (sec/veh): 31.4
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Sampson Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.265
Loss Time (sec): 16 Average Delay (sec/veh): 20.8
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 28th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.433
Loss Time (sec): 16 Average Delay (sec/veh): 28.6
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 13 columns and 13 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 28th Street/Main Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.403
Loss Time (sec): 16 Average Delay (sec/veh): 29.8
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 13 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.322
Loss Time (sec): 16 Average Delay (sec/veh): 18.0
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement directions and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 11 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

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Intersection #7 28th Street/I-5 southbound ramp
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Capacity Module: Table with 13 columns for capacity-related metrics like Cnflict Vol, Potent Cap.

Level Of Service Module: LOS by Move: Table with 4 columns for movement types and Shared Cap.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.781
Loss Time (sec): 16 Average Delay (sec/veh): 33.7
Optimal Cycle: 82 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement types and 12 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow metrics.

Capacity Analysis Module table with 12 columns and 10 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 I-5 northbound ramps/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 12 Average Delay (sec/veh): 19.1
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows showing saturation flow rates and adjustments.

Capacity Analysis Module table with 13 columns and 10 rows showing capacity analysis metrics like Vol/Sat, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 I-5 southbound ramp/Boston Avenue

Average Delay (sec/veh): 6.3 Worst Case Level Of Service: C[ 15.6]

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Stop Sign, Uncontrolled), Rights (Include), Lanes (1, 0, 0, 1, 0).

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Volume across four approaches.

Critical Gap Module: Table with columns for Critical Gp, FollowUpTim across four approaches.

Capacity Module: Table with columns for Cnflct Vol, Potent Cap., Move Cap., Volume/Cap across four approaches.

Level Of Service Module: Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS across four approaches.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

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Intersection #1 Park Boulevard/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.425
Loss Time (sec): 12 Average Delay (sec/veh): 13.9
Optimal Cycle: 60 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 13 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns and 5 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns and 10 rows of data including Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Cesar Chavez Parkway/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.457
Loss Time (sec): 16 Average Delay (sec/veh): 25.8
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns for movement directions and rows for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module table with 12 columns for movement directions and rows for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module table with 12 columns for movement directions and rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Sampson Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.350
Loss Time (sec): 16 Average Delay (sec/veh): 19.5
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing lane movements and rows for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns and rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 28th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.384
Loss Time (sec): 16 Average Delay (sec/veh): 23.2
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 15 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 12 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 28th Street/Main Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.638
Loss Time (sec): 16 Average Delay (sec/veh): 33.3
Optimal Cycle: 61 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 11 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.485
Loss Time (sec): 16 Average Delay (sec/veh): 25.9
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different movement directions and 14 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 11 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

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Intersection #7 28th Street/I-5 southbound ramp
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Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Capacity Module: Table with 13 columns for capacity-related metrics like Cnflict Vol, Potent Cap., etc.

Level Of Service Module: LOS by Move: Table with 4 columns for movement types and Shared Cap. values.

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San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.731
Loss Time (sec): 16 Average Delay (sec/veh): 31.6
Optimal Cycle: 74 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns and 15 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

## San Diego Sediment Project

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

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Intersection #9 I-5 northbound ramps/National Avenue  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.535  
Loss Time (sec): 12 Average Delay (sec/veh): 19.1  
Optimal Cycle: 60 Level Of Service: B  
\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	0	0	0	0	0	0	1	0	0	1

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	313	0	123	0	0	0	0	486	44	0	321	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	313	0	123	0	0	0	0	486	44	0	321	0
Added Vol:	13	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	326	0	123	0	0	0	0	486	44	0	321	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.00	0.95	0.95	0.95
PHF Volume:	345	0	130	0	0	0	0	514	0	0	339	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	345	0	130	0	0	0	0	514	0	0	339	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	345	0	130	0	0	0	0	514	0	0	339	0

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	1.00	0.83	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00
Final Sat.:	1769	0	1583	0	0	0	0	1862	1900	0	1862	0

Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.19	0.00	0.08	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.18	0.00
Crit Moves:	****						****					
Green/Cycle:	0.36	0.00	0.36	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.52	0.00
Volume/Cap:	0.53	0.00	0.23	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.35	0.00
Delay/Veh:	26.0	0.0	22.2	0.0	0.0	0.0	0.0	16.8	0.0	0.0	14.6	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	26.0	0.0	22.2	0.0	0.0	0.0	0.0	16.8	0.0	0.0	14.6	0.0
LOS by Move:	C	A	C	A	A	A	A	B	A	A	B	A
HCM2kAvgQ:	9	0	3	0	0	0	0	11	0	0	6	0

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 I-5 southbound ramp/Boston Avenue

Average Delay (sec/veh): 11.3 Worst Case Level Of Service: F[ 56.3]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns for traffic volumes and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module table with 13 columns for critical gap and follow-up time values.

Capacity Module table with 13 columns for capacity-related metrics like Cnflct Vol, Potent Cap., Move Cap., etc.

Level of Service Module table with 13 columns for LOS-related metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

**ATTACHMENT G**

**EXISTING WITH PROJECT TRAFFIC  
LOS WORKSHEETS (STAGING AREA 5)**

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 I-5 northbound ramps/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.733
Loss Time (sec): 12 Average Delay (sec/veh): 25.5
Optimal Cycle: 64 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 13 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 I-5 southbound ramps/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.289
Loss Time (sec): 12 Average Delay (sec/veh): 23.4
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #13 Cleveland Street/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.339
Loss Time (sec): 0 Average Delay (sec/veh): 9.2
Optimal Cycle: 0 Level Of Service: A

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 3 rows: Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 13 rows: Vol/Sat, Crit Moves, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 W. 32nd Street/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.136
Loss Time (sec): 12 Average Delay (sec/veh): 11.9
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic flows and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows of saturation flow metrics.

Capacity Analysis Module table with 13 columns and 10 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Tidelands Avenue/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.103
Loss Time (sec): 16 Average Delay (sec/veh): 24.5
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 14 rows of volume-related metrics.

Saturation Flow Module table with 13 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 13 columns and 12 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #16 Tidelands Avenue/W. 32nd Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.066
Loss Time (sec): 0 Average Delay (sec/veh): 7.3
Optimal Cycle: 0 Level Of Service: A

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5), and Lanes (0 0 1 0 0).

Volume Module table with 13 columns and 15 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 4 rows including Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 13 rows including Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 I-5 northbound ramps/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.602
Loss Time (sec): 12 Average Delay (sec/veh): 22.9
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 13 columns and 10 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 I-5 southbound ramps/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.593
Loss Time (sec): 12 Average Delay (sec/veh): 28.0
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 13 columns and 11 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #13 Cleveland Street/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.332
Loss Time (sec): 0 Average Delay (sec/veh): 10.3
Optimal Cycle: 0 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5), and Lanes (1 0 0 1 0).

Volume Module table with 13 columns for volume metrics and 4 columns for North, South, East, West bounds. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns for saturation flow metrics and 4 columns for North, South, East, West bounds. Rows include Adjustment (1.00), Lanes (0.07, 0.93), and Final Sat. (504, 41, 560).

Capacity Analysis Module table with 13 columns for capacity metrics and 4 columns for North, South, East, West bounds. Rows include Vol/Sat (0.00, 0.05, 0.05), Crit Moves (\*\*\*\*), Delay/Veh (9.4, 8.4, 8.4), Delay Adj (1.00), AdjDel/Veh (9.4, 8.4, 8.4), LOS by Move (A, A, A), ApproachDel (8.5), Delay Adj (1.00), ApprAdjDel (8.5), LOS by Appr (A), and AllWayAvgQ (0.0, 0.0, 0.0).

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 W. 32nd Street/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.222
Loss Time (sec): 12 Average Delay (sec/veh): 20.7
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 16 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Tidelands Avenue/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.128
Loss Time (sec): 16 Average Delay (sec/veh): 28.7
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #16 Tidelands Avenue/W. 32nd Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.096
Loss Time (sec): 0 Average Delay (sec/veh): 7.9
Optimal Cycle: 0 Level Of Service: A

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5), and Lanes (0 0 1 0 0).

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 4 rows including Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 14 rows including Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.

# ATTACHMENT H

## MITIGATION APPROACH MEASURES

**TRAFFIC MEMO**

**SHIPYARD SEDIMENT REMEDIATION PROJECT –  
MITIGATION APPROACH ALTERNATIVE**



LSA ASSOCIATES, INC.  
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SOUTH SAN FRANCISCO

## MEMORANDUM

DATE: May 25, 2011

TO: Mona DeLeon, LSA Associates, Inc.

FROM: Joseph Jimenez, LSA Associates, Inc.

SUBJECT: Shipyard Sediment Remediation Project – Mitigation Approach Alternative

LSA Associates, Inc. (LSA) prepared a draft traffic impact analysis of the proposed Shipyard Sediment Remediation Project in May 2011. The draft traffic impact analysis showed significant impacts at the intersection of Interstate 5 (I-5) southbound ramp/Boston Avenue and at the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp with implementation of the project for Staging Areas 1 through 4. Instead of having the project applicant contribute to capital improvements to mitigate the affected locations (such as signalization of the intersection or temporary roadway widening), an alternative option for Staging Areas 1 through 4 would be to reroute project traffic away from Boston Avenue. The project traffic can be rerouted south of Staging Areas 1 through 4 along Harbor Drive to the I-5 northbound and southbound ramps at Civic Center Drive.

LSA has prepared this technical memorandum to evaluate the mitigation approach to reroute project traffic away from Boston Avenue and onto Harbor Drive toward the northbound and southbound ramps at Civic Center Drive. The results are summarized below.

## METHODOLOGY

The following traffic analysis was conducted according to the methodologies and procedures outlined in the City of San Diego *Traffic Impact Study Guidelines*, San Diego Traffic Engineers' Council (SANTEC) *Traffic Impact Study Guidelines*, the Highway Capacity Manual (HCM) 2000 published by the Transportation Research Board, and applicable provisions from the California Environmental Quality Act (CEQA).

### Project Study Area

The study area analyzed in this report includes the following intersections and roadway segments.

#### Intersections:

1. Park Boulevard/Harbor Drive
2. Cesar Chavez Parkway/Harbor Drive
3. Sampson Street/Harbor Drive
4. 28th Street/Harbor Drive
5. 28th Street/Main Street

6. 28th Street/Boston Avenue
7. I-5 Southbound Off-Ramp/28th Street
8. 28th Street/National Avenue
9. I-5 Northbound Ramps/National Avenue
10. I-5 Southbound Ramps/Boston Avenue
17. 32nd Street/Harbor Drive (new location)
18. 8th Street/Harbor Drive (new location)
19. Civic Center Drive/Harbor Drive (new location)

**Roadway Segments:**

1. Harbor Drive between Park Boulevard and Cesar Chavez Parkway
2. Harbor Drive between Cesar Chavez Parkway and Sampson Street
3. Harbor Drive between Sampson Street and 28th Street
4. Harbor Drive between 28th Street and 32nd Street
5. 28th Street between Harbor Drive and Main Street
6. 28th Street between Main Street and Boston Avenue
7. 28th Street between Boston Avenue and National Avenue
8. National Avenue between 28th Street and I-5 Northbound Ramps
9. Boston Avenue between 28th Street and I-5 Southbound Ramp
16. Harbor Drive between 32nd Street and 8th Street (new location)
17. Harbor Drive between 8th Street and Civic Center Drive (new location)

Daily, a.m., and p.m. peak-hour (7:00 a.m.–9:00 a.m. and 4:00 p.m.–6:00 p.m.) turn volumes for the new study area intersections and roadway segments were collected by National Data and Surveying Services (NDS) in May 2011. New traffic count data is provided in Attachment A.

## **HAUL TRUCK, DELIVERY TRUCK, AND EMPLOYEE TRAFFIC**

### **Project Trip Generation**

The project trip generation was not changed for the purpose of this analysis.

### **Project Trip Distribution**

For the purpose of this project, it is assumed that 85 percent of the material will be transported from the staging area to Otay Landfill, which is located approximately 15 miles southeast of the Shipyard Sediment Site. Trucks departing from Staging Areas 1 through 4 would access I-5 south via East Harbor Drive and Civic Center Drive. The most direct freeway route to Otay Landfill is via I-5 south

to Highway 54 east, to I-805 south. Although the sediment is not known to be classified as California hazardous material, it will be tested upon removal and prior to disposal.

It is assumed for the purpose of this study that up to 15 percent of the material will require transport to a Class III facility, which will most likely be the Kettleman Hills Landfill in Kings County, California, near Bakersfield. Trucks departing from Staging Areas 1 through 4 would access I-5 north via East Harbor Drive and 28th Street.

The trip distribution for employees was determined based on existing counts at the northbound and southbound I-5 ramps. For Staging Areas 1 through 4, approximately 60 percent are destined toward the north and 40 percent are destined toward the south along I-5. Table A provides the trip distribution of the project traffic within the circulation system for each staging area.

**Table A: Project Trip Distribution Summary**

Vehicle Type/Direction	Percentage
<i>Delivery/Haul Trucks</i>	
Northbound on the I-5	15%
Southbound on the I-5	85%
TOTAL	100%
<i>Employee Trips (Staging Areas 1-4)</i>	
Northbound on the I-5	60%
Southbound on the I-5	40%
TOTAL	100%

I-5 = Interstate 5

## EXISTING CONDITIONS WITH PROJECT TRAFFIC

Traffic generated during the haul period was added to the existing traffic volumes at the study area intersections and roadway segments for the outlying staging area (i.e., Staging Areas 1 and 2). This would represent a worst-case scenario.

### Staging Areas 1 And 2

It is anticipated that Staging Areas 1 and 2 will utilize the same driveway to access the project site (i.e., Cesar Chavez Parkway/Harbor Boulevard). Therefore, the level of service (LOS) would be identical for both staging areas. Trucks departing from Staging Areas 1 and 2 would access I-5 north via Harbor Drive and 28th Street. Trucks would access I-5 south via Harbor Drive and Civic Center Drive. Table B summarizes the results of the existing plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections. The LOS worksheets are provided as Attachment B. As Table B indicates, all study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour, with the exception of I-5 southbound ramp/Boston Avenue (LOS E during p.m. peak hour). However, the addition of project traffic will not increase the vehicle delay greater than 1 second at this intersection. As such, the project traffic will not create a significant impact at this intersection in the existing plus project condition, based on the City's significance criteria.

Table C summarizes the daily traffic volumes and volume-to-capacity (v/c) ratios for the study area roadway segments in the existing condition with the addition of project traffic. Based on this analysis, the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the exception of National Avenue between 28th Street and the I-5 northbound ramps (LOS F), and Boston Avenue between 28th Street and the I-5 southbound ramp (LOS F). However, the addition of project traffic will not increase the v/c ratio greater than 0.01 along both segments. As such, the project traffic will not create a significant impact at both locations, based on the City's significance criteria.

## CONCLUSION

Based on the results of this alternative traffic analysis, no significant impacts are forecast. The anticipated haul, delivery, and employee traffic to and from the project site can be accommodated without causing a significant impact for the Mitigation Alternative, based on the existing traffic conditions in the study area. Evaluation of the intersection and roadway LOS shows that the addition of the project's traffic to the existing traffic volumes will not cause a significant increase in delay at the study area intersections or an increase in v/c ratio on the roadway segments, according to the City's performance criteria. As a result, no improvements would be warranted during the haul period for this alternative analysis.

Attachments: A: New Traffic Count Data  
B: Level of Service Worksheets



**Table B - Staging Areas 1 and 2 Existing Plus Project Peak Hour Intersection Level of Service Summary**

Intersection	Control Type	Existing Condition				Existing Plus Project Condition						
		AM Peak Hour		PM Peak Hour		AM Peak Hour		△	PM Peak Hour		△	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS		Delay (sec)	LOS		
1 Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B	15.0	B	0.0	13.9	B	0.0	
2 Cesar Chavez Parkway/Harbor Drive	Signalized	31.4	C	25.8	C	31.5	C	0.1	26.4	C	0.6	
3 Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B	19.9	B	-0.5	17.0	B	-0.3	
4 28th Street/Harbor Drive	Signalized	27.9	C	22.2	C	27.8	C	-0.1	22.4	C	0.2	
5 28th Street/Main Street	Signalized	30.0	C	33.3	C	29.9	C	-0.1	33.3	C	0.0	
6 28th Street/Boston Avenue	Signalized	18.4	B	26.0	C	18.2	B	-0.2	25.9	C	-0.1	
7 28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-	-	-	-	-	-	-	
8 28th Street/National Avenue	Signalized	33.7	C	31.3	C	33.7	C	0.0	31.3	C	0.0	
9 I-5 Northbound Ramps/National Avenue	Signalized	18.6	B	18.8	B	18.6	B	0.0	18.8	B	0.0	
10 I-5 Southbound On-Ramp/Boston Avenue	Unsignalized	15.2	C	49.2	E	15.2	C	0.0	49.2	E	0.0	
17 32nd Street/Harbor Drive	Signalized	28.1	C	34.6	C	28.3	C	0.2	34.4	C	-0.2	
18 8th Street/Harbor Drive	Signalized	24.4	C	27.2	C	24.3	C	-0.1	27.3	C	0.1	
19 Civic Center Drive/Harbor Drive	Signalized	33.2	C	33.7	C	34.5	C	1.3	37.4	D	3.7	

Source: LSA Associates, March 2011

## Notes:

- Exceeds level of service criteria
- Significant Impact

**Table C - Staging Areas 1 and 2 Existing Plus Project Roadway Segment Level of Service Summary**

Roadway	Segment	Roadway Classification	Capacity at LOS E	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
Harbor Boulevard	Park Boulevard and Cesar Chavez Parkway	4 Lane Major Arterial	40,000	12,903	A	0.32	0	12,903	A	0.32	0.00
	Cesar Chavez Parkway and Sampson Street	4 Lane Major Arterial	40,000	9,140	A	0.23	348	9,488	A	0.24	0.01
	Sampson Street and 28th Street	4 Lane Major Arterial	40,000	10,085	A	0.25	348	10,433	A	0.26	0.01
	28th Street and 32nd Street	4 Lane Major Arterial	40,000	14,240	B	0.36	270	14,510	B	0.36	0.01
	32nd Street and 8th Street	4 Lane Major Arterial	40,000	16,055	B	0.40	270	16,325	B	0.41	0.01
	8th Street and Civic Center Drive	4 Lane Major Arterial	40,000	12,921	A	0.32	270	13,191	A	0.33	0.01
28th Street	Harbor Boulevard and Main Street	4 Lane Major Arterial	40,000	15,231	B	0.38	78	15,309	B	0.38	0.00
	Main Street and Boston Avenue	4 Lane Collector (with TWLT)	30,000	18,454	C	0.62	78	18,532	C	0.62	0.00
	Boston Avenue and National Avenue	3 Lane Collector (with TWLT)	22,500	14,616	C	0.65	78	14,694	C	0.65	0.00
National Avenue	28th Street and I-5 Northbound Ramps	3 Lane Collector (no TWLT)	11,250	<b>17,691</b>	<b>F</b>	<b>1.57</b>	0	<b>17,691</b>	<b>F</b>	<b>1.57</b>	0.00
Boston Avenue	28th Street and I-5 Southbound On-Ramp	2 Lane Collector (no TWLT)	8,000	<b>8,188</b>	<b>F</b>	<b>1.02</b>	0	<b>8,188</b>	<b>F</b>	<b>1.02</b>	0.00

Source: LSA Associates, March 2011

- Exceeds level of service criteria  
 Significant Impact

**ATTACHMENT A**  
**NEW TRAFFIC COUNT DATA**

### VOLUME

Harbor Dr between 32nd St & 8th St

Day: Thursday  
Date: 5/5/2011

City: San Diego  
Project #: CA11\_4131\_001

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,730	8,325	0	0	16,055		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	5	19			24	12:00	125	111			236
00:15	4	16			20	12:15	115	90			205
00:30	4	45			49	12:30	120	131			251
00:45	11	24	18	98	29	12:45	119	479	115	447	234
01:00	3	8			11	13:00	101	118			219
01:15	8	8			16	13:15	100	105			205
01:30	8	12			20	13:30	93	122			215
01:45	5	24	6	34	11	13:45	109	403	128	473	237
02:00	6	6			12	14:00	86	161			247
02:15	5	1			6	14:15	100	193			293
02:30	5	3			8	14:30	90	235			325
02:45	7	23	5	15	12	14:45	112	388	309	898	421
03:00	17	5			22	15:00	106	379			485
03:15	6	1			7	15:15	108	413			521
03:30	18	3			21	15:30	85	312			397
03:45	29	70	4	13	33	15:45	84	383	235	1339	319
04:00	29	7			36	16:00	73	287			360
04:15	46	11			57	16:15	69	269			338
04:30	84	9			93	16:30	62	251			313
04:45	98	257	18	45	116	16:45	62	266	268	1075	330
05:00	128	14			142	17:00	52	227			279
05:15	169	35			204	17:15	50	264			314
05:30	220	41			261	17:30	42	213			255
05:45	250	767	66	156	316	17:45	48	192	171	875	219
06:00	286	65			351	18:00	64	109			173
06:15	249	71			320	18:15	50	72			122
06:30	252	73			325	18:30	27	82			109
06:45	263	1050	40	249	303	18:45	43	184	61	324	104
07:00	278	51			329	19:00	21	52			73
07:15	256	57			313	19:15	21	55			76
07:30	254	68			322	19:30	29	41			70
07:45	217	1005	46	222	263	19:45	48	119	55	203	103
08:00	144	55			199	20:00	29	45			74
08:15	121	66			187	20:15	24	55			79
08:30	101	55			156	20:30	18	33			51
08:45	116	482	65	241	181	20:45	16	87	31	164	47
09:00	115	73			188	21:00	10	24			34
09:15	126	75			201	21:15	16	20			36
09:30	106	69			175	21:30	10	24			34
09:45	113	460	69	286	182	21:45	12	48	40	108	52
10:00	102	76			178	22:00	17	29			46
10:15	100	79			179	22:15	10	15			25
10:30	119	93			212	22:30	15	24			39
10:45	117	438	111	359	228	22:45	14	56	14	82	28
11:00	136	137			273	23:00	8	20			28
11:15	114	142			256	23:15	6	22			28
11:30	127	132			259	23:30	11	41			52
11:45	117	494	113	524	230	23:45	6	31	12	95	18
<b>TOTALS</b>	5094	2242			7336	<b>TOTALS</b>	2636	6083			8719
<b>SPLIT %</b>	69.4%	30.6%			45.7%	<b>SPLIT %</b>	30.2%	69.8%			54.3%

DAILY TOTALS					NB	SB	EB	WB	Total
					7,730	8,325	0	0	16,055

AM Peak Hour	06:45	11:00	05:45	PM Peak Hour	12:00	14:45	14:45
AM Pk Volume	1051	524	1312	PM Pk Volume	479	1413	1824
Pk Hr Factor	0.945	0.923	0.934	Pk Hr Factor	0.958	0.855	0.875
7 - 9 Volume	1487	463	1950	4 - 6 Volume	458	1950	2408
7 - 9 Peak Hour	07:00	08:00	07:00	4 - 6 Peak Hour	16:00	16:00	16:00
7 - 9 Pk Volume	1005	241	1227	4 - 6 Pk Volume	266	1075	1341
Pk Hr Factor	0.904	0.913	0.932	Pk Hr Factor	0.911	0.936	0.931

**VOLUME**

Harbor Dr between 8th St & Civic Center Dr

Day: Thursday  
Date: 5/5/2011

City: San Diego  
Project #: CA11\_4131\_002

DAILY TOTALS					NB	SB	EB	WB	Total		
					6,093	6,828	0	0	12,921		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	5	15			20	12:00	93	86			179
00:15	1	8			9	12:15	99	83			182
00:30	4	34			38	12:30	98	107			205
00:45	5	15	72		20 87	12:45	80	370	86	362	166 732
01:00	3	6			9	13:00	65	91			156
01:15	5	6			11	13:15	64	78			142
01:30	2	8			10	13:30	76	128			204
01:45	2	12	2	22	4 34	13:45	73	278	94	391	167 669
02:00	3	6			9	14:00	60	151			211
02:15	3	2			5	14:15	64	174			238
02:30	4	2			6	14:30	63	229			292
02:45	6	16	5	15	11 31	14:45	82	269	279	833	361 1102
03:00	12	4			16	15:00	71	329			400
03:15	5	2			7	15:15	78	369			447
03:30	15	3			18	15:30	51	273			324
03:45	20	52	7	16	27 68	15:45	56	256	250	1221	306 1477
04:00	29	5			34	16:00	48	238			286
04:15	32	12			44	16:15	41	241			282
04:30	69	10			79	16:30	42	237			279
04:45	81	211	18	45	99 256	16:45	39	170	216	932	255 1102
05:00	106	11			117	17:00	35	199			234
05:15	179	27			206	17:15	40	244			284
05:30	228	33			261	17:30	29	171			200
05:45	271	784	31	102	302 886	17:45	31	135	154	768	185 903
06:00	272	32			304	18:00	40	95			135
06:15	257	25			282	18:15	27	66			93
06:30	239	43			282	18:30	20	79			99
06:45	243	1011	37	137	280 1148	18:45	28	115	55	295	83 410
07:00	256	28			284	19:00	11	42			53
07:15	221	31			252	19:15	19	49			68
07:30	212	44			256	19:30	25	34			59
07:45	200	889	27	130	227 1019	19:45	33	88	39	164	72 252
08:00	136	44			180	20:00	12	36			48
08:15	77	45			122	20:15	16	47			63
08:30	85	39			124	20:30	10	24			34
08:45	75	373	42	170	117 543	20:45	13	51	29	136	42 187
09:00	74	33			107	21:00	9	14			23
09:15	73	40			113	21:15	13	15			28
09:30	70	52			122	21:30	7	18			25
09:45	66	283	47	172	113 455	21:45	6	35	33	80	39 115
10:00	65	61			126	22:00	10	23			33
10:15	68	59			127	22:15	8	14			22
10:30	83	74			157	22:30	12	9			21
10:45	74	290	88	282	162 572	22:45	9	39	11	57	20 96
11:00	81	117			198	23:00	6	10			16
11:15	84	95			179	23:15	8	14			22
11:30	87	74			161	23:30	9	28			37
11:45	71	323	79	365	150 688	23:45	5	28	9	61	14 89
<b>TOTALS</b>	4259	1528			5787	<b>TOTALS</b>	1834	5300			7134
<b>SPLIT %</b>	73.6%	26.4%			44.8%	<b>SPLIT %</b>	25.7%	74.3%			55.2%

DAILY TOTALS					NB	SB	EB	WB	Total
					6,093	6,828	0	0	12,921

AM Peak Hour	05:45	10:30	05:45	PM Peak Hour	12:00	14:45	14:45
AM Pk Volume	1039	374	1170	PM Pk Volume	370	1250	1532
Pk Hr Factor	0.955	0.799	0.962	Pk Hr Factor	0.934	0.847	0.857
7 - 9 Volume	1262	300	1562	4 - 6 Volume	305	1700	2005
7 - 9 Peak Hour	07:00	08:00	07:00	4 - 6 Peak Hour	16:00	16:00	16:00
7 - 9 Pk Volume	889	170	1019	4 - 6 Pk Volume	170	932	1102
Pk Hr Factor	0.868	0.944	0.897	Pk Hr Factor	0.885	0.967	0.963

# ITM Peak Hour Summary

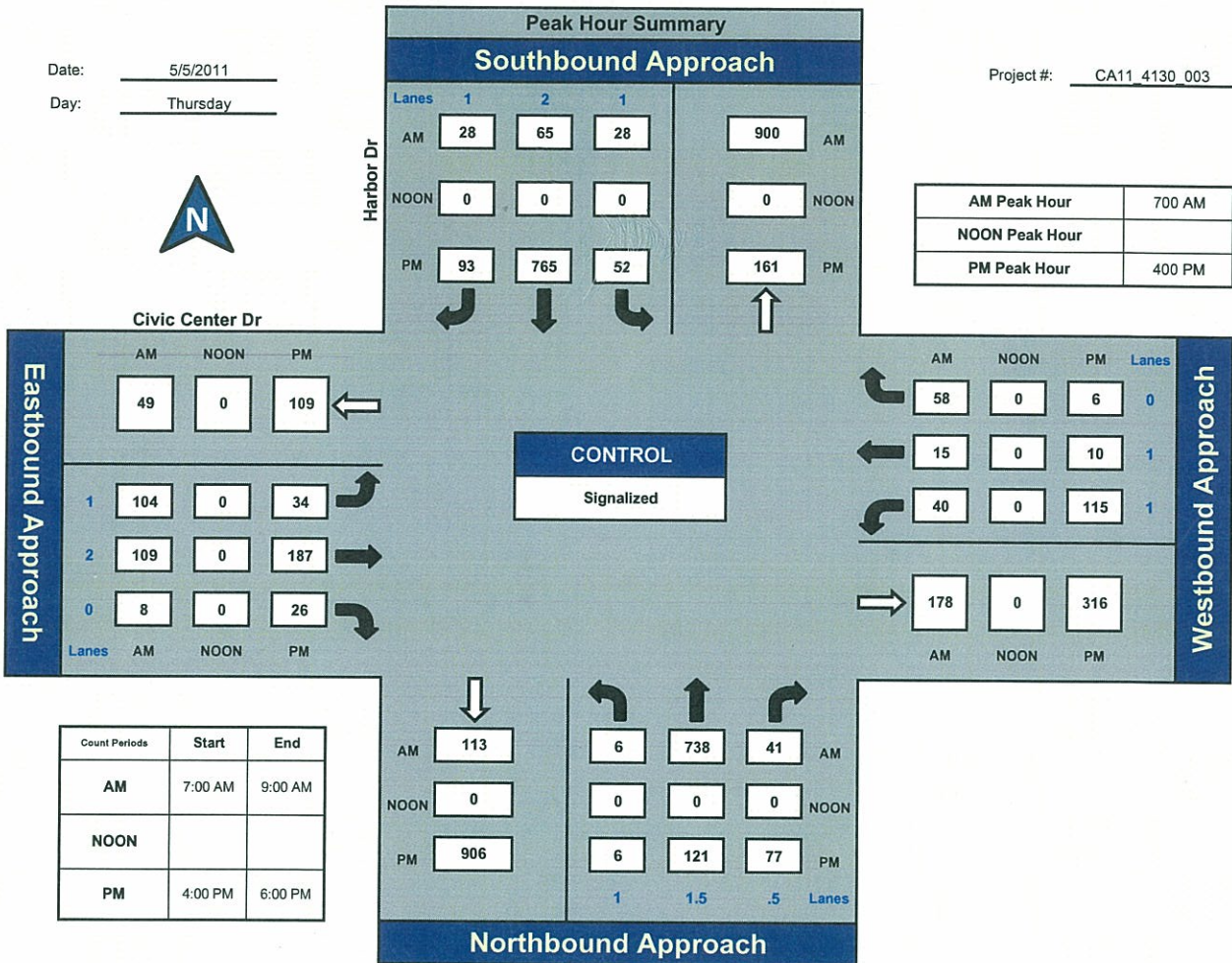


Prepared by:  
National Data & Surveying Services

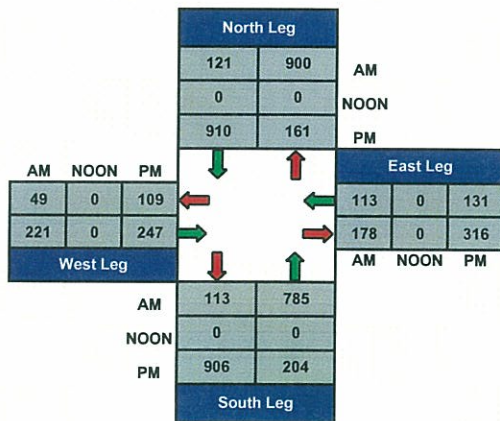
## Harbor Dr and Civic Center Dr, City of San Diego

Date: 5/5/2011  
Day: Thursday

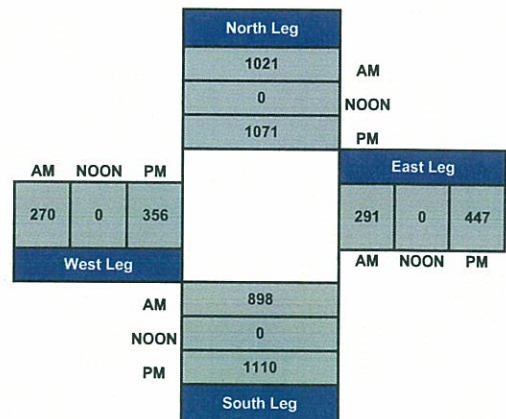
Project #: CA11\_4130\_003



### Total Ins & Outs



### Total Volume Per Leg



# ITM Peak Hour Summary

Prepared by:



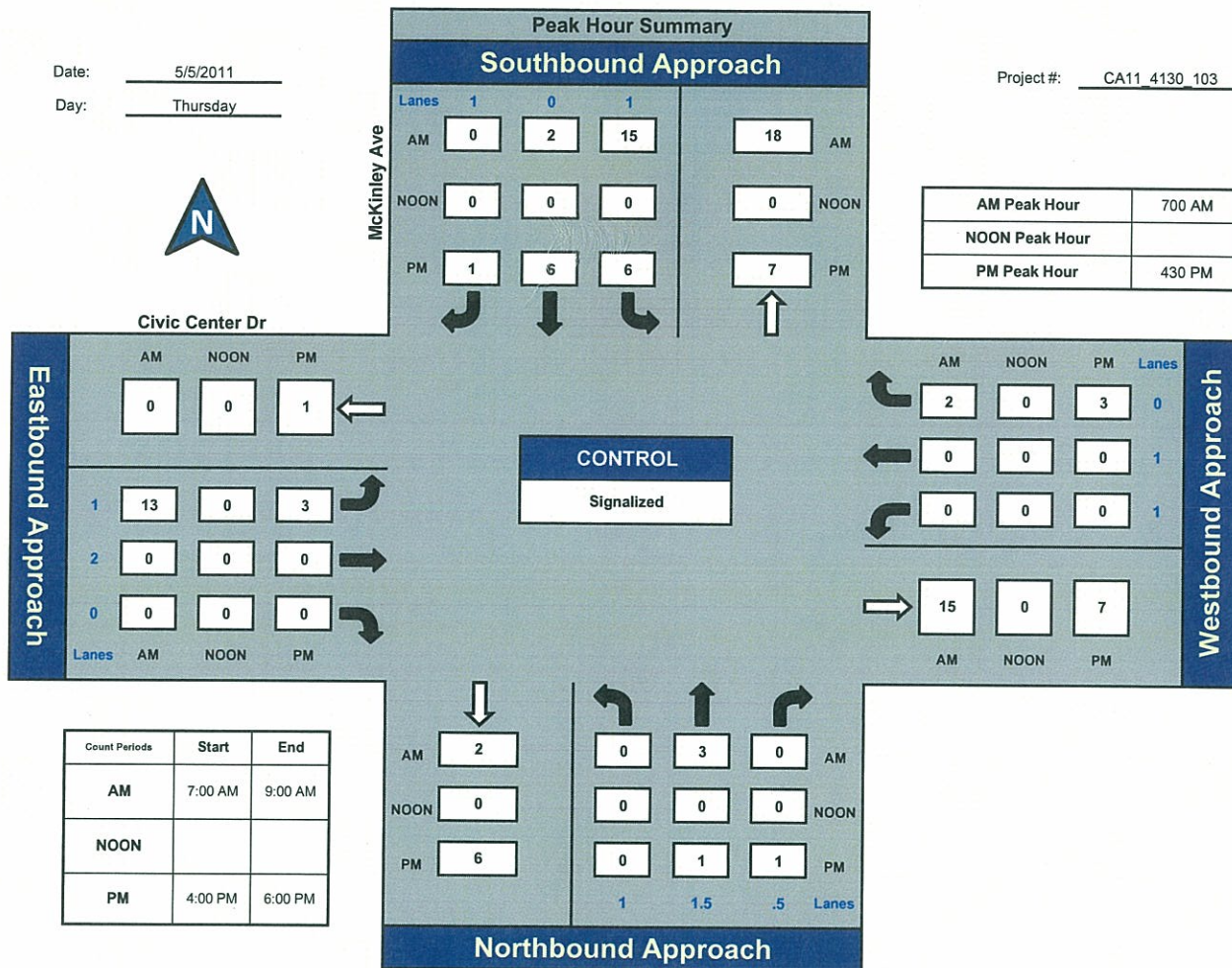
National Data & Surveying Services

## McKinley Ave and Civic Center Dr, City of San Diego

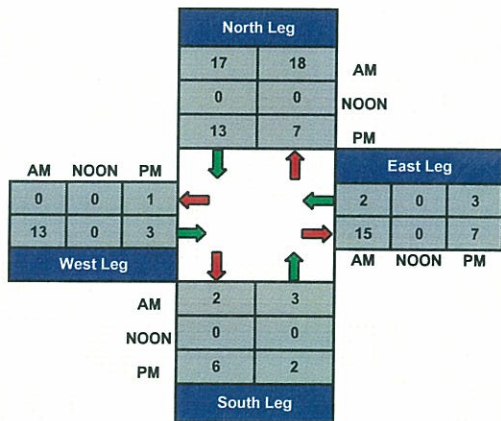
Date: 5/5/2011

Day: Thursday

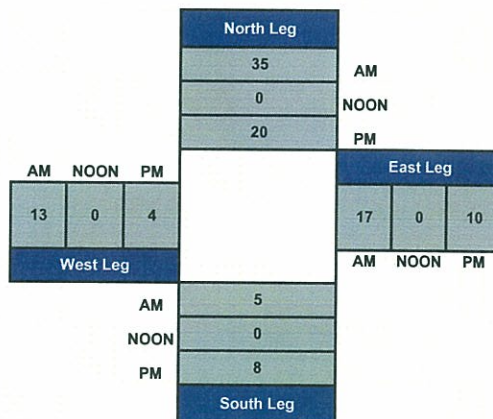
Project #: CA11\_4130\_103



Total Ins & Outs



Total Volume Per Leg



# ITM Peak Hour Summary

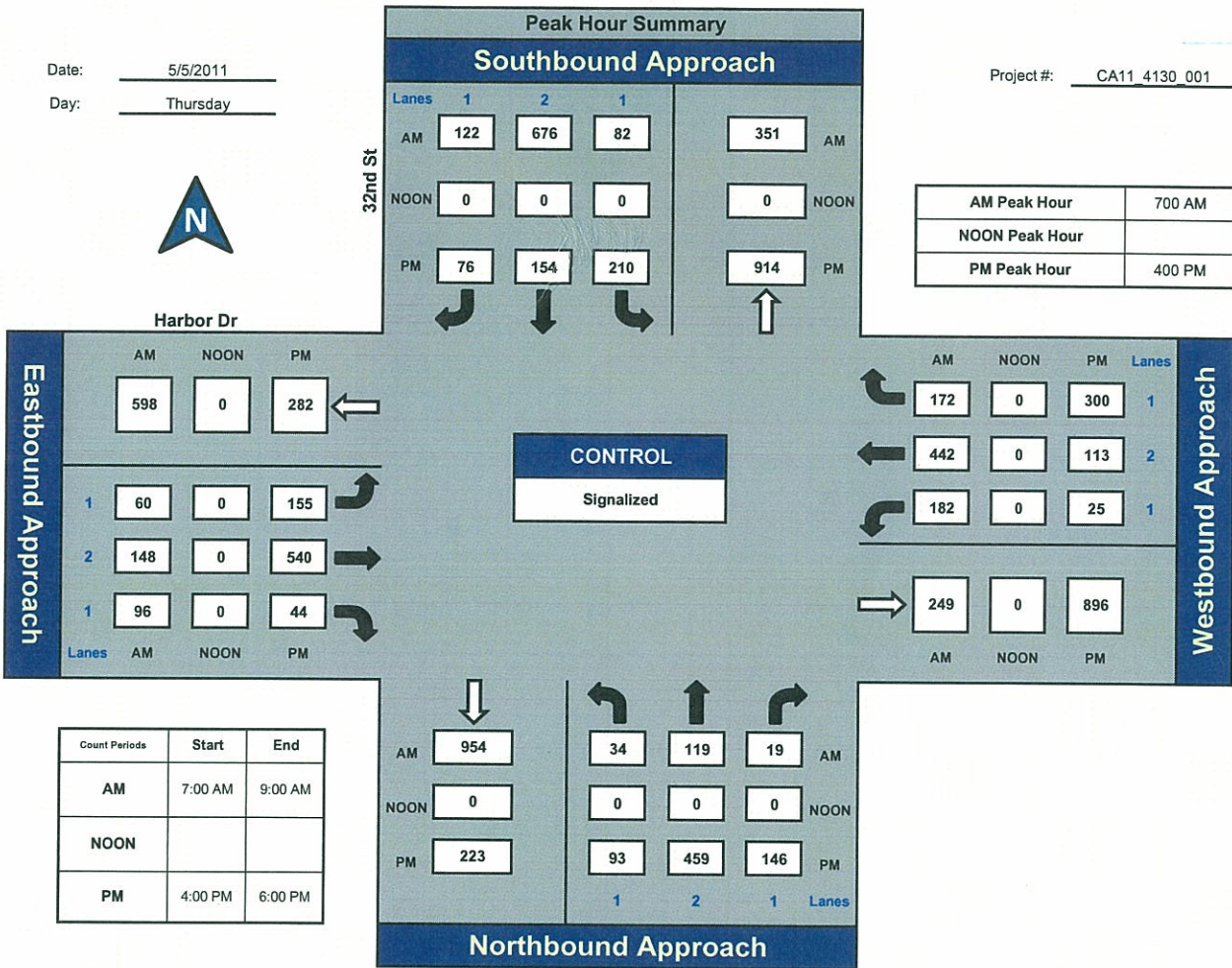


Prepared by:  
National Data & Surveying Services

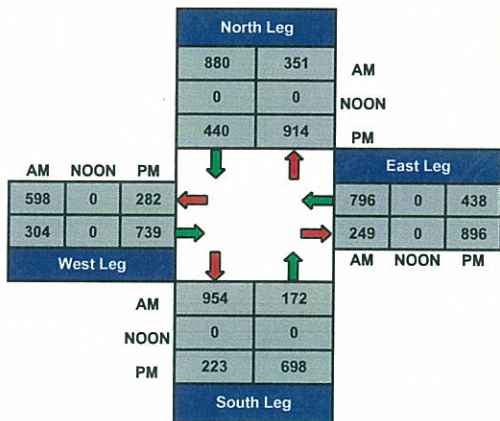
## 32nd St and Harbor Dr, City of San Diego

Date: 5/5/2011  
Day: Thursday

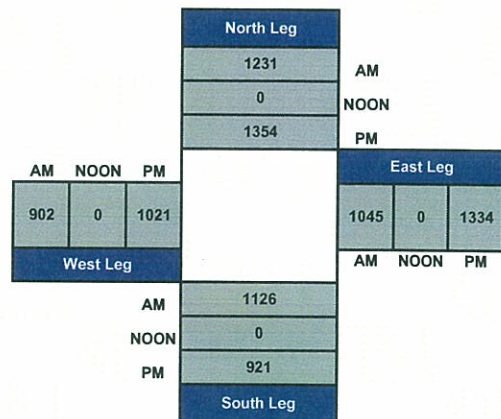
Project #: CA11\_4130\_001



### Total Ins & Outs



### Total Volume Per Leg





# ITM Peak Hour Summary

Prepared by:



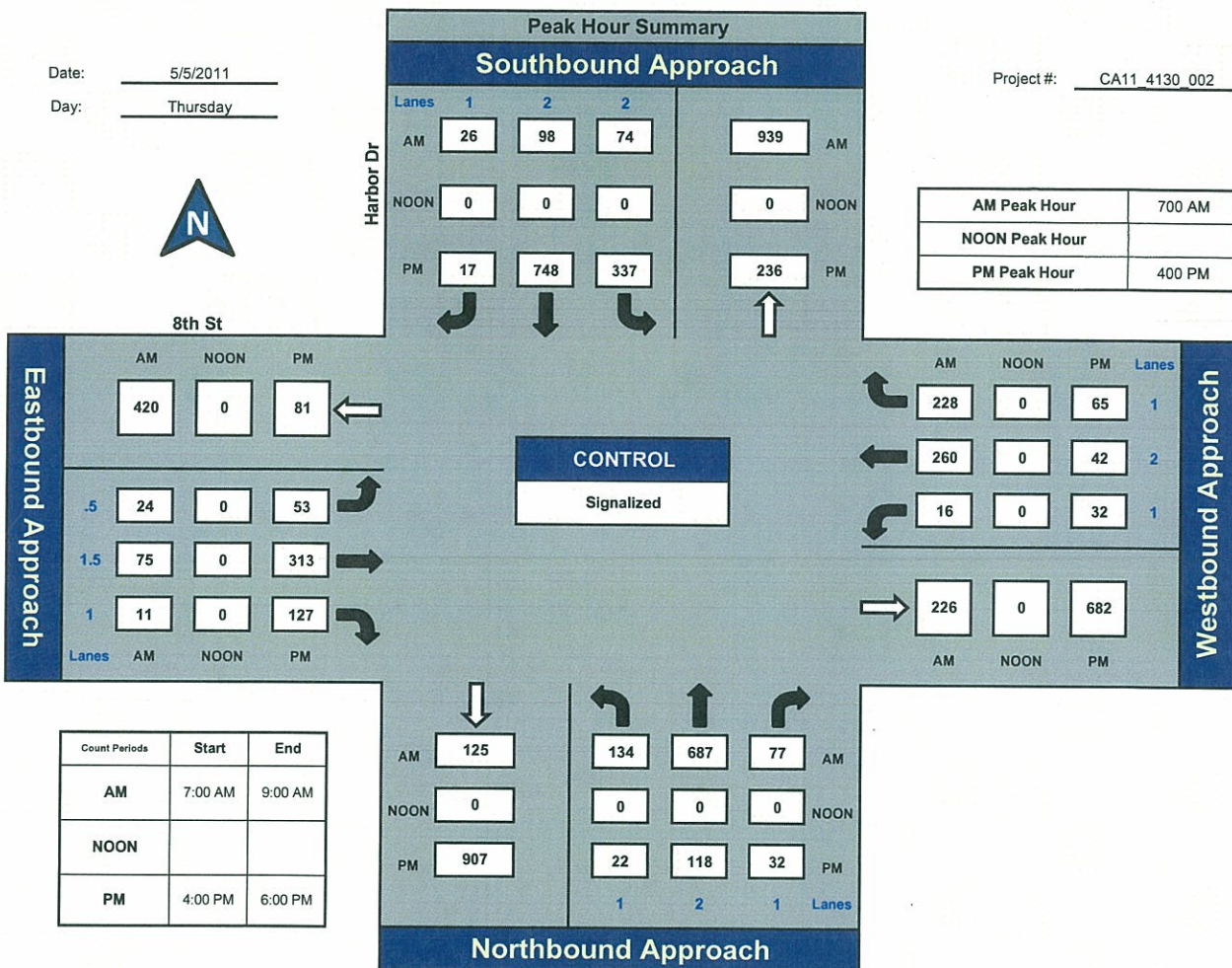
National Data & Surveying Services

## Harbor Dr and 8th St, City of San Diego

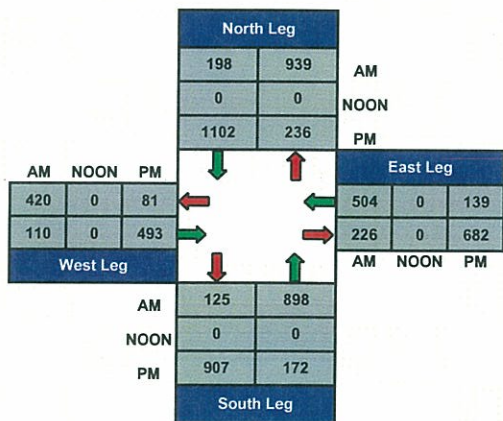
Date: 5/5/2011

Day: Thursday

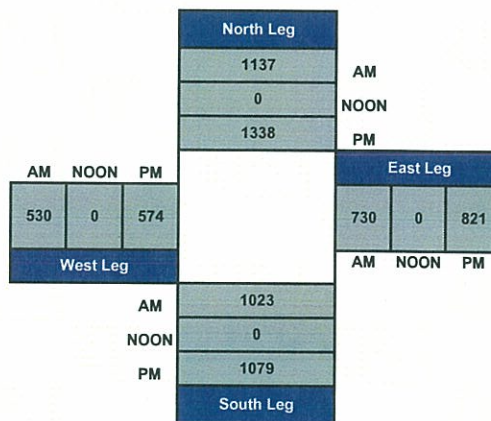
Project #: CA11 4130 002



### Total Ins & Outs



### Total Volume Per Leg



**ATTACHMENT B**  
**LEVEL OF SERVICE WORKSHEETS**

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Park Boulevard/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 12 Average Delay (sec/veh): 15.0
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 10 rows of adjustment factors like Growth Adj, User Adj, PHF Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #2 Cesar Chavez Parkway/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.512
Loss Time (sec): 16 Average Delay (sec/veh): 31.4
Optimal Cycle: 60 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Protected), Rights (Include), Min. Green (5-5-5), Y+R (4.0-4.0-4.0), and Lanes (1-0-0-1-0).

Volume Module: Table with 12 columns for different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns for different traffic movements. Rows include Sat/Lane (1900), Adjustment (0.93), Lanes (1.00), and Final Sat. (1769).

Capacity Analysis Module: Table with 12 columns for different traffic movements. Rows include Vol/Sat (0.00), Crit Moves (\*\*\*\*), Green/Cycle (0.05), Volume/Cap (0.05), Delay/Veh (45.5), User DelAdj (1.00), AdjDel/Veh (45.5), LOS by Move (D C C C C C D C C C C), and HCM2kAvgQ (0 1 1 3 3 8 4 2 2 1 7 7).

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

## San Diego Sediment Project

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
Intersection #3 Sampson Street/Harbor Drive  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.265  
Loss Time (sec): 16 Average Delay (sec/veh): 20.4  
Optimal Cycle: 60 Level Of Service: C  
\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	1	0	0	1	1	0	1	1	0	1

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	19	33	56	7	50	22	15	135	31	87	477	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	33	56	7	50	22	15	135	31	87	477	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	20	35	59	7	53	23	16	142	33	92	502	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	35	59	7	53	23	16	142	33	92	502	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	20	35	59	7	53	23	16	142	33	92	502	6

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.86	0.86	0.86	0.92	0.92	0.92	0.93	0.90	0.90	0.93	0.93	0.93
Lanes:	0.18	0.30	0.52	0.09	0.63	0.28	1.00	1.63	0.37	1.00	1.98	0.02
Final Sat.:	288	501	850	155	1110	488	1769	2797	642	1769	3487	44

Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.07	0.07	0.07	0.05	0.05	0.05	0.01	0.05	0.05	0.05	0.14	0.14
Crit Moves:	****			****			****			****		
Green/Cycle:	0.26	0.26	0.26	0.26	0.26	0.26	0.05	0.29	0.29	0.29	0.53	0.53
Volume/Cap:	0.27	0.27	0.27	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.27	0.27
Delay/Veh:	30.0	30.0	30.0	29.2	29.2	29.2	46.5	26.7	26.7	26.4	12.8	12.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	30.0	30.0	30.0	29.2	29.2	29.2	46.5	26.7	26.7	26.4	12.8	12.8
LOS by Move:	C	C	C	C	C	C	D	C	C	C	B	B
HCM2kAvgQ:	3	3	3	2	2	2	0	2	2	2	4	4

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #4 28th Street/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.423
Loss Time (sec): 16 Average Delay (sec/veh): 27.9
Optimal Cycle: 60 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #5 28th Street/Main Street
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.388
Loss Time (sec): 16 Average Delay (sec/veh): 30.0
Optimal Cycle: 60 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Protected), Rights (Include), Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #6 28th Street/Boston Avenue
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.306
Loss Time (sec): 16 Average Delay (sec/veh): 18.4
Optimal Cycle: 60 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*



San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #7 28th Street/I-5 southbound ramp
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Lanes, Volume Module, Critical Gap Module, Capacity Module, and Level Of Service Module.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #8 28th Street/National Avenue
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.781
Loss Time (sec): 16 Average Delay (sec/veh): 33.7
Optimal Cycle: 82 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Permitted/Protected), Rights (Include), Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 10 rows of adjustment factors like Growth Adj, Initial Bse, User Adj, PHF Adj, etc.

Saturation Flow Module: Table with 12 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #9 I-5 northbound ramps/National Avenue
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.493
Loss Time (sec): 12 Average Delay (sec/veh): 18.6
Optimal Cycle: 60 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Split Phase, Permitted), Rights (Include, Ignore), Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns for movement types. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns for movement types. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns for movement types. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #10 I-5 southbound ramp/Boston Avenue
\*\*\*\*\*

Average Delay (sec/veh): 6.1 Worst Case Level Of Service: C[ 15.2]
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns for volume components. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module: Table with 12 columns for gap components. Rows include Critical Gp and FollowUpTim.

Capacity Module: Table with 12 columns for capacity components. Rows include Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level Of Service Module: Table with 12 columns for LOS components. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

\*\*\*\*\*
Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #13 Cleveland Street/24th Street
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.308
Loss Time (sec): 0 Average Delay (sec/veh): 8.9
Optimal Cycle: 0 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5-5-5), and Lanes (1-0-0-1-0).

Volume Module: Table with 12 columns representing different traffic volumes and adjustment factors like Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, etc.

Saturation Flow Module: Table with 12 columns showing adjustment factors, lanes, and final saturation values.

Capacity Analysis Module: Table with 12 columns showing Vol/Sat, Crit Moves, Delay/Veh, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #16 Tidelands Avenue/W. 32nd Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.066
Loss Time (sec): 0 Average Delay (sec/veh): 7.3
Optimal Cycle: 0 Level Of Service: A

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5-5-5), and Lanes (0-0-1-0-0).

Volume Module table with 12 columns and 12 rows including Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MFL Adj, and Final Volume.

Saturation Flow Module table with 12 columns and 3 rows including Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 12 rows including Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #29

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: [ 0.0]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns for various volume and delay metrics like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module:

Table with 13 columns for critical gap and follow-up time metrics.

Capacity Module:

Table with 13 columns for capacity metrics like Cnflict Vol, Potent Cap., Move Cap., etc.

Level Of Service Module:

Table with 13 columns for level of service metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #30
\*\*\*\*\*

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: [ 0.0]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, etc.

Critical Gap Module: Table with 13 columns for gap and follow-up time values.

Capacity Module: Table with 13 columns for capacity-related metrics like Cnflct Vol, Potent Cap., etc.

Level Of Service Module: Table with 13 columns for LOS metrics like 2Way95thQ, Control Del, etc.

\*\*\*\*\*
Note: Queue reported is the number of cars per lane.
\*\*\*\*\*



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #48 32nd Street/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.454
Loss Time (sec): 16 Average Delay (sec/veh): 28.1
Optimal Cycle: 60 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns for lane volumes and 12 rows for various adjustment factors like Growth Adj, User Adj, PHF Adj, etc.

Saturation Flow Module: Table with 12 columns for lane saturation and 4 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns for lane capacity and 10 rows for Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

## San Diego Sediment Project

## Level Of Service Computation Report

## 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #49 8th Street/Harbor Drive  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.399  
 Loss Time (sec): 16 Average Delay (sec/veh): 24.4  
 Optimal Cycle: 60 Level Of Service: C  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Protected			Protected			Protected			Protected					
Rights:	Include			Ignore			Ignore			Ignore					
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5			
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lanes:	1	0	1	0	1	1	0	2	0	1	2	0	2	0	1

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	24	75	11	16	260	228	74	98	26	134	687	77
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	75	11	16	260	228	74	98	26	134	687	77
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.00	0.90	0.90	0.00	0.90	0.90	0.00
PHF Volume:	27	83	12	18	288	0	82	108	0	148	760	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	83	12	18	288	0	82	108	0	148	760	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Volume:	27	83	12	18	288	0	82	108	0	148	760	0

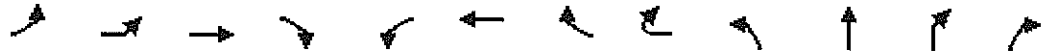
Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.98	0.83	0.93	0.93	1.00	0.90	0.93	1.00	0.93	0.93	1.00
Lanes:	1.00	1.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1769	1862	1583	1769	3538	1900	3432	3538	1900	1769	3538	1900

Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.02	0.04	0.01	0.01	0.08	0.00	0.02	0.03	0.00	0.08	0.21	0.00
Crit Moves:	****				****		****				****	
Green/Cycle:	0.05	0.13	0.13	0.13	0.20	0.00	0.06	0.22	0.00	0.37	0.53	0.00
Volume/Cap:	0.30	0.36	0.06	0.08	0.41	0.00	0.41	0.14	0.00	0.23	0.41	0.00
Delay/Veh:	47.7	41.0	38.7	38.8	35.1	0.0	46.7	31.4	0.0	21.9	14.2	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	47.7	41.0	38.7	38.8	35.1	0.0	46.7	31.4	0.0	21.9	14.2	0.0
LOS by Move:	D	D	D	D	D	A	D	C	A	C	B	A
HCM2kAvgQ:	1	3	0	1	4	0	1	1	0	3	7	0

Note: Queue reported is the number of cars per lane.

HCM Signalized Intersection Capacity Analysis  
 3: Civic Center Drive & Harbor Drive - McKinley Avenue

Existing AM Peak Hour  
 5/12/2011



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations	↖		↕		↖	↕			↖	↕		↖
Volume (vph)	104	13	109	8	40	15	58	2	6	738	3	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0			4.0	4.0		4.0
Lane Util. Factor	1.00		0.95		1.00	1.00			1.00	0.95		0.95
Frt	1.00		0.99		1.00	0.88			1.00	1.00		0.85
Flt Protected	0.95		1.00		0.95	1.00			0.95	1.00		1.00
Satd. Flow (prot)	1770		3488		1770	1639			1770	1767		1504
Flt Permitted	0.51		0.92		0.66	1.00			0.95	1.00		1.00
Satd. Flow (perm)	957		3240		1235	1639			1770	1767		1504
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	112	14	117	9	43	16	62	2	6	794	3	44
RTOR Reduction (vph)	0	0	4	0	0	1	0	0	0	0	0	10
Lane Group Flow (vph)	112	0	136	0	43	79	0	0	6	801	0	30
Turn Type	pm+pt	Perm			pm+pt				Split			Perm
Protected Phases	7		4		3	8			2	2		
Permitted Phases	4	4			8							2
Actuated Green, G (s)	17.0		12.1		11.6	9.4			60.0	60.0		60.0
Effective Green, g (s)	17.0		12.1		11.6	9.4			60.0	60.0		60.0
Actuated g/C Ratio	0.16		0.11		0.11	0.09			0.56	0.56		0.56
Clearance Time (s)	4.0		4.0		4.0	4.0			4.0	4.0		4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0			3.0	3.0		3.0
Lane Grp Cap (vph)	188		363		144	143			984	983		836
v/s Ratio Prot	c0.03				0.01	0.05			0.00	c0.45		
v/s Ratio Perm	c0.07		0.04		0.03							0.02
v/c Ratio	0.60		0.38		0.30	0.55			0.01	0.81		0.04
Uniform Delay, d1	41.6		44.4		44.0	47.2			10.7	19.4		10.9
Progression Factor	1.00		1.00		1.00	1.00			1.00	1.00		1.00
Incremental Delay, d2	5.0		0.7		1.2	4.6			0.0	5.3		0.0
Delay (s)	46.6		45.1		45.2	51.8			10.7	24.7		10.9
Level of Service	D		D		D	D			B	C		B
Approach Delay (s)			45.7			49.5				24.0		
Approach LOS			D			D				C		

Intersection Summary			
HCM Average Control Delay	33.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	107.9	Sum of lost time (s)	24.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
 3: Civic Center Drive & Harbor Drive - McKinley Avenue

Existing AM Peak Hour  
 5/12/2011



Movement	SBL	SBT	SBR	SWL2	SWR
Lane Configurations	↶	↕↕	↷	↶	↷
Volume (vph)	28	65	28	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85
Frt Protected	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1583	1770	1583
Frt Permitted	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1583	1770	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	30	70	30	16	2
RTOR Reduction (vph)	0	0	28	0	0
Lane Group Flow (vph)	30	70	2	16	2
Turn Type	Split		Perm	Prot	custom
Protected Phases	6	6		1	
Permitted Phases			6		5
Actuated Green, G (s)	6.0	6.0	6.0	2.6	1.0
Effective Green, g (s)	6.0	6.0	6.0	2.6	1.0
Actuated g/C Ratio	0.06	0.06	0.06	0.02	0.01
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	98	197	88	43	15
v/s Ratio Prot	0.02	c0.02		c0.01	
v/s Ratio Perm			0.00		c0.00
v/c Ratio	0.31	0.36	0.02	0.37	0.13
Uniform Delay, d1	49.0	49.1	48.2	51.8	53.0
Progression Factor	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	1.1	0.1	5.4	4.0
Delay (s)	50.7	50.2	48.3	57.2	57.0
Level of Service	D	D	D	E	E
Approach Delay (s)		49.9			
Approach LOS		D			

Intersection Summary

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #1 Park Boulevard/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.425
Loss Time (sec): 12 Average Delay (sec/veh): 13.9
Optimal Cycle: 60 Level Of Service: B
\*\*\*\*\*

Table with columns for Approach (North, South, East, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table showing Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across four approaches.

Saturation Flow Module: Table showing Sat/Lane, Adjustment, Lanes, and Final Sat. across four approaches.

Capacity Analysis Module: Table showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ across four approaches.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Cesar Chavez Parkway/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.457
Loss Time (sec): 16 Average Delay (sec/veh): 25.8
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 10 rows of adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module: Table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Sampson Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.323
Loss Time (sec): 16 Average Delay (sec/veh): 17.3
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Permitted/Protected), Rights (Include), Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 11 rows of volume-related metrics like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module table with 12 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 11 rows showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 28th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.384
Loss Time (sec): 16 Average Delay (sec/veh): 22.2
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 13 rows of adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 13 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 28th Street/Main Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.622
Loss Time (sec): 16 Average Delay (sec/veh): 33.3
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 10 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module: Table with 12 columns and 5 rows showing saturation flow rates and adjustments.

Capacity Analysis Module: Table with 12 columns and 10 rows showing capacity analysis metrics like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.477
Loss Time (sec): 16 Average Delay (sec/veh): 26.0
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns for movement types and 10 rows for various volume and adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 12 columns for movement types and 5 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns for movement types and 10 rows for Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report  
Unknown Method (Base Volume Alternative)

\*\*\*\*\*  
Intersection #7 28th Street/I-5 southbound ramp  
\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	0	0	2	0	0	1	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	587	0	0	381	0	0	0	526	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.731
Loss Time (sec): 16 Average Delay (sec/veh): 31.3
Optimal Cycle: 74 Level Of Service: C

Table with columns for Approach (North, South, East, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 I-5 northbound ramps/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.526
Loss Time (sec): 12 Average Delay (sec/veh): 18.8
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 10 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module: Table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #10 I-5 southbound ramp/Boston Avenue

Average Delay (sec/veh): 10.6 Worst Case Level Of Service: E[ 49.2]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, etc.

Critical Gap Module table with 13 columns for gap and follow-up times.

Capacity Module table with 13 columns for conflict, potent, and move capacities.

Level Of Service Module table with 13 columns for delay, LOS, and approach delay/LOS.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #13 Cleveland Street/24th Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.323
Loss Time (sec): 0 Average Delay (sec/veh): 10.0
Optimal Cycle: 0 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5-5-5), and Lanes (1-0-0-1-0).

Volume Module table with 12 columns and 12 rows. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns and 3 rows. Rows include Adjustment (1.00), Lanes (1.00), and Final Sat. (517).

Capacity Analysis Module table with 12 columns and 12 rows. Rows include Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #16 Tidelands Avenue/W. 32nd Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.096
Loss Time (sec): 0 Average Delay (sec/veh): 8.0
Optimal Cycle: 0 Level Of Service: A

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Stop Sign), Rights (Include), Min. Green (5), and Lanes (0 0 1 0 0).

Volume Module table with 12 columns and 12 rows including Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MFL Adj, and Final Volume.

Saturation Flow Module table with 12 columns and 3 rows including Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 12 rows including Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #29

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: [ 0.0]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns for various volume adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module:

Table with 13 columns for critical gap and follow-up time values.

Capacity Module:

Table with 13 columns for capacity-related metrics like Conflict Vol, Potent Cap., Move Cap., etc.

Level Of Service Module:

Table with 13 columns for level of service metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

## San Diego Sediment Project

## Level Of Service Computation Report

## 2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #30  
 \*\*\*\*\*

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: [ 0.0]  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0	0	0	0	0	0	0	0	0	0	0

## Volume Module:

Base Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0

## Critical Gap Module:

Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FollowUpTim:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## Capacity Module:

Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Move Cap.:	1	1	1	1	1	1	1	1	1	1	1	1
Volume/Cap:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## Level Of Service Module:

2Way95thQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Del:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## LOS by Move:

Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
SharedQueue:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shrd ConDel:	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

## Shared LOS:

ApproachDel:	0.0	0.0	0.0	0.0
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## ApproachLOS:

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Note: Queue reported is the number of cars per lane.

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San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #48 32nd Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.676
Loss Time (sec): 16 Average Delay (sec/veh): 34.6
Optimal Cycle: 66 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 10 rows of adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 12 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #49 8th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.542
Loss Time (sec): 16 Average Delay (sec/veh): 27.2
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing lane volumes and adjustments. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

HCM Signalized Intersection Capacity Analysis  
 3: Civic Center Drive & Harbor Drive - McKinley Avenue

Existing PM Peak Hour  
 5/12/2011



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Volume (vph)	34	3	187	26	115	10	6	3	6	121	2	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0			4.0	4.0		4.0
Lane Util. Factor	1.00		0.95		1.00	1.00			1.00	0.95		0.95
Frt	1.00		0.98		1.00	0.93			1.00	0.99		0.85
Flt Protected	0.95		1.00		0.95	1.00			0.95	1.00		1.00
Satd. Flow (prot)	1770		3472		1770	1730			1770	1749		1504
Flt Permitted	0.73		0.95		0.59	1.00			0.95	1.00		1.00
Satd. Flow (perm)	1365		3311		1106	1730			1770	1749		1504
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	37	3	205	29	126	11	7	3	7	133	2	85
RTOR Reduction (vph)	0	0	10	0	0	2	0	0	0	3	0	65
Lane Group Flow (vph)	37	0	227	0	126	19	0	0	7	141	0	11
Turn Type	pm+pt	Perm			pm+pt				Split			Perm
Protected Phases	7		4		3	8			2	2		
Permitted Phases	4	4			8							2
Actuated Green, G (s)	17.8		13.4		17.4	13.2			10.6	10.6		10.6
Effective Green, g (s)	17.8		13.4		17.4	13.2			10.6	10.6		10.6
Actuated g/C Ratio	0.24		0.18		0.24	0.18			0.15	0.15		0.15
Clearance Time (s)	4.0		4.0		4.0	4.0			4.0	4.0		4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0			3.0	3.0		3.0
Lane Grp Cap (vph)	358		609		302	313			257	254		219
v/s Ratio Prot	0.01				c0.02	0.01			0.00	c0.08		
v/s Ratio Perm	0.02		0.07		c0.08							0.01
v/c Ratio	0.10		0.37		0.42	0.06			0.03	0.56		0.05
Uniform Delay, d1	21.3		26.1		22.7	24.7			26.7	29.0		26.8
Progression Factor	1.00		1.00		1.00	1.00			1.00	1.00		1.00
Incremental Delay, d2	0.1		0.4		0.9	0.1			0.0	2.6		0.1
Delay (s)	21.4		26.5		23.7	24.8			26.8	31.6		26.9
Level of Service	C		C		C	C			C	C		C
Approach Delay (s)			25.8			23.8				29.9		
Approach LOS			C			C				C		

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	72.9	Sum of lost time (s)	24.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
 3: Civic Center Drive & Harbor Drive - McKinley Avenue

Existing PM Peak Hour  
 5/12/2011



Movement	SBL	SBT	SBR	SWL2	SWR	SWR2
Lane Configurations						
Volume (vph)	52	765	93	6	6	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.85	
Frt Protected	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1583	
Frt Permitted	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1583	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	57	841	102	7	7	1
RTOR Reduction (vph)	0	0	74	0	1	0
Lane Group Flow (vph)	57	841	28	7	7	0
Turn Type	Split		Perm	Prot	custom	
Protected Phases	6	6		1		
Permitted Phases			6		5	
Actuated Green, G (s)	18.7	18.7	18.7	1.0	1.0	
Effective Green, g (s)	18.7	18.7	18.7	1.0	1.0	
Actuated g/C Ratio	0.26	0.26	0.26	0.01	0.01	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	454	908	406	24	22	
v/s Ratio Prot	0.03	c0.24		c0.00		
v/s Ratio Perm			0.02		c0.00	
v/c Ratio	0.13	0.93	0.07	0.29	0.32	
Uniform Delay, d1	20.8	26.4	20.5	35.6	35.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	15.0	0.1	6.7	8.2	
Delay (s)	20.9	41.4	20.6	42.3	43.8	
Level of Service	C	D	C	D	D	
Approach Delay (s)		38.1				
Approach LOS		D				

Intersection Summary

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Park Boulevard/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 12 Average Delay (sec/veh): 15.0
Optimal Cycle: 60 Level Of Service: B

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table showing Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

## San Diego Sediment Project

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #2 Cesar Chavez Parkway/Harbor Drive  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.512  
Loss Time (sec): 16 Average Delay (sec/veh): 31.5  
Optimal Cycle: 60 Level Of Service: C

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	0	1	0	0	1	0	1	1	0	1

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	4	25	14	37	73	279	140	128	19	39	385	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	25	14	37	73	279	140	128	19	39	385	56
Added Vol:	0	0	15	0	0	0	0	0	0	44	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	4	25	29	37	73	279	140	128	19	83	385	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	4	28	32	41	82	312	156	143	21	93	430	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	4	28	32	41	82	312	156	143	21	93	430	63
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	4	28	32	41	82	312	156	143	21	93	430	63

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.90	0.90	0.96	0.96	0.83	0.93	0.91	0.91	0.93	0.91	0.91
Lanes:	1.00	0.46	0.54	0.34	0.66	1.00	1.00	1.74	0.26	1.00	1.75	0.25
Final Sat.:	1769	792	919	616	1215	1583	1769	3022	449	1769	3030	441

Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.00	0.04	0.04	0.07	0.07	0.20	0.09	0.05	0.05	0.05	0.14	0.14
Crit Moves:	****			****			****			****		
Green/Cycle:	0.05	0.18	0.18	0.24	0.36	0.36	0.16	0.21	0.21	0.22	0.26	0.26
Volume/Cap:	0.05	0.20	0.20	0.28	0.18	0.54	0.54	0.23	0.23	0.24	0.54	0.54
Delay/Veh:	45.5	35.5	35.5	31.5	21.8	26.2	40.5	33.1	33.1	32.6	32.4	32.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	45.5	35.5	35.5	31.5	21.8	26.2	40.5	33.1	33.1	32.6	32.4	32.4
LOS by Move:	D	D	D	C	C	C	D	C	C	C	C	C
HCM2kAvgQ:	0	2	2	3	3	8	4	2	2	2	7	7

\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #3 Sampson Street/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.280
Loss Time (sec): 16 Average Delay (sec/veh): 19.9
Optimal Cycle: 60 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #4 28th Street/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.433
Loss Time (sec): 16 Average Delay (sec/veh): 27.8
Optimal Cycle: 60 Level Of Service: C
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table showing traffic volume metrics such as Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table showing saturation flow metrics including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table showing capacity analysis metrics such as Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #5 28th Street/Main Street
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.395
Loss Time (sec): 16 Average Delay (sec/veh): 29.9
Optimal Cycle: 60 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

## San Diego Sediment Project

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #6 28th Street/Boston Avenue  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.313  
 Loss Time (sec): 16 Average Delay (sec/veh): 18.2  
 Optimal Cycle: 60 Level Of Service: B

\*\*\*\*\*  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 -----|-----|-----|-----|  
 Control: Protected Protected Protected Protected  
 Rights: Include Include Include Include  
 Min. Green: 5 5 5 5 5 5 5 5 5 5 5 5  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 1 0 2 0 1 1 0 1 1 0 1 0 0 1 0  
 -----|-----|-----|-----|

## Volume Module:

Base Vol: 3 351 80 137 650 26 23 48 7 11 15 44  
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 Initial Bse: 3 351 80 137 650 26 23 48 7 11 15 44  
 Added Vol: 0 2 0 0 20 0 0 0 0 0 0 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 3 353 80 137 670 26 23 48 7 11 15 44  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94  
 PHF Volume: 3 374 85 145 710 28 24 51 7 12 16 47  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 3 374 85 145 710 28 24 51 7 12 16 47  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 3 374 85 145 710 28 24 51 7 12 16 47  
 -----|-----|-----|-----|

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 0.93 0.93 0.83 0.93 0.93 0.93 0.93 0.96 0.96 0.93 0.87 0.87  
 Lanes: 1.00 2.00 1.00 1.00 1.93 0.07 1.00 0.87 0.13 1.00 0.25 0.75  
 Final Sat.: 1769 3538 1583 1769 3385 131 1769 1594 232 1769 420 1233  
 -----|-----|-----|-----|

## Capacity Analysis Module:

Vol/Sat: 0.00 0.11 0.05 0.08 0.21 0.21 0.01 0.03 0.03 0.01 0.04 0.04  
 Crit Moves: \*\*\*\* \*\*\*\* \*\*\*\* \*\*\*\*  
 Green/Cycle: 0.05 0.38 0.38 0.30 0.63 0.63 0.05 0.08 0.08 0.08 0.11 0.11  
 Volume/Cap: 0.04 0.28 0.14 0.28 0.33 0.33 0.28 0.39 0.39 0.08 0.33 0.33  
 Delay/Veh: 45.4 21.5 20.3 27.3 8.9 8.9 47.5 45.3 45.3 42.7 41.9 41.9  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 45.4 21.5 20.3 27.3 8.9 8.9 47.5 45.3 45.3 42.7 41.9 41.9  
 LOS by Move: D C C C A A D D D D D D  
 HCM2kAvgQ: 0 4 2 3 6 6 1 2 2 0 2 2  
 -----|-----|-----|-----|

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report  
Unknown Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #7 28th Street/I-5 southbound ramp  
\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	0	0	2	0	0	1	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	415	0	0	303	0	0	0	508	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	2	0	0	0	0	0	0	20	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module:	>> Population:0 << >> Run Speed(N/S): 30 MPH <<											
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.781
Loss Time (sec): 16 Average Delay (sec/veh): 33.7
Optimal Cycle: 82 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

## San Diego Sediment Project

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #9 I-5 northbound ramps/National Avenue  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.493  
 Loss Time (sec): 12 Average Delay (sec/veh): 18.6  
 Optimal Cycle: 60 Level Of Service: B

\*\*\*\*\*  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 -----|-----|-----|-----|  
 Control: Split Phase Split Phase Permitted Permitted  
 Rights: Include Include Ignore Include  
 Min. Green: 5 5 5 5 5 5 5 5 5 5 5 5  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 1 0 0 0 1 0 0 0 0 0 0 0 1 0 1 0 0 1 0 0  
 -----|-----|-----|-----|

Volume Module:  
 Base Vol: 304 0 79 0 0 0 0 0 236 19 0 450 0  
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 Initial Bse: 304 0 79 0 0 0 0 0 236 19 0 450 0  
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 304 0 79 0 0 0 0 0 236 19 0 450 0  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.00 0.95 0.95 0.95  
 PHF Volume: 319 0 83 0 0 0 0 0 247 0 0 472 0  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 319 0 83 0 0 0 0 0 247 0 0 472 0  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
 FinalVolume: 319 0 83 0 0 0 0 0 247 0 0 472 0  
 -----|-----|-----|-----|

Saturation Flow Module:  
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 0.93 1.00 0.83 1.00 1.00 1.00 1.00 0.98 1.00 1.00 0.98 1.00  
 Lanes: 1.00 0.00 1.00 0.00 0.00 0.00 0.00 1.00 1.00 0.00 1.00 0.00  
 Final Sat.: 1769 0 1583 0 0 0 0 0 1862 1900 0 1862 0  
 -----|-----|-----|-----|

Capacity Analysis Module:  
 Vol/Sat: 0.18 0.00 0.05 0.00 0.00 0.00 0.00 0.13 0.00 0.00 0.25 0.00  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.37 0.00 0.37 0.00 0.00 0.00 0.00 0.51 0.00 0.00 0.51 0.00  
 Volume/Cap: 0.49 0.00 0.14 0.00 0.00 0.00 0.00 0.26 0.00 0.00 0.49 0.00  
 Delay/Veh: 25.1 0.0 21.3 0.0 0.0 0.0 0.0 13.7 0.0 0.0 16.2 0.0  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 25.1 0.0 21.3 0.0 0.0 0.0 0.0 13.7 0.0 0.0 16.2 0.0  
 LOS by Move: C A C A A A A B A A B A  
 HCM2kAvgQ: 8 0 2 0 0 0 0 0 4 0 0 9 0  
 -----|-----|-----|-----|

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #10 I-5 southbound ramp/Boston Avenue
\*\*\*\*\*

Average Delay (sec/veh): 6.1 Worst Case Level Of Service: C[ 15.2]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns for various volume metrics like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns for gap metrics like Critical Gp, FollowUpTim.

Capacity Module: Table with 13 columns for capacity metrics like Cnflct Vol, Potent Cap., Move Cap., etc.

Level Of Service Module: Table with 13 columns for LOS metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*



## San Diego Sediment Project

## Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #13 Cleveland Street/24th Street  
\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.308
Loss Time (sec):	0	Average Delay (sec/veh):	8.9
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	1	0	0	1	0	1	0	1	0	1	0	1

## Volume Module:

Base Vol:	2	6	15	40	2	9	10	90	4	10	257	184
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	6	15	40	2	9	10	90	4	10	257	184
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	6	15	40	2	9	10	90	4	10	257	184
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	6	15	40	2	9	10	90	4	10	257	184
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	6	15	40	2	9	10	90	4	10	257	184
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2	6	15	40	2	9	10	90	4	10	257	184

## Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.29	0.71	1.00	1.00	1.00	0.19	1.73	0.08	0.04	1.14	0.82
Final Sat.:	536	180	450	526	567	637	130	1186	53	32	853	679

## Capacity Analysis Module:

Vol/Sat:	0.00	0.03	0.03	0.08	0.00	0.01	0.08	0.08	0.07	0.31	0.30	0.27
Crit Moves:	****			****			****			****		
Delay/Veh:	9.0	8.2	8.2	9.6	8.6	8.0	8.3	8.2	8.2	9.7	9.5	8.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.0	8.2	8.2	9.6	8.6	8.0	8.3	8.2	8.2	9.7	9.5	8.5
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:	8.2			9.3			8.3			9.1		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	8.2			9.3			8.3			9.1		
LOS by Appr:	A			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.4	0.4	0.4

Note: Queue reported is the number of cars per lane.

## San Diego Sediment Project

## Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #16 Tidelands Avenue/W. 32nd Street  
\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.066
Loss Time (sec):	0	Average Delay (sec/veh):	7.3
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign			
Rights:	Include			Include			Include			Include			
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5	
Lanes:	0	0	1	0	0	1	1	0	1	0	1	0	1

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	0	7	0	6	9	50	19	1	0	0	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	7	0	6	9	50	19	1	0	0	0	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	7	0	6	9	50	19	1	0	0	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	7	0	6	9	50	19	1	0	0	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	7	0	6	9	50	19	1	0	0	0	1
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	7	0	6	9	50	19	1	0	0	0	1

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	1.00	0.15	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	0	770	0	704	137	759	682	753	883	676	745	871

Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	xxxx	0.01	xxxx	0.01	0.07	0.07	0.03	0.00	0.00	0.00	0.00	0.00
Crit Moves:	****			****			****			****		
Delay/Veh:	0.0	7.7	0.0	7.8	7.0	7.0	8.1	7.4	0.0	0.0	0.0	6.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	7.7	0.0	7.8	7.0	7.0	8.1	7.4	0.0	0.0	0.0	6.8
LOS by Move:	*	A	*	A	A	A	A	A	*	*	*	A
ApproachDel:	7.7			7.1			8.0			6.8		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	7.7			7.1			8.0			6.8		
LOS by Appr:	A			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #29

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: A[ 0.0]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module:

Table with 13 columns showing critical gap and follow-up time data.

Capacity Module:

Table with 13 columns showing capacity-related metrics like Conflict Vol, Potent Cap., Move Cap., etc.

Level Of Service Module:

Table with 13 columns showing level of service details for 2Way95thQ, including control delay, LOS, and approach delay.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #30

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: A[ 0.0]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module:

Table with 13 columns for critical gap and follow-up time data.

Capacity Module:

Table with 13 columns for capacity-related metrics like Conflict Vol, Potent Cap., Move Cap., etc.

Level Of Service Module:

Table with 13 columns for level of service metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #48 32nd Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.462
Loss Time (sec): 16 Average Delay (sec/veh): 28.3
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 13 rows of volume-related metrics.

Saturation Flow Module table with 12 columns and 5 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 11 rows of capacity and delay analysis data.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #49 8th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.408
Loss Time (sec): 16 Average Delay (sec/veh): 24.3
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 12 rows of volume-related metrics like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

HCM Signalized Intersection Capacity Analysis  
 3: Civic Center Drive & Harbor Drive - McKinley Avenue

Existing + Project AM Peak Hour  
 5/12/2011



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations	↖		↕		↖	↕			↖	↕		↖
Volume (vph)	104	13	109	8	40	15	58	2	6	762	3	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0			4.0	4.0		4.0
Lane Util. Factor	1.00		0.95		1.00	1.00			1.00	0.95		0.95
Frt	1.00		0.99		1.00	0.88			1.00	1.00		0.85
Flt Protected	0.95		1.00		0.95	1.00			0.95	1.00		1.00
Satd. Flow (prot)	1770		3488		1770	1639			1770	1767		1504
Flt Permitted	0.51		0.92		0.66	1.00			0.95	1.00		1.00
Satd. Flow (perm)	947		3241		1235	1639			1770	1767		1504
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	112	14	117	9	43	16	62	2	6	819	3	44
RTOR Reduction (vph)	0	0	4	0	0	1	0	0	0	0	0	9
Lane Group Flow (vph)	112	0	136	0	43	79	0	0	6	826	0	31
Turn Type	pm+pt	Perm			pm+pt				Split			Perm
Protected Phases	7		4		3	8			2	2		
Permitted Phases	4	4			8							2
Actuated Green, G (s)	17.2		12.2		11.6	9.4			60.0	60.0		60.0
Effective Green, g (s)	17.2		12.2		11.6	9.4			60.0	60.0		60.0
Actuated g/C Ratio	0.16		0.11		0.11	0.09			0.55	0.55		0.55
Clearance Time (s)	4.0		4.0		4.0	4.0			4.0	4.0		4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0			3.0	3.0		3.0
Lane Grp Cap (vph)	188		365		143	142			981	979		833
v/s Ratio Prot	c0.03				0.01	0.05			0.00	c0.47		
v/s Ratio Perm	c0.07		0.04		0.03							0.02
v/c Ratio	0.60		0.37		0.30	0.56			0.01	0.84		0.04
Uniform Delay, d1	41.6		44.5		44.2	47.5			10.8	20.2		11.0
Progression Factor	1.00		1.00		1.00	1.00			1.00	1.00		1.00
Incremental Delay, d2	5.0		0.6		1.2	4.7			0.0	6.7		0.0
Delay (s)	46.6		45.2		45.4	52.1			10.8	27.0		11.0
Level of Service	D		D		D	D			B	C		B
Approach Delay (s)			45.8			49.8				26.1		
Approach LOS			D			D				C		

Intersection Summary				
HCM Average Control Delay		34.5	HCM Level of Service	C
HCM Volume to Capacity ratio		0.76		
Actuated Cycle Length (s)		108.3	Sum of lost time (s)	24.0
Intersection Capacity Utilization		66.9%	ICU Level of Service	C
Analysis Period (min)		15		
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis  
 3: Civic Center Drive & Harbor Drive - McKinley Avenue

Existing + Project AM Peak Hour  
 5/12/2011



Movement	SBL	SBT	SBR	SWL2	SWR
Lane Configurations	↖	↕	↗	↖	↗
Volume (vph)	28	78	28	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1583	1770	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	30	84	30	16	2
RTOR Reduction (vph)	0	0	28	0	0
Lane Group Flow (vph)	30	84	2	16	2
Turn Type	Split		Perm	Prot	custom
Protected Phases	6	6		1	
Permitted Phases			6		5
Actuated Green, G (s)	6.3	6.3	6.3	2.6	1.0
Effective Green, g (s)	6.3	6.3	6.3	2.6	1.0
Actuated g/C Ratio	0.06	0.06	0.06	0.02	0.01
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	103	206	92	42	15
v/s Ratio Prot	0.02	c0.02		c0.01	
v/s Ratio Perm			0.00		c0.00
v/c Ratio	0.29	0.41	0.02	0.38	0.13
Uniform Delay, d1	48.9	49.2	48.1	52.1	53.2
Progression Factor	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	1.3	0.1	5.7	4.0
Delay (s)	50.4	50.5	48.2	57.7	57.2
Level of Service	D	D	D	E	E
Approach Delay (s)		50.0			
Approach LOS		D			

Intersection Summary



San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
 Intersection #1 Park Boulevard/Harbor Drive  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.425  
 Loss Time (sec): 12 Average Delay (sec/veh): 13.9  
 Optimal Cycle: 60 Level Of Service: B  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound						
Movement:	L	T	R	L	T	R	L	T	R	L	T	R				
Control:	Protected			Protected			Protected			Protected						
Rights:	Include			Include			Include			Include						
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	1	0	1	0	0	0	1	0	2	0	1	1	0	2	0	0

Volume Module:

Base Vol:	96	0	52	0	0	0	6	912	91	50	356	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	96	0	52	0	0	0	6	912	91	50	356	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	96	0	52	0	0	0	6	912	91	50	356	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	104	0	56	0	0	0	7	989	99	54	386	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	104	0	56	0	0	0	7	989	99	54	386	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	104	0	56	0	0	0	7	989	99	54	386	0

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	1.00	0.90	1.00	1.00	1.00	0.93	0.93	0.83	0.93	0.93	1.00
Lanes:	1.48	0.00	0.52	0.00	0.00	0.00	1.00	2.00	1.00	1.00	2.00	0.00
Final Sat.:	2529	0	888	0	0	0	1769	3538	1583	1769	3538	0

Capacity Analysis Module:

Vol/Sat:	0.04	0.00	0.06	0.00	0.00	0.00	0.00	0.28	0.06	0.03	0.11	0.00
Crit Moves:	****						****			****		
Green/Cycle:	0.10	0.00	0.15	0.00	0.00	0.00	0.23	0.66	0.66	0.07	0.50	0.00
Volume/Cap:	0.41	0.00	0.42	0.00	0.00	0.00	0.02	0.42	0.09	0.42	0.22	0.00
Delay/Veh:	43.0	0.0	39.4	0.0	0.0	0.0	29.8	8.2	6.3	46.7	14.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	43.0	0.0	39.4	0.0	0.0	0.0	29.8	8.2	6.3	46.7	14.0	0.0
LOS by Move:	D	A	D	A	A	A	C	A	A	D	B	A
HCM2kAvgQ:	3	0	3	0	0	0	0	8	1	2	3	0

Note: Queue reported is the number of cars per lane.

## San Diego Sediment Project

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #2 Cesar Chavez Parkway/Harbor Drive  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.457  
 Loss Time (sec): 16 Average Delay (sec/veh): 26.4  
 Optimal Cycle: 60 Level Of Service: C

\*\*\*\*\*  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Protected Protected Protected Protected  
 Rights: Include Include Include Include  
 Min. Green: 5 5 5 5 5 5 5 5 5 5 5 5  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 1 0 0 1 0 0 1 0 0 1 0 1 0 1 1 0  
 \*\*\*\*\*

Volume Module:  
 Base Vol: 21 77 34 46 36 158 346 670 10 11 118 20  
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 Initial Bse: 21 77 34 46 36 158 346 670 10 11 118 20  
 Added Vol: 0 0 44 0 0 0 0 0 0 15 0 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 21 77 78 46 36 158 346 670 10 26 118 20  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90  
 PHF Volume: 23 85 86 51 40 175 383 741 11 29 131 22  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 23 85 86 51 40 175 383 741 11 29 131 22  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 23 85 86 51 40 175 383 741 11 29 131 22  
 \*\*\*\*\*

Saturation Flow Module:  
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 0.93 0.91 0.91 0.95 0.95 0.83 0.93 0.93 0.93 0.93 0.91 0.91  
 Lanes: 1.00 0.50 0.50 0.56 0.44 1.00 1.00 1.97 0.03 1.00 1.71 0.29  
 Final Sat.: 1769 856 867 1016 795 1583 1769 3479 52 1769 2959 501  
 \*\*\*\*\*

Capacity Analysis Module:  
 Vol/Sat: 0.01 0.10 0.10 0.05 0.05 0.11 0.22 0.21 0.21 0.02 0.04 0.04  
 Crit Moves: \*\*\*\* \*\*\*\* \*\*\*\*  
 Green/Cycle: 0.05 0.19 0.19 0.10 0.24 0.24 0.46 0.45 0.45 0.11 0.09 0.09  
 Volume/Cap: 0.26 0.52 0.52 0.52 0.21 0.47 0.47 0.47 0.47 0.15 0.47 0.47  
 Delay/Veh: 47.3 38.0 38.0 46.0 31.0 33.8 19.0 19.5 19.5 41.1 44.0 44.0  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 47.3 38.0 38.0 46.0 31.0 33.8 19.0 19.5 19.5 41.1 44.0 44.0  
 LOS by Move: D D D D C C B B B D D D  
 HCM2kAvgQ: 1 5 5 3 2 5 8 8 8 1 2 2  
 \*\*\*\*\*

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Sampson Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.339
Loss Time (sec): 16 Average Delay (sec/veh): 17.0
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 28th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.393
Loss Time (sec): 16 Average Delay (sec/veh): 22.4
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Protected), Rights (Include), Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns for each approach and 13 rows for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module table with 12 columns for each approach and 4 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns for each approach and 10 rows for Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

## San Diego Sediment Project

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #5 28th Street/Main Street  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.629  
 Loss Time (sec): 16 Average Delay (sec/veh): 33.3  
 Optimal Cycle: 60 Level Of Service: C

\*\*\*\*\*  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Protected Protected Protected Protected  
 Rights: Include Include Include Include  
 Min. Green: 5 5 5 5 5 5 5 5 5 5 5 5  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0  
 \*\*\*\*\*

Volume Module:  
 Base Vol: 20 438 112 295 312 43 96 177 32 42 89 170  
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 Initial Bse: 20 438 112 295 312 43 96 177 32 42 89 170  
 Added Vol: 0 20 0 0 2 0 0 0 0 0 0 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 20 458 112 295 314 43 96 177 32 42 89 170  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93  
 PHF Volume: 21 490 120 316 336 46 103 190 34 45 95 182  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 21 490 120 316 336 46 103 190 34 45 95 182  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 21 490 120 316 336 46 103 190 34 45 95 182  
 \*\*\*\*\*

Saturation Flow Module:  
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 0.93 0.90 0.90 0.93 0.91 0.91 0.93 0.91 0.91 0.93 0.84 0.84  
 Lanes: 1.00 1.61 0.39 1.00 1.76 0.24 1.00 1.69 0.31 1.00 1.00 1.00  
 Final Sat.: 1769 2760 675 1769 3056 418 1769 2927 529 1769 1596 1596  
 \*\*\*\*\*

Capacity Analysis Module:  
 Vol/Sat: 0.01 0.18 0.18 0.18 0.11 0.11 0.06 0.06 0.06 0.03 0.06 0.11  
 Crit Moves: \*\*\*\* \*\*\*\* \*\*\*\* \*\*\*\*  
 Green/Cycle: 0.18 0.28 0.28 0.28 0.39 0.39 0.09 0.15 0.15 0.12 0.18 0.18  
 Volume/Cap: 0.07 0.63 0.63 0.63 0.28 0.28 0.63 0.42 0.42 0.21 0.33 0.63  
 Delay/Veh: 34.4 32.6 32.6 33.8 21.1 21.1 51.3 38.8 38.8 40.3 35.9 40.7  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 34.4 32.6 32.6 33.8 21.1 21.1 51.3 38.8 38.8 40.3 35.9 40.7  
 LOS by Move: C C C C C C D D D D D D  
 HCM2kAvgQ: 1 9 9 8 4 4 4 4 4 1 3 6  
 \*\*\*\*\*

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 28th Street/Boston Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.485
Loss Time (sec): 16 Average Delay (sec/veh): 25.9
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 12 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module table with 12 columns and 4 rows of saturation flow data.

Capacity Analysis Module table with 12 columns and 10 rows of capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #7 28th Street/I-5 southbound ramp

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Lanes, Volume Module, Capacity Module, and Level Of Service Module.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 28th Street/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.731
Loss Time (sec): 16 Average Delay (sec/veh): 31.3
Optimal Cycle: 74 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with 12 columns and 15 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with 12 columns and 4 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 10 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.



San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 I-5 northbound ramps/National Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.526
Loss Time (sec): 12 Average Delay (sec/veh): 18.8
Optimal Cycle: 60 Level Of Service: B

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Split Phase, Permitted), Rights (Include, Ignore), and Min. Green values.

Volume Module table showing Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume for each approach.

Saturation Flow Module table showing Sat/Lane, Adjustment, Lanes, and Final Sat. values for each approach.

Capacity Analysis Module table showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ values.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 I-5 southbound ramp/Boston Avenue

Average Delay (sec/veh): 10.6 Worst Case Level Of Service: E[ 49.2]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module table with 13 columns for gap and follow-up times.

Capacity Module table with 13 columns for conflict, potent, move, and volume/capacity.

Level Of Service Module table with 13 columns for delay, LOS, shared capacity, and approach delay.

Note: Queue reported is the number of cars per lane.

## San Diego Sediment Project

## Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #13 Cleveland Street/24th Street  
\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.323
Loss Time (sec):	0	Average Delay (sec/veh):	10.0
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	1	0	0	1	0	0	0	1	0	0	1	0

## Volume Module:

Base Vol:	2	2	27	173	3	8	7	311	4	28	95	36
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	2	27	173	3	8	7	311	4	28	95	36
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	2	27	173	3	8	7	311	4	28	95	36
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	2	27	173	3	8	7	311	4	28	95	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	2	27	173	3	8	7	311	4	28	95	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2	2	27	173	3	8	7	311	4	28	95	36

## Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.07	0.93	1.00	1.00	1.00	0.04	1.94	0.02	0.35	1.20	0.45
Final Sat.:	517	43	578	535	574	646	28	1255	16	213	752	298

## Capacity Analysis Module:

Vol/Sat:	0.00	0.05	0.05	0.32	0.01	0.01	0.25	0.25	0.25	0.13	0.13	0.12
Crit Moves:	****			****			****			****		
Delay/Veh:	9.2	8.3	8.3	12.0	8.6	8.0	9.8	9.8	9.7	9.3	9.0	8.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.2	8.3	8.3	12.0	8.6	8.0	9.8	9.8	9.7	9.3	9.0	8.6
LOS by Move:	A	A	A	B	A	A	A	A	A	A	A	A
ApproachDel:	8.3			11.7			9.8			8.9		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	8.3			11.7			9.8			8.9		
LOS by Appr:	A			B			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.4	0.0	0.0	0.3	0.3	0.3	0.1	0.1	0.1

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #16 Tidelands Avenue/W. 32nd Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.096
Loss Time (sec): 0 Average Delay (sec/veh): 8.0
Optimal Cycle: 0 Level Of Service: A

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L, T, R), Control (Stop Sign), Rights (Include), Min. Green (5, 5, 5), and Lanes (0 0 1 0 0).

Volume Module table with 12 columns and 15 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module table with 12 columns and 3 rows including Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 12 rows including Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #29

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: A[ 0.0]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns representing different volume metrics like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module:

Table with 13 columns for Critical Gap and FollowUpTim.

Capacity Module:

Table with 13 columns for Capacity metrics like Cnflict Vol, Potent Cap., etc.

Level Of Service Module:

Table with 13 columns for Level Of Service metrics like 2Way95thQ, Control Del, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #30
\*\*\*\*\*

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: A[ 0.0]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns for critical gap and follow-up time data.

Capacity Module: Table with 13 columns for capacity-related metrics like Cnflct Vol, Potent Cap., etc.

Level Of Service Module: Table with 13 columns for LOS-related metrics like 2Way95thQ, Control Del, etc.

Note: Queue reported is the number of cars per lane.

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #48 32nd Street/Harbor Drive
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.676
Loss Time (sec): 16 Average Delay (sec/veh): 34.4
Optimal Cycle: 66 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

San Diego Sediment Project

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #49 8th Street/Harbor Drive

Cycle (sec): 100 Critical Vol./Cap. (X): 0.551
Loss Time (sec): 16 Average Delay (sec/veh): 27.3
Optimal Cycle: 60 Level Of Service: C

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control (Protected/Ignore), Rights (Include/Ignore), Min. Green, Y+R, and Lanes.

Volume Module table showing Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across all approaches.

Saturation Flow Module table showing Sat/Lane, Adjustment, Lanes, and Final Sat. for each approach.

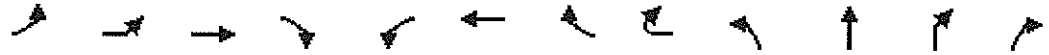
Capacity Analysis Module table showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ for each approach.

Note: Queue reported is the number of cars per lane.



HCM Signalized Intersection Capacity Analysis  
 3: Civic Center Drive & Harbor Drive - McKinley Avenue

Existing + Project PM Peak Hour  
 5/12/2011



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations	↖		↕		↖	↗			↖	↗		↗
Volume (vph)	34	3	187	26	115	10	6	3	6	134	2	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0			4.0	4.0		4.0
Lane Util. Factor	1.00		0.95		1.00	1.00			1.00	0.95		0.95
Frt	1.00		0.98		1.00	0.93			1.00	0.99		0.85
Flt Protected	0.95		1.00		0.95	1.00			0.95	1.00		1.00
Satd. Flow (prot)	1770		3472		1770	1730			1770	1751		1504
Flt Permitted	0.73		0.95		0.59	1.00			0.95	1.00		1.00
Satd. Flow (perm)	1365		3311		1104	1730			1770	1751		1504
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	37	3	205	29	126	11	7	3	7	147	2	85
RTOR Reduction (vph)	0	0	10	0	0	2	0	0	0	2	0	65
Lane Group Flow (vph)	37	0	227	0	126	19	0	0	7	156	0	11
Turn Type	pm+pt	Perm			pm+pt				Split			Perm
Protected Phases	7		4		3	8			2	2		
Permitted Phases	4	4			8							2
Actuated Green, G (s)	17.9		13.5		17.5	13.3			11.0	11.0		11.0
Effective Green, g (s)	17.9		13.5		17.5	13.3			11.0	11.0		11.0
Actuated g/C Ratio	0.24		0.18		0.24	0.18			0.15	0.15		0.15
Clearance Time (s)	4.0		4.0		4.0	4.0			4.0	4.0		4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0			3.0	3.0		3.0
Lane Grp Cap (vph)	357		609		301	313			265	262		225
v/s Ratio Prot	0.01				c0.02	0.01			0.00	c0.09		
v/s Ratio Perm	0.02		0.07		c0.08							0.01
v/c Ratio	0.10		0.37		0.42	0.06			0.03	0.60		0.05
Uniform Delay, d1	21.4		26.2		22.9	24.9			26.6	29.1		26.7
Progression Factor	1.00		1.00		1.00	1.00			1.00	1.00		1.00
Incremental Delay, d2	0.1		0.4		0.9	0.1			0.0	3.6		0.1
Delay (s)	21.6		26.6		23.9	25.0			26.7	32.8		26.8
Level of Service	C		C		C	C			C	C		C
Approach Delay (s)			25.9			24.0				30.7		
Approach LOS			C			C				C		

Intersection Summary

HCM Average Control Delay	37.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	73.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
 3: Civic Center Drive & Harbor Drive - McKinley Avenue

Existing + Project PM Peak Hour  
 5/12/2011



Movement	SBL	SBT	SBR	SWL2	SWR	SWR2
Lane Configurations						
Volume (vph)	52	789	93	6	6	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1583	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	57	867	102	7	7	1
RTOR Reduction (vph)	0	0	72	0	1	0
Lane Group Flow (vph)	57	867	30	7	7	0
Turn Type	Split		Perm	Prot	custom	
Protected Phases	6	6		1		
Permitted Phases			6		5	
Actuated Green, G (s)	18.7	18.7	18.7	1.0	1.0	
Effective Green, g (s)	18.7	18.7	18.7	1.0	1.0	
Actuated g/C Ratio	0.25	0.25	0.25	0.01	0.01	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	451	902	403	24	22	
v/s Ratio Prot	0.03	c0.24		c0.00		
v/s Ratio Perm			0.02		c0.00	
v/c Ratio	0.13	0.96	0.08	0.29	0.32	
Uniform Delay, d1	21.1	27.0	20.8	35.8	35.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	21.0	0.1	6.7	8.2	
Delay (s)	21.2	48.0	20.9	42.5	44.1	
Level of Service	C	D	C	D	D	
Approach Delay (s)		43.8				
Approach LOS		D				

Intersection Summary

**APPENDIX TO TRAFFIC IMPACT ANALYSIS  
TABLES**

**September 15, 2011**

**Table A: Existing Plus Project ILV Summary**

		AM Peak Hour		PM Peak Hour	
		ILV/HR	Capacity	ILV/HR	Capacity
<b>Existing</b>					
9	I-5 Northbound Off-Ramp/National Avenue	754	Under	799	Under
11	I-5 Northbound Ramps/24th Street	1,352	Near	1,071	Under
12	I-5 Southbound Ramps/24th Street	584	Under	864	Under
<b>Existing Plus Project (Staging Areas 1 &amp; 2)</b>					
9	I-5 Northbound Off-Ramp/National Avenue	778	Under	812	Under
<b>Existing Plus Project (Staging Area 3)</b>					
9	I-5 Northbound Off-Ramp/National Avenue	778	Under	812	Under
<b>Existing Plus Project (Staging Area 4)</b>					
9	I-5 Northbound Off-Ramp/National Avenue	778	Under	812	Under
<b>Existing Plus Project (Staging Area 5)</b>					
11	I-5 Northbound Ramps/24th Street	1,352	Near	1,071	Under
12	I-5 Southbound Ramps/24th Street	600	Under	870	Under

ILV = Intersection Lane Vehicles

HR = Hour

Capacity shown as Under (less than 1,200 ILV/hr), Near (1,200 to 1,500 ILV/hr), or Over (greater than 1,500 ILV/hr)

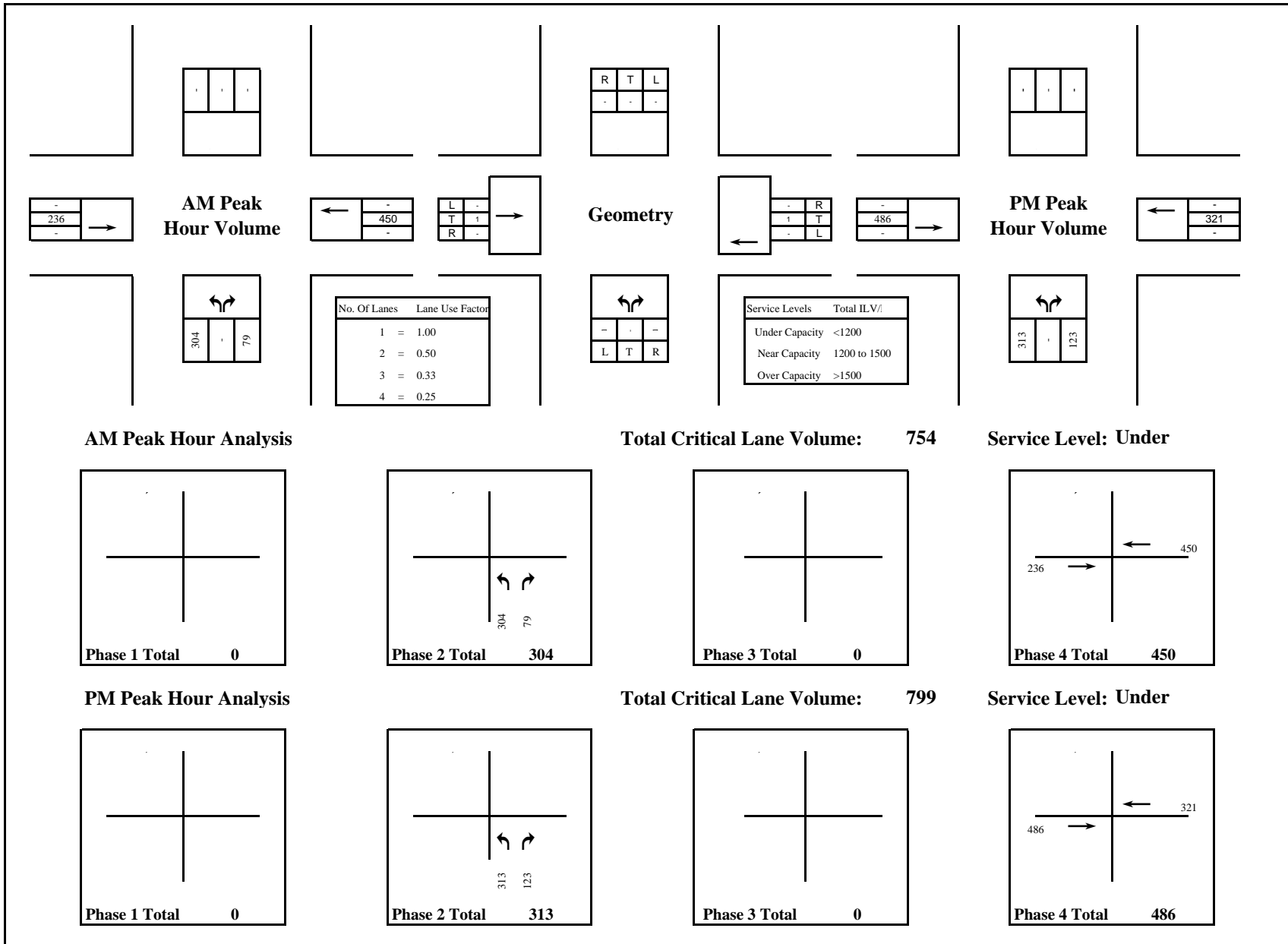


FIGURE 1

L S A

Shipyards Sediment Remediation Project  
 Existing ILV Calculations  
 I-5 Northbound Off-Ramp/National Avenue

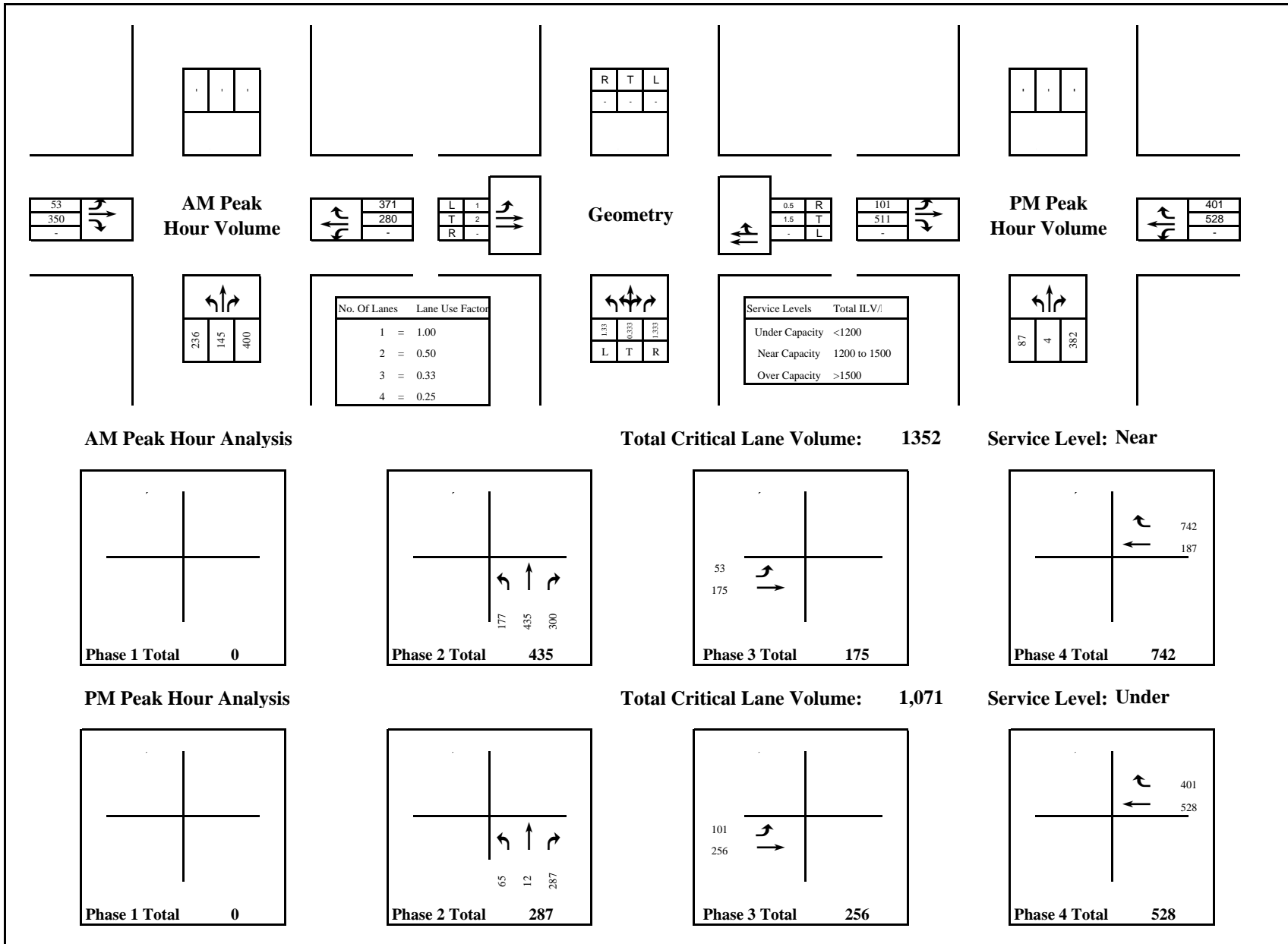


FIGURE 2

L S A

Shipyards Sediment Remediation Project  
Existing ILV Calculations  
I-5 Northbound Ramps/24th Street

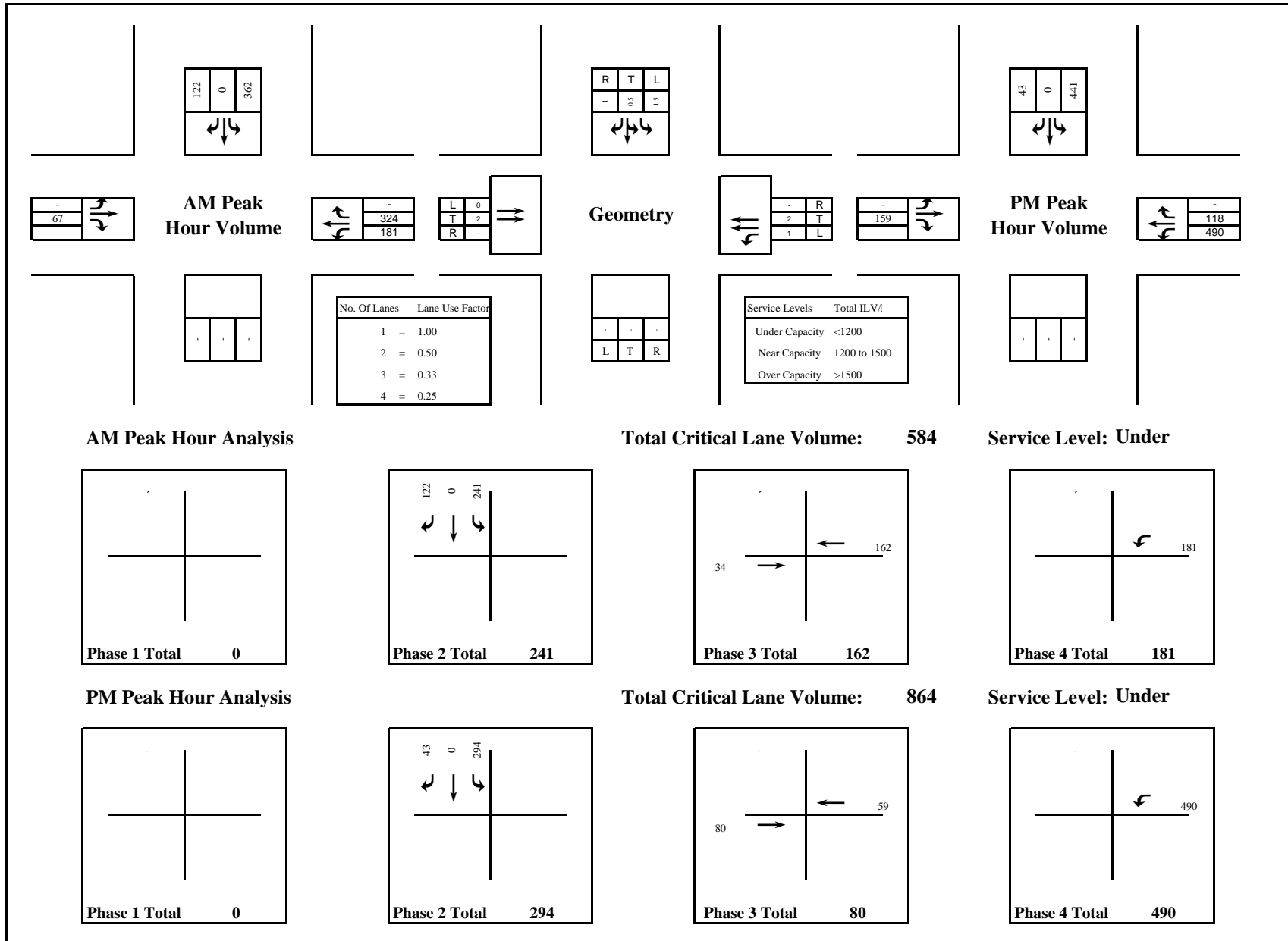


FIGURE 3

L S A

Shipyard Sediment Remediation Project  
Existing ILV Calculations  
I-5 Southbound Ramps/24th Street

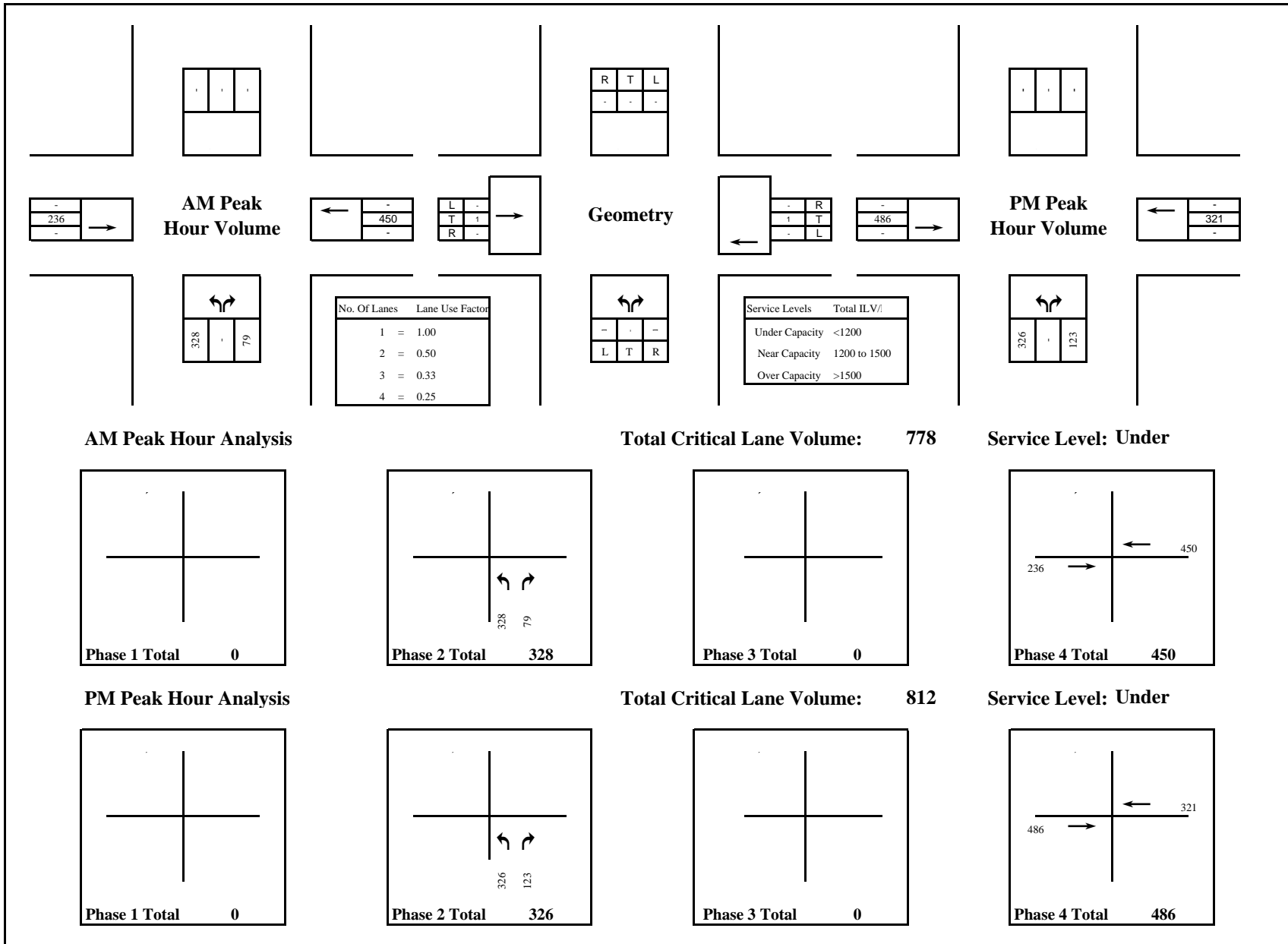


FIGURE 4

L S A

Shipyards Sediment Remediation Project  
 Existing Plus Project (Staging Areas 1 & 2) ILV Calculations  
 I-5 Northbound Off-Ramp/National Avenue



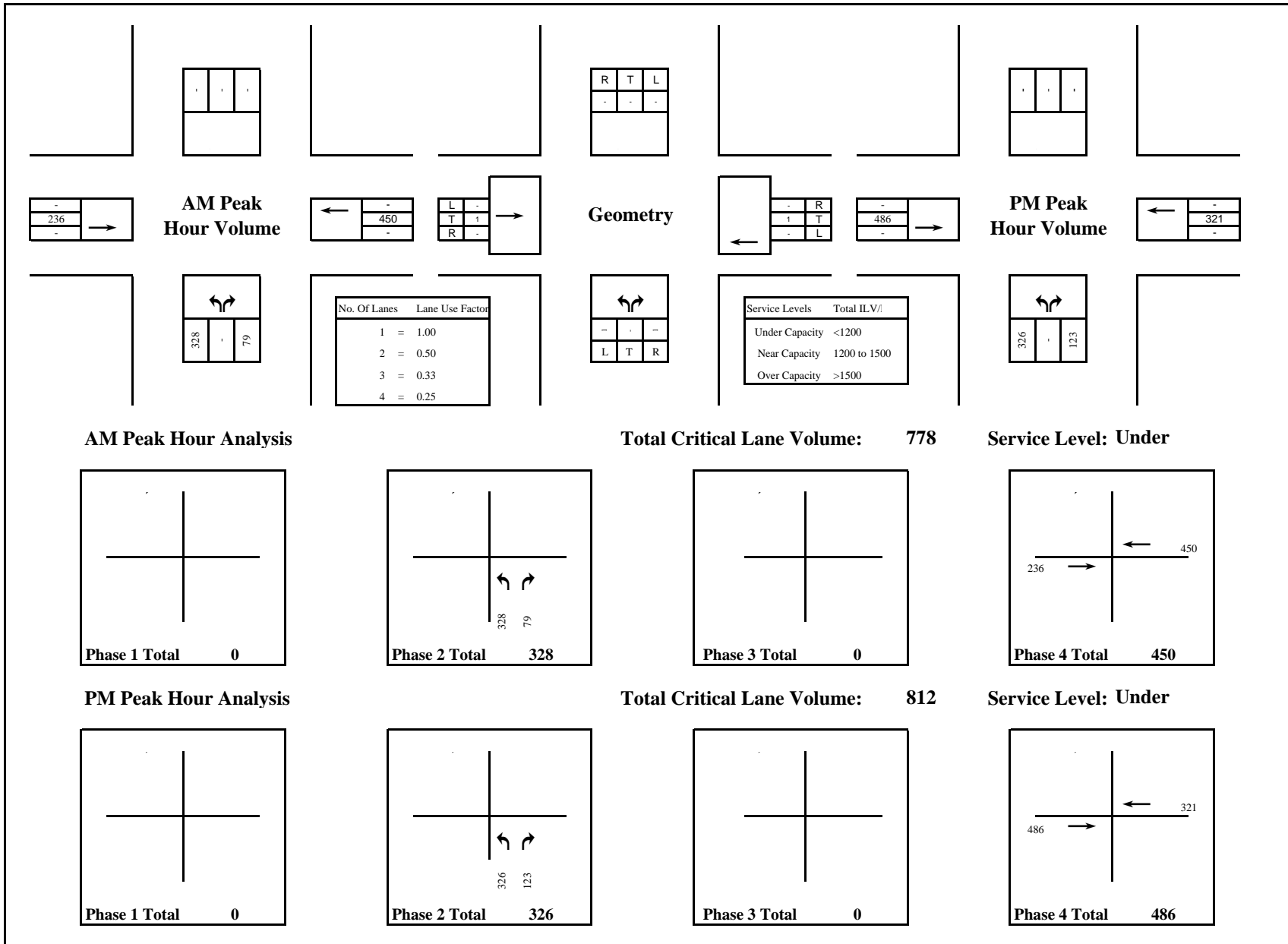


FIGURE 5

L S A

Shipyards Sediment Remediation Project  
 Existing Plus Project (Staging Area 3) ILV Calculations  
 I-5 Northbound Off-Ramp/National Avenue

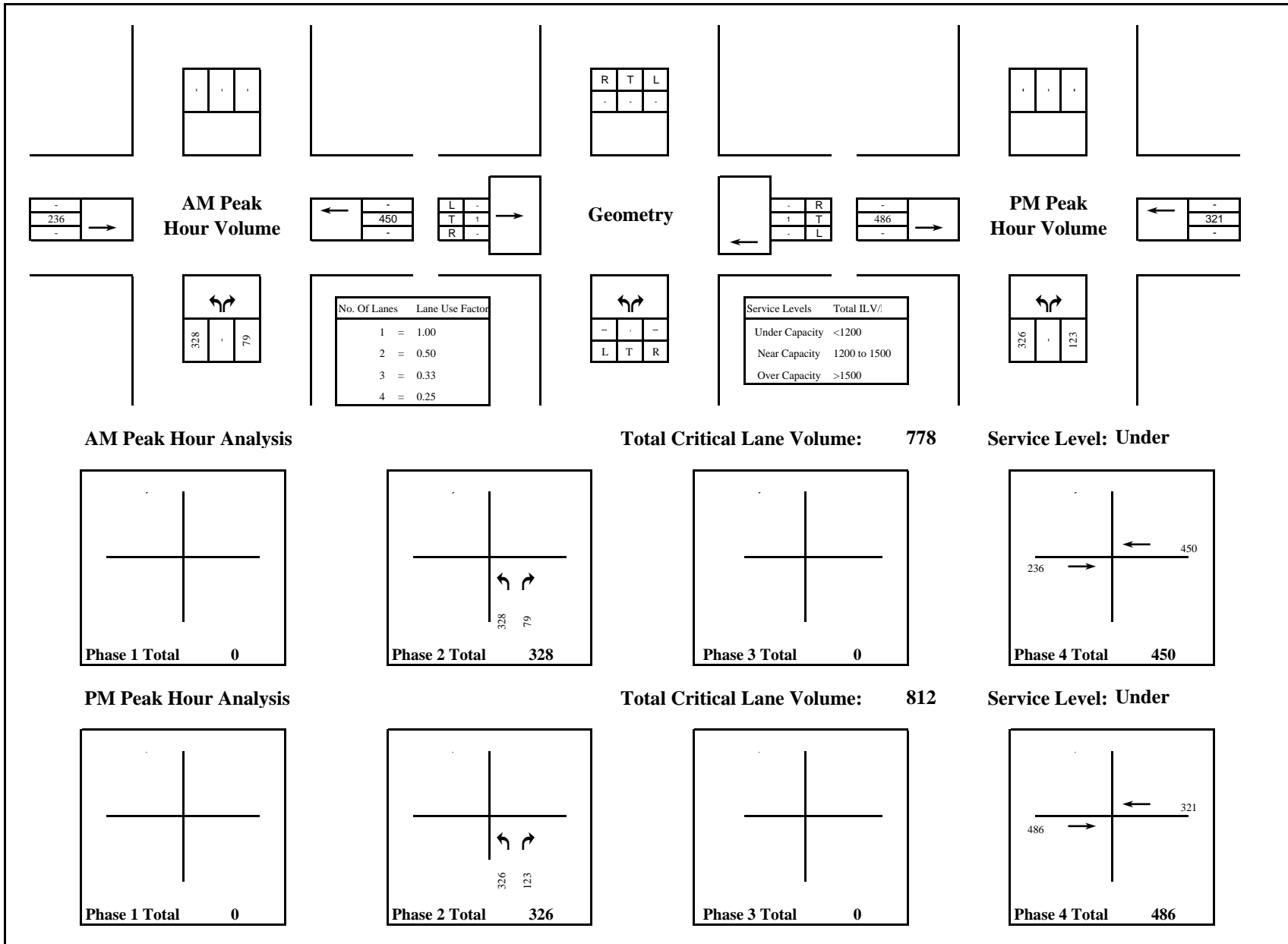


FIGURE 6

L S A

Shipyards Sediment Remediation Project  
 Existing Plus Project (Staging Area 4) ILV Calculations  
 I-5 Northbound Off-Ramp/National Avenue

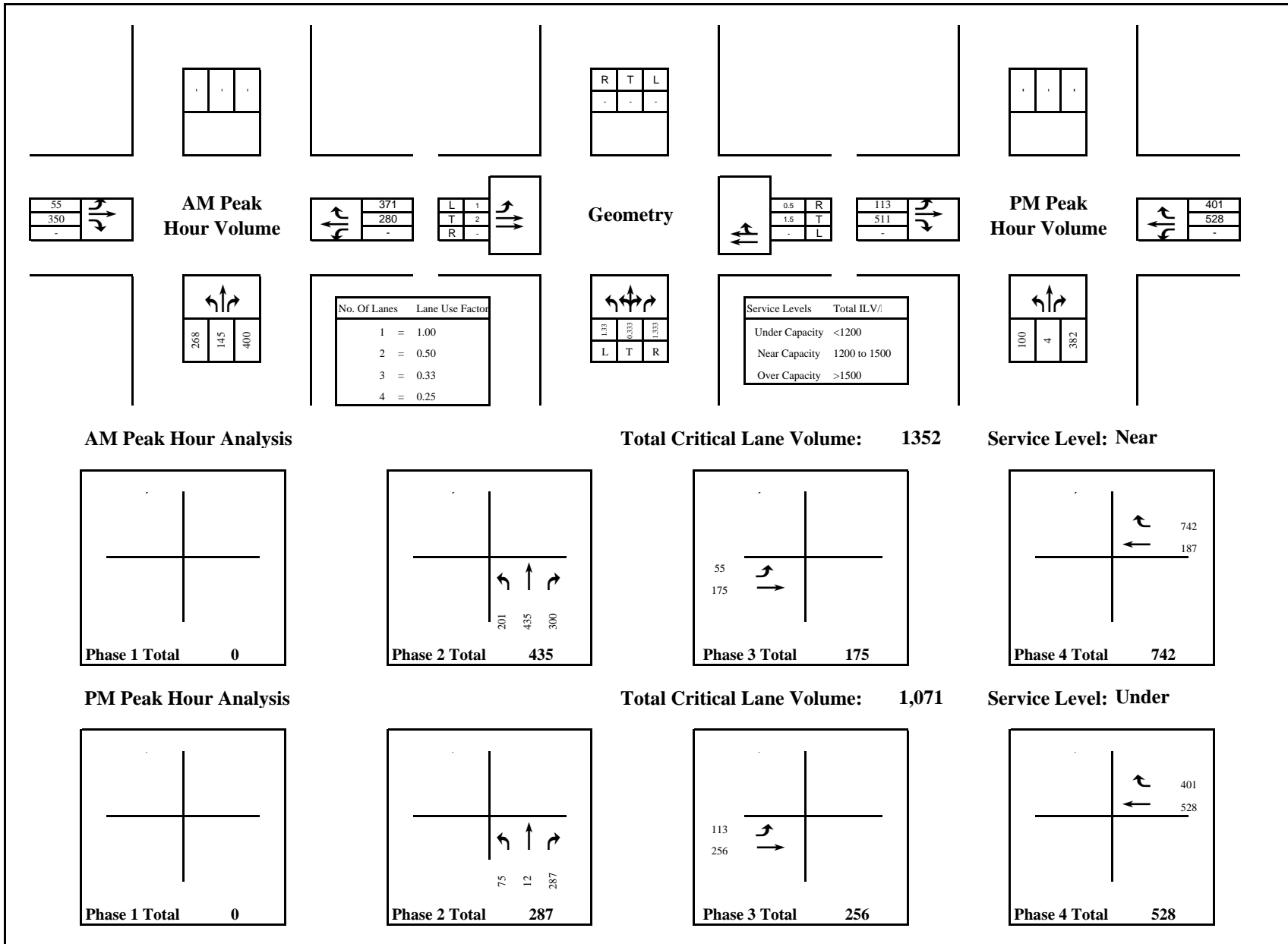


FIGURE 7

L S A

Shipyards Sediment Remediation Project  
 Existing Plus Project (Staging Area 5) ILV Calculations  
 I-5 Northbound Ramps/24th Street

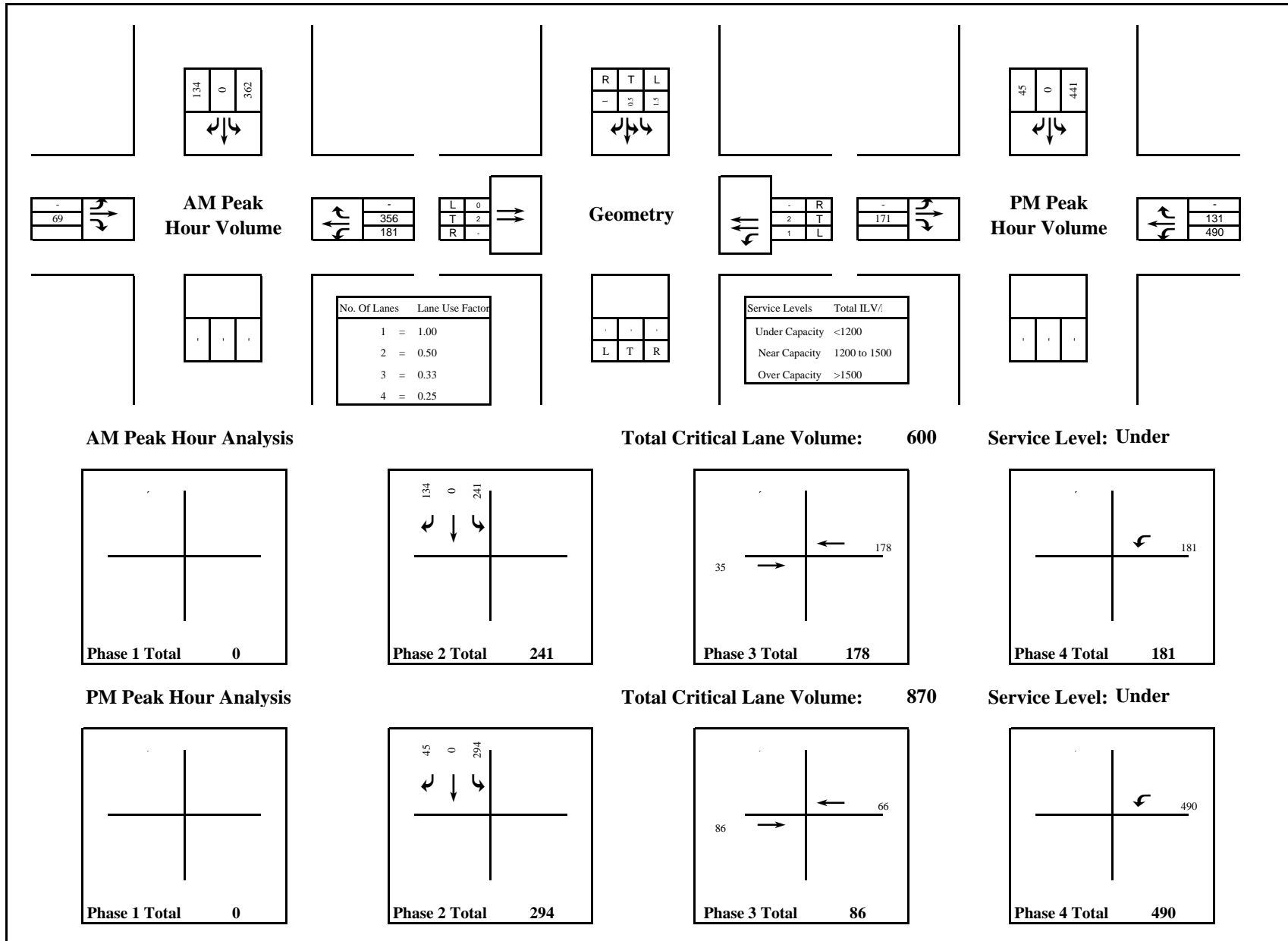


FIGURE 8

L S A

Shipyards Sediment Remediation Project  
Existing Plus Project (Staging Area 5) ILV Calculations  
I-5 Southbound Ramps/24th Street

**Table F: Construction Emissions by Task (lbs/day)**

Task	CO	ROCs	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Debris and Pile Removal	53.8	8.2	148.4	5.2	5.4	4.7	10,846.8
Dredging of Project Site	70.0	14.6	340.7	8.6	11.3	10.3	15,171.9
Landside Staging Area, Pad Construction	83.2	14.3	163.8	20.3	8.7	7.6	14,045.8
Landside Staging Area, Operations	168.6	22.4	333.8	7.7	12.6	11.0	36,201.1
Covering of Sediment Near Structures	42.8	7.1	128.8	3.9	4.7	4.3	8,393.6

Source: LSA Associates, Inc., March 2011.

CO = carbon monoxide      PM<sub>10</sub> = particulate matter less than 10 microns in size  
CO<sub>2</sub> = carbon dioxide      PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size  
lbs/day = pounds per day      ROCs = reactive organic compounds  
NO<sub>x</sub> = nitrogen oxides      SO<sub>x</sub> = sulfur oxides

**Table G: Peak Daily Construction Emissions (lbs/day)**

Activity	CO	ROCs	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Pad Construction	83.2	14.3	163.8	20.3	8.7	7.6	14,045.8
Dredging/Landside Operations	335.2	52.3	951.7	25.4	34.0	30.3	70,613.4
San Diego Emissions Threshold <sup>1</sup>	<b>550</b>	<b>137</b>	<b>250</b>	<b>250</b>	<b>100</b>	NA <sup>2</sup>	NA
Exceed Significance?	NO	NO	YES	NO	NO	NO	NA

Source: LSA Associates, Inc., March 2011.

<sup>1</sup> Bold face numbers indicate emissions exceeding San Diego City emissions threshold.

<sup>2</sup> No threshold has been established.

CO = carbon monoxide      PM<sub>10</sub> = particulate matter less than 10 microns in size  
CO<sub>2</sub> = carbon dioxide      PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size  
lbs/day = pounds per day      ROCs = reactive organic compounds  
NO<sub>x</sub> = nitrogen oxides      SO<sub>x</sub> = sulfur oxides