Appendix J

Traffic Analysis

LINSCOTT
LAW &
GREENSPAN
engineers

DRAFT TRAFFIC IMPACT ANALYSIS

LONG BEACH MEMORIAL MEDICAL CENTER EXPANSION

Long Beach, California
December 17, 2004

Prepared for:

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DRAFT TRAFFIC IMPACT ANALYSIS

LONG BEACH MEMORIAL MEDICAL CENTER EXPANSION

Long Beach, California
December 17, 2004

1.0 INTRODUCTION

This Traffic Impact Analysis Report addresses the potential traffic impacts associated with the Long Beach Memorial Medical Center Expansion project (proposed project) in the City of Long Beach, California. The Long Beach Memorial Medical Center campus is bounded by Long Beach Boulevard on the west, Atlantic Avenue on the east, Spring Street on the north, and Willow Street roughly on the south. The Long Beach Memorial Medical Center campus is served via Pasadena Avenue, 29th Street, Columbia Street, 28th Street, and 27th Street. The main entrance, served via two gate-controlled driveways at Long Beach Boulevard and Atlantic Avenue is for patients, visitors, employee/staff, and doctors.

The proposed project involves the development of an 83,630 square-foot (SF) Todd Cancer Institute building, a 72-Bed Miller Children Hospital Pediatric Inpatient Tower, and an 80,000 SF Miller Children Hospital Outpatient Tower for Phase I to be completed by Year 2008. Phase II consists of a 42,300 SF Todd Cancer Institute building and a 92-Bed Miller Children Hospital Pediatric Inpatient Tower to be completed by Year 2014.

This report documents the findings of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential impacts associated with the Long Beach Memorial Medical Center Expansion project. The traffic analysis evaluates the existing operating conditions at twenty-eight (28) intersections within the project vicinity, estimates the trip generation potential of the proposed project, and forecasts future intersection operating conditions at completion and occupancy of the project. Where necessary, intersection improvements/mitigation measures are identified. Further, an evaluation of the project's parking needs is provided based on the City of Long Beach off-street parking code.

The traffic report satisfies the traffic impact requirements of the City of Long Beach and is consistent with the *2004 Congestion Management Program (CMP) for Los Angeles County.* The Scope of Work for this report has been developed in coordination with City of Long Beach staff.

The project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing peak hour traffic information has been collected at twenty-eight (28) study locations on a "typical" weekday for use in the preparation of intersection level of service calculations.

Information concerning cumulative projects (planned and/or approved) in the vicinity of the project has been researched at the City of Long Beach and City of Signal Hill. Based on our research, there

are forty-three (43) planned and/or approved related projects within the study area; thirty-three (33) in the City of Long Beach and ten (10) in the City of Signal Hill. These related projects were considered in the cumulative traffic analysis for this project.

1.1 Study Area

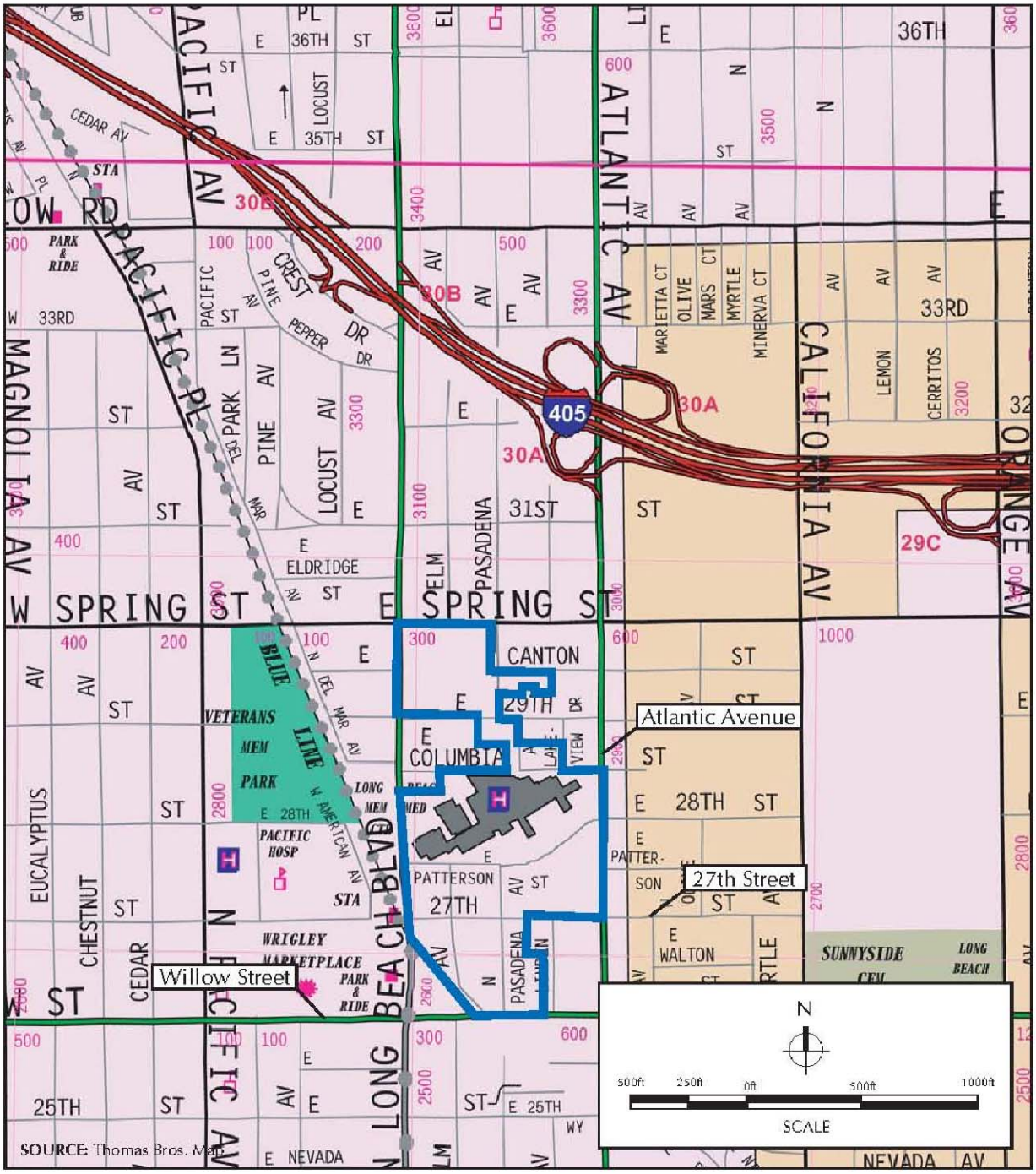
The 28 key area intersections selected for evaluation in this report provide both regional and local access to the study area. They consist of the following:

1) Atlantic Avenue/Spring Street
2) Atlantic Avenue/East 29th Street
3) Atlantic Avenue/Columbia Street
4) Atlantic Ave./Memorial Med. Center-28th St.
5) Atlantic Avenue/East Patterson Street
6) Atlantic Avenue/27th Street
7) Atlantic Avenue/Willow Street
8) Pasadena Avenue/Willow Street
9) Long Beach Boulevard/Willow Street
10) Long Beach Boulevard/27th Street
11) Long Beach Boulevard/Memorial Med. Center
12) Long Beach Boulevard/Columbia Street
13) Long Beach Boulevard/Spring Street
14) Atlantic Avenue/Wardlow Road
15) Atlantic Avenue/I405 SB Ramps
16) Atlantic Avenue/Hill Street
17) California Avenue/Spring Street
18) California Avenue/Willow Street
19) Orange Avenue/Spring Street
20) Orange Avenue/Willow Street
21) Long Beach Boulevard/Wardlow Road
22) Long Beach Boulevard/I-405 NB Ramp
23) I-405 SB Ramps/Crest Drive
24) Long Beach Boulevard/Crest Drive
25) Long Beach Boulevard/Hill Street
26) Pacific Avenue/Spring Street
27) Pacific Avenue/Willow Street
28) Pasadena Avenue/Spring Street

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the project and the surrounding street system.

Level of Service (LOS) calculations for the AM and PM peak hours at these 28 study intersections were performed to evaluate the future potential traffic impacts associated with anticipated area growth, related projects, and the proposed Long Beach Memorial Medical Center Expansion project. Included in this traffic and parking analysis are:

- Existing traffic counts,
- Estimated project traffic generation/distribution/assignment,
- Estimated cumulative project traffic generation/distribution/assignment,
- AM and PM peak hour capacity analyses for existing conditions (Year 2004)
- AM and PM peak hour capacity analyses for future (Year 2008 & 2014) conditions without and with project traffic,
- Recommended project-specific mitigation measures,
- Congestion Management Program Compliance Assessment, and
- Parking Analysis.



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Long Beach Memorial Medical Center Campus Boundary

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FIGURE 1-1

VICINITY MAP

LONG BEACH MEMORIAL MEDICAL CENTER

2.0 PROJECT DESCRIPTION

The Long Beach Memorial Medical Center campus (Campus) is located at 2801 Atlantic Avenue in the City of Long Beach, less than a mile south of the I-405 Freeway. The project site is generally bounded by Long Beach Boulevard on the west, Atlantic Avenue on the east, Spring Street on the north, and 27th Street on the south.

2.1 Existing Development

The existing uses at the Long Beach Memorial Medical Center include inpatient medical facilities, outpatient medical facilities, and mixed-use non-residential facilities, including child care center, nutrition programs, and outpatient clinics. There are approximately 1,213,945 gross square feet (SF) of structures located within the Campus. ***Table 2-1*** summarizes the existing development tabulation at the campus. As shown, there are two licensed hospitals within the Campus with a total floor area of 872,792 SF: the Long Beach Memorial Medical Center (LBMMC) with 459 licensed beds and Miller Children's Hospital (MCH) with 281 licensed beds. These facilities are centrally located on the Campus, north of 27th Street, east of Long Beach Boulevard, south of Columbia Street, and west of Atlantic Avenue. In addition to inpatient services, outpatient services are provided in structures located north and south of LBMMC and MCH. ***Figure 2-1*** presents the existing conditions of the Long Beach Memorial Medical Center.

Based upon a comprehensive inventory of on-site spaces, it was determined that there are a total of 3,452 parking spaces located in 11 locations throughout the Campus. ***Figure 2-2*** identifies the parking locations of the Campus, while ***Table 2-2*** presents the existing parking supply within each parking location and parking type/designation (i.e., patient/visitor, staff/employee, doctor/physician, reserved, etc.).

TABLE 2-1
EXISTING DEVELOPMENT TABULATION[1]

Building Number per Existing Building Plan	Building	Gross Floor Areas (Square Foot)
1	Miller Children's Hospital (281 beds)	175,162
2	Long Beach Memorial Medical Center (459 beds)	697,630
3	Administration Building	129,531
4	Memorial West Facility	76,515
5	Miller House	25,000
6	Ranch House / WIC Medical Center	12,000
8	Memorial Guest Residence Hotel	12,000
9	Research Building	20,000
17	Buffums Plaza	35,000
	Rehab	31,107
	Total	1,213,945

[1] Sapphos Environmental, Inc.

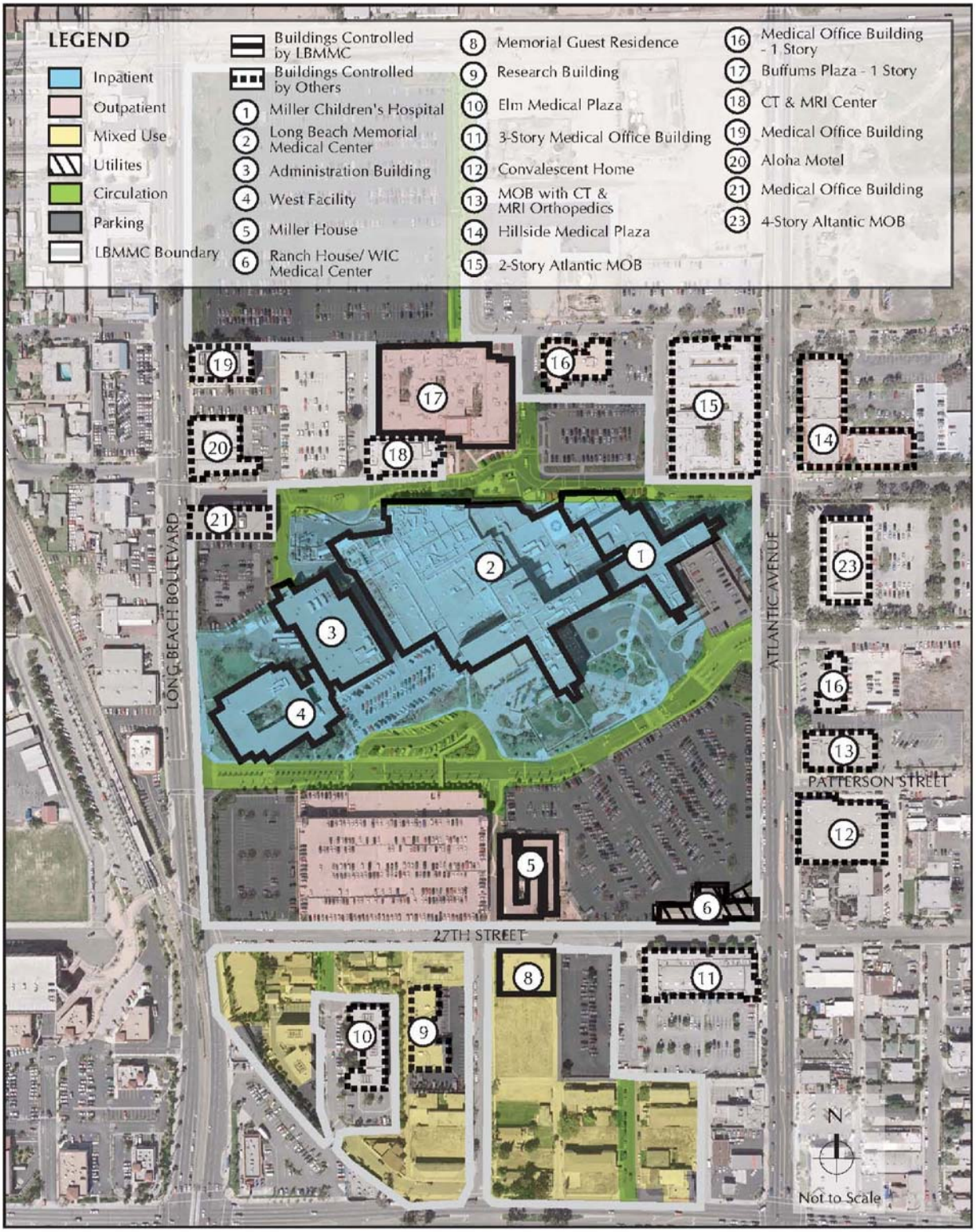

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FIGURE 2-1

EXISTING SITE PLAN

LONG BEACH MEMORIAL MEDICAL CENTER

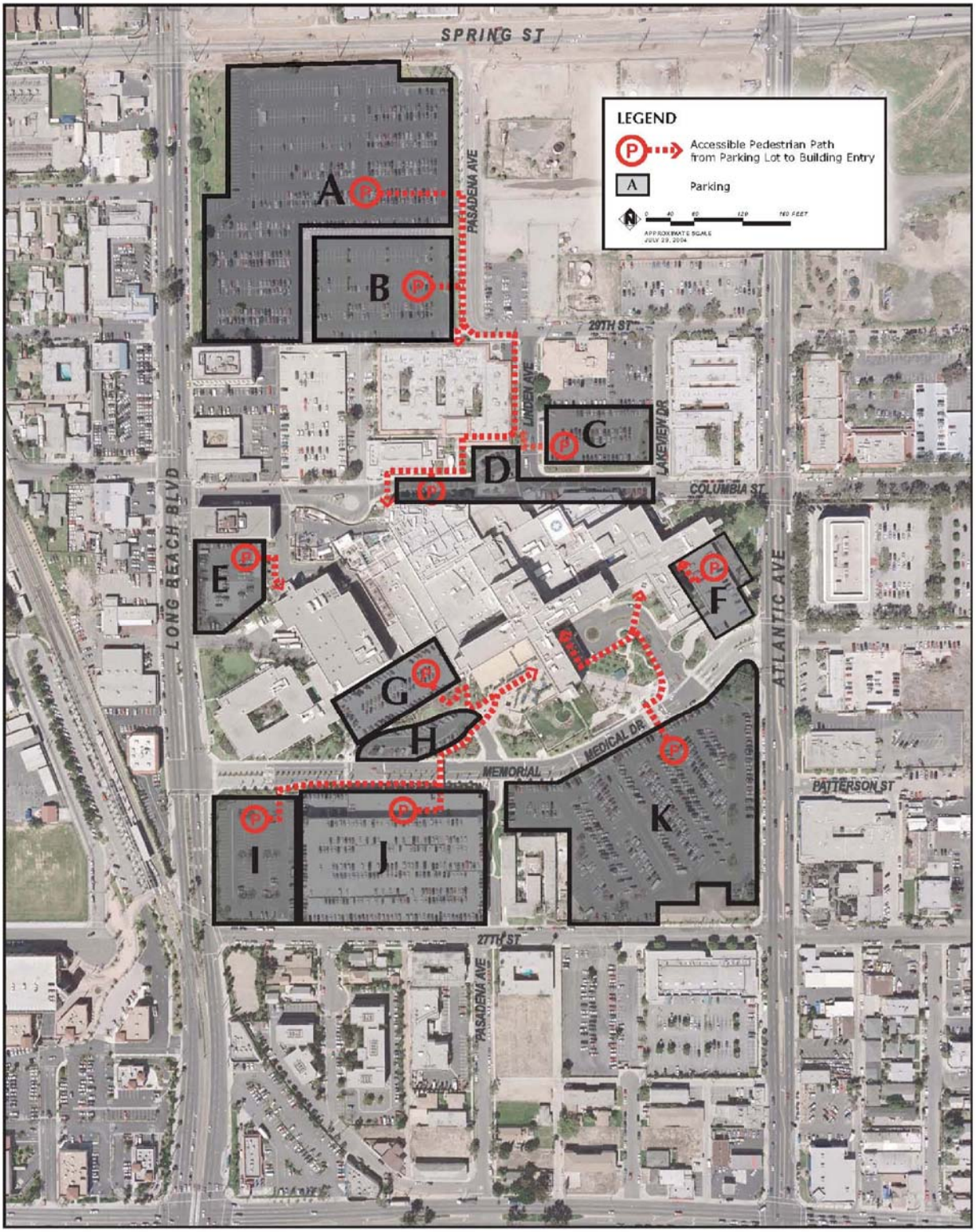

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FIGURE 2-2

EXISTING PARKING LOCATIONS

LONG BEACH MEMORIAL MEDICAL CENTER

TABLE 2-2
EXISTING PARKING SUPPLY

Parking Lot	Staff/Employee Spaces	Patient/Visitor Spaces	Doctor Spaces	Total Spaces
Lot A	675	—	—	675
Lot B	—	217	—	217
Lot C	—	74	—	74
Lot D	—	—	28*	28
Lot E	85	—	—	85
Lot F	—	26	60	86
Lot G	—	—	87	87
Lot H	—	29	—	29
Lot I	150	—	—	150
Lot J	1,430	164	—	1,594
Lot K	—	427	—	427
Total	2,340	937	175	3,452

General Note:

* Spaces shared with patients and visitors.

2.2 Proposed Project

The proposed Long Beach Memorial Medical Center Expansion project consists of a Master Plan of Land Uses that provides a conceptual framework for the reorganization of the six existing land uses: (1) inpatient medical facilities, (2) outpatient medical facilities, (3) mixed-use facilities (nonresidential), (4) utilities, (5) circulation, and (6) parking. Within this conceptual framework, the following six project elements are proposed within the next 5 to 10 years:

- Todd Cancer Institute
- Miller Children's Hospital—Pediatric Inpatient Tower, Utility Trench, and Central Plant Building
- Miller Children's Hospital—Pediatric Outpatient Building
- Miller Children's Hospital—Link Building
- Roadway Realignment
- Parking Program

Figure 2-3 presents the conceptual master plan site plan for the proposed project. The Todd Cancer Institute (TCI) would facilitate expansion of the Campus by relocating cancer treatment programs currently located within the licensed hospital facility and other diverse locations to a single building dedicated to cancer treatment programs. The comprehensive expansion of the MCH would ultimately consist of three new buildings: the pediatric inpatient tower, the pediatric outpatient building, and the link building supporting mixed uses that would connect the inpatient tower and the outpatient building.

Table 2-3 summarizes the various components of the proposed expansion project. Review of *Table 2-3* indicates that the proposed expansion project includes the construction of a 125,930 SF medical office building to be occupied by the Todd Cancer Institute, a 198,000 SF, 164-bed, pediatric inpatient tower for MCH, a new MCH 80,000 SF pediatric outpatient building, a 3,500 SF Central Plant, and a 20,000 SF "link" building. The proposed expansion project also includes the realignment of Patterson Street/Memorial Medical Campus Drive southward by approximately 300 feet from its current intersection, at Atlantic Avenue near 28th Street on the east side of the Campus, to the existing alignment of Patterson Street at Atlantic Avenue. For the purposes of this report, the expansion project has been defined as the following two (2) major phases:

- Phase I to be completed by Year 2008: Realignment of Patterson Street/Memorial Medical Campus Drive, construction of a 3-story, 83,630 SF TCI medical office building, a 5-story, 80,000 SF MCH pediatric outpatient building, and a 124,500 SF, 72-bed MCH pediatric inpatient tower.
- Phase II to be completed by Year 2014: Construction of a 2-story, 42,300 TCI medical office building, a 3-story, 20,000 SF MCH "link" building, and a 73,500 SF, 92-bed MCH pediatric inpatient tower

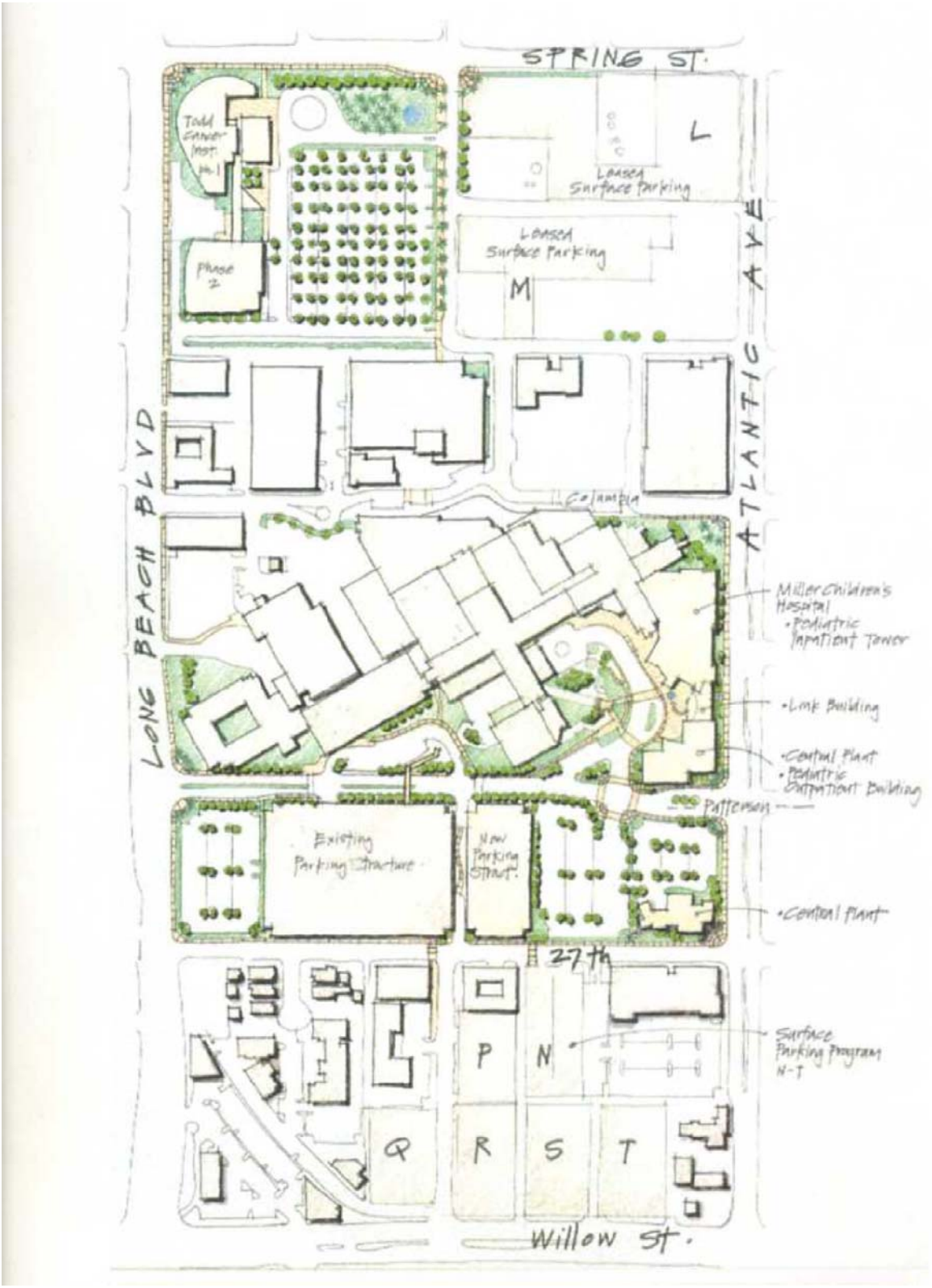

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FIGURE 2-3

PROPOSED SITE PLAN

LONG BEACH MEMORIAL MEDICAL CENTER

TABLE 2-3

PROPOSED PROJECT DEVELOPMENT TABULATION[2]

Project Title	Total Square Feet / Number of Stories / Beds	Anticipated Construction Start Date / Completion Date
Todd Cancer Institute, Phase I	83,630 / 3 stories	July 2005 / September 2006
Todd Cancer Institute, Phase II	42,300 / 2 stories	July 2010 / June 2011
Miller Children's Hospital—Pediatric Inpatient Tower, Phase I	124,500 / 4 stories / 72 beds	October 2005 / January 2008
Miller Children's Hospital—Pediatric Inpatient Tower, Phase II	73,500 / 3 stories / 92 beds	January 2012 / June 2013
Utility Trench	1,000 linear feet, underground	July 2005 / January 2008
Central Plant Building	3,500 / 1 story	June 2006 / August 2007
Miller Children's Hospital—Pediatric Outpatient Building	80,000 / 5 stories	October 2005 / May 2007
Miller Children's Hospital—Link Building	20,000 / 3 stories	July 2010 / June 2011
Roadway Realignment	820 linear-feet	July 2005 / October 2005

[2] Sapphos Environmental, Inc.

2.2.1 *Todd Cancer Institute*

The TCI would be located on the northwestern corner of the Campus, southeast of the intersection of Long Beach Boulevard and Spring Street. ***Figure 2-4*** presents the conceptual site plan for the Todd Cancer Institute. The existing land use at this location is an 872-stall surface parking lot. As indicated in *Table 2-3,* TCI will provide a total of 125,930 SF of new medical office space that will be constructed in two phases. Phase I of the TCI consists of an 83,630 SF, 3-story building, while Phase II consists of an additional 42,300 SF, 2-story medical office building. Approximately 642 parking spaces will be provided for the Todd Cancer Institute.

2.2.2 *Miller Children's Hospital—Pediatric Inpatient Tower and Central Plant Building*

The expansion of MCH, through the addition of a pediatric inpatient tower, would be located immediately adjacent to the existing MCH facility, southwest of the intersection of Atlantic Avenue and Columbia Street. The existing land use at this location is an 86-stall, multilevel parking structure. The parking structure would be demolished to accommodate the proposed pediatric inpatient tower. At build-out, the MCH pediatric inpatient tower and central plant would provide 201,500 SF of additional hospital floor area.

Phase I of the MCH pediatric inpatient tower consist of a four-story building with one story below grade and three stories above grade with approximately 124,500 SF of new space for pediatric surgical services, imaging, lobby, newborn intensive care services, and general pediatric inpatient care services. Phase II consists of additional 73,500 SF feet in a vertical expansion of the Phase I structure.

A central plant building designed to support Phases I and II of the new pediatric inpatient tower would be constructed northwest of the intersection of Atlantic Avenue and 27th Street. The existing land use at this location is a small, wood-framed building referred to as the "WIC Building" and "Ranch House" on the northeastern portion of the surface parking lot located north of 27th Street. The uses currently provided at the Ranch House include women's, children's, and infant food and nutrition programs, and would be relocated elsewhere on the Campus prior to the initiation of demolition activities. Development of the central plant building within a portion of the existing surface parking lot would displace 14 parking spaces. The central plant building would consist of a single-level structure of approximately 3,500 square feet and approximately 5,000 gross square feet of open yard, plus eight parking stalls.

2.2.3 *Miller Children's Hospital—Pediatric Outpatient Building*

A new MCH pediatric outpatient building would be located south of the existing MCH facility, west of Atlantic Avenue, and approximately midway between Patterson Street and 27th Street. The existing land use at this location is a portion of the surface parking lot located north of 27th Street. Approximately 43 parking spaces would be demolished to accommodate the proposed pediatric outpatient building. The MCH outpatient building consist of a 5-story, 80,000 SF medical office building. Four types of uses and clinics are under consideration for the outpatient pediatric building:

(1) dental clinic, (2) pediatric rehabilitation, (3) children's and specialty care clinic, and (4) support space, including physician's offices.

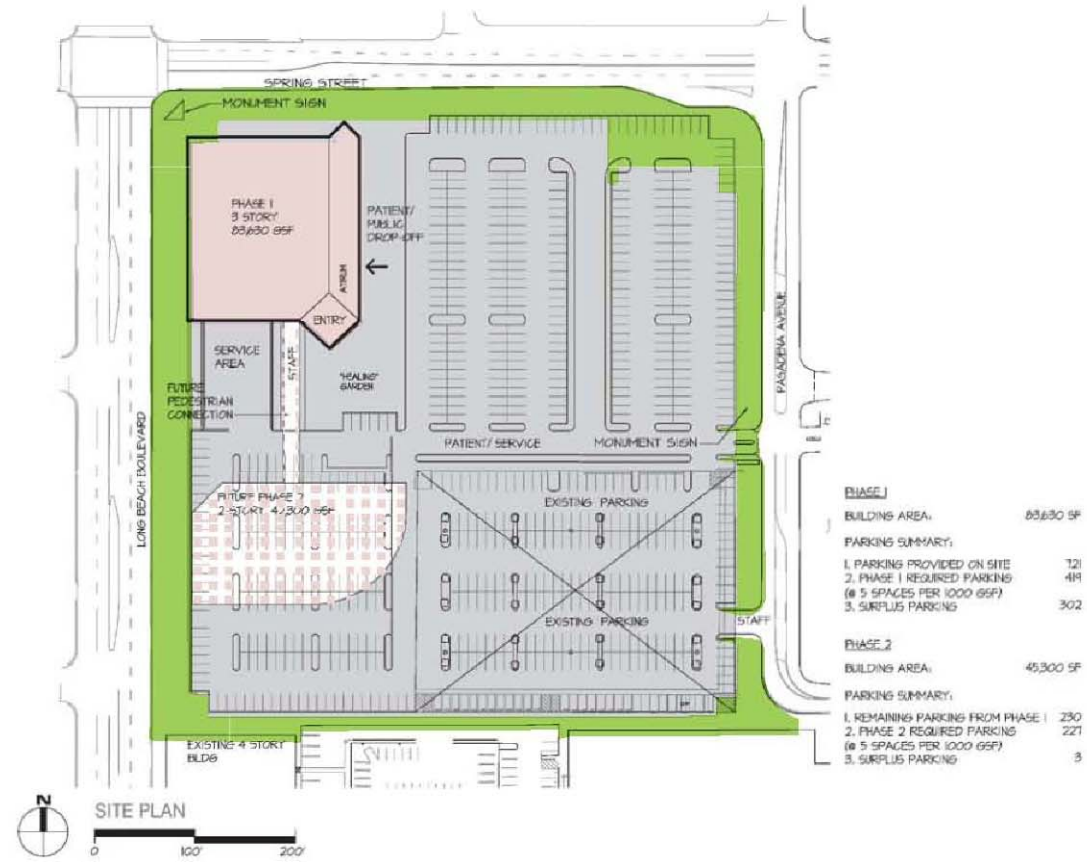
2.2.4 *Miller Children's Hospital—Link Building*

A new mixed-use building connecting the pediatric inpatient tower and the pediatric outpatient building would be located southwest of the intersection of Atlantic Avenue and Patterson Street The existing land use at this location is an 86-stall, multilevel parking structure that would be demolished to accommodate the proposed inpatient tower. The MCH link building consists of a 3-story, 20,000 SF building that would contain retail spaces, offices, and retail food service for the users of the adjacent inpatient tower and outpatient building.

2.2.5 *Roadway Realignment*

Vehicular and pedestrian circulation patterns would be improved through realignment of selected internal roadways and a signage and wayfinding program. Specifically, a 520-linear-foot section of the alignment of Patterson Street/Memorial Medical Campus Drive as it extends through the Campus would be realigned southward by approximately 300 feet from its current intersection, at Atlantic Avenue near 28th Street on the east side of the Campus, to make a closer connection with the existing alignment of Patterson Street at Atlantic Avenue.

As a result, the intersection of Atlantic Avenue and 28th Street would become a T-intersection. The roadway would consist of three site entry lanes and three site exit lanes with an automated traffic control gate for each lane. The present roadway is approximately 85 feet wide at Atlantic Avenue. The roadway would narrow to 40 feet where it transitions to the existing alignment of Patterson Street near Pasadena Avenue. The road curvature has a radius of approximately 500 feet to transition from Patterson Street to the existing roadway alignment. The roadway realignment would result in the loss of 195 parking spaces from the surface parking lot located north of 27th Street. The existing T-intersection at Atlantic Avenue and Patterson Street would be replaced by a signalized through intersection. The grading and realignment would be undertaken such that the roadway and curbs are adjusted to provide access to adjacent buildings at the first-floor level.



PHASE I

BUILDING AREA: 85,630 SF

PARKING SUMMARY:

1. PARKING PROVIDED ON SITE	721
2. PHASE I REQUIRED PARKING (@ 5 SPACES PER 1000 GSF)	419
3. SURPLUS PARKING	302

PHASE 2

BUILDING AREA: 45,300 SF

PARKING SUMMARY:

1. REMAINING PARKING FROM PHASE I	230
2. PHASE 2 REQUIRED PARKING (@ 5 SPACES PER 1000 GSF)	227
3. SURPLUS PARKING	3

LEGEND

- Phase I
- Phase II
- Circulation
- Parking

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FIGURE 2-4

TODD CANCER INSTITUTE CONCEPTUAL SITE PLAN

LONG BEACH MEMORIAL MEDICAL CENTER

3.0 EXISTING CONDITIONS

The San Diego Freeway (Interstate 405) primarily provides regional access to the project site. The San Diego Freeway generally runs in a northwest to southeast direction in the vicinity of the project site. This 8-lane facility is a major highway, which extends through Los Angeles County and links Long Beach with the neighboring communities of Westminster, Seal Beach, Lakewood and Carson, as well as more distant locations such as Los Angeles, Orange County and San Diego. High Occupancy Vehicle (HOV) lanes are provided on the I-405 Freeway throughout Los Angeles County and Orange County. In the project vicinity, there is one HOV lane in each direction; there is a total of ten travel lanes on the I-405 Freeway. Freeway access to the project site is provided via the Long Beach Boulevard/I-405 Interchange, Atlantic Avenue/I-405 Interchange, the Orange Avenue/I-405 SB Ramps Interchange, and the 32nd Street/I-405 NB Ramps Interchange.

The principal local network of streets serving the project includes Atlantic Avenue, Long Beach Boulevard, Wardlow Road, Spring Street, and Willow Avenue. The following discussion provides a brief synopsis of these key area streets. The descriptions are based on an inventory of existing roadway conditions.

3.1 Street Network

Atlantic Avenue is a four-lane, divided roadway oriented in the north-south direction, with a raised center median along the project frontage, providing two lanes of travel in each direction. Parking is not permitted along the east side of this roadway, but is permitted on the west side, along the project frontage. North of Spring Street, curbside parking is prohibited on both sides of Atlantic Avenue. On-street parking is permitted along either side of this roadway south of Willow Street. The posted speed limit on Atlantic Avenue is 35 miles per hour (mph). Traffic signals control the study intersections of Atlantic Avenue at Wardlow Road, the I-405 SB Ramps, Spring Street, Columbia Street, 28th Street (Memorial Medical Center), Willow Street, and Hill Street.

Long Beach Boulevard is a four-lane, divided roadway oriented in the north-south direction, which borders the project site to the west. Parking is permitted on either side of this roadway, within the vicinity of the project. The posted speed limit on Long Beach Boulevard is 35 mph north of Columbia Street and 30 mph south of Willow Street. Traffic signals control the study intersections of Long Beach Boulevard at Wardlow Road, Spring Street, Columbia Street, Patterson Street (Memorial Medical Center driveway), 27th Street, Willow Street, and Hill Street.

Wardlow Road is a four-lane, divided roadway oriented in the east-west direction. In general, on-street parking is permitted along this roadway in the vicinity of the project. The posted speed limit on Wardlow Road is 40 mph west of Long Beach Boulevard and 35 mph east of Long Beach Boulevard. Traffic signals control the study intersections of Wardlow Road at Long Beach Boulevard and Atlantic Avenue.

Spring Street is a four-lane, divided roadway oriented in the east-west direction, which borders the project site to the north. Spring Street is a two-lane, divided roadway west of Del Mar Avenue. Parking is not permitted on either side of this roadway, within the vicinity of the project. The posted

speed limit on Spring Street is 30 mph west of Long Beach Boulevard and 40 mph east of Long Beach Boulevard. Traffic signals control the study intersections of Spring Street at Pacific Avenue, Long Beach Boulevard, Atlantic Avenue, California Avenue, and Orange Avenue.

Willow Street is a six-lane, divided roadway oriented in the east-west direction, with a raised median, providing three travel lanes in each direction. In general, parking is permitted along either side of this roadway, within the vicinity of the project. The posted speed limit on Willow Street is 35 mph west of Atlantic Avenue and 40 mph east of Atlantic Avenue. Traffic signals control the study intersections of Willow Street at Pacific Avenue, Long Beach Boulevard, Atlantic Avenue, California Avenue, and Orange Avenue.

Figure 3-1 presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. This figure identifies the number of travel lanes for key arterials, as well as intersection configurations and controls for the key area intersections neighboring the project site.

3.2 Existing Public Transit

Long Beach Transit (LBT) and the Metro Blue Line Light Rail Transit System provide public transit services in the vicinity of the proposed project.

3.2.1 *Long Beach Transit*

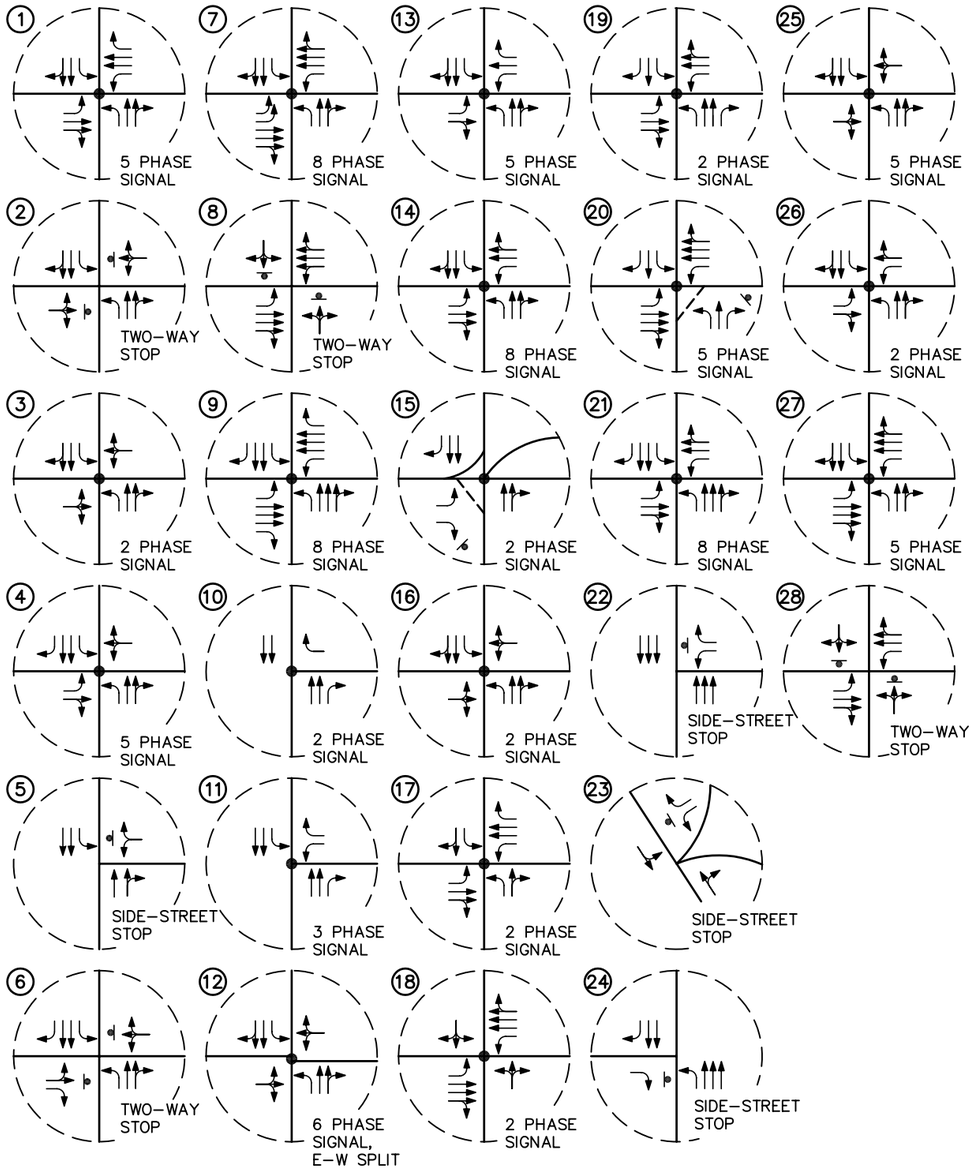
LBT Route No. 5 travels north and south on Long Beach Boulevard adjacent to the proposed project site, with a bus stop at the intersection of Long Beach Boulevard and Willow Street and Long Beach Boulevard and Memorial Medical Center/28th Street. LBT Route Nos. 45, 46, 61, 66, 81, 101, 102, 103, 131, 171, 172, 173, 174, 191 and 192 all provide direct access to LBT Route No. 5.

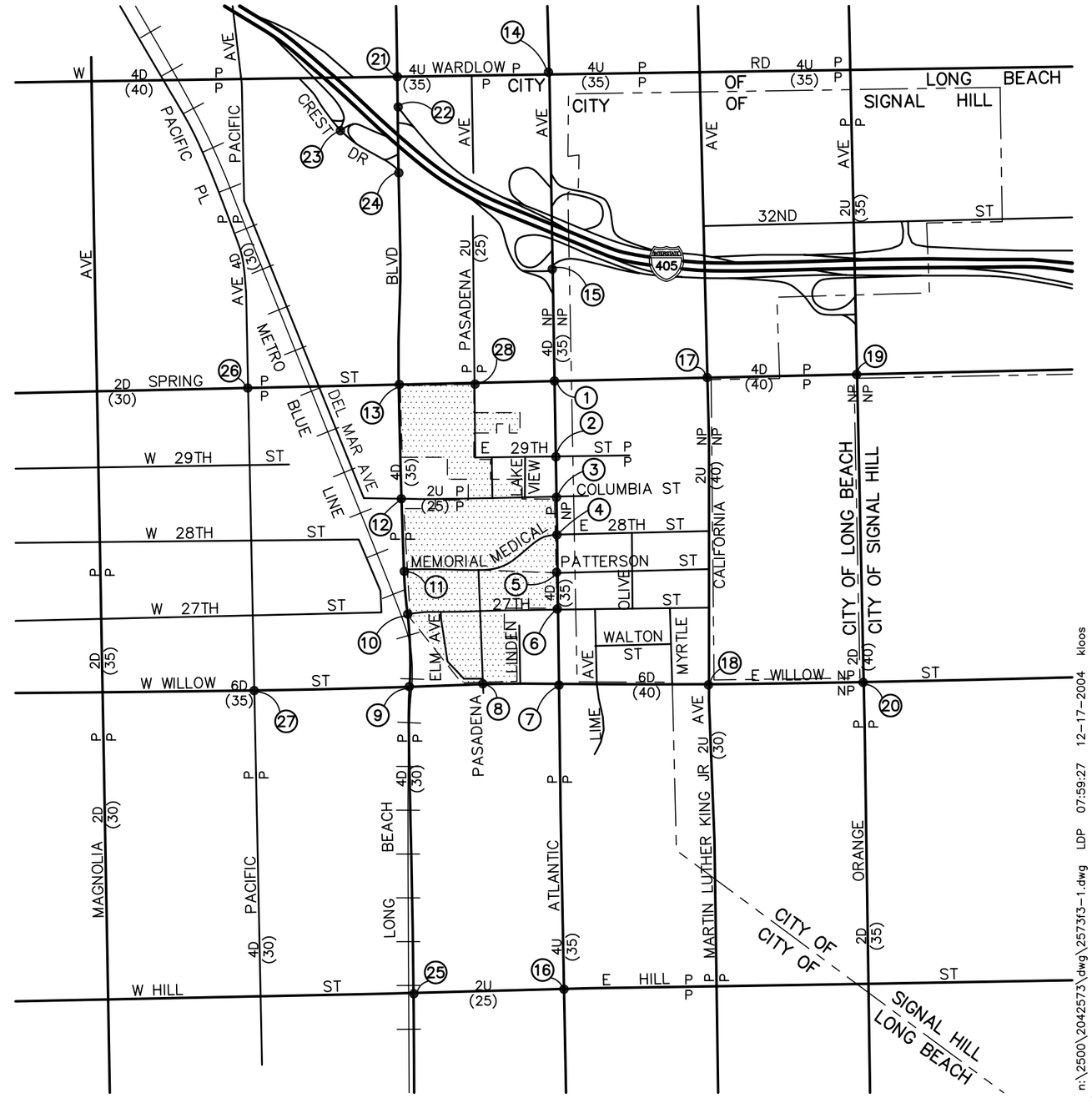
LBT Route Nos. 61 and 62 travel north and south on Atlantic Avenue east of the proposed project site, with a bus stop at the intersection of Atlantic Avenue and Willow Street. LBT Route Nos. 5, 7, 45, 46, 81, 101, 102, 103, 131, 171, 172, 173, 174, 191 and 192 all provide direct access to LBT Route Nos. 61 and 62.

The LBT service area extends beyond the City of Long Beach in portions of Signal Hill, Cerritos, Lakewood, San Pedro, Paramount, Compton, Los Angeles, Hawaiian Gardens, and Seal Beach. All LBT routes connect with the Metro Blue Line light rail rapid transit system. Bus transfers provide for discounted fares on the Blue Line.

3.2.2 *Metro Blue Line Light Rail Transit System*

Given that bus service via LBT is provided between Willow Station and the Long Beach Memorial Medical Center project site, patrons will be able to utilize the existing Metro Blue Line Light Rail Transit System via Willow Station. Additionally, Willow Station is located immediately south of the project site, allowing patrons to walk to the Long Beach Memorial Medical Center site.





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NO SCALE

KEY

- ← = APPROACH LANE ASSIGNMENT
- ● = TRAFFIC SIGNAL
- P = PARKING, NP = NO PARKING
- U = UNDIVIDED, D = DIVIDED
- – – – = FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE
- 2 = NUMBER OF TRAVEL LANES
- (XX) = POSTED SPEED LIMIT (MPH)
- = PROJECT SITE
- (#) = STUDY INTERSECTION

FIGURE 3–1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

LONG BEACH MEMORIAL MEDICAL CENTER

3.3 Existing Area Traffic Volumes

Twenty-eight (28) key intersections have been identified as the locations at which to evaluate existing and future traffic operating conditions. Some portion of potential project-related traffic will pass through each of these intersections, and their analysis will reveal the expected relative impacts of the project. These key intersections were selected for evaluation based on discussions with the City of Long Beach and in consideration of the criteria in the current County of Los Angeles CMP traffic impact guidelines.

The existing AM peak hour and PM peak hour traffic counts were conducted in October 2004 by Transportation Studies Inc. and Southland Car Counters. ***Figures 3-2*** and ***3-3*** depict the existing AM and PM peak hour traffic volumes at the key study intersections, respectively. ***Appendix A*** contains the detailed manual turning movement count sheets for the 28 key study intersections evaluated in this report.

3.4 Existing Intersection Conditions

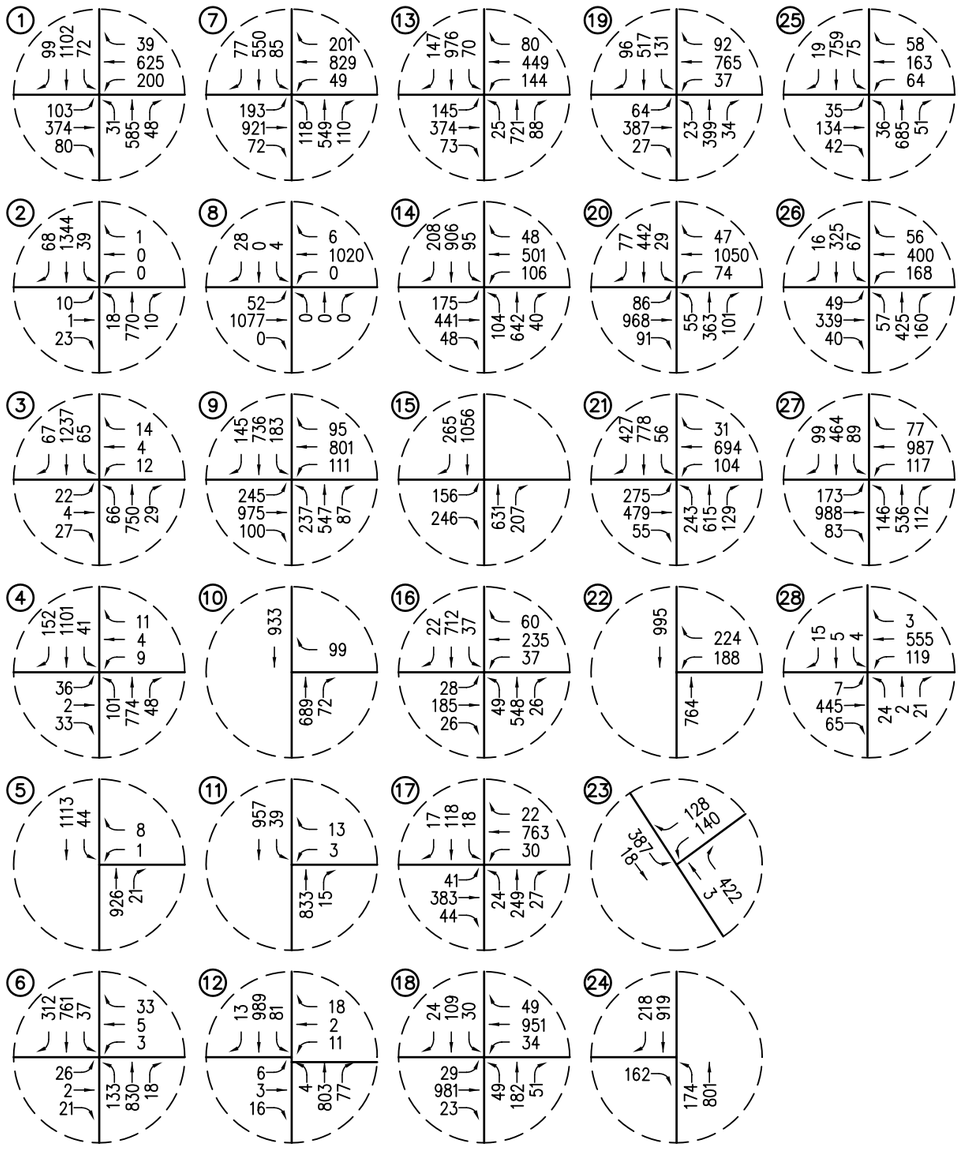
Existing AM and PM peak hour operating conditions for the 28 key study intersections were evaluated using the *Intersection Capacity Utilization* (ICU) methodology for signalized intersections and the methodology outlined in Chapter 17 of the *Highway Capacity Manual 2000* (HCM2000) for unsignalized intersections.

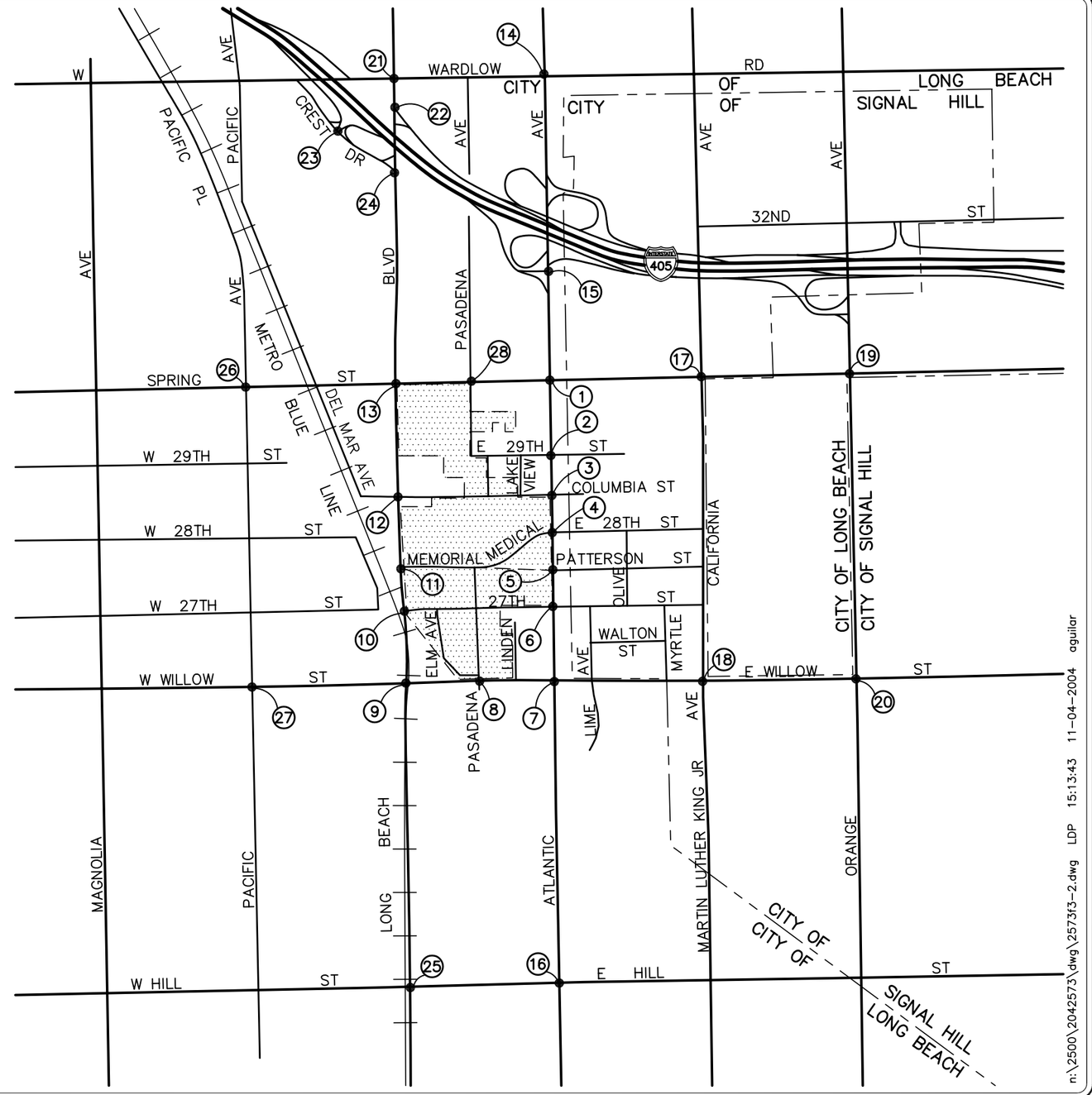
3.4.1 *Intersection Capacity Utilization (ICU) Method of Analysis*

In conformance with the City of Long Beach and LA County CMP requirements, existing AM and PM peak hour operating conditions for the key signalized study intersections were evaluated using the Intersection Capacity Utilization (ICU) method. The ICU technique is intended for signalized intersection analysis and estimates the volume to capacity (V/C) relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time, and thus capacity, required by existing and/or future traffic. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The six qualitative categories of Level of Service have been defined along with the corresponding ICU value range and are shown in ***Table 3-1***.

According to City of Long Beach criteria, LOS D is the minimum acceptable condition that should be maintained during the peak commuter hours, or the current LOS if the existing LOS is worse than LOS D (i.e. LOS E of F).





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NO SCALE

KEY

= PROJECT SITE

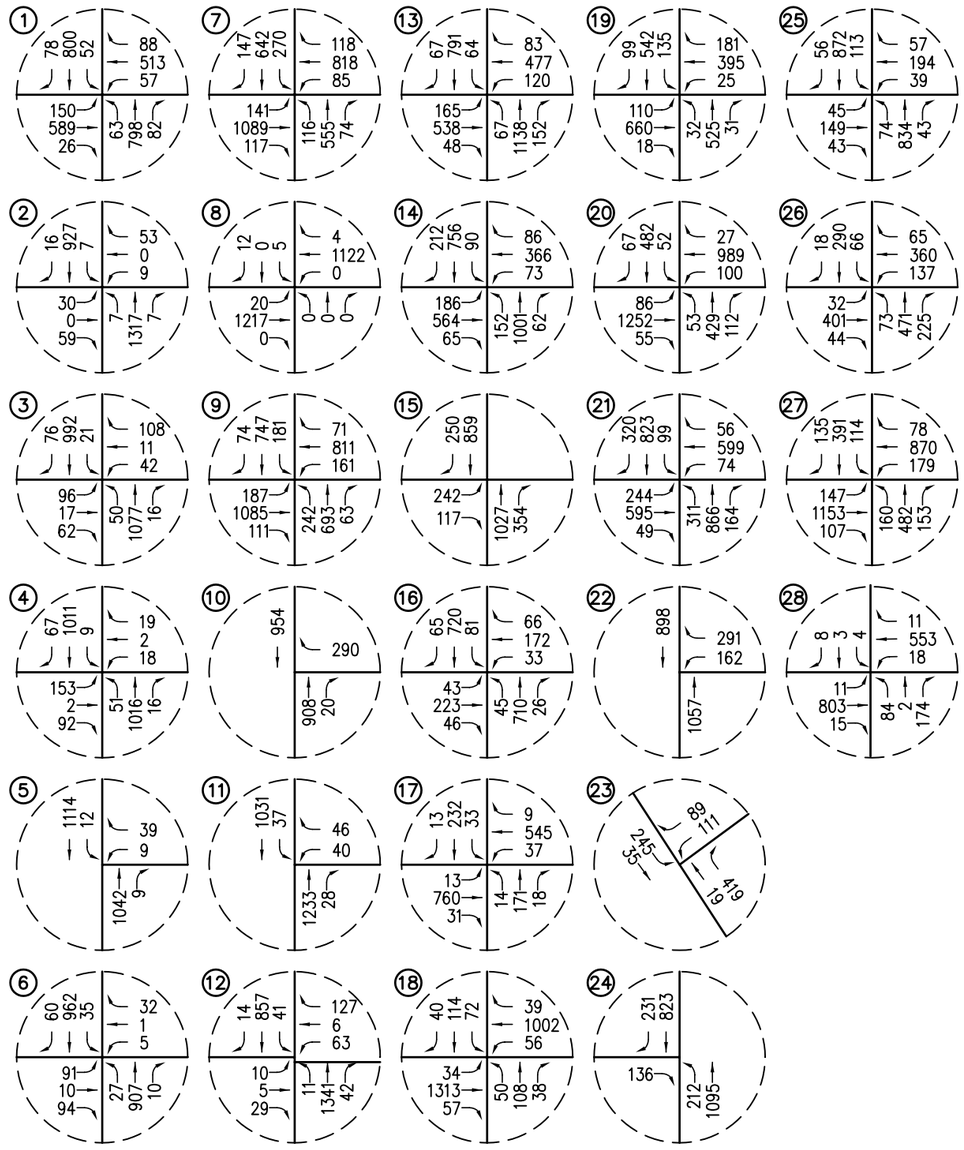
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

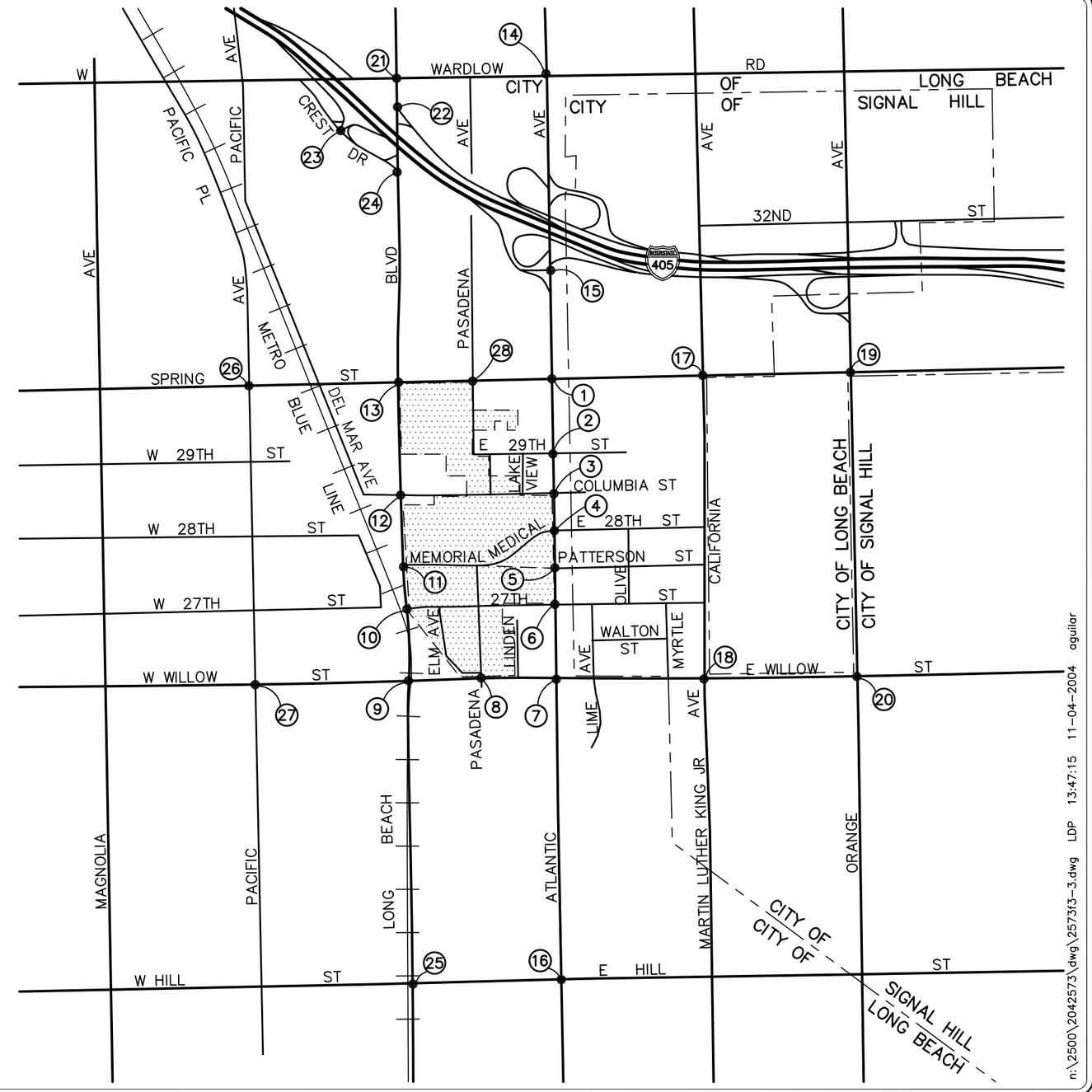
(#) = STUDY INTERSECTION

FIGURE 3–2

EXISTING AM PEAK HOUR TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER





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NO SCALE

KEY

= PROJECT SITE

= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

(#) = STUDY INTERSECTION

FIGURE 3-3

EXISTING PM PEAK HOUR TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER

TABLE 3-1
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS)	Intersection Capacity Utilization Value (V/C)	Level of Service Description
A	≤ 0.600	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.601 – 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 – 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 – 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 – 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays with continuously increasing queue lengths.

Per LA County CMP requirements, the ICU calculations use a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through, and right-turn lanes, and dual left turn capacity of 2,880 vpd. Clearance intervals are based on the number of phases in the intersection and whether the left turning movements are all fully protected or whether some of them are permitted with other left-turn movements being protected. ***Table 3-2*** shows the clearance intervals used in the analysis of the key study intersections within the City of Long Beach.

3.4.2 *Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)*

The methodology in Chapter 17 of the *Highway Capacity Manual 2000* for stop controlled intersections was utilized for the analysis of the eight (8) unsignalized study intersections evaluated in this report. This methodology estimates the average control delay for each of the subject movements and determines the level of service for each movement.

The overall average control delay measured in seconds per vehicle, and level of service is then calculated for the entire intersection based on the following equation:[3]

$$D_I = \frac{D_{A,1}V_{A,1} + D_{A,2}V_{A,2} + D_{A,3}V_{A,3} + D_{A,4}V_{A,4}}{V_{A,1} + V_{A,2} + V_{A,3} + V_{A,4}}$$

Where:

$D_{A,X}$ = Average approach total control delay on approach x (sec/veh); and
$V_{A,X}$ = volume or flow rate on approach x (veh/hr)

The HCM control delay value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The six qualitative categories of Level of Service have been defined along with the corresponding HCM control delay value range, as shown in ***Table 3-3***.

[3] Source: *Highway Capacity Manual 2000*, Chapter 17 (Unsignalized Intersections).

TABLE 3-2
CITY OF LONG BEACH CLEARANCE INTERVALS[4]

Number of Signal Phases	Left-turn Phasing Type	Clearance Interval (percent)
2	Permitted	10%
3	Protected and Permitted	12%
3	Fully Protected	15%
4	Protected and Permitted	14%
4	Fully Protected	18%

[4] Source: *City of Long Beach Guidelines for Signalized Intersection Analysis, 2004.*

TABLE 3-3

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS)	Highway Capacity Manual Delay Value (sec/veh)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

3.5 Existing Level of Service Results

Table 3-4 summarizes the existing peak hour service level calculations for the 28 key study intersections based on existing 2004 traffic volumes and current street geometry. Review of *Table 3-4* indicates that based on the ICU and/or HCM method of analysis and the City's LOS criteria, three of the 28 key study intersections currently operate at an unacceptable Level of Service (LOS E or worse) during the AM and/or PM peak hours. These intersections are reported below:

Key Intersections	AM Peak Hour ICU or HCM/LOS	PM Peak Hour ICU or HCM/LOS
13. Long Beach Boulevard/Spring Street	---	**1.004 / F**
21. Long Beach Boulevard/Wardlow Road	**0.934 / E**	**0.949 / E**
22. Long Beach Boulevard/I-405 NB Ramp	---	**40.00 s/v / E**

As shown, three intersections along the Long Beach Boulevard corridor at Spring Street, Wardlow Road, and the I-405 NB Ramp currently operate at LOS E and/or LOS F during the AM and/or PM peak hours. The remaining 25 key study intersections currently operate at LOS D or better during the commuter peak hours. ***Appendix B*** contains the ICU and HCM level of service calculation worksheets for the key study intersections.

TABLE 3-4
EXISTING PEAK HOUR LEVELS OF SERVICE[5]

Key Intersections		Time Period	Control Type	ICU/HCM Delay Value	LOS
1.	Atlantic Avenue/ Spring Street	AM PM	5∅ Traffic Signal	0.781 0.687	C B
2.	Atlantic Avenue/ East 29th Street	AM PM	Two-Way Stop	1.40 s/v 5.40 s/v	A A
3.	Atlantic Avenue/ Columbia Street	AM PM	2∅ Traffic Signal	0.582 0.574	A A
4.	Atlantic Avenue/ Memorial Medical Center-East 28th Street	AM PM	5∅ Traffic Signal	0.565 0.588	A A
5.	Atlantic Avenue/ East Patterson Street	AM PM	Side Street Stop	0.30 s/v 0.60 s/v	A A
6.	Atlantic Avenue/ 27th Street	AM PM	Two-Way Stop	4.50 s/v 29.30 s/v	A D
7.	Atlantic Avenue/ Willow Street	AM PM	8∅ Traffic Signal	0.732 0.850	C D
8.	Pasadena Avenue/ Willow Street	AM PM	Two-Way Stop	0.60 s/v 0.40 s/v	A A
9.	Long Beach Boulevard/ Willow Street	AM PM	8∅ Traffic Signal	0.878 0.891	D D
10.	Long Beach Boulevard/ 27th Street	AM PM	2∅ Traffic Signal	0.454 0.579	A A
11.	Long Beach Boulevard/ East Patterson Street	AM PM	3∅ Traffic Signal	0.421 0.553	A A
12.	Long Beach Boulevard/ Columbia Street	AM PM	6∅ Traffic Signal	0.541 0.789	A C
13.	Long Beach Boulevard/ Spring Street	AM PM	3∅ Traffic Signal	0.859 **1.004**	D **F**
14.	Atlantic Avenue/ Wardlow Road	AM PM	8∅ Traffic Signal	0.834 0.795	D C

General Notes:

Bold ICU/LOS values indicate adverse service levels based on City LOS standards.

s/v = seconds per vehicle (delay).

[5] *Appendix B* contains ICU/LOS sheets for key study intersections.

TABLE 3-4 (CONTINUED)
EXISTING PEAK HOUR LEVELS OF SERVICE[6]

Key Intersections		Time Period	Control Type	ICU/HCM Delay Value	LOS
15.	Atlantic Avenue/ I-405 SB Ramps	AM PM	2∅ Traffic Signal	0.584 0.683	A B
16.	Atlantic Avenue/ Hill Street	AM PM	2∅ Traffic Signal	0.568 0.576	A A
17.	California Avenue/ Spring Street	AM PM	2∅ Traffic Signal	0.548 0.532	A A
18.	California Avenue/ Willow Street	AM PM	2∅ Traffic Signal	0.506 0.561	A A
19.	Orange Avenue/ Spring Street	AM PM	2∅ Traffic Signal	0.745 0.708	C C
20.	Orange Avenue/ Willow Street	AM PM	5∅ Traffic Signal	0.743 0.819	C D
21.	Long Beach Boulevard/ Wardlow Road	AM PM	8∅ Traffic Signal	**0.934** **0.949**	**E** **E**
22.	Long Beach Boulevard/ I-405 NB Ramp	AM PM	Side Street Stop	30.10 s/v **40.00 s/v**	D **E**
23.	I-405 SB Ramps/ Crest Drive	AM PM	Side Street Stop	19.20 s/v 6.90 s/v	C A
24.	Long Beach Boulevard/ Crest Drive	AM PM	Side Street Stop	2.10 s/v 1.90 s/v	A A
25.	Long Beach Boulevard/ Hill Street	AM PM	5∅ Traffic Signal	0.605 0.676	B B
26.	Pacific Avenue/ Spring Street	AM PM	2∅ Traffic Signal	0.667 0.723	B C
27.	Pacific Avenue/ Willow Street	AM PM	5∅ Traffic Signal	0.717 0.764	C C
28.	Pasadena Avenue/ Spring Street	AM PM	Two-Way Stop	2.20 s/v 16.20 s/v	A C

General Notes:

Bold ICU/LOS values indicate adverse service levels based on City LOS standards.

s/v = seconds per vehicle (delay).

[6] *Appendix B* contains ICU/LOS sheets for key study intersections.

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the Long Beach Memorial Medical Center Expansion project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and project traffic assignments developed, the impact of the project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation factors and equations used in the traffic forecasting procedure are typically found in the Seventh Edition of *Trip Generation,* published by the Institute of Transportation Engineers (ITE) [Washington, D.C., 2003].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed project. The trip generation potential for the Miller Children's Hospital Pediatric Inpatient Tower was estimated using the ITE rates for Land Use Code 610: Hospital, while the trip generation potential for the Todd Cancer Institute and Miller Children's Hospital Outpatient Building were estimated using the ITE rates for Land Use Code 720: Medical-Dental Office Building.

Table 5-2 summarizes the trip generation forecast for the Long Beach Memorial Medical Center Expansion project. Review of *Table 5-2* indicates that the proposed expansion project, at build-out, is expected to generate approximately 9,377 daily trips, with 696 trips (534 inbound, 162 outbound) produced in the AM peak hour and 979 trips (283 inbound, 696 outbound) produced in the PM peak hour on a "typical" weekday.

Phase I of the proposed project is forecast to generate 6,762 daily trips, with 487 trips produced in the AM peak hour and 703 trips produced in the PM peak hour on a "typical" weekday. Phase II of the proposed project is forecast to generate 2,615 daily trips, with 209 trips produced in the AM peak hour and 276 trips produced in the PM peak hour on a "typical" weekday.

TABLE 5-1
PROJECT TRAFFIC GENERATION RATES[7]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Factors:							
610: Hospital (TE/Bed)	11.81	0.79	0.34	1.13	0.47	0.83	1.30
720: Medical-Dental Office Building (TE/1,000 SF)	36.13	1.96	0.52	2.48	1.00	2.72	3.72

General Notes:
TE/Bed = Trip ends per bed
TE/1,000 SF = Trip ends per 1,000 square-feet (SF) of development.

[7] Source: *Trip Generation*, 7th Edition, Institute of Transportation Engineers (ITE) [Washington, D.C. (2003)].

TABLE 5-2
PROJECT TRAFFIC GENERATION FORECAST[8]

Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Year 2008							
TCI – Phase I (83,630 SF)	3,022	164	43	207	84	227	311
MCH Pediatric Inpatient Tower – Phase I (72 Beds)	850	57	24	81	34	60	94
MCH Pediatric Outpatient Tower (80,000 SF)	2,890	157	42	199	80	218	298
Year 2008 Total Trip Generation	**6,762**	**378**	**109**	**487**	**198**	**505**	**703**
Year 2014							
TCI – Phase II (42,300 SF)	1,528	83	22	105	42	115	157
MCH Pediatric Inpatient Tower – Phase II (92 Beds)	1,087	73	31	104	43	76	119
Year 2014 Total Trip Generation	**2,615**	**156**	**53**	**209**	**85**	**191**	**276**
Total Long Beach Memorial Medical Center Expansion Trip Generation Potential	**9,377**	**534**	**162**	**696**	**283**	**696**	**979**

General Note:
SF = Square-feet (SF) of development.

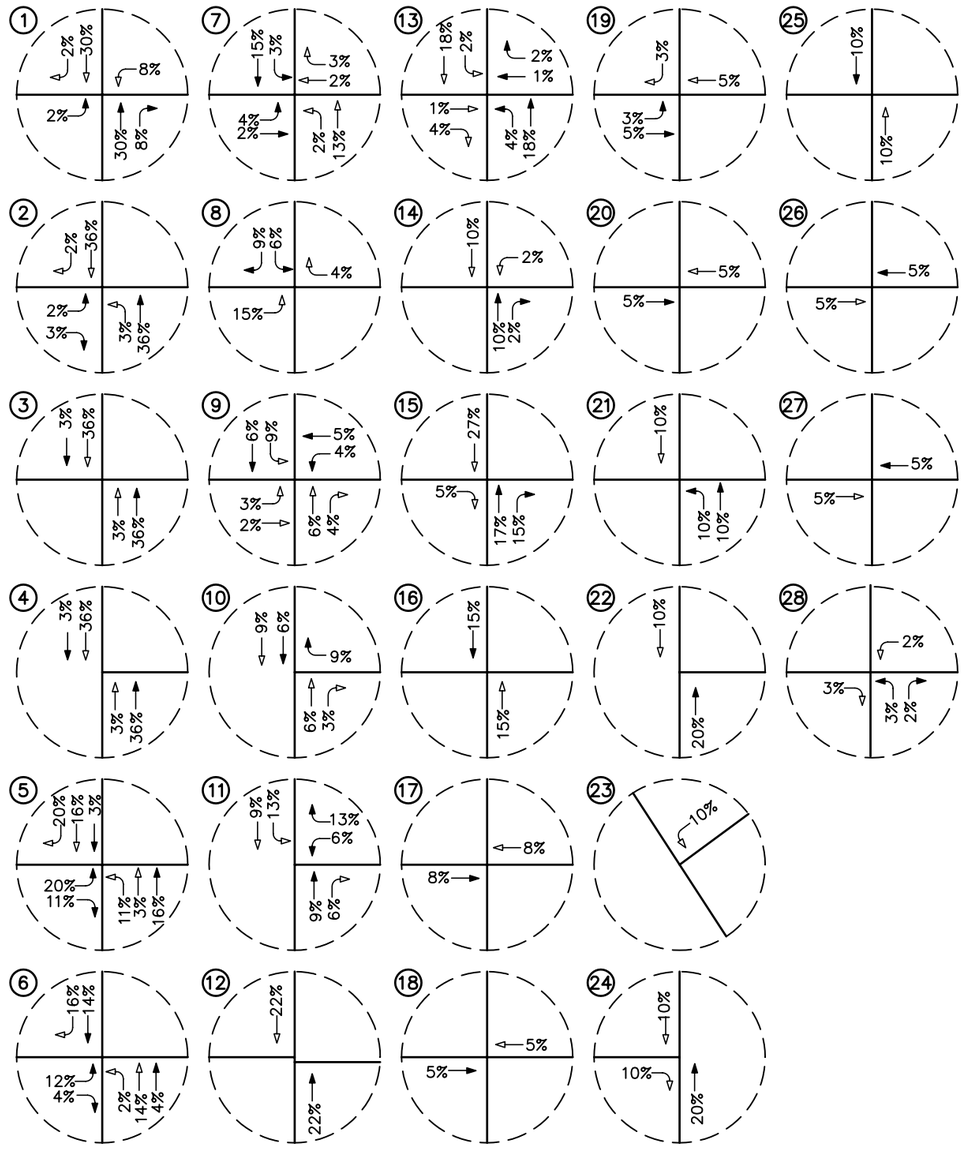
[8] Source: *Trip Generation*, 7th Edition, Institute of Transportation Engineers (ITE) [Washington, D.C. (2003)].

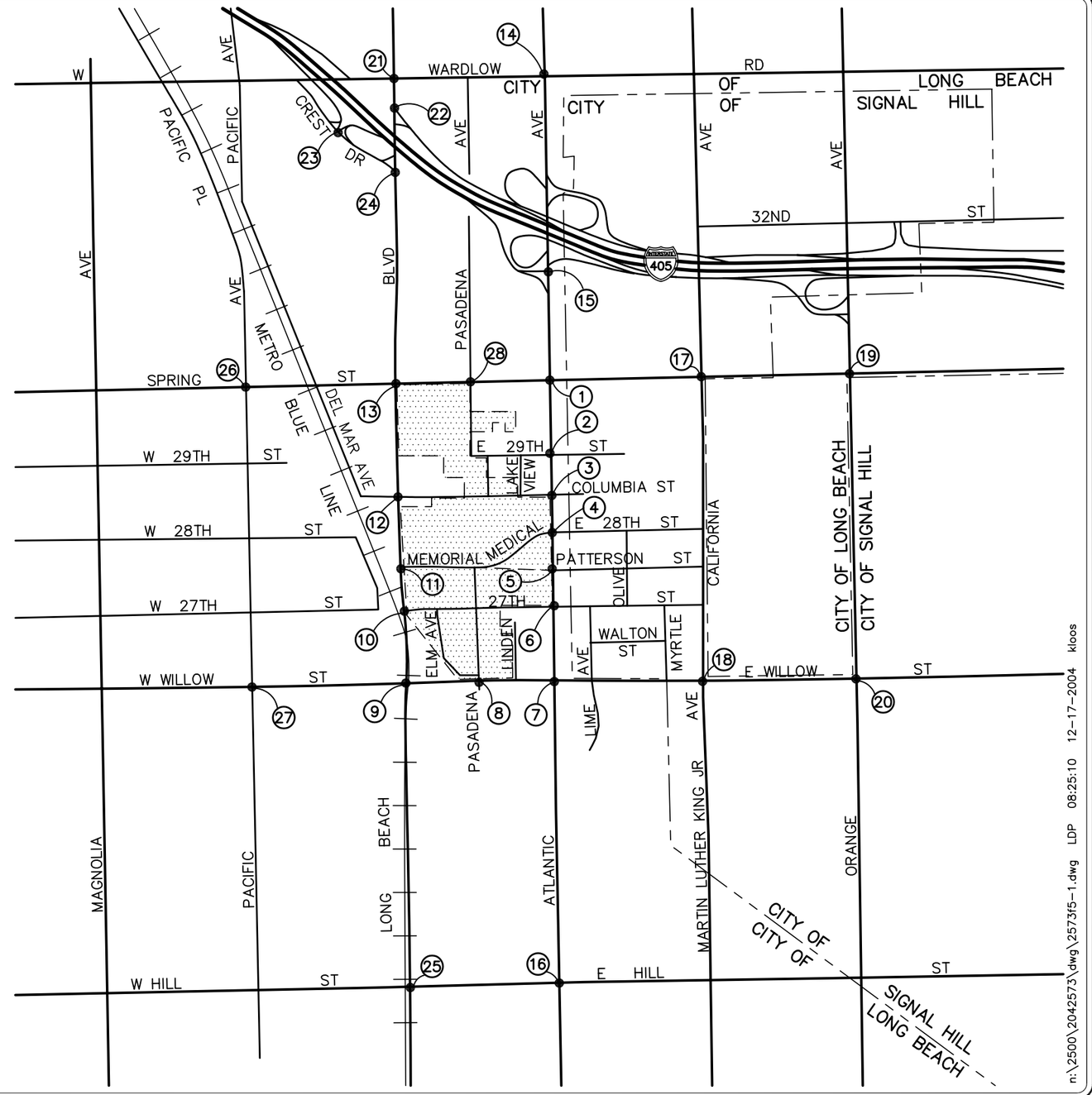
5.2 Project Traffic Distribution and Assignment

The general, directional traffic distribution pattern for the proposed project is presented in ***Table 5-3*** ***Figures 5-1*** and ***5-2*** display the overall traffic distribution pattern for the proposed hospital and medical office components of the project, respectively. Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers (i.e. Long Beach Boulevard, Atlantic Avenue, Wardlow Road, Willow Avenue, etc.),
- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals,
- existing intersection traffic volumes,
- ingress/egress availability at the project site and the location of existing and proposed parking areas, and
- input from City staff.

The anticipated AM and PM peak hour project volumes associated with Phase I of the proposed project are presented in ***Figures 5-3*** and ***5-4***, respectively. Similarly, ***Figures 5-5*** and ***5-6*** present the total peak hour project traffic volumes associated with Phases I and II of the proposed project. The traffic volume assignments presented in the *Figures 5-3* through *5-6* reflect the traffic distribution characteristics shown in *Figures 5-1* and *5-2* and the traffic generation forecast presented in *Table 5-2*.





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N NO SCALE

KEY

= PROJECT SITE

= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

(#) = STUDY INTERSECTION

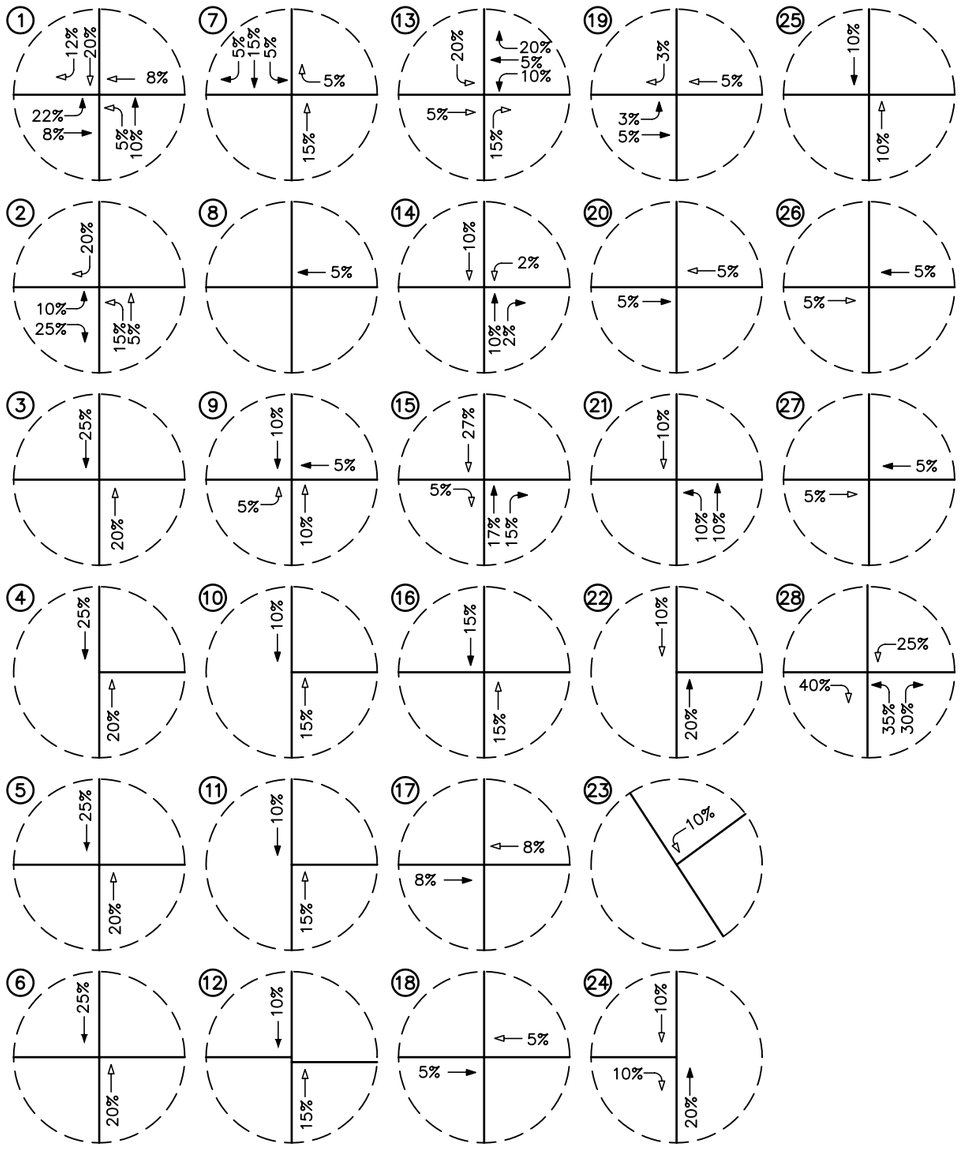
← = INBOUND PERCENTAGE

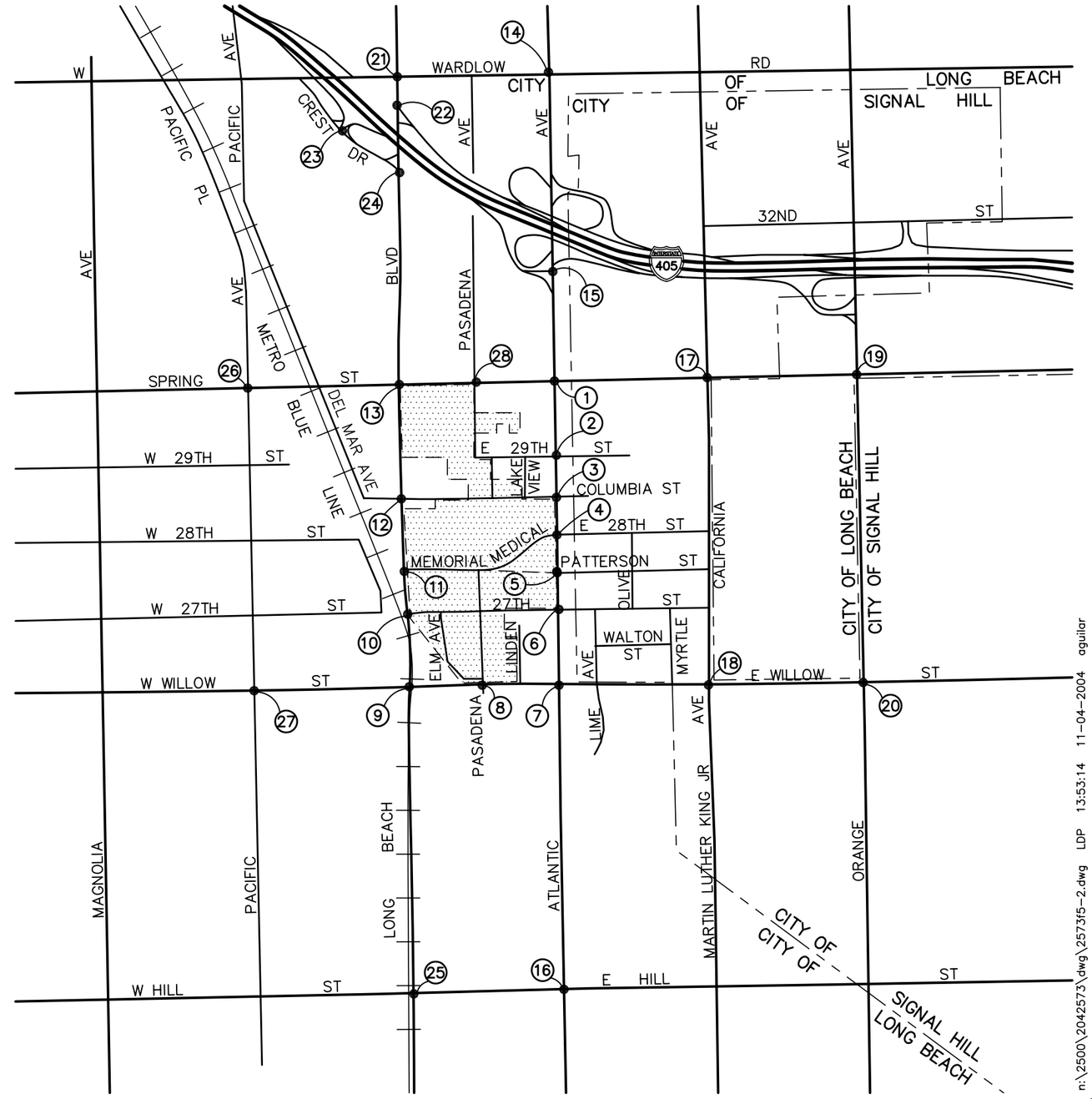
← = OUTBOUND PERCENTAGE

FIGURE 5-1

HOSPITAL PROJECT TRAFFIC DISTRIBUTION PATTERN

LONG BEACH MEMORIAL MEDICAL CENTER





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N NO SCALE

KEY

= PROJECT SITE

= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

(#) = STUDY INTERSECTION

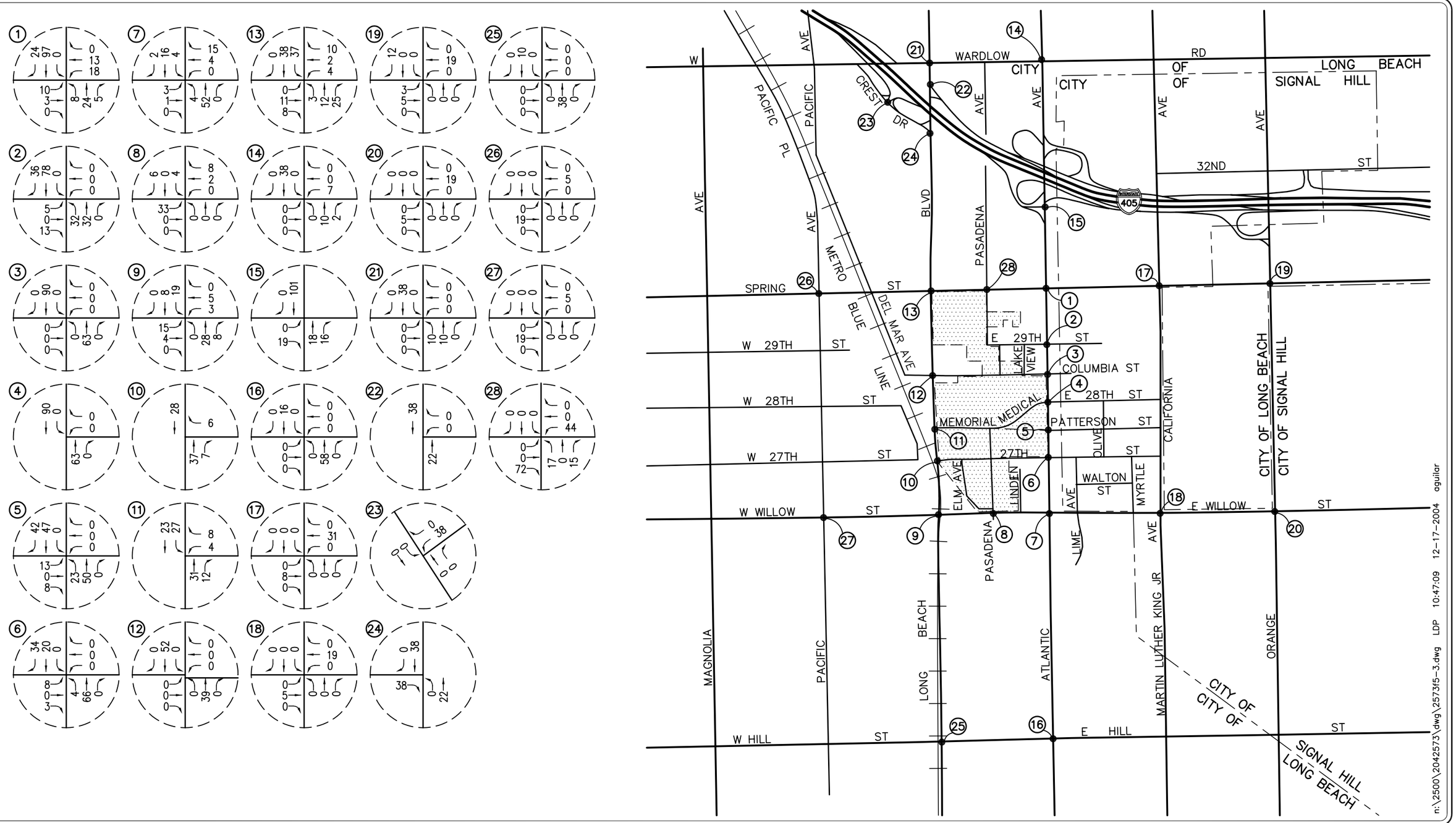
= INBOUND PERCENTAGE

= OUTBOUND PERCENTAGE

FIGURE 5-2

MEDICAL OFFICE PROJECT TRAFFIC DISTRIBUTION PATTERN

LONG BEACH MEMORIAL MEDICAL CENTER



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NO SCALE

KEY

= PROJECT SITE

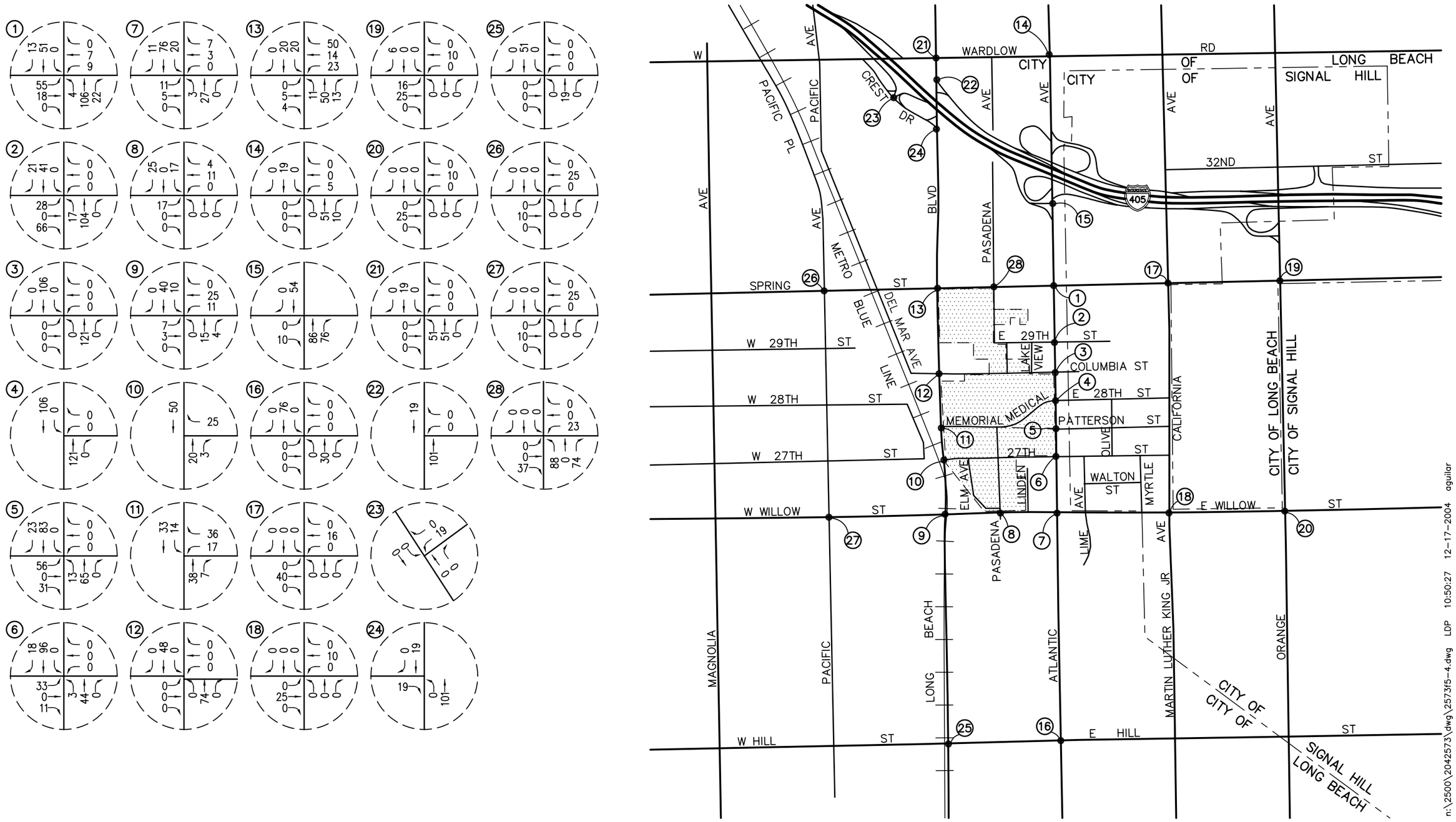
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

(#) = STUDY INTERSECTION

FIGURE 5-3

YEAR 2008 AM PEAK HOUR PROJECT TRAFFIC VOLUMES – PHASE I

LONG BEACH MEMORIAL MEDICAL CENTER



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N NO SCALE

KEY

= PROJECT SITE

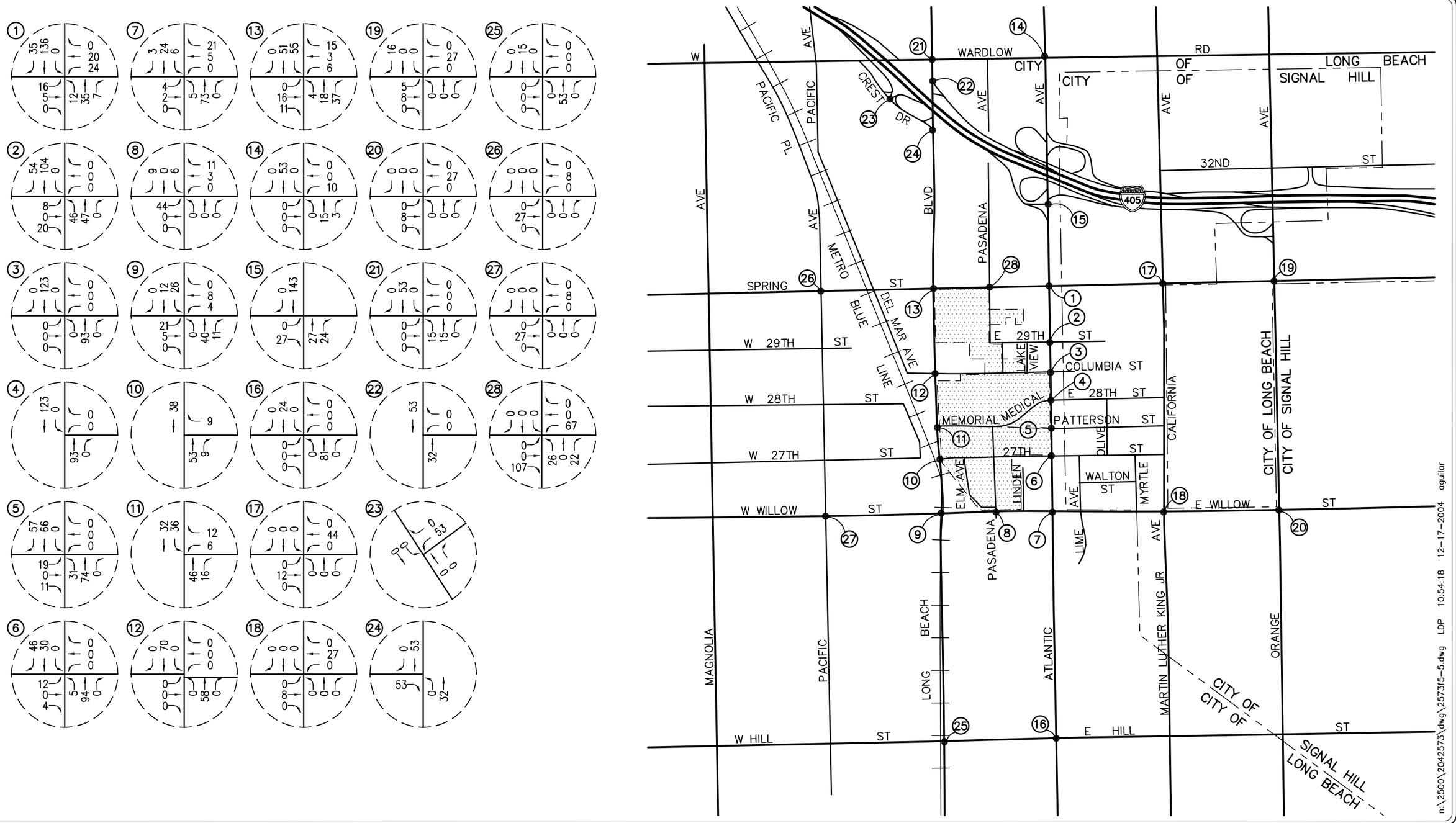
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

(#) = STUDY INTERSECTION

FIGURE 5-4

YEAR 2008 PM PEAK HOUR PROJECT TRAFFIC VOLUMES – PHASE I

LONG BEACH MEMORIAL MEDICAL CENTER



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NO SCALE

KEY

= PROJECT SITE

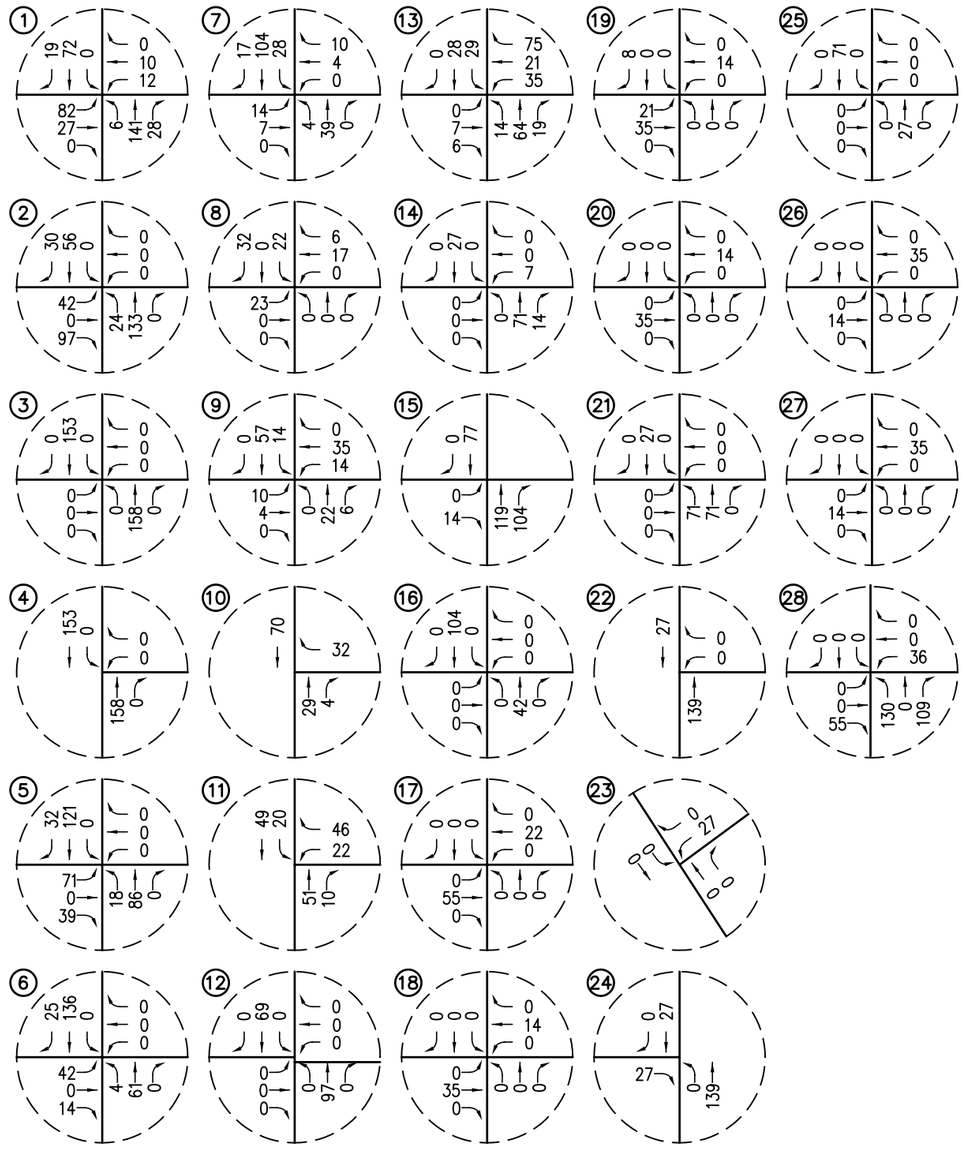
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

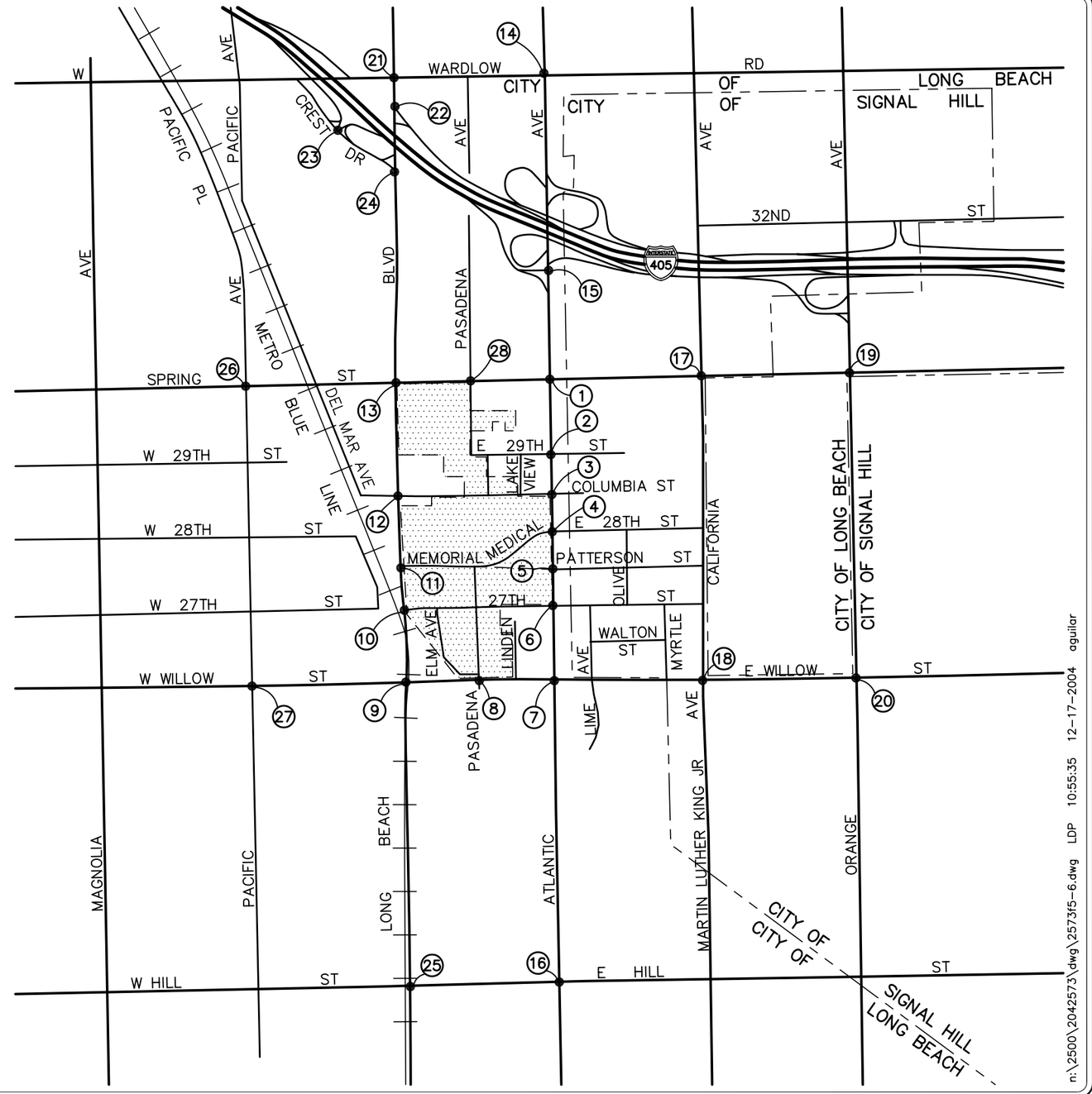
(#) = STUDY INTERSECTION

FIGURE 5–5

YEAR 2014 AM PEAK HOUR PROJECT TRAFFIC VOLUMES – PHASE I AND II

LONG BEACH MEMORIAL MEDICAL CENTER





LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= PROJECT SITE

= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

(#) = STUDY INTERSECTION

FIGURE 5-6

YEAR 2014 PM PEAK HOUR PROJECT TRAFFIC VOLUMES – PHASE I AND II

LONG BEACH MEMORIAL MEDICAL CENTER

TABLE 5-3
PROJECT DIRECTIONAL DISTRIBUTION PATTERN

Distribution Percentage	Orientation
10%	To/from the north via Long Beach Boulevard
10%	To/from the north via Atlantic Avenue
3%	To/from the north via Orange Avenue
15%	To/from the north via I-405 Freeway
10%	To/from the south via Long Beach Boulevard
15%	To/from the south via Atlantic Avenue
5%	To/from the west via Wardlow Road
5%	To/from the west via Willow Street
2%	To/form the east via Wardlow Road
15%	To/from the east via I-405 Freeway
5%	To/from the east via Spring Street
5%	To/from the east via Willow Street
100%	**Total**

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Ambient Traffic

Horizon year, background traffic growth estimates have been calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future related projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The future growth in traffic volumes has been calculated at one percent (1%) per year. Applied to existing Year 2004 traffic volumes results in a four percent (4%) and ten percent (10%) growth in existing volumes to horizon years 2008 and 2014, respectively.

6.2 Related Projects Traffic Characteristics

In order to make a realistic estimate of future on-street conditions prior to implementation of the Long Beach Memorial Medical Center Expansion project, the status of other known development projects (related projects) in the area has been researched at the City of Long Beach and the City of Signal Hill. With this information, the potential impact of the proposed project can be evaluated within the context of the cumulative impact of all ongoing development.

Based on our research, there are thirty-three (33) related projects located in the City of Long Beach and ten (10) related projects in the City of Signal Hill that have either been built, but not yet fully occupied, or are being processed for approval. These 43 related projects have been included as part of the cumulative background settings.

Table 6-1 provides the location and a brief description for each of the 43 related projects. ***Figure 6-1*** graphically illustrates the location of the related projects. These related projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Table 6-2 presents the development totals and resultant trip generation for the related projects. As shown in *Table 6-2*, the related projects are expected to generate a combined total of 97,016 daily trips on a "typical" weekday, with 7,720 trips (4,983 inbound and 2,737 outbound) forecast during the AM peak hour, and 9,497 (3,801 inbound and 5,696 outbound) during the PM peak hour.

The 33 related projects in the City of Long Beach are expected to generate 81,031 trips on a daily basis, with 6,453 trips occurring in the AM peak hour and 8,069 trips occurring in the PM peak hour

The 10 related projects located in the City of Signal Hill are expected to generate 15,985 trips during a "typical" weekday with 1,267 trips occurring in the AM peak hour and 1,428 trips occurring in the PM peak hour.

TABLE 6-1
LOCATION AND DESCRIPTION OF RELATED PROJECTS

No.	Cumulative Project	Location/Address	Description
City of Long Beach[9]			
1.	Douglass Park Project (Case # 0404-13)[10]	3855 N. Lakewood Boulevard	3,150,000 SF Office Park 255 DU Single-Family Residential 1,220 DU Apartment 1,025 DU Condo/Townhouse 150,000 SF Retail & 400-Room Hotel
2.	Windward Village Mobile Home Park (Case # 0308-19)	3595 Santa Fe Avenue	Subdivide the existing Windward Village Mobile Home Park
3.	OOI Self Storage (Case # 0110-07)[11]	712 W. Baker Street	516,000 SF Self-Storage
4.	Retail Center (Case # 0104-19)	3400 Long Beach Boulevard	7,000 SF Retail and 1,500 SF Fast-Food Restaurant
5.	Commercial/Industrial Complex (Case # 0308-02)	1825 E. Spring Street	101,000 SF Industrial
6.	Long Beach Sports Park (Case # 0211-03)[12]	1000 E. Spring Street	Youth Golf Center 30,000 SF Office Building Athletic Fields & Courts Batting Cages & Skate Park
7.	Retail Center (Case # 0208-04)	1422 West Willow Street	5,750 SF Retail
8.	Medical Office (Case # 0102-02)[13]	2702 Long Beach Boulevard	105,800 SF Medical Office
9.	Medical Office (Case # 0208-15)	2760 Atlantic Avenue	7,200 SF Medical Office Building
10.	Medical Office (Case # 0301-18)	2299 Pacific Avenue	2,000 SF Medical Office Building
11.	North Long Beach Police Station (Case # 0012-14)[14]	4891 Atlantic Avenue	20,000 SF Police Station
12.	New Comm. Rehab. Industries Building (Case # 0306-10)	1546 Anaheim Street	6,000 SF Industrial Building

9 Source: City of Long Beach Major Projects list dated June 30, 2004, with verification by City staff.
10 Source: Traffic Impact Study for the PacifiCenter at Long Beach project prepared by Crain and Associates (December 18, 2003).
11 Source: Traffic Impact Study for the Self Storage Facility project prepared by LLG Costa Mesa (December 20, 2002).
12 Source: Traffic Impact Study for the Long Beach Sports Park project prepared by LLG Costa Mesa (July 12, 2004).
13 This cumulative project was included in the list of related projects as a placeholder for an approved medical office building within the Long Beach Memorial Medical Center Campus. The entitlement for this project will expire November 2004. This medical office building will not be built under the existing entitlement based on conversations with City of Long Beach staff. Please note, that this related project is the Todd Cancer Institute and is a part of the Long Beach Memorial Medical Center Expansion project description.
14 Source: Traffic Impact Study for the North Long Beach Police Station project prepared by LLG Costa Mesa (December 15, 2000).

TABLE 6-1 (CONTINUED)
LOCATION AND DESCRIPTION OF RELATED PROJECTS

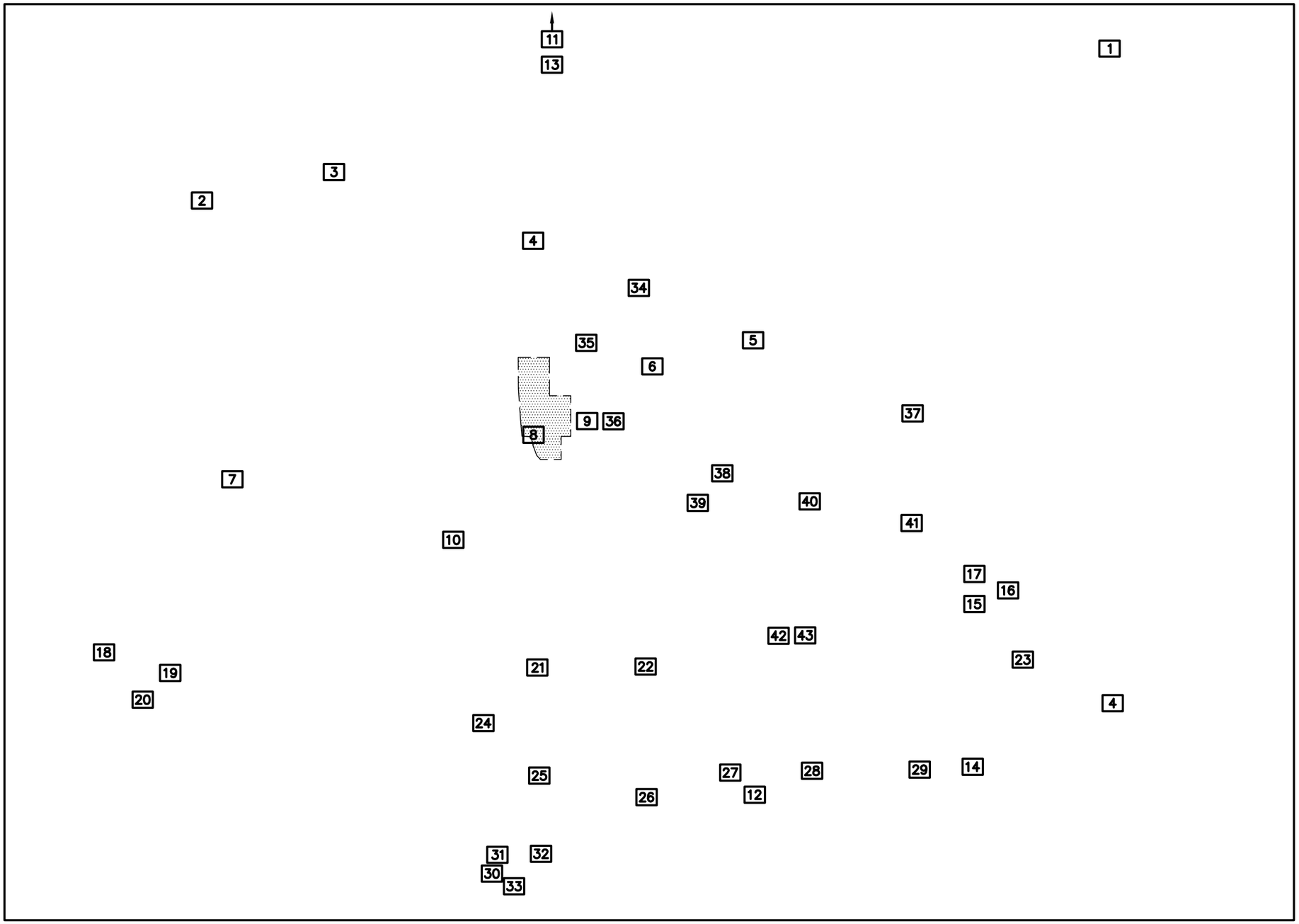
No.	Cumulative Project	Location/Address	Description
City of Long Beach (continued)[15]			
13.	Medical Office (Case # 0405-21)	3932 Long Beach Boulevard	7,000 SF Medical Office Building
14.	Walgreen's (Case # 0302-24)	3339 E. Anaheim Street	11,656 SF Drug Store/Pharmacy
15.	Alamitos Ridge Residential (Case # 9809-02)[16]	2080 Obispo Avenue	106 DU Single Family Detached
16.	Alamitos Green Residential[16]	East of Redondo Avenue between Stearns Street and Hathaway Avenue	15 DU Single Family Detached
17.	Elementary School[16]	South of Hill Street between Redondo Avenue and Obispo Avenue	1,450 Students
18.	Transitional Housing Facility (Case # 0206-12)	2001 River Avenue	201 DU Apartments
19.	CSULB Technology Park (Case # 9811-05 and 0003-19)	2000 W. 19th Street	200,000 SF Industrial and 200,000 SF Research and Development
20.	Warehouse (Case # 0301-08)	2200 W. Pacific Coast Hwy	22,653 SF Warehouse
21.	Affordable Condominiums (Case # 0304-06)	1856 Long Beach Boulevard	60 DU Condominiums
22.	Commercial Building (Case # 0307-19)	1075 E. Pacific Coast Highway	10,400 SF Commercial Building
23.	Java Lanes Residential (Case # 0306-02)	3738-3800 E. Pacific Coast Highway	79 DU Condominiums
24.	Affordable Condominiums (Case # 0301-16)	1593-1643 Pacific Avenue	43 DU Condominiums
25.	Commercial Center (Case # 0207-17)	325 E. Anaheim Street	6,700 SF Commercial Center
26.	Commercial Building (Case # 0210-19)	100-1008 E. Anaheim Street	4,000 SF Commercial Building
27.	Mark Twain Public Library (Case # 0207-22)	1401 East Anaheim Street	16,000 SF Public Library
28.	Commercial Building (Case # 0304-31 and 0310-06)	2215 E. Anaheim Street	11,300 SF Commercial Building

15 Source: City of Long Beach Major Projects list dated June 30, 2004, with verification by City staff.
16 Source: Traffic Impact Study for Alamitos Ridge prepared by LLG Pasadena (December 9, 2002).

TABLE 6-1 (CONTINUED)
LOCATION AND DESCRIPTION OF RELATED PROJECTS

No.	Cumulative Project	Location/Address	Description
City of Long Beach (continued)[17]			
29.	Auto Zone (Case # 0401-27)	2923-2933 E. Anaheim Street	5,400 SF Auto Parts Store
30.	Lofts (Case # 0105-10)	829 Pine Avenue	Convert existing commercial building to 16 Lofts
31.	Locust Avenue Residential (Case # 0110-05)	835 Locust Avenue	82 DU Condominiums/Townhouses
32.	Commercial Building (Case # 0402-11)	940 Long Beach Boulevard	5,000 SF Commercial Building
33.	Condominiums (Case # 0405-18)	838 Pine Avenue	Convert 83 DU Apartments to 83 DU Condominiums
City of Signal Hill [18]			
34.	U.S. Storage	Northeast Corner of California Avenue and 32nd Street	130,000 SF Self-Storage Facility
35.	Home Improvement/Retail	North of Spring Street between Atlantic Avenue and California Avenue	138,708 SF Home Improvement, 23,700 SF Garden Center, 56,890 SF Retail, 6,000 SF Restaurant and two 2,500 SF Fast-Food
36.	A and A Ready Mix	Northwest Corner of 27th Street and California Avenue	25 Truck Cement Ready Mix Plant
37.	6th Building Industrial	2700 Temple Avenue	60,000 SF Industrial
38.	Gundry Estates	Southeast Corner of Willow Street and Gundry Avenue	11 DU Single Family Detached
39.	Las Brisas Phase II (Low Income Housing)	Northeast Corner of California Avenue and Burnett Street	60 DU Apartments
40.	Hill Top Specific Plan	Skyline Drive, East of Cherry	100 DU Single Family Detached, 194 DU Multi-Family Attached
41.	Hathaway Estates	Southwest Corner of Temple Avenue and Hathaway Avenue	20 DU Single Family Detached
42.	LBUSD Middle School	West of Cherry Avenue, south of 20th Street	850 Students
43.	Cherry / 19th Condominiums	East of Cherry, between 19th Street & 20th Street	30 DU Condominiums

[17] Source: City of Long Beach Major Projects list dated June 30, 2004, with verification by City staff.
[18] Source: Based on conversations with Gary Jones, City of Signal Hill, on Sept. 24, 2004.



1. Douglass Park Project (Case # 0404-13)
2. Windward Village Mobile Home Park (Case # 0308-19)
3. OOI Self Storage (Case # 0110-07)
4. Retail Center (Case # 0104-19)
5. Commercial/Industrial Complex (Case # 0308-02)
6. Long Beach Sports Park (Case # 0211-03)
7. Retail Center (Case # 0208-04)
8. Medical Office (Case # 0102-02)
9. Medical Office (Case # 0208-15)
10. Medical Office (Case # 0301-18)
11. North Long Beach Police Station (Case # 0012-14)
12. New Comm. Rehab. Industries Building (Case # 0306-10)
13. Medical Office (Case # 0405-21)
14. Walgreen's (Case # 0302-24)
15. Alamitos Ridge Residential (Case # 9809-02)
16. Alamitos Green Residential
17. Elementary School
18. Transitional Housing Facility (Case # 0206-12)
19. CSULB Technology Park (Case # 9811-05 and 0003-19)
20. Warehouse (Case # 0301-08)
21. Affordable Condominiums (Case # 0304-06)
22. Commercial Building (Case # 0307-19)
23. Java Lanes Residential (Case # 0306-02)
24. Affordable Condominiums (Case # 0301-16)
25. Commercial Center (Case # 0207-17)
26. Commercial Building (Case # 0210-19)
27. Mark Twain Public Library (Case # 0207-22)
28. Commercial Building (Case # 0304-31 and 0310-06)
29. Auto Zone (Case # 0401-27)
30. Lofts (Case # 0105-10)
31. Locust Avenue Residential (Case # 0110-05)
32. Commercial Building (Case # 0402-11)
33. Condominiums (Case # 0405-18)
34. U.S. Storage
35. Home Improvement/Retail
36. A and A Ready Mix
37. 6th Building Industrial
38. Gundry Estates
39. Las Brisas Phase II (Low Income Housing)
40. Hill Top Specific Plan
41. Hathaway Estates
42. LBUSD Middle School
43. Cherry / 19th Condominiums

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N NO SCALE

KEY
= RELATED PROJECT LOCATION
= PROJECT SITE

FIGURE 6-1

LOCATION OF RELATED PROJECTS
LONG BEACH MEMORIAL MEDICAL CENTER

TABLE 6-2
RELATED PROJECTS TRAFFIC GENERATION FORECAST[19]

Related Projects Description	Daily 2-Way	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
City of Long Beach:							
1) Douglas Park Project[20]	55,920	3,064	1,418	4,482	1,895	3,532	5,427
2) Windward Village Mobile Home Park[21]	0	0	0	0	0	0	0
3) OOI Self Storage (516,000 SF)[22]	1,290	46	31	77	67	67	134
4) Retail Center[23] (7,000 SF Retail / 1,500 SF Fast Food)	941	25	23	48	23	22	45
5) Commercial/Industrial Complex(101,000 SF)	704	82	11	93	12	87	99
6) Long Beach Sports Park[24]	3,970	90	11	101	459	228	687
7) Retail Center (5,750 SF)[23]	222	4	2	6	7	7	14
9) Medical Office (7,200 SF)	260	14	4	18	7	20	27
10) Medical Office (2,000 SF)	72	4	1	5	2	5	7
11) North Long Beach Police Station (20,000 SF)[25]	980	25	23	48	41	57	98
12) New Comm. Rehab Industries Building (6,000 SF)	42	5	1	6	1	5	6
13) Medical Office (7,000 SF)	253	14	4	18	7	19	26
14) Walgreen's (11,656 SF)[23]	925	18	13	31	25	26	51
15) Alamitos Ridge Residential (106 DU)[26]	1,014	20	59	79	69	38	107
16) Alamitos Green Residential (15 DU)[26]	144	3	8	11	10	5	15
17) Elementary School (1,450 Students)[26]	1,479	248	172	420	0	0	0
18) Transitional Housing Facility (201 DU)	1,351	20	82	102	80	44	124
19) CSULB Technology Park (200,000 SF Industrial / 200,000 SF R&D)	3,016	368	64	432	56	356	412
20) Warehouse (22,653 SF)	434	24	5	29	5	15	20
21) Affordable Condominiums (60 DU)	352	4	22	26	21	10	31
22) Commercial Building (10,400 SF)[23]	402	7	4	11	13	13	26
City of Long Beach Related Projects No. 1 - 22 Trip Generation-Subtotal	**73,771**	**4,085**	**1,958**	**6,043**	**2,800**	**4,556**	**7,356**

[19] Source: *Trip Generation*, 7th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2003).

[20] Source: Traffic Impact Study for the PacifiCenter at Long Beach project prepared by Crain & Associates (December 18, 2003).

[21] This project does not generate any new vehicular traffic.

[22] Source: Traffic Impact Study for the Self-Storage Facility project prepared by LLG Costa Mesa (December 20, 2002).

[23] The trips presented above include adjustments for pass-by. Source: Trip Generation Handbook, ITE October 1998.
The following pass-by reduction factors were utilized:
-Land Use 820: Shopping Center (Daily = assume 10% and PM Peak Hour = 34%)
-Land Use 834: Fast-Food Restaurant With Drive-Through (Daily = assume 10%, AM Peak Hour= 49% and PM Peak Hour= 50%)
-Land Use 881: Pharmacy With Drive-Through Window (Daily = assume 10% and PM Peak Hour = 49%)

[24] Source: Traffic Impact Study for the Long Beach Sports Park project prepared by LLG Costa Mesa (July 12, 2004).

[25] Source: Traffic Impact Study for the North Long Beach Police Station project prepared by LLG Costa Mesa (December 15, 2000).

[26] Source: Traffic Impact Study for Alamitos Ridge prepared by LLG Pasadena (December 9, 2002).

TABLE 6-2 (CONTINUED)
RELATED PROJECTS TRAFFIC GENERATION FORECAST[27]

Related Projects Description	Daily 2-Way	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
23) Java Lanes Residential Condominiums (79 DU)	463	6	29	35	28	13	41
24) Affordable Condominiums (43 DU)	252	3	16	19	15	7	22
25) Commercial Center (6,700 SF)[28]	259	4	3	7	8	9	17
26) Commercial Building (4,000 SF)[28]	155	3	2	5	5	5	10
27) Mark Twain Public Library (16,000 SF)	864	12	5	17	54	59	113
28) Commercial Building (11,300 SF)[28]	436	7	5	12	13	15	28
29) Auto Zone (5,400 SF)	334	8	4	12	16	16	32
30) Lofts (16 DU)[29]	0	0	0	0	0	0	0
31) Locust Avenue Residential (82 DU)	481	6	30	36	29	14	43
32) Commercial Building (5,000 SF)[28]	193	3	2	5	6	7	13
33) Condominiums (83 DU)[28]	0	0	0	0	0	0	0
City of Long Beach Related Projects No. 23 - 33 Trip Generation-Subtotal	**3,437**	**52**	**96**	**148**	**174**	**145**	**319**
City of Long Beach Development Total Trip Generation Potential	**81,031**	**4,344**	**2,109**	**6,453**	**3,080**	**4,989**	**8,069**
City of Signal Hill:							
34) U.S. Storage (130,000 SF)	325	12	8	20	17	17	34
35) Home Improvement/Retail[30]	10,696	263	222	485	433	458	891
36) A and A Ready Mix (25 Trucks)	200	22	6	28	9	21	30
37) 6th Building Industrial (60,000 SF)	418	49	7	56	7	52	59
38) Gundry Estates (11 DU)	105	2	6	8	7	4	11
39) Las Brisas Phase II (60 DU)	403	6	25	31	24	13	37
40) Hill Top Specific Plan (100 DU SFR,194 DU MFR)	2,094	33	128	161	132	70	202
41) Hathaway Estates (20 SFD)	191	4	11	15	13	7	20
42) LBUSD Middle School (850 Students)	1,377	246	204	450	68	60	128
43) Cherry / 19th Condominiums (30 DU)	176	2	11	13	11	5	16
City of Signal Hill Development Total Trip Generation Potential	**15,985**	**639**	**628**	**1,267**	**721**	**707**	**1,428**
Total Related Projects No. 1 - 43 Trip Generation Potential	**97,016**	**4,983**	**2,737**	**7,720**	**3,801**	**5,696**	**9,497**

[27] Source: *Trip Generation*, 7th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2003).

[28] The trips presented above include adjustments for pass-by. Source: *Trip Generation* Handbook, ITE October 1998
The following pass-by reduction factors were utilized:
- Land Use 820: Shopping Center (Daily = assume 10% and PM Peak Hour = 34%)

[29] This project does not generate any new vehicular traffic

[30] Source: Traffic Impact Study for Home Depot prepared by Urban Crossroads (December 2000).

The trip generation potential of these related projects have been included in both the Year 2008 and Year 2014 cumulative background setting, with one exception. The Douglass Park project was not considered in the Year 2008 cumulative traffic setting because the anticipated completion year for this related project is the Year 2020. However, to remain conservative, it was included as part of the Year 2014 cumulative traffic setting.

6.3 Year 2008 Traffic Volumes

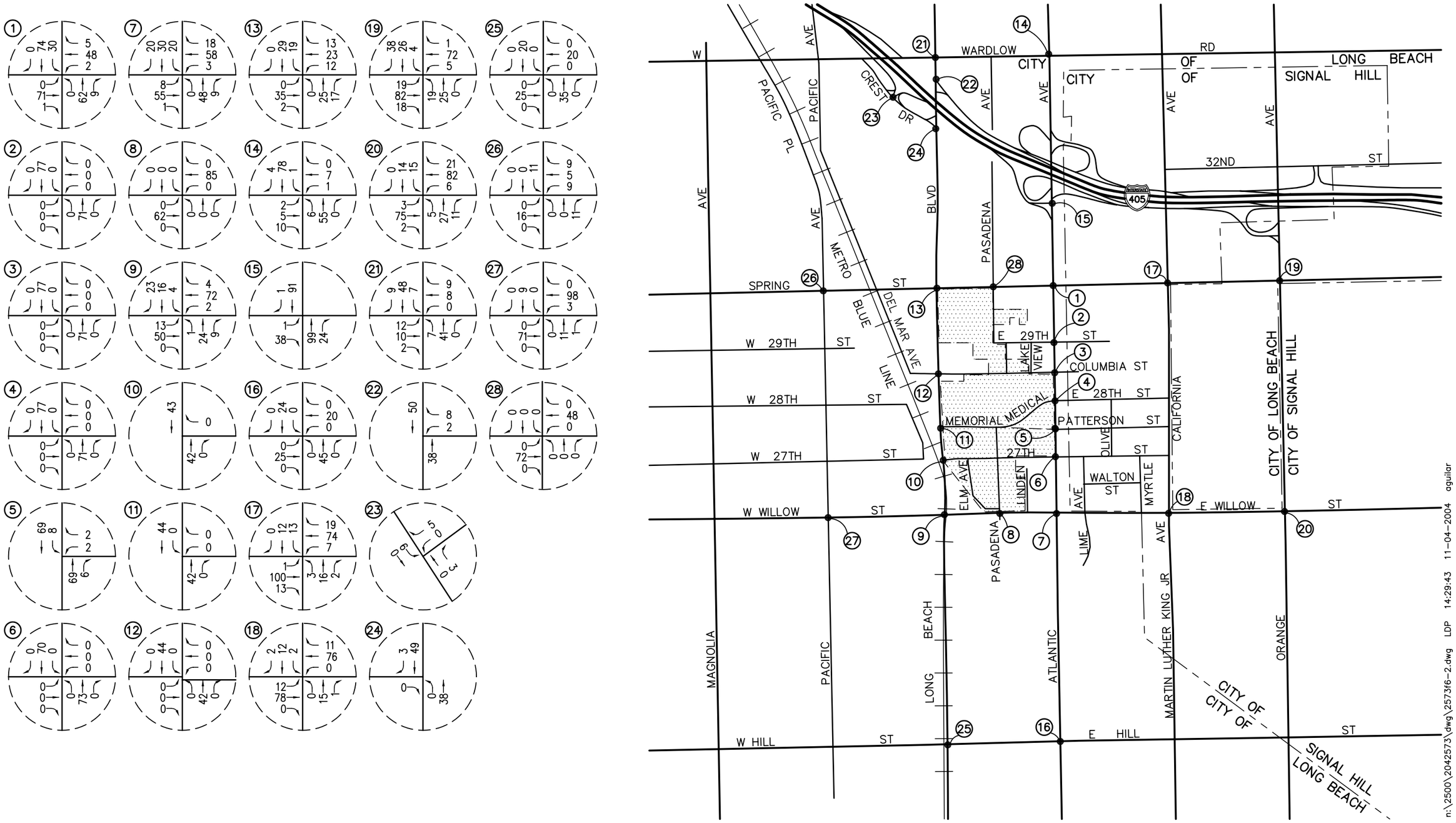
The AM and PM peak hour traffic volumes associated with the related projects in the Year 2008 are presented in ***Figures 6-2*** and ***6-3***, respectively. ***Figures 6-4*** and ***6-5*** present future AM and PM peak hour background traffic volumes at the 28 key study intersections for the future horizon year (Year 2008). Please note that the background traffic volumes represent the accumulation of existing traffic, ambient growth traffic, and related projects traffic.

Figures 6-6 and ***6-7*** illustrate Year 2008 forecast AM and PM peak hour traffic volumes with the inclusion of the trips generated by Phase I of the Long Beach Memorial Medical Center Expansion project. The traffic volume projections illustrated in these figures assume Patterson Street/Memorial Medical Campus Drive is realigned southward from its current intersection, at Atlantic Avenue near 28th Street, to intersect with the existing Patterson Street/Atlantic Avenue intersection.

6.4 Year 2014 Traffic Volumes

Figures 6-8 and ***6-9***, present the AM and PM peak hour traffic volumes associated with the related projects in the Year 2014, respectively.

Figures 6-10 and ***6-11*** present future AM and PM peak hour background traffic volumes (Douglass Park project included) at the 28 key study intersections for the Phase II horizon year (Year 2014). ***Figures 6-12*** and ***6-13*** present Year 2014 forecast AM and PM peak hour traffic volumes with the inclusion of the trips generated by Phases I and II of the Long Beach Memorial Medical Center Expansion project.



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N NO SCALE

KEY

= PROJECT SITE

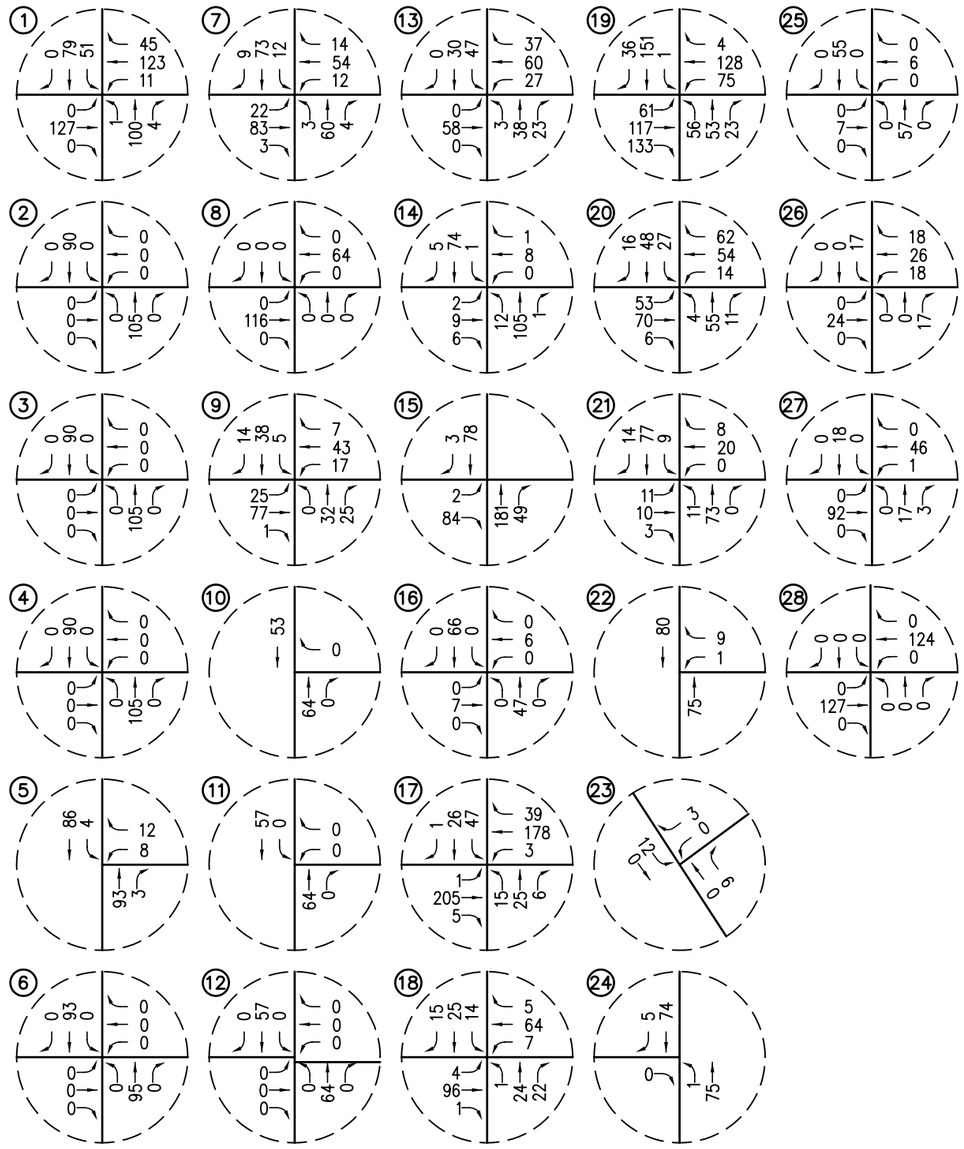
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

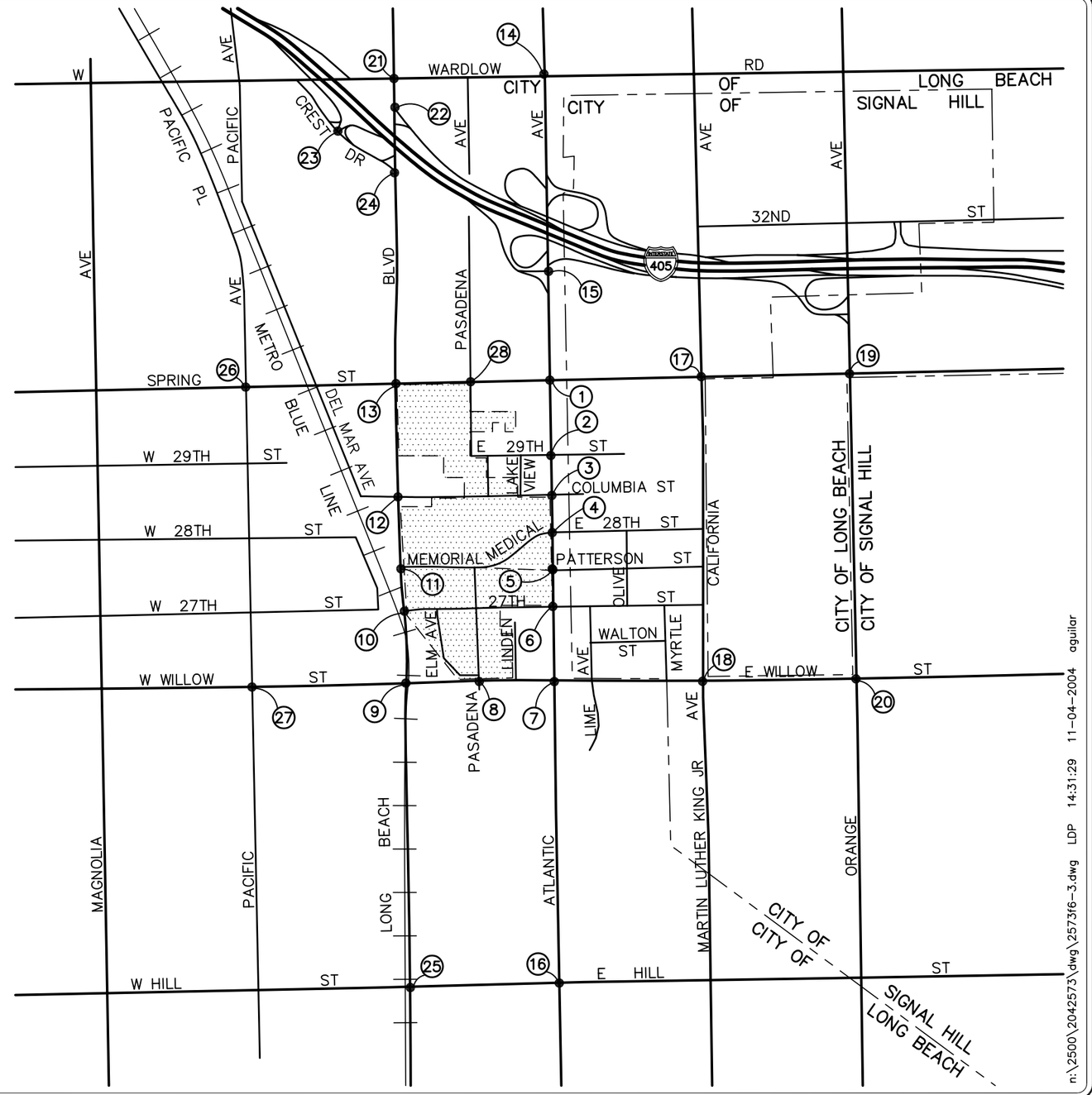
(#) = STUDY INTERSECTION

FIGURE 6-2

YEAR 2008 AM PEAK HOUR RELATED PROJECT TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER





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KEY

= PROJECT SITE

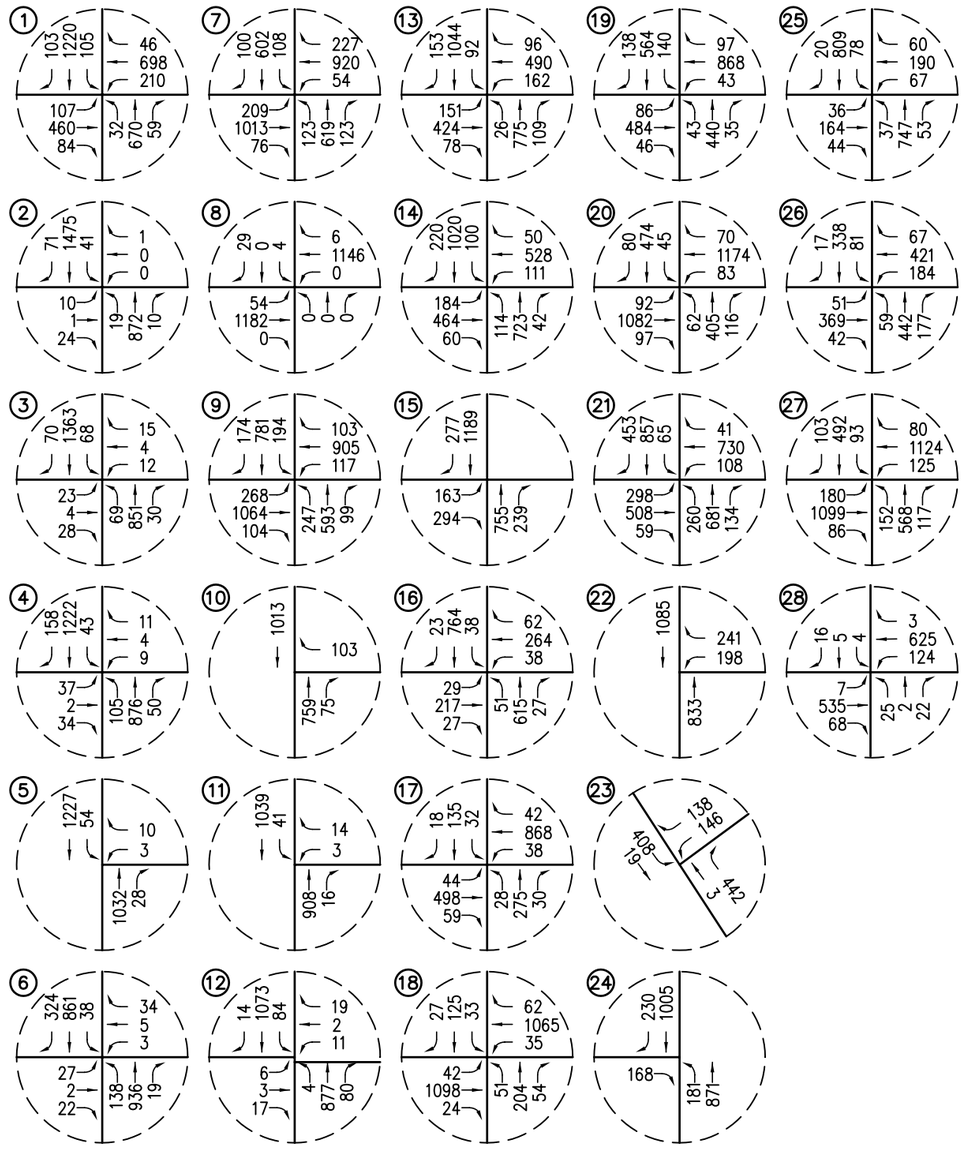
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

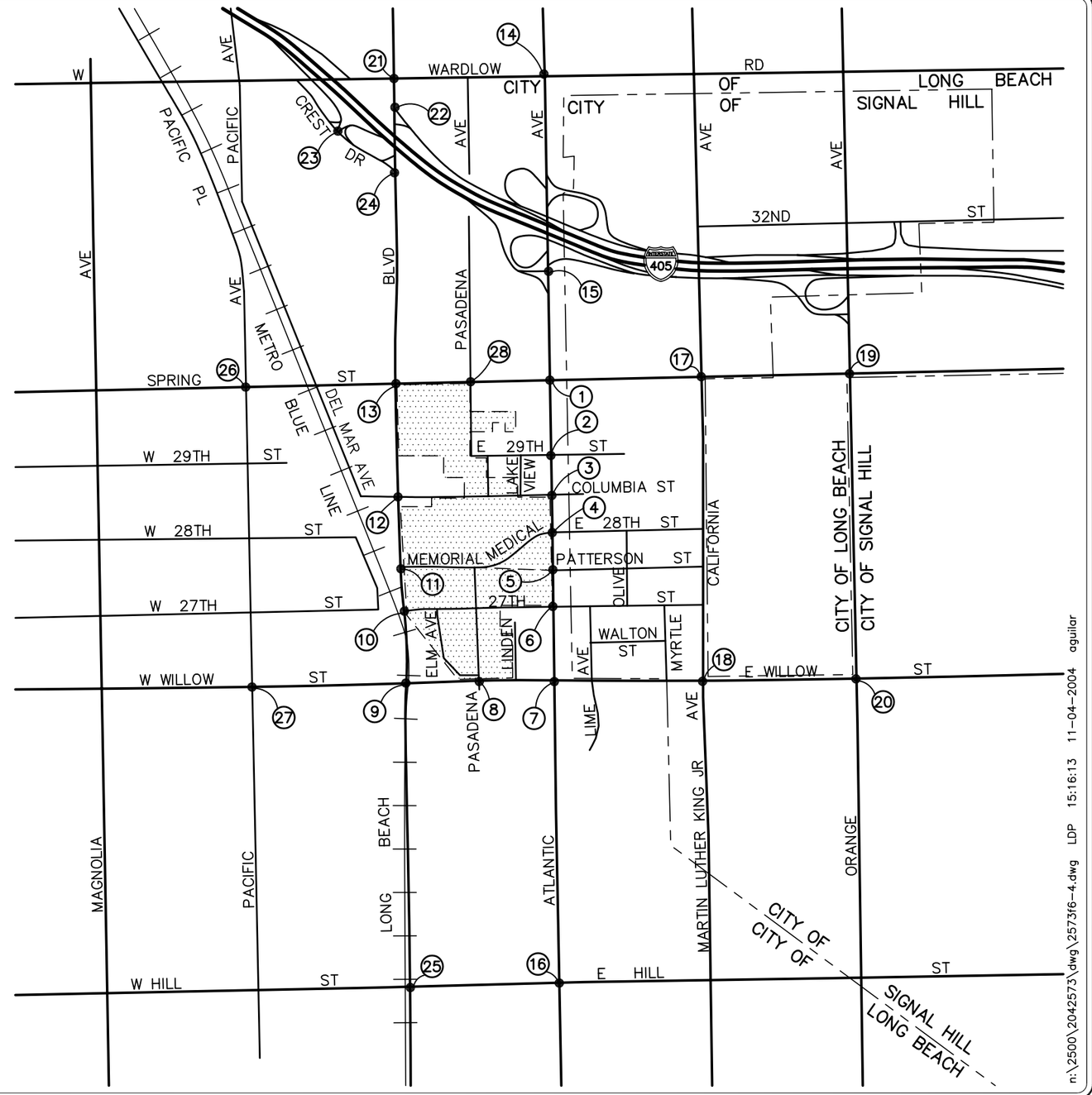
(#) = STUDY INTERSECTION

FIGURE 6-3

YEAR 2008 PM PEAK HOUR RELATED PROJECT TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER





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KEY

= PROJECT SITE

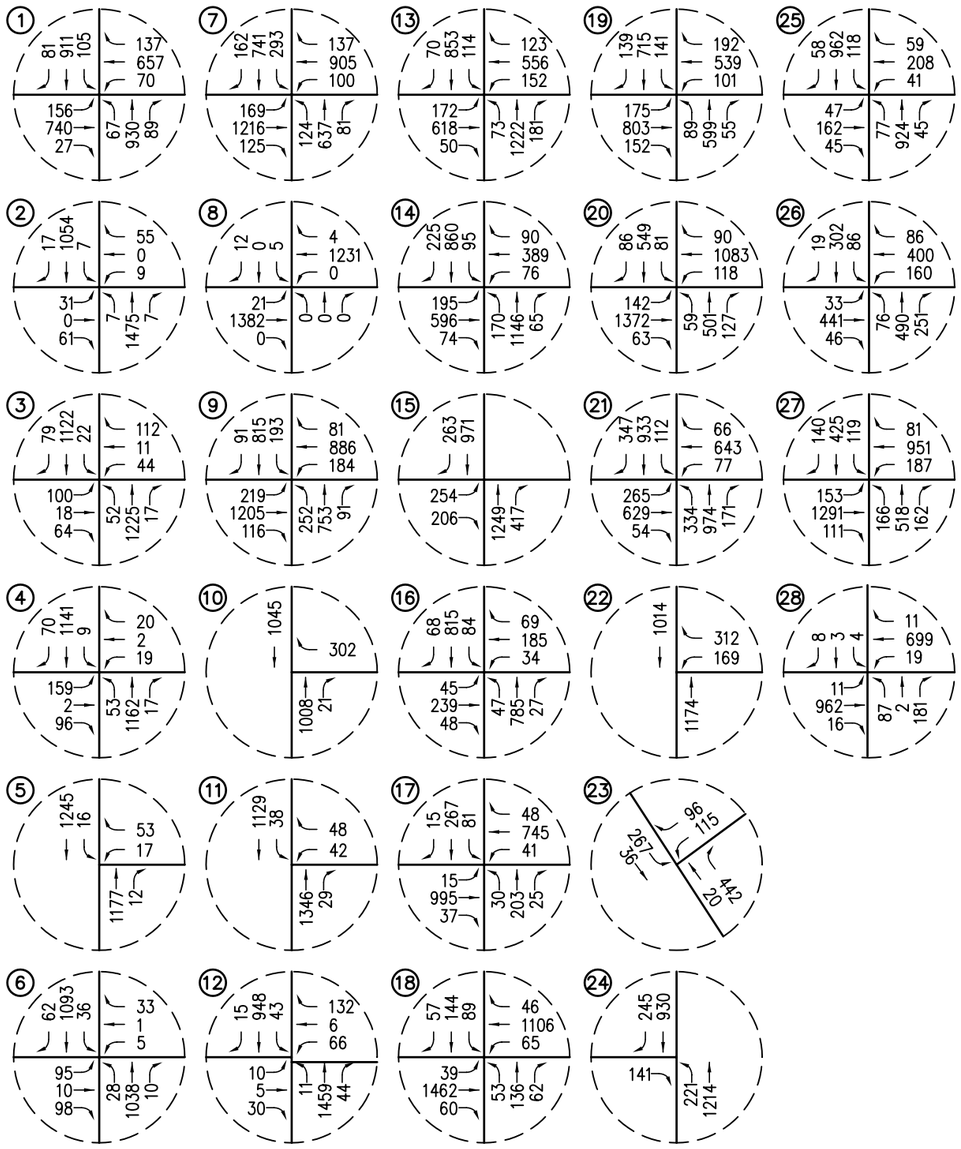
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

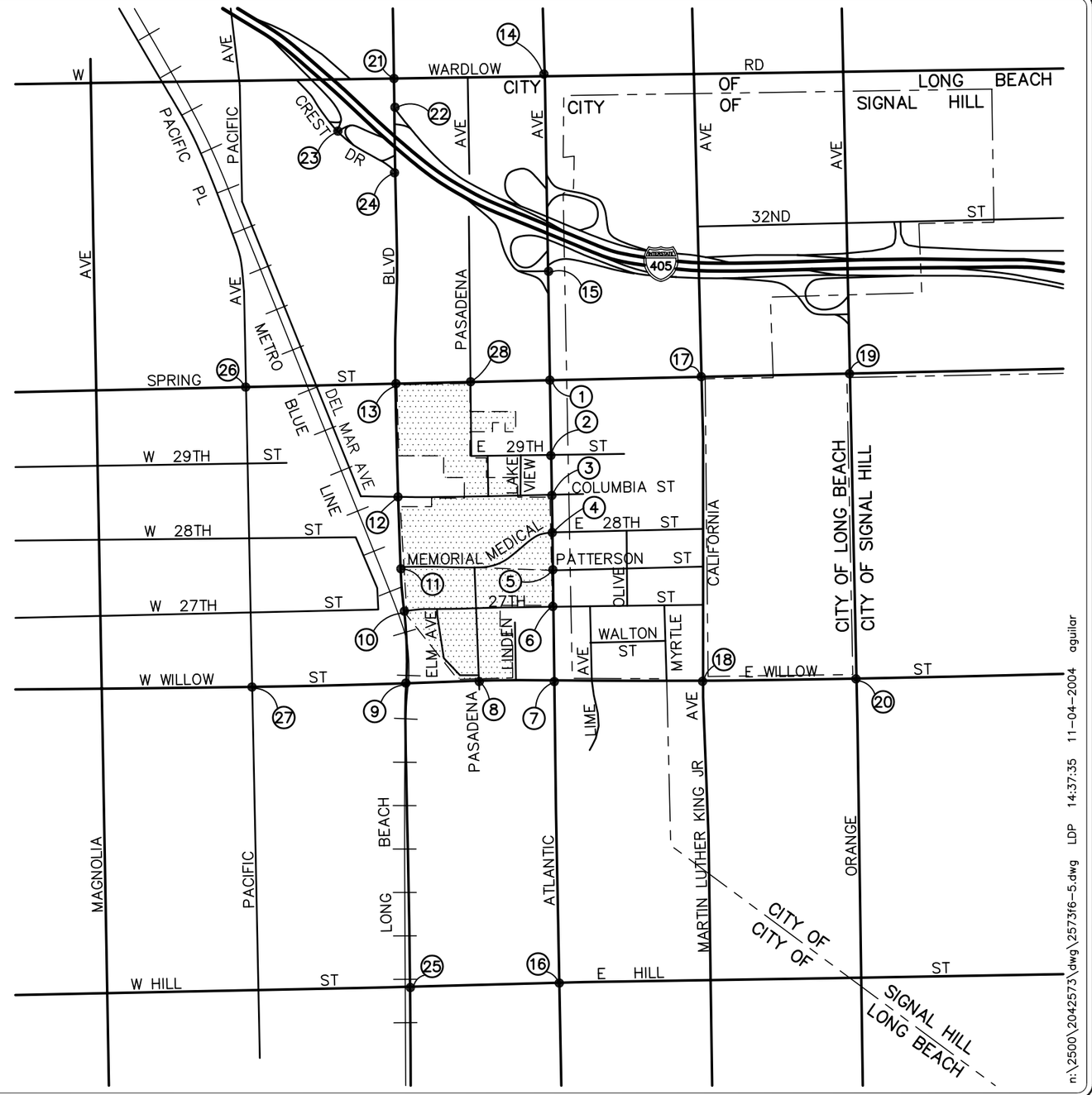
(#) = STUDY INTERSECTION

FIGURE 6-4

YEAR 2008 AM PEAK HOUR BACKGROUND TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER





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KEY

= PROJECT SITE

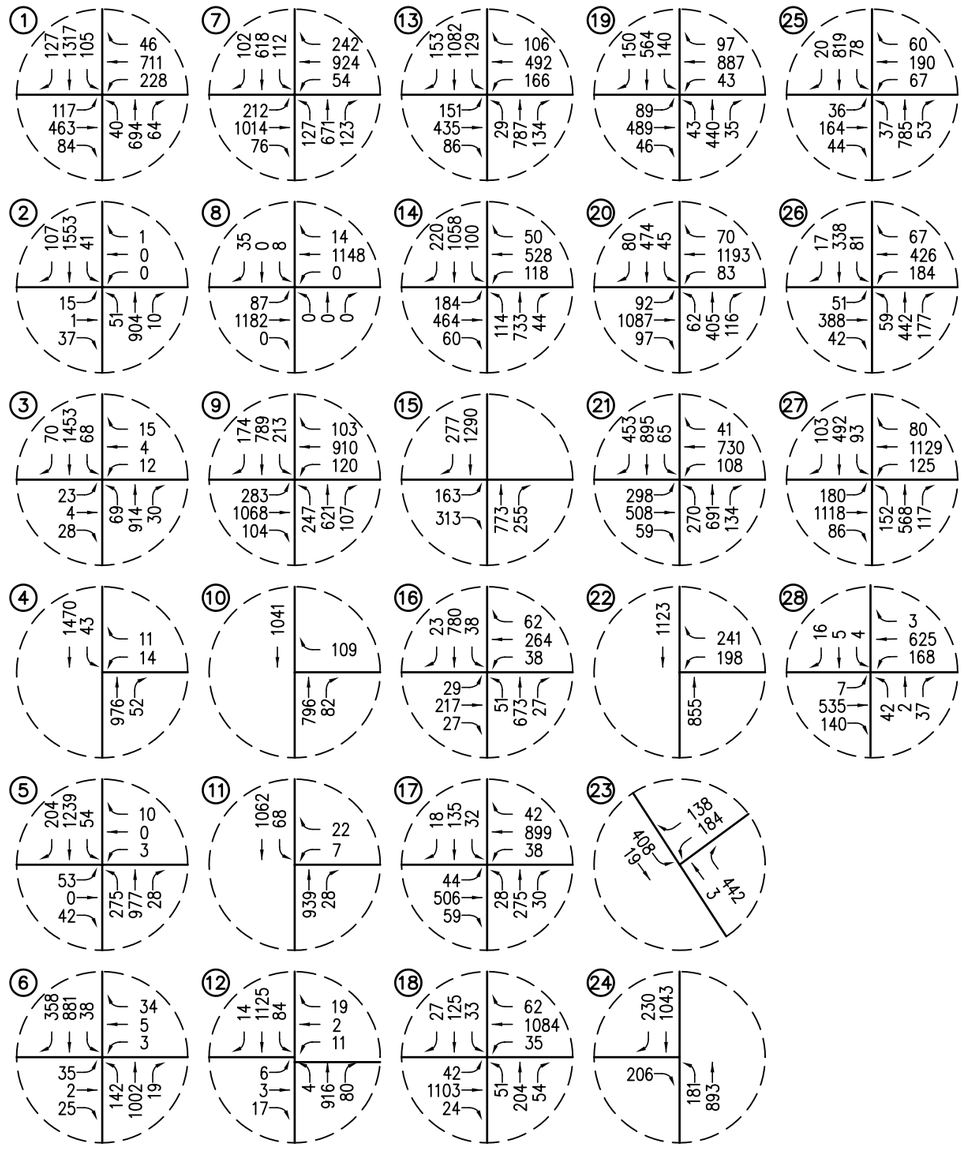
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

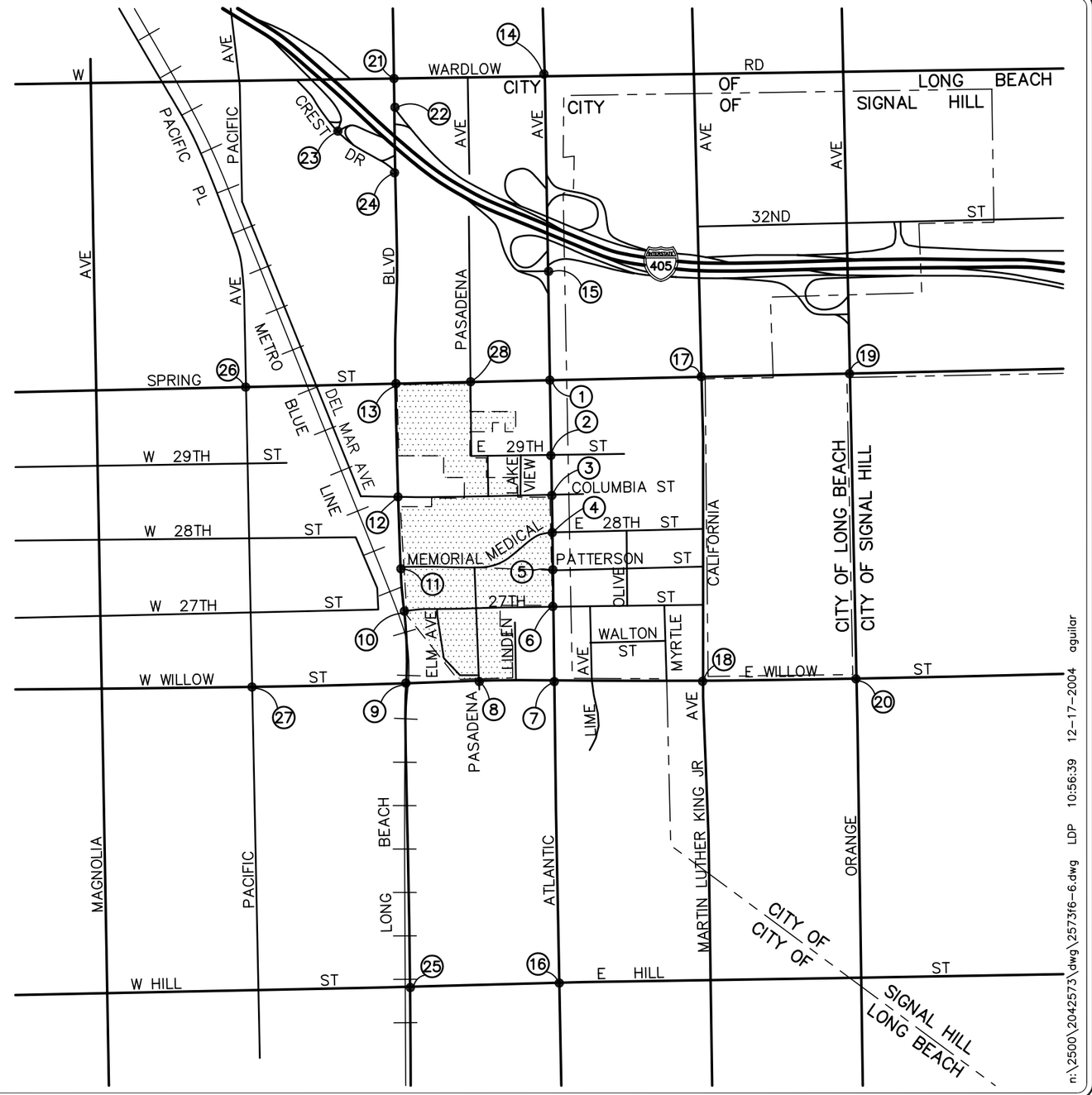
(#) = STUDY INTERSECTION

FIGURE 6-5

YEAR 2008 PM PEAK HOUR BACKGROUND TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER





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N NO SCALE

KEY

= PROJECT SITE

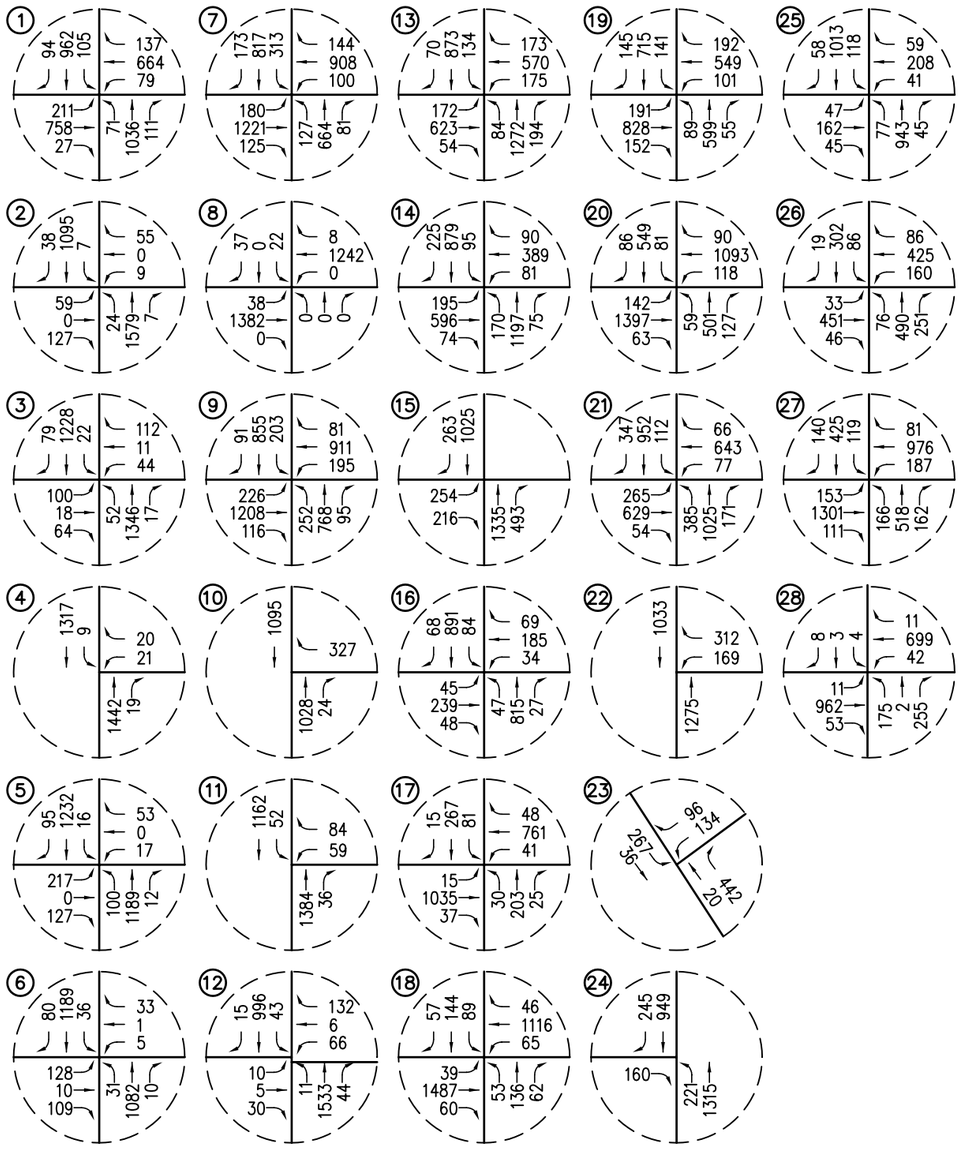
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

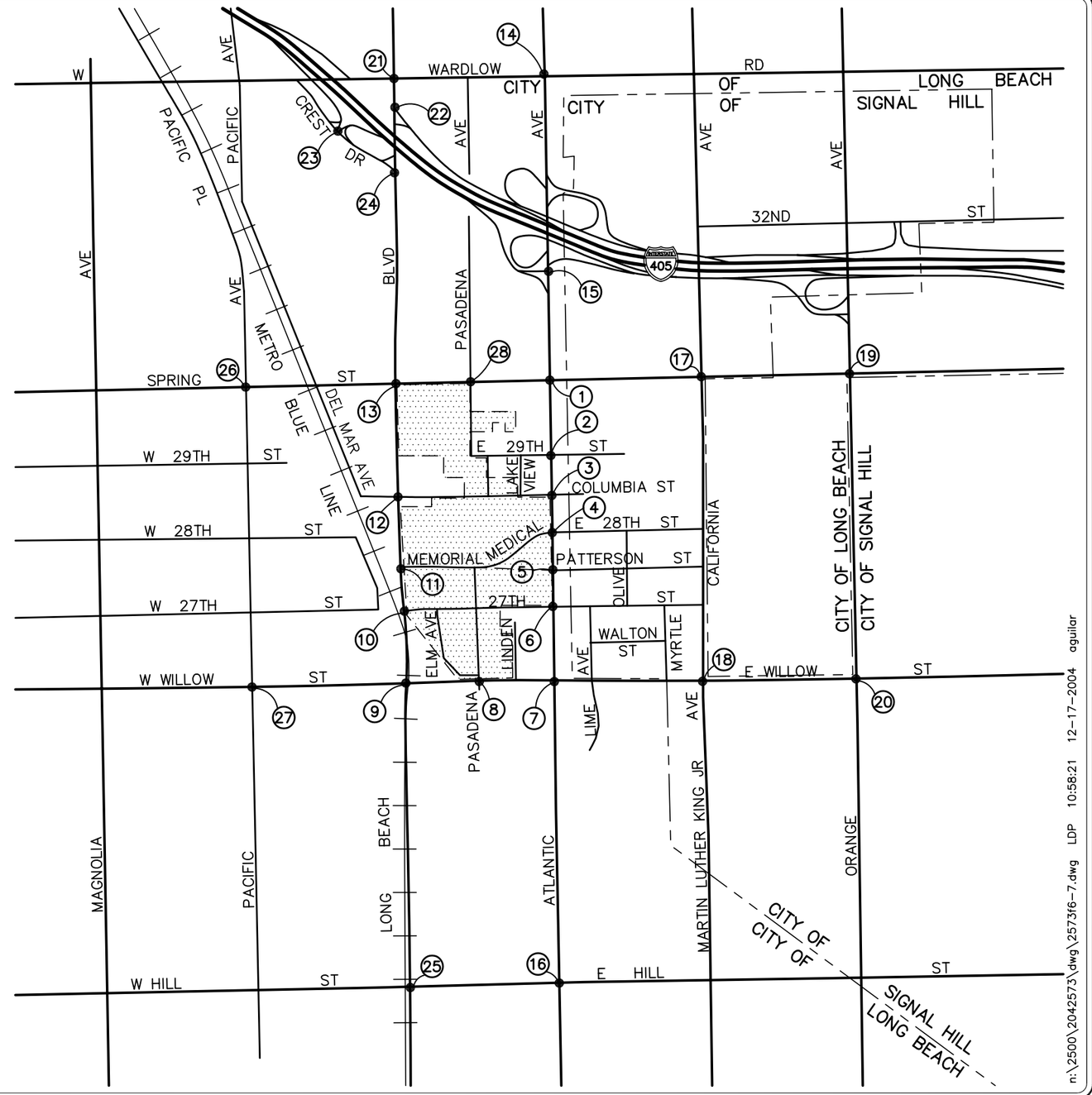
(#) = STUDY INTERSECTION

FIGURE 6-6

YEAR 2008 AM PEAK HOUR TRAFFIC VOLUMES WITH PHASE I PROJECT TRAFFIC

LONG BEACH MEMORIAL MEDICAL CENTER





LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= PROJECT SITE

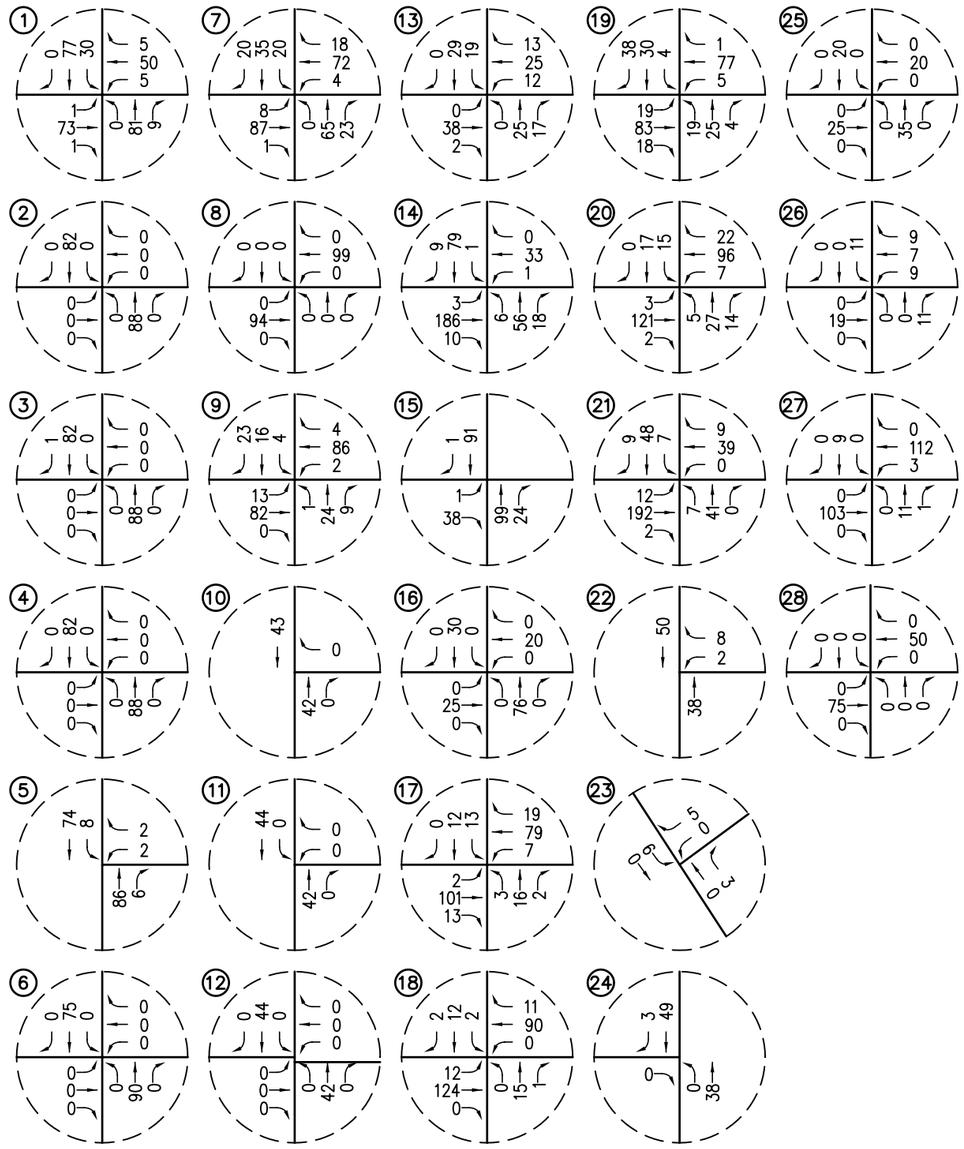
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

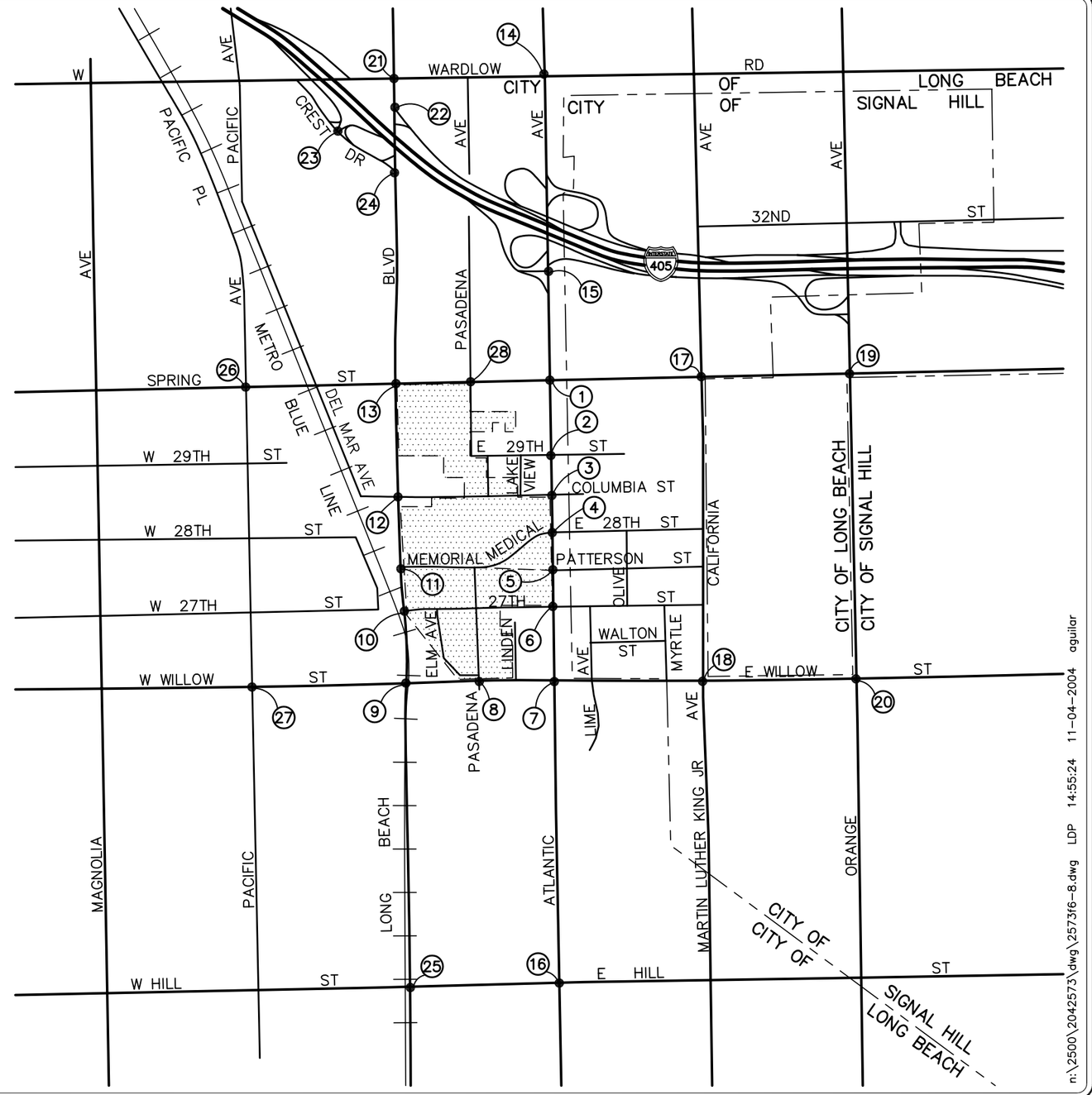
(#) = STUDY INTERSECTION

FIGURE 6-7

YEAR 2008 PM PEAK HOUR TRAFFIC VOLUMES WITH PHASE I PROJECT TRAFFIC

LONG BEACH MEMORIAL MEDICAL CENTER





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N NO SCALE

KEY

= PROJECT SITE

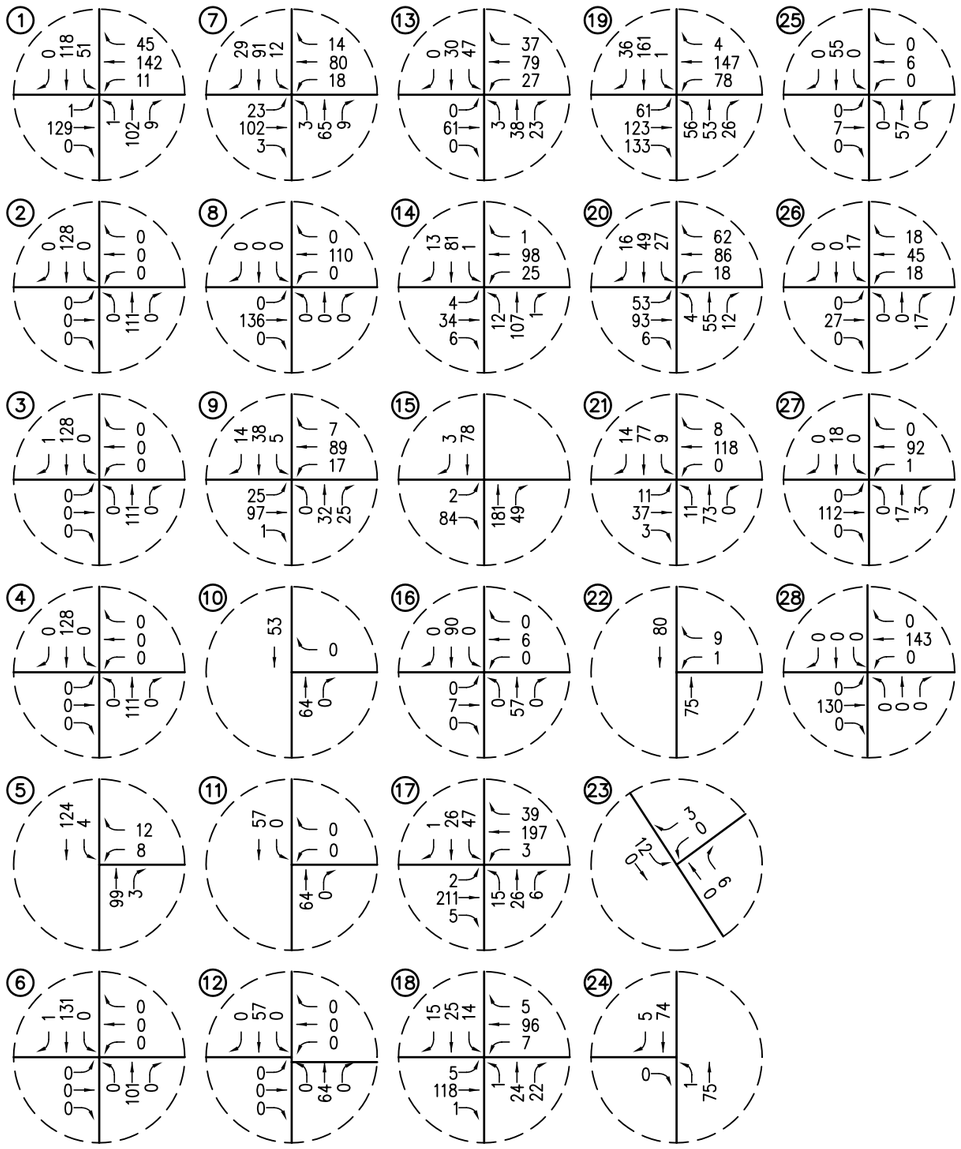
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

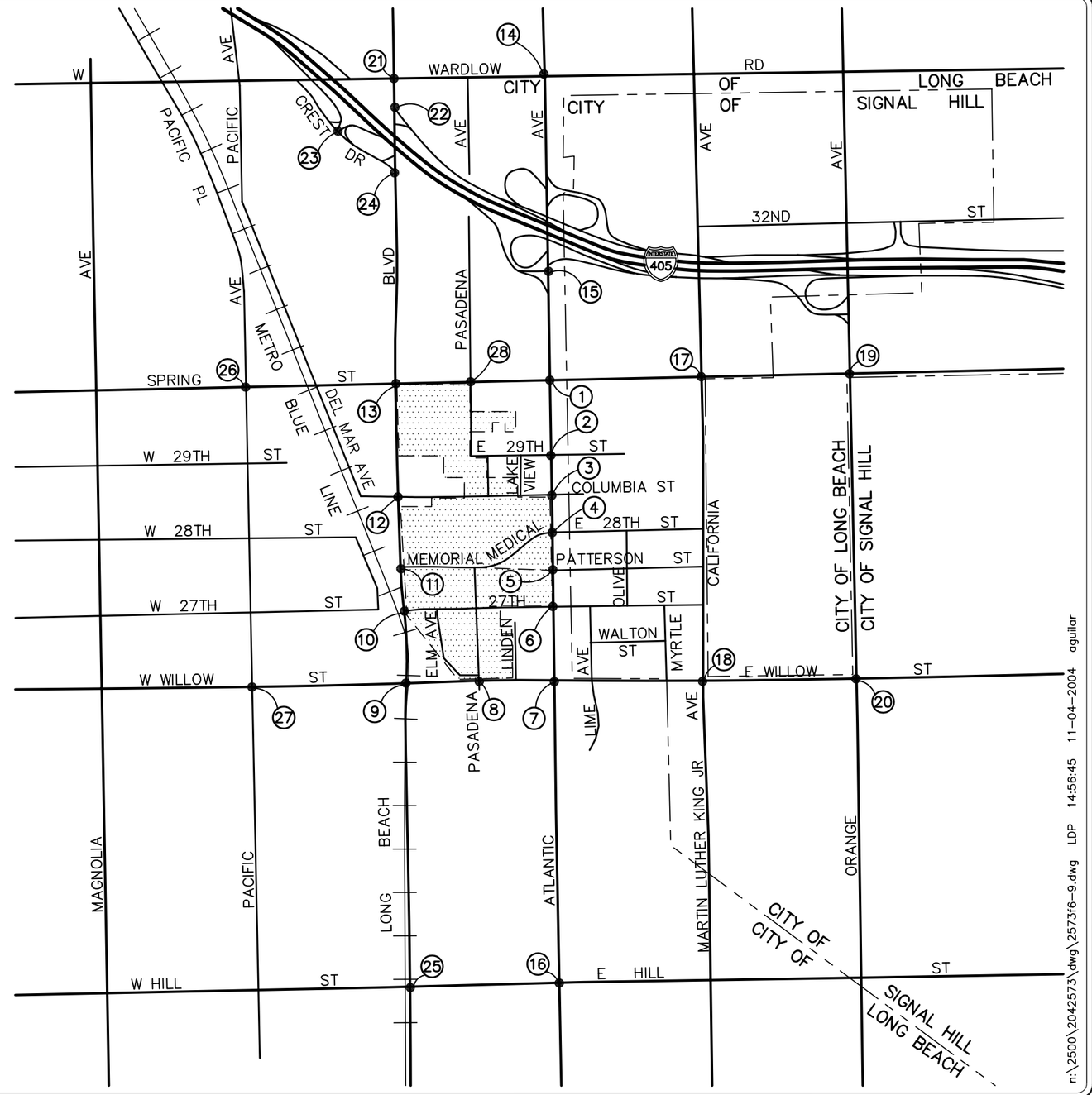
(#) = STUDY INTERSECTION

FIGURE 6-8

YEAR 2014 AM PEAK HOUR RELATED PROJECT TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER





LINSCOTT LAW & GREENSPAN engineers

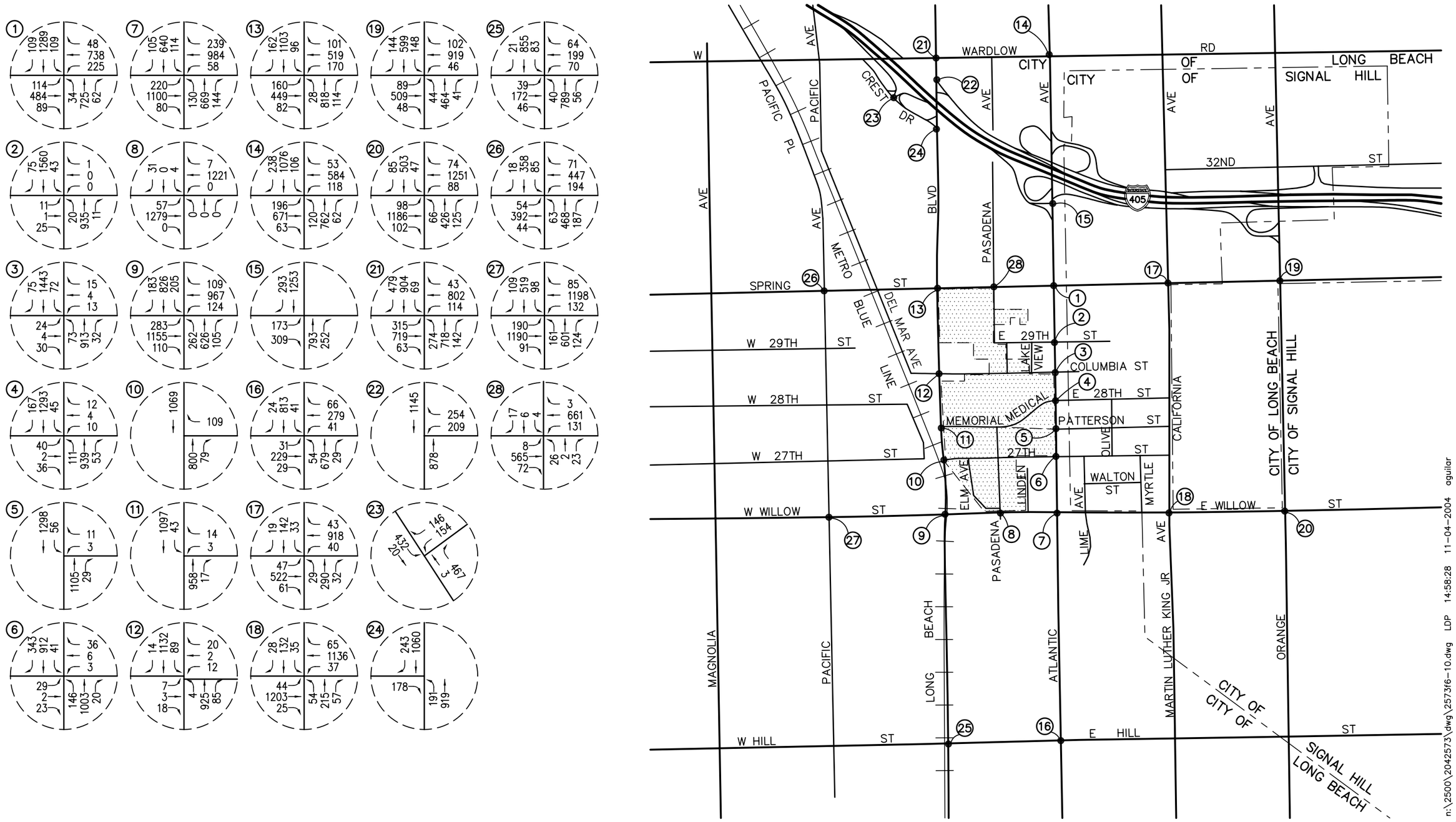
N NO SCALE

KEY
= PROJECT SITE
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE
(#) = STUDY INTERSECTION

FIGURE 6-9

YEAR 2014 PM PEAK HOUR RELATED PROJECT TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= PROJECT SITE

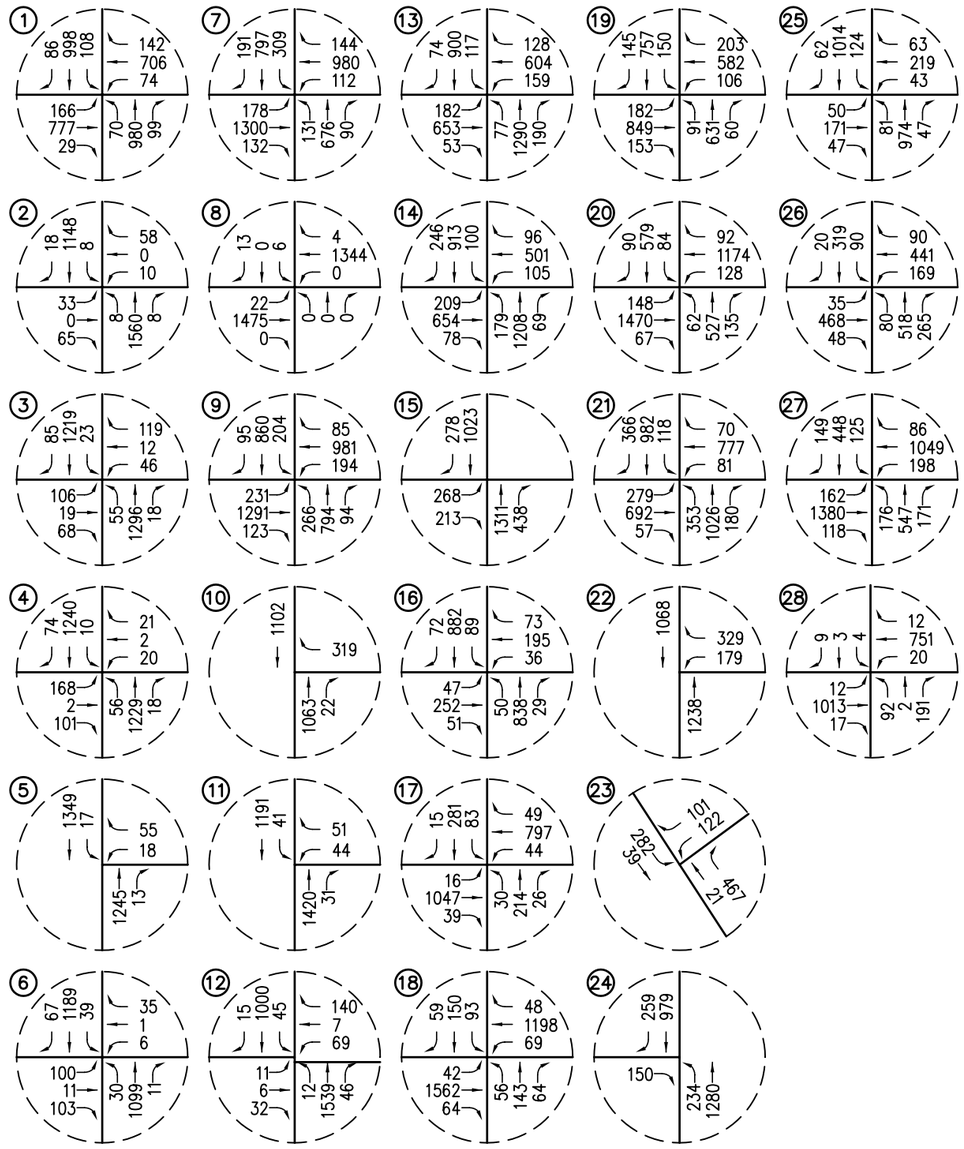
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

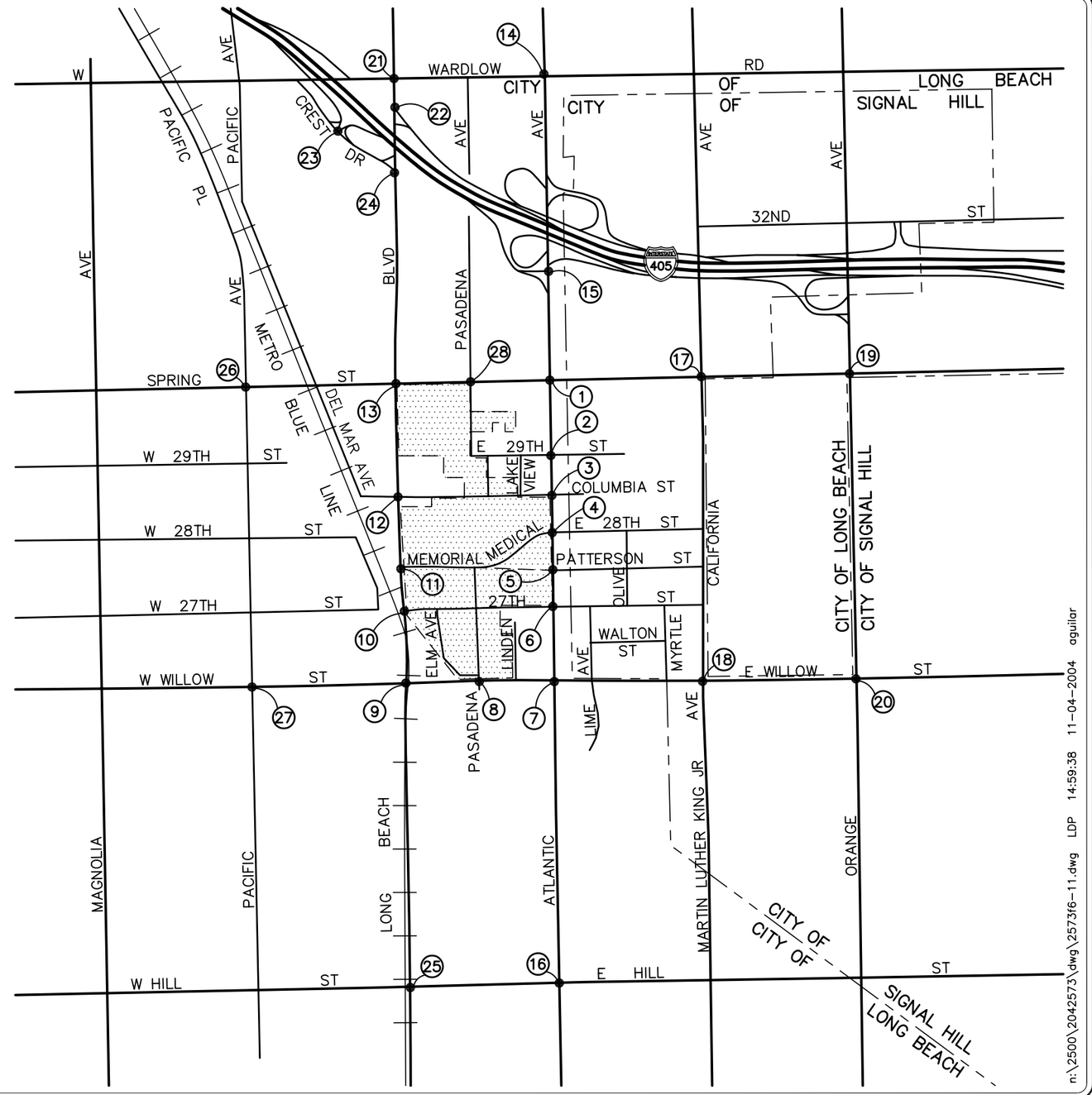
(#) = STUDY INTERSECTION

FIGURE 6-10

YEAR 2014 AM PEAK HOUR BACKGROUND TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER





LINSCOTT LAW & GREENSPAN engineers

NO SCALE

KEY

= PROJECT SITE

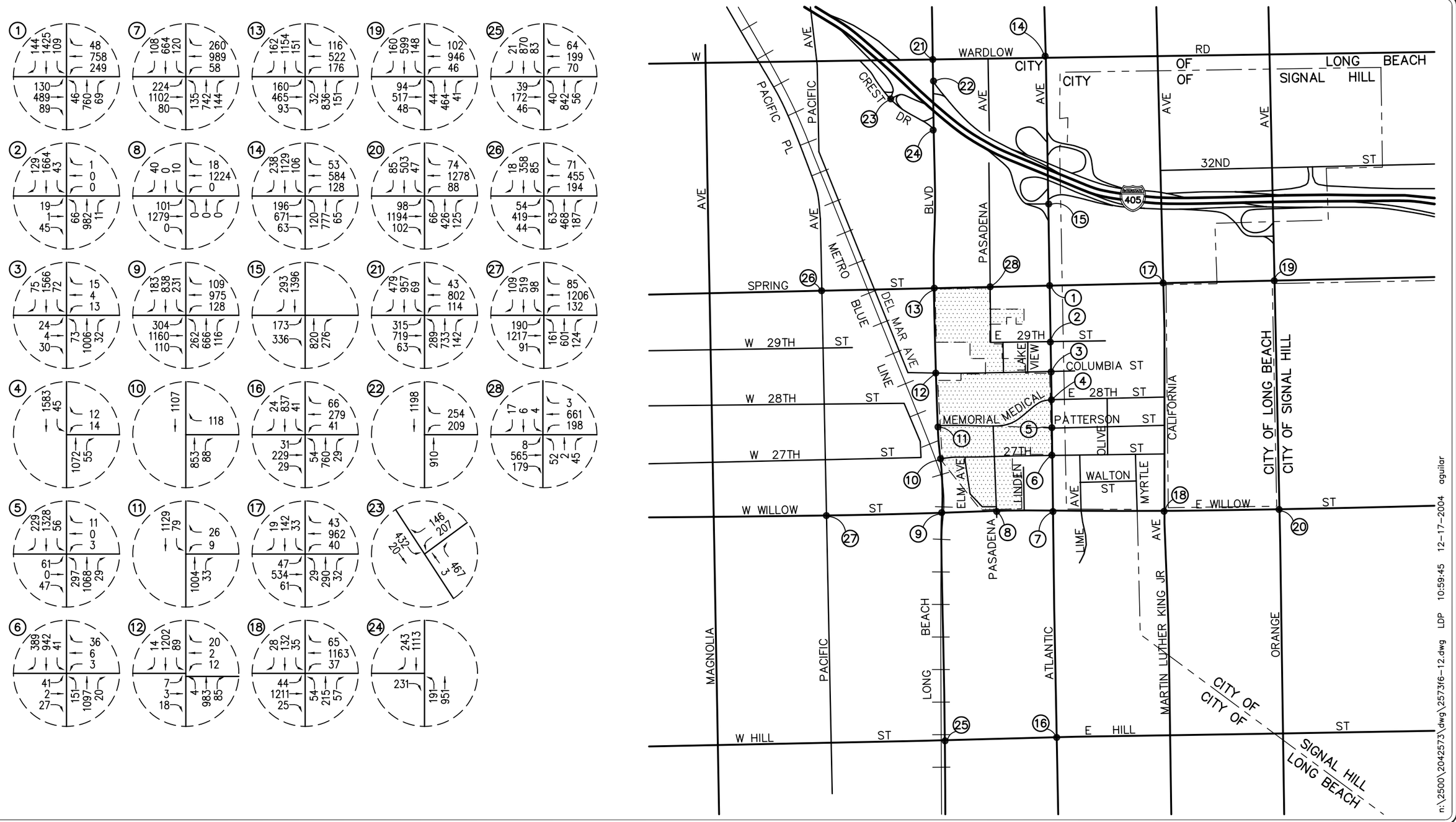
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

(#) = STUDY INTERSECTION

FIGURE 6–11

YEAR 2014 PM PEAK HOUR BACKGROUND TRAFFIC VOLUMES

LONG BEACH MEMORIAL MEDICAL CENTER



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= PROJECT SITE

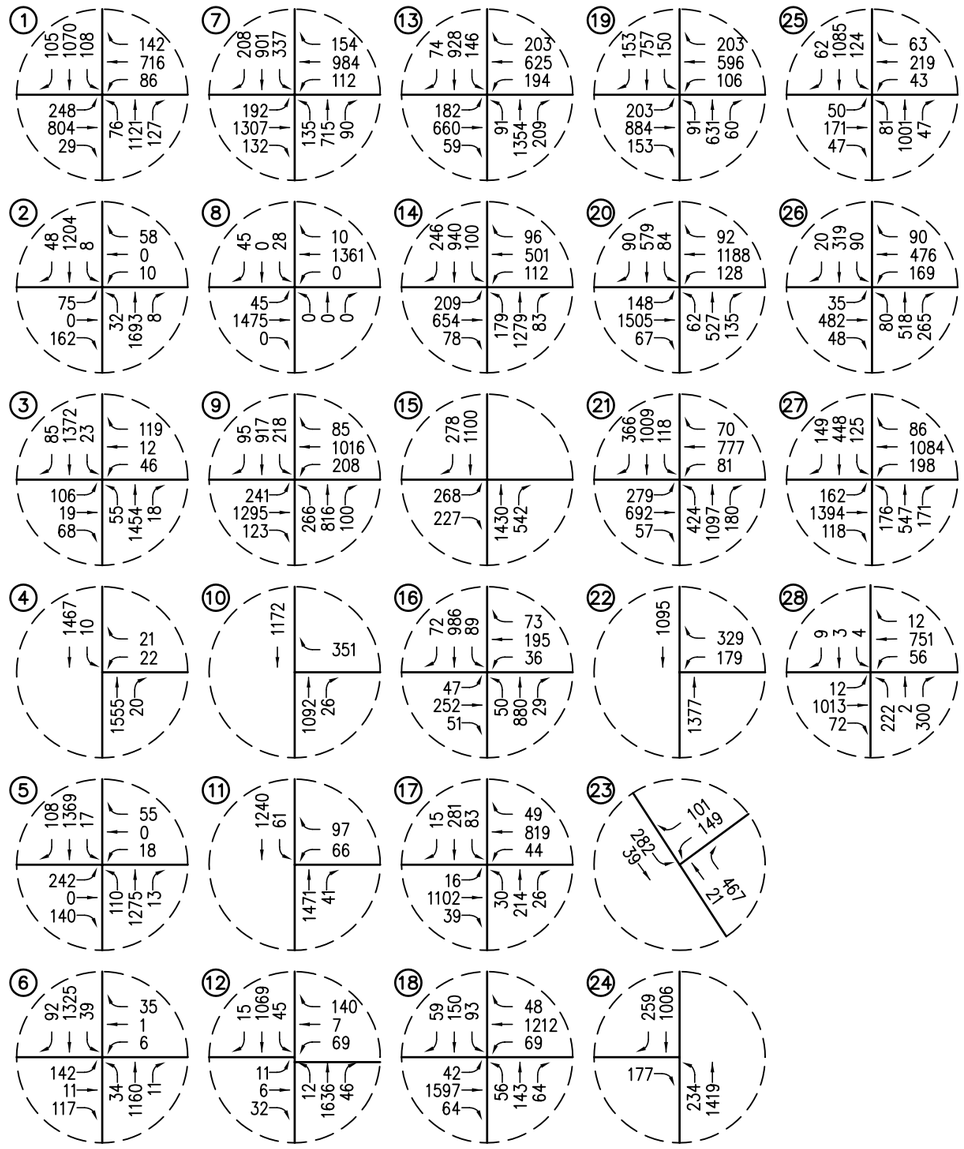
= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

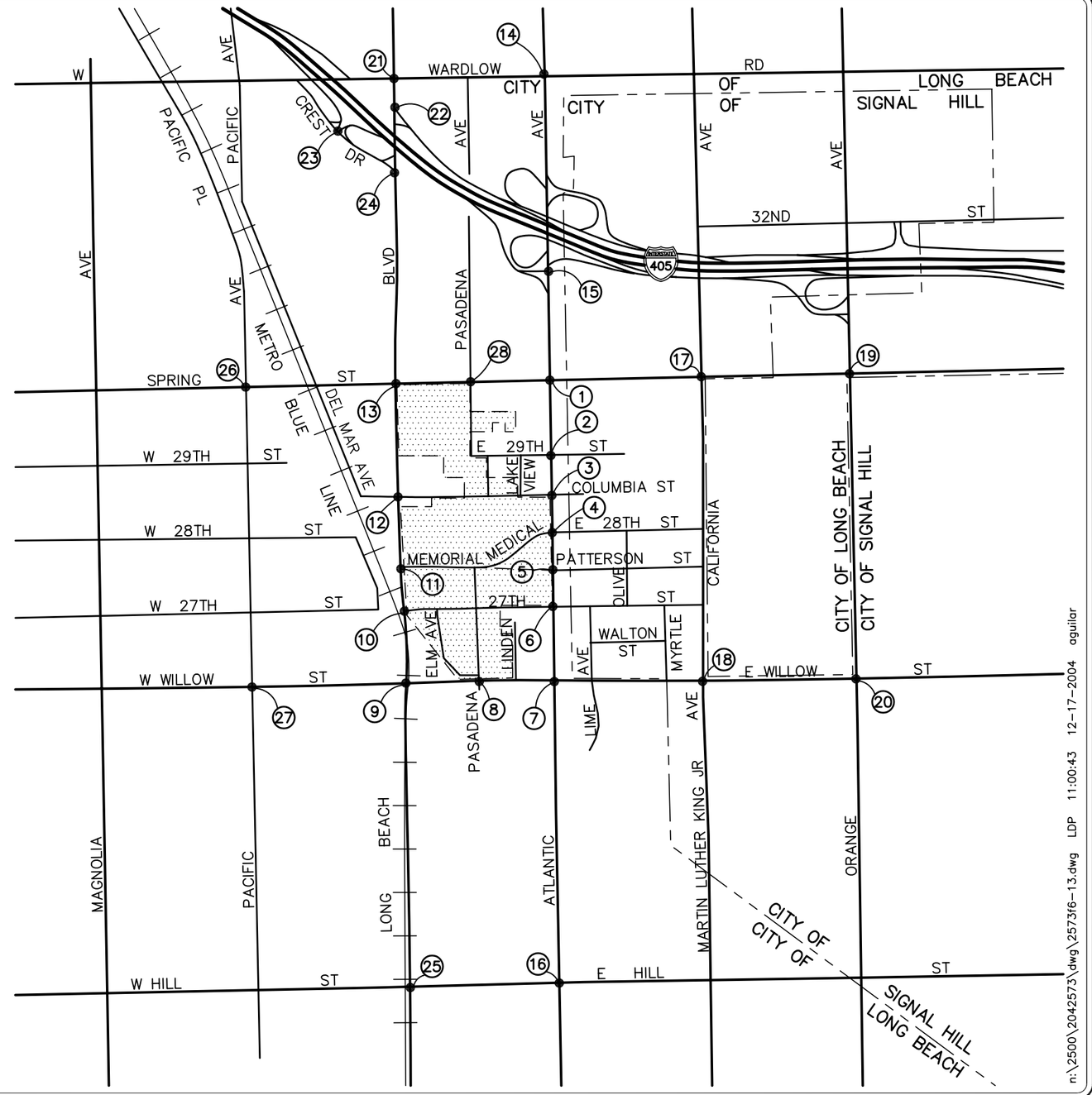
(#) = STUDY INTERSECTION

FIGURE 6-12

YEAR 2014 AM PEAK HOUR TRAFFIC VOLUMES WITH PHASE I AND II PROJECT TRAFFIC

LONG BEACH MEMORIAL MEDICAL CENTER





LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= PROJECT SITE

= FUTURE ROADWAY ALIGNMENT OF MEMORIAL MEDICAL CAMPUS DRIVE

(#) = STUDY INTERSECTION

FIGURE 6-13

YEAR 2014 PM PEAK HOUR TRAFFIC VOLUMES WITH PHASE I AND II PROJECT TRAFFIC

LONG BEACH MEMORIAL MEDICAL CENTER

7.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

7.1 Impact Criteria and Thresholds

The relative impact of the added project traffic volumes generated by the proposed Long Beach Memorial Medical Center Expansion project during the AM and PM peak hours was evaluated based on analysis of future operating conditions at the 28 key study intersections, without, then with, the proposed project. The previously discussed capacity analysis procedures were utilized to investigate the future volume-to-capacity relationships and service level characteristics at each study intersection. The significance of the potential impacts of the project at each key intersection was then evaluated using the City's LOS standards and traffic impact criteria.

Impacts to local and regional transportation systems are considered significant if:

- An unacceptable peak hour Level of Service (LOS) (i.e. LOS E or F) at any of the key intersections is projected. The City of Long Beach considers LOS D (ICU = 0.801 - 0.900) to be the minimum acceptable LOS for all intersections. For the City of Long Beach, the current LOS, if worse than LOS D (i.e. LOS E or F), should also be maintained; and

- The project increases traffic demand at the study intersection by 2% of capacity (ICU increase ≥ 0.020), causing or worsening LOS E or F (ICU > 0.901). At unsignalized intersections, a "significant" adverse traffic impact is defined as a project that: adds 2% of more traffic to delay (seconds per vehicle) at an intersection operating LOS E or F.

7.2 Traffic Impact Analysis Scenarios

The following scenarios are those for which LOS calculations have been performed:

A. Year 2004: Existing Traffic Conditions
B. Year 2008: Future Background (Existing, Ambient Growth, and Related Projects)
C. Year 2008: Future Background with Phase I project traffic
D. Scenario (C) with Mitigation, if necessary
E. Year 2014: Future Background (Existing, Ambient Growth, Related Projects)
F. Year 2014: Future Background with Phase I and Phase II project traffic
G. Scenario (F) with Mitigation, if necessary

8.0 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

8.1 Year 2008 Traffic Conditions

Table 8-1 summarizes the peak hour Level of Service results at the 28 key study intersections for the 2008 horizon year. The first column (1) of ICU/LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-4*). The overall intersection volume-to-capacity ratio and corresponding LOS are reported in this summary table. The second column (2) lists the projected background traffic conditions based on existing intersection geometry, but without any Long Beach Memorial Medical Center Expansion project traffic.

The third column (3) presents forecast Year 2008 near-term traffic conditions with the addition of Long Beach Memorial Medical Center Expansion project traffic. The fourth column (4) shows the increase in ICU or HCM value due to the added peak hour project trips and indicates whether the traffic associated with the project will have a significant impact based on the City of Long Beach LOS standards and the significance impact criteria defined in this report. The fifth column (5) presents the intersection operating conditions based on the total anticipated near-term (Year 2008) traffic volumes with recommended intersection improvements.

8.1.1 *Year 2004 Existing Conditions*

As previously presented in *Table 3-4*, review of this table indicates that 3 of the 28 key study intersections operate at an adverse service level during the AM and/or PM peak hour based on the City's LOS standards. These intersections are reported below:

Key Intersections	AM Peak Hour ICU or HCM/LOS	PM Peak Hour ICU or HCM/LOS
13. Long Beach Boulevard/Spring Street	--	**1.004 / F**
21. Long Beach Boulevard/Wardlow Road	**0.934 / E**	**0.949 / E**
22. Long Beach Boulevard/I-405 NB Ramp	--	**40.00 s/v / E**

The remaining 25 key study intersections currently operate at LOS D or better during the commuter peak hours.

TABLE 8-1

YEAR 2008 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) 2004 Existing Traffic Conditions		(2) Year 2008 with Background Traffic		(3) Year 2008 with Project Traffic		(4) Significant Impact[31]		(5) Year 2008 W/ Improvements	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Project Impact	Y/N	ICU	LOS
1. Atlantic Avenue/ Spring Street	AM	0.781	C	0.854	D	**0.910**	**E**	**0.056**	**Y**	0.893	D[32]
	PM	0.687	B	0.808	D	0.884	D	0.076	N	0.854	D
2. Atlantic Avenue/ East 29th Street	AM	1.40 s/v	A	1.90 s/v	A	7.20 s/v	A	5.30 s/v	N	0.70 s/v	A[33]
	PM	5.40 s/v	A	11.30 s/v	B	**625.2 s/v**	**F**	**613.9 s/v**	**Y**	6.10 s/v	A
3. Atlantic Avenue/ Columbia Street	AM	0.582	A	0.625	B	0.653	B	0.028	N	–	–
	PM	0.574	A	0.622	B	0.655	B	0.033	N	–	–
4. Atlantic Avenue/ Memorial Medical Center-East 28th Street	AM	0.565	A	0.607	B	0.80 s/v	A[34]	N/A	N	–	–
	PM	0.588	A	0.634	B	2.10 s/v	A	N/A	N	–	–
5. Atlantic Avenue/ East Patterson Street	AM	0.30 s/v	A	0.40 s/v	A	0.720	C[35]	N/A	N	–	–
	PM	0.60 s/v	A	1.30 s/v	A	0.748	C	N/A	N	–	–
6. Atlantic Avenue/ 27th Street	AM	4.50 s/v	A	7.60 s/v	A	14.0 s/v	A	6.4 s/v	N	3.00 s/v	A[36]
	PM	29.30 s/v	D	**420.20 s/v**	**F**	**510.6 s/v**	**F**	**90.4 s/v**	**Y**	2.20 s/v	A
7. Atlantic Avenue/ Willow Street	AM	0.732	C	0.791	C	0.828	D[37]	0.037	N	NF[38]	–
	PM	0.850	D	**0.929**	**E**	**0.958**	**E**	**0.029**	**Y**	NF	–

General Notes: **Bold ICU/LOS values** indicate adverse service levels based on City LOS standards & s/v = seconds per vehicle (delay).

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31 Significant project impact is defined as a 0.020 or greater increase in ICU value of a signalized intersection or a 2% second or more increase in delay at an unsignalized location where the final LOS is E or F.

32 Represents anticipated LOS with the addition of "re-routed traffic" due to recommended eastbound left-turn turn restrictions at the Atlantic and 29th Street intersection, plus recommended intersection improvements.

33 Represents anticipated LOS with the recommendation of prohibiting eastbound left-turns from 29th Street at Atlantic.

34 Represents anticipated LOS of Atlantic at 28th as an unsignalized intersection upon realignment of Memorial Medical Center Drive.

35 Represents anticipated LOS with the proposed realignment of Memorial Medical Center Drive to align opposite Patterson Street.

36 Represents anticipated LOS with the recommendation of prohibiting eastbound left-turns from 27th Street at Atlantic.

37 Represents anticipated LOS with the addition of "re-routed traffic" due to recommended eastbound left-turn turn restrictions at the Atlantic and 27th Street intersection.

38 NF = none feasible. Intersection Improvements at this key intersection are not feasible due to physical and right-of-way constraints.

TABLE 8-1 (CONTINUED)
YEAR 2008 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) 2004 Existing Traffic Conditions		(2) Year 2008 with Background Traffic		(3) Year 2008 with Project Traffic		(4) Significant Impact[39]		(5) Year 2008 W/ Improvements	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Project Impact	Y/N	ICU	LOS
8. Pasadena Avenue/	AM	0.60 s/v	A	0.60 s/v	A	15.40 s/v	C	14.8 s/v	N	0.445	A
Willow Street	PM	0.40 s/v	A	0.40 s/v	A	**654.6 s/v**	**F**[40]	**654.20 s/v**	**Y**	0.505	A
9. Long Beach Boulevard/	AM	0.878	D	**0.935**	**E**	**0.949**	**E**	0.014	N	NF[41]	–
Willow Street	PM	0.891	D	**0.958**	**E**	**0.978**	**E**	**0.020**	**Y**	NF	–
10. Long Beach Boulevard/	AM	0.454	A	0.481	A	0.493	A	0.012	N	–	–
27th Street	PM	0.579	A	0.616	B	0.646	B	0.030	N	–	–
11. Long Beach Boulevard/	AM	0.421	A	0.447	A	0.460	A	0.013	N	–	–
East Patterson Street	PM	0.553	A	0.591	A	0.623	B	0.032	N	–	–
12. Long Beach Boulevard/	AM	0.541	A	0.568	A	0.580	A	0.012	N	–	–
Columbia Street	PM	0.789	C	0.832	D	0.856	D	0.024	N	–	–
13. Long Beach Boulevard/	AM	0.859	D	**0.925**	**E**	**0.954**	**E**	**0.029**	**Y**	**0.906**	**E**
Spring Street	PM	**1.004**	**F**	**1.141**	**F**	**1.193**	**F**	**0.052**	**Y**	**1.132**	**F**
14. Atlantic Avenue/	AM	0.834	D	0.895	D	**0.907**	**E**	0.012	N	–	–
Wardlow Road	PM	0.795	C	0.857	D	0.869	D	0.012	N	–	–

General Notes:

Bold ICU/LOS values indicate adverse service levels based on City LOS standards.

s/v = seconds per vehicle (delay).

39 Significant project impact is defined as a 0.020 or greater increase in ICU value of a signalized intersection or a 2% second or more increase in delay at an unsignalized location where the final LOS is E or F.

40 Represents anticipated LOS with the addition of "re-routed traffic" due to recommended eastbound left-turn turn restrictions at the Atlantic and 27th Street intersection.

41 NF = none feasible. Intersection Improvements at this key intersection are not feasible due to physical and right-of-way constraints.

TABLE 8-1 (CONTINUED)
YEAR 2008 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections		Time Period	(1) 2004 Existing Traffic Conditions		(2) Year 2008 with Background Traffic		(3) Year 2008 with Project Traffic		(4) Significant Impact[42]		(5) Year 2008 W/ Improvements	
			ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Project Impact	Y/N	ICU	LOS
15.	Atlantic Avenue/ I-405 SB Ramps	AM	0.584	A	0.656	B	0.699	B	0.043	N	–	–
		PM	0.683	B	0.780	C	0.830	D	0.050	N	–	–
16.	Atlantic Avenue/ Hill Street	AM	0.568	A	0.606	B	0.611	B	0.005	N	–	–
		PM	0.576	A	0.614	B	0.636	B	0.022	N	–	–
17.	California Avenue/ Spring Street	AM	0.548	A	0.609	B	0.619	B	0.010	N	–	–
		PM	0.532	A	0.643	B	0.655	B	0.012	N	–	–
18.	California Avenue/ Willow Street	AM	0.506	A	0.554	A	0.558	A	0.004	N	–	–
		PM	0.561	A	0.639	B	0.644	B	0.005	N	–	–
19.	Orange Avenue/ Spring Street	AM	0.745	C	0.833	D	0.841	D	0.008	N	–	–
		PM	0.708	C	**0.964**	**E**	**0.972**	**E**	0.008	N	–	–
20.	Orange Avenue/ Willow Street	AM	0.743	C	0.802	D	0.806	D	0.004	N	–	–
		PM	0.819	D	**0.903**	**E**	**0.908**	**E**	0.005	N	–	–
21.	Long Beach Boulevard/ Wardlow Road	AM	**0.934**	**E**	**0.997**	**E**	**1.016**	**F**	0.019	N	NF[43]	–
		PM	**0.949**	**E**	**1.028**	**F**	**1.065**	**F**	**0.037**	**Y**	NF	–

General Notes:

Bold ICU/LOS values indicate adverse service levels based on City LOS standards.

s/v = seconds per vehicle (delay).

42 Significant project impact is defined as a 0.020 or greater increase in ICU value of a signalized intersection or a 2% second or more increase in delay at an unsignalized location where the final LOS is E or F.

43 NF = none feasible. Intersection Improvements at this key intersection are not feasible due to physical and right-of-way constraints.

TABLE 8-1 (CONTINUED)
YEAR 2008 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections		Time Period	(1) 2004 Existing Traffic Conditions		(2) Year 2008 with Background Traffic		(3) Year 2008 with Project Traffic		(4) Significant Impact[44]		(5) Year 2008 W/ Improvements	
			ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Project Impact	Y/N	ICU	LOS
22.	Long Beach Boulevard/	AM	30.10 s/v	D	**45.00 s/v**	**E**	**45.90 s/v**	**E**	**0.90 s/v**	**Y**	0.485	A
	I-405 NB Ramp	PM	**40.00 s/v**	**E**	**58.40 s/v**	**F**	**608.20 s/v**	**F**	**549.80 s/v**	**Y**	0.561	A
23.	I-405 SB Ramps/	AM	19.20 s/v	C	26.30 s/v	D	**46.70 s/v**	**E**	**20.40 s/v**	**Y**	14.2 s/v	B
	Crest Drive	PM	6.90 s/v	A	7.70 s/v	A	8.80 s/v	A	1.10 s/v	N	5.7 s/v	A
24.	Long Beach Boulevard/	AM	2.10 s/v	A	2.30 s/v	A	2.60 s/v	A	0.30 s/v	N	–	–
	Crest Drive	PM	1.90 s/v	A	2.00 s/v	A	2.10 s/v	A	0.10 s/v	N	–	–
25.	Long Beach Boulevard/	AM	0.605	B	0.647	B	0.659	B	0.012	N	–	–
	Hill Street	PM	0.676	B	0.718	C	0.725	C	0.007	N	–	–
26.	Pacific Avenue/	AM	0.667	B	0.715	C	0.727	C	0.012	N	–	–
	Spring Street	PM	0.723	C	0.790	C	0.797	C	0.007	N	–	–
27.	Pacific Avenue/	AM	0.717	C	0.764	C	0.765	C	0.001	N	–	–
	Willow Street	PM	0.764	C	0.816	D	0.818	D	0.002	N	–	–
28.	Pasadena Avenue/	AM	2.20 s/v	A	2.40 s/v	A	4.90 s/v	A	2.50 s/v	N	0.414	A[45]
	Spring Street	PM	16.20 s/v	C	**41.00 s/v**	**E**	**1942.1 s/v**	**F**	**1901.1 s/v**	**Y**	0.625	B

General Notes:

Bold ICU/LOS values indicate adverse service levels based on City LOS standards.

s/v = seconds per vehicle (delay).

44 Significant project impact is defined as a 0.020 or greater increase in ICU value of a signalized intersection or a 2% second or more increase in delay at an unsignalized location where the final LOS is E or F.

45 Represents anticipated LOS with the addition of "re-routed traffic" due to recommended eastbound left-turn turn restrictions at the Atlantic and 29th Street intersection, plus recommended intersection improvements.

8.1.2 *Year 2008 Future Background Traffic*

An analysis of future (Year 2008) background traffic conditions indicates that the same 3 intersections currently operating at adverse levels of service will continue to operate at adverse levels of service. Furthermore, six additional intersections are projected to operate at an unacceptable operating condition during the AM peak hour and/or PM peak hour based on the City's LOS standards with the addition of ambient traffic growth and related projects traffic. The 9 intersections, reported below, are forecast to operate at LOS E or LOS F during the peak hour indicated.

Key Intersections		AM Peak Hour ICU or HCM/LOS	PM Peak Hour ICU or HCM/LOS
6.	Atlantic Avenue/27th Street	--	**420.20 s/v / F**
7.	Atlantic Avenue/Willow Street	--	**0.929 / E**
9.	Long Beach Boulevard/Willow Street	**0.935 / E**	**0.958 / E**
13.	Long Beach Boulevard/Spring Street	**0.925 / E**	**1.141 / F**
19.	Orange Avenue/Spring Street	--	**0.964 / E**
20.	Orange Avenue/Willow Street	--	**0.903 / E**
21.	Long Beach Boulevard/Wardlow Road	**0.997 / E**	**1.028 / F**
22.	Long Beach Boulevard/I-405 NB Ramp	**45.00 s/v /E**	**58.40 s/v / F**
28.	Pasadena Avenue/Spring Street	--	**41.00 s/v / E**

The remaining 19 key study intersections are expected to operate at adequate service levels (LOS D or better) during the weekday AM and PM peak commute hours.

8.1.3 *Year 2008 with Long Beach Memorial Medical Center Expansion – Phase I Traffic*

As discussed earlier, a significant impact occurs when the project increases traffic demand at a signalized study intersection by 2% of capacity (ICU ≥ 0.020), or increases the overall intersection delay by more than 2% at an unsignalized intersections operating at LOS E or F. Review of Columns 3 and 4 of *Table 8-1* indicates that traffic associated with the project will significantly impact eleven (11) of the 28 key study intersections identified below when compared to the City of Long Beach LOS standards and significant traffic impact criteria defined in this report.

Key Intersections		AM Peak Hour ICU or HCM/LOS	PM Peak Hour ICU or HCM/LOS
1.	Atlantic Avenue/Spring Street	**0.910 / E**	--
2.	Atlantic Avenue/East 29th Street	--	**625.2 s/v / F**
6.	Atlantic Avenue/East 27th Street	--	**510.6 s/v /F**
7.	Atlantic Avenue/Willow Street	--	**0.958 / E**
8.	Pasadena Avenue/Willow Street	--	**654.6 s/v / F**
9.	Long Beach Boulevard/Willow Street	**0.949 / E**	**0.978 / E**
13.	Long Beach Boulevard/Spring Street	**0.954 / E**	**1.193 / F**
21.	Long Beach Boulevard/Wardlow Road	**1.016 / F**	**1.065 / F**
22.	Long Beach Boulevard/I-405 NB Ramp	**45.90 s/v /E**	**608.20 s/v / F**
23.	I-405 SB Ramps/Crest Drive	**46.70 s/v / E**	--
28.	Pasadena Avenue/Spring Street	--	**1942.1 s/v / F**

The Long Beach Memorial Medical Center Expansion project proposes to realign Memorial Medical Center Drive from the existing alignment at Atlantic Avenue (west leg of key intersection #4) to the south, providing the 4th leg to Patterson Street (key intersection #5). Under with project traffic conditions, Atlantic Avenue/East 28th Street will be converted from a four-legged signalized intersection to a side street stop-controlled T-intersection. The recommended lane geometrics for this intersection will be two NB and SB through lanes, one SB left-turn lane, and a single approach lane on the side street (WB approach). Under the realignment, Atlantic Avenue/East Patterson Street will be a 5-phase traffic signal. The recommended lane geometrics for this intersection will be one left-turn lane and 2 through lanes on the NB approach; one left-turn lane, two through lanes, and an exclusive right-turn lane on the SB approach; one left-turn lane and one through lane on the EB approach (new leg); and a single lane approach on the WB approach.

With the exception of three locations, Atlantic at Willow, Long Beach at Willow and Long Beach at Wardlow, the implementation of planned and/or recommended improvements at these eight study intersections completely offsets the impact of project traffic (See column 5 of *Table 8-1*). Due to physical and right-of-way restrictions that prohibit any widening at Atlantic/Willow, Long Beach/Willow and Long Beach/Wardlow, capacity-enhancing improvements at these key intersections do not appear feasible. A description of planned intersection improvements and recommended mitigation measures are discussed in the following sections of this report. The remaining 17 key study intersections will not be impacted by the Long Beach Memorial Medical Center Expansion project, based on the LOS standards and significant impact criteria specified in this report.

8.2 Year 2014 Traffic Conditions

Table 8-2 summarizes the peak hour Level of Service results at the 28 key study intersections for the Phase II horizon year (Year 2014). The structure of this table is similar to that of *Table 8-1*. As shown, column one (1) presents existing traffic operating conditions (as detailed previously). Column two (2) presents future Year 2014 Background traffic conditions. Column (3) reports the forecast Year 2014 traffic conditions with the addition of Phase I and Phase II project traffic. The fourth column (4) shows the increase in ICU or HCM value due to the added Phase I and Phase II peak hour project trips and indicates whether total project traffic will have a significant traffic impact based on the significance impact criteria defined in this report.

8.2.1 *Year 2014 Future Background Traffic Conditions*

Review of Column 2 of *Table 8-2* indicates that the same 9 intersections projected to operate poorly under Year 2008 conditions plus the Atlantic Avenue/Wardlow Road and I-405 SB Ramps/Crest Drive intersections are expected to operate at an unacceptable level of service (LOS E and/or F) under Year 2014 Background Traffic Conditions. The remaining 17 key study intersections are forecast to operate at LOS D or better during the commuter peak hours.

8.2.2 *Year 2014 with Long Beach Memorial Medical Center Expansion – Phase I and Phase II Project Traffic*

Review of Columns 3 and 4 of *Table 8-2* indicate that traffic associated with Phase 1 and Phase 2 of the Long Beach Memorial Medical Center Expansion project significantly impact the same 11 intersections identified in Year 2008 with Phase 1 traffic conditions. For the other 17 study intersections, the project ICU and delay (seconds/vehicle) increment at the intersections forecast to operate at an adverse LOS during the AM peak hour or PM peak hour is less than the maximum allowable threshold.

TABLE 8-2

YEAR 2014 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) 2004 Existing Traffic Conditions		(2) Year 2014 with Background Traffic		(3) Year 2014 with Project Traffic		(4) Significant Impact[46]		(5) Year 2014 W/ Improvements	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Project Impact	Y/N	ICU	LOS
1. Atlantic Avenue/ Spring Street	AM	0.781	C	0.898	D	**0.976**	**E**	**0.078**	**Y**	**0.957**	**E**[47]
	PM	0.687	B	0.850	D	**0.957**	**E**	**0.107**	**Y**	0.898	D
2. Atlantic Avenue/ East 29th Street	AM	1.40 s/v	A	3.00 s/v	A	19.60 s/v	C	16.60 s/v	N	0.90 s/v	A[48]
	PM	5.40 s/v	A	20.80 s/v	C	**733.7 s/v**	**F**	**712.90 s/v**	**Y**	16.5 s/v	C
3. Atlantic Avenue/ Columbia Street	AM	0.582	A	0.655	B	0.694	B	0.039	N	–	–
	PM	0.574	A	0.661	B	0.709	C	0.048	N	–	–
4. Atlantic Avenue/ Memorial Medical Center-East 28th Street	AM	0.565	A	0.635	B	1.00 s/v	A	N/A	N	–	–
	PM	0.588	A	0.675	B	3.70 s/v	A	N/A	N	–	–
5. Atlantic Avenue/ East Patterson Street	AM	0.30 s/v	A	0.40 s/v	A	0.768	C	N/A	N	–	–
	PM	0.60 s/v	A	1.70 s/v	A	0.814	D	N/A	N	–	–
6. Atlantic Avenue/ 27th Street	AM	4.50 s/v	A	14.60 s/v	B	**161.5 s/v**	**F**	**146.9 s/v**	**Y**	5.80 s/v	A[49]
	PM	29.30 s/v	D	**415.20 s/v**	**F**	**521.0 s/v**	**F**	**105.8 s/v**	**Y**	3.70 s/v	A
7. Atlantic Avenue/ Willow Street	AM	0.732	C	0.836	D	0.885	D[50]	0.034	Y	NF[51]	–
	PM	0.850	D	**0.980**	**E**	**1.020**	**F**	**0.040**	**Y**	NF	–

General Notes:

Bold ICU/LOS values indicate adverse service levels based on City LOS standards.

s/v = seconds per vehicle (delay).

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46 Significant project impact is defined as a 0.020 or greater increase in ICU value of a signalized intersection or a 2% second or more increase in delay at an unsignalized location where the final LOS is E or F.

47 Represents anticipated LOS with the addition of "re-routed traffic" due to recommended eastbound left-turn turn restrictions at the Atlantic and 29th Street intersection, plus recommended intersection improvements.

48 Represents anticipated LOS with the recommendation of prohibiting eastbound left-turns from 29th Street at Atlantic.

49 Represents anticipated LOS with the recommendation of prohibiting eastbound left-turns from 27th Street at Atlantic.

50 Represents anticipated LOS with the addition of "re-routed traffic" due to recommended eastbound left-turn turn restrictions at the Atlantic and 27th Street intersection.

51 NF = none feasible. Intersection Improvements at this key intersection are not feasible due to physical and right-of-way constraints.

TABLE 8-2 (CONTINUED)
YEAR 2014 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) 2004 Existing Traffic Conditions		(2) Year 2014 with Background Traffic		(3) Year 2014 with Project Traffic		(4) Significant Impact[52]		(5) Year 2014 W/ Improvements	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Project Impact	Y/N	ICU	LOS
8. Pasadena Avenue/	AM	0.60 s/v	A	0.70 s/v	A	31.50 s/v	D	30.80 s/v	N	0.450	A
Willow Street	PM	0.40 s/v	A	0.60 s/v	A	**692.3 s/v**	**F**[53]	**691.70 s/v**	**Y**	0.549	B
9. Long Beach Boulevard/	AM	0.878	D	**0.980**	**E**	**0.999**	**E**	0.019	N	NF[54]	–
Willow Street	PM	0.891	D	**1.005**	**F**	**1.032**	**F**	**0.027**	**Y**	NF	–
10. Long Beach Boulevard/	AM	0.454	A	0.502	A	0.520	A	0.018	N	–	–
27th Street	PM	0.579	A	0.644	B	0.685	B	0.041	N	–	–
11. Long Beach Boulevard/	AM	0.421	A	0.465	A	0.489	A	0.024	N	–	–
East Patterson Street	PM	0.553	A	0.617	B	0.659	B	0.042	N	–	–
12. Long Beach Boulevard/	AM	0.541	A	0.590	A	0.608	B	0.018	N	–	–
Columbia Street	PM	0.789	C	0.868	D	0.899	D	0.031	N	–	–
13. Long Beach Boulevard/	AM	0.859	D	**0.971**	**E**	**1.010**	**F**	**0.039**	**Y**	**0.927**	**E**
Spring Street	PM	**1.004**	**F**	**1.196**	**F**	**1.270**	**F**	**0.074**	**Y**	**1.138**	**F**
14. Atlantic Avenue/	AM	0.834	D	**0.946**	**E**	**0.963**	**E**	0.017	N	–	–
Wardlow Road	PM	0.795	C	**0.930**	**E**	**0.945**	**E**	0.015	N	–	–

General Notes:

Bold ICU/LOS values indicate adverse service levels based on City LOS standards.

s/v = seconds per vehicle (delay).

52 Significant project impact is defined as a 0.020 or greater increase in ICU value of a signalized intersection or a 2% second or more increase in delay at an unsignalized location where the final LOS is E or F.

53 Represents anticipated LOS with the addition of "re-routed traffic" due to recommended eastbound left-turn turn restrictions at the Atlantic and 27th Street intersection.

54 NF = none feasible. Intersection Improvements at this key intersection are not feasible due to physical and right-of-way constraints.

TABLE 8-2 (CONTINUED)
YEAR 2014 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) 2004 Existing Traffic Conditions		(2) Year 2014 with Background Traffic		(3) Year 2014 with Project Traffic		(4) Significant Impact[55]		(5) Year 2014 W/ Improvements	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Project Impact	Y/N	ICU	LOS
15. Atlantic Avenue/ I-405 SB Ramps	AM	0.584	A	0.684	B	0.746	C	0.062	N	–	–
	PM	0.683	B	0.815	D	0.884	D	0.069	N	–	–
16. Atlantic Avenue/ Hill Street	AM	0.568	A	0.637	B	0.644	B	0.007	N	–	–
	PM	0.576	A	0.648	B	0.680	B	0.032	N	–	–
17. California Avenue/ Spring Street	AM	0.548	A	0.638	B	0.652	B	0.014	N	–	–
	PM	0.532	A	0.670	B	0.688	B	0.018	N	–	–
18. California Avenue/ Willow Street	AM	0.506	A	0.583	A	0.587	A	0.004	N	–	–
	PM	0.561	A	0.671	B	0.678	B	0.007	N	–	–
19. Orange Avenue/ Spring Street	AM	0.745	C	0.877	D	0.888	D	0.011	N	–	–
	PM	0.708	C	**1.009**	**F**	**1.020**	**F**	0.011	N	–	–
20. Orange Avenue/ Willow Street	AM	0.743	C	0.843	D	0.849	D	0.006	N	–	–
	PM	0.819	D	**0.951**	**E**	**0.958**	**E**	0.007	N	–	–
21. Long Beach Boulevard/ Wardlow Road	AM	**0.934**	**E**	**1.054**	**F**	**1.081**	**F**	**0.027**	**Y**	NF[56]	–
	PM	**0.949**	**E**	**1.108**	**F**	**1.160**	**F**	**0.052**	**Y**	NF	–

General Notes:

Bold ICU/LOS values indicate adverse service levels based on City LOS standards.

s/v = seconds per vehicle (delay).

[55] Significant project impact is defined as a 0.020 or greater increase in ICU value of a signalized intersection or a 2% second or more increase in delay at an unsignalized location where the final LOS is E or F.

[56] NF = none feasible. Intersection Improvements at this key intersection are not feasible due to physical and right-of-way constraints.

TABLE 8-2 (CONTINUED)
YEAR 2014 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections		Time Period	(1) 2004 Existing Traffic Conditions		(2) Year 2014 with Background Traffic		(3) Year 2014 with Project Traffic		(4) Significant Impact[57]		(5) Year 2014 W/ Improvements	
			ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Project Impact	Y/N	ICU	LOS
22.	Long Beach Boulevard/	AM	30.10 s/v	D	**55.30 s/v**	**F**	**60.50 s/v**	**F**	**5.20 s/v**	**Y**	0.508	A
	I-405 NB Ramp	PM	**40.0 s/v**	**E**	**638.50 s/v**	**F**	**603.20 s/v**	**F**	**-35.30 s/v**	**Y**	0.593	A
23.	I-405 SB Ramps/	AM	19.20 s/v	C	**38.70 s/v**	**E**	**78.60 s/v**	**F**	**39.90 s/v**	**Y**	22.7 s/v	C
	Crest Drive	PM	6.90 s/v	A	8.70 s/v	B	11.20 s/v	B	2.50 s/v	N	6.3 s/v	A
24.	Long Beach Boulevard/	AM	2.10 s/v	A	2.50 s/v	A	3.10 s/v	A	0.60 s/v	N	–	–
	Crest Drive	PM	1.90 s/v	A	2.20 s/v	A	2.30 s/v	A	0.10 s/v	N	–	–
25.	Long Beach Boulevard/	AM	0.605	B	0.674	B	0.691	B	0.017	N	–	–
	Hill Street	PM	0.676	B	0.750	C	0.762	C	0.012	N	–	–
26.	Pacific Avenue/	AM	0.667	B	0.751	C	0.768	C	0.017	N	–	–
	Spring Street	PM	0.723	C	0.829	D	0.838	D	0.009	N	–	–
27.	Pacific Avenue/	AM	0.717	C	0.802	D	0.804	D	0.002	N	–	–
	Willow Street	PM	0.764	C	0.859	D	0.862	D	0.003	N	–	–
28.	Pasadena Avenue/	AM	2.20 s/v	A	2.70 s/v	A	11.70 s/v	C	9.00 s/v	N	0.450	A[58]
	Spring Street	PM	16.20 s/v	C	**59.60 s/v**	**F**	**2134.5 s/v**	**F**	**2074.9 s/v**	**Y**	0.687	B

General Notes:

Bold ICU/LOS values indicate adverse service levels based on City LOS standards.

s/v = seconds per vehicle (delay).

57 Significant project impact is defined as a 0.020 or greater increase in ICU value of a signalized intersection or a 2% second or more increase in delay at an unsignalized location where the final LOS is E or F.

58 Represents anticipated LOS with the addition of "re-routed traffic" due to recommended eastbound left-turn turn restrictions at the Atlantic and 29th Street intersection, plus recommended intersection improvements.

9.0 AREA-WIDE TRAFFIC IMPROVEMENTS

For those intersections where future traffic volumes are expected to result in poor operating conditions, this report identifies planned/recommended roadway improvements that change the intersection geometry to increase capacity. These capacity improvements involve roadway re-striping to reconfigure (add lanes) to specific approaches of a key intersection. The identified improvements are expected to: mitigate the impact of future non-project (ambient growth and cumulative projects) traffic, and/or improve Levels of Service to an acceptable range.

9.1 Year 2008 Recommended Improvements

The following improvements are potential recommendation measures identified to mitigate significantly impacted intersections (discussed in detail in *Section 8.1.3*). The Long Beach Memorial Medical Center Expansion project can be expected to pay a fair-share of the construction costs to implement these mitigation measures.

- **Atlantic Avenue/Spring Street**: Modify existing median and restripe Spring Street to provide a second eastbound left-turn lane and a second westbound left-turn lane. Modify the traffic signal as needed.

- **Atlantic Avenue/East 29th Street**: Restrict eastbound left-turn movements from 29th Street to northbound Atlantic Avenue.

- **Atlantic Avenue/East 27th Street**: Restrict eastbound left-turn movements from 27th Street to northbound Atlantic Avenue.

- **Atlantic Avenue/Willow Street**: No physical mitigation measure feasible; any additional turn lanes will require widening and additional right-of-way.

- **Long Beach Boulevard/Willow Street**: No physical mitigation measure feasible; any additional turn lanes will require widening and additional right-of-way.

- **Long Beach Boulevard/Spring Street**: Restripe to provide an exclusive northbound and southbound right-turn lane. Modify the traffic signal as needed.

- **Long Beach Boulevard/Wardlow Road**: No physical mitigation measure feasible; any additional turn lanes will require widening and additional right-of-way.

- **Long Beach Boulevard/I-405 NB Ramp**: Install a traffic signal.

- **I-405 SB Ramps/Crest Drive**: Restripe to provide an exclusive westbound right-turn lane.

- **Pasadena Avenue/Spring Street**: Widen and/or restripe to provide an exclusive northbound left-turn lane and an eastbound right-turn lane. Install a traffic signal.

9.2 Year 2014 Recommended Improvements

The following improvements are potential recommendation measures identified to mitigate significantly impacted intersections (discussed in detail in *Section 8.2.2*). The Long Beach Memorial Medical Center Expansion project can be expected to pay a fair-share of the construction costs to implement these mitigation measures.

- **Atlantic Avenue/Spring Street**: Widen and/or restripe to provide an exclusive northbound right-turn lane. Modify existing median and restripe Spring Street to provide a second eastbound left-turn lane and a second westbound left-turn lane. Modify the traffic signal as needed.

- **Atlantic Avenue/East 29th Street**: Same as Year 2008.

- **Atlantic Avenue/East 27th Street**: Same as Year 2008.

- **Atlantic Avenue/Willow Street**: No physical mitigation measure feasible; any additional turn lanes will require widening and additional right-of-way.

- **Long Beach Boulevard/Willow Street**: No physical mitigation measure feasible; any additional turn lanes will require widening and additional right-of-way.

- **Long Beach Boulevard/Spring Street**: Restripe to provide an exclusive northbound, southbound, and eastbound right-turn lane. Restripe to provide a second eastbound through lane. Modify the traffic signal as needed.

- **Long Beach Boulevard/Wardlow Road**: No physical mitigation measure feasible; any additional turn lanes will require widening and additional right-of-way.

- **Long Beach Boulevard/I-405 NB Ramp**: Same as Year 2008.

- **I-405 SB Ramps/Crest Drive**: Same as Year 2008.

- **Pasadena Avenue/Spring Street**: Same as Year 2008.

10.0 PROJECT FAIR-SHARE PERCENTAGE

The transportation impacts associated with the Long Beach Memorial Medical Center Expansion project were determined based on both Year 2008 and Year 2014 traffic analysis. As summarized in *Tables 8-1* and *8-2*, the development of the proposed project is anticipated to create significant impacts at several key intersections. As such, the Long Beach Memorial Medical Center Expansion project can be expected to pay a proportional "fair-share" of the improvement costs of the impacted intersections where improvements are recommended to mitigate the project's traffic impacts.

Table 10-1 presents the AM peak hour and PM peak hour percentage of net traffic impact at the study intersections impacted by the Long Beach Memorial Medical Center Expansion project for Year 2014 traffic conditions. As presented in this table, the first column (1) presents a total of all intersection peak hour movements for existing conditions. The second column (2) presents future Year 2014 background traffic conditions. The third column (3) presents future Year 2014 traffic conditions with total project traffic. The fourth column (4) represents what percentage of total intersection peak hour traffic is project-related traffic.

Review of *Table 10-1* shows that the proposed project's percentage of net traffic impact ranges between 30% and 50%. These percentages represent the project's "fair-share" cost responsibility associated with implementation of the recommended mitigation measures identified in *Sections 9.1* and *9.2* of this report.

TABLE 10-1
PROJECT FAIR SHARE PERCENTAGE CONTRIBUTION

	Key Intersections	Time Period	(1) Existing Traffic	(2) Year 2014 Background Traffic	(3) Year 2014 w/ Phase I and II Project Traffic	(4) Net Project Percent Increase
1.	Atlantic Avenue/ Spring Street	AM	3,358	4,026	4,316	30.3%
		PM	3,296	4,235	4,632	29.7%
2.	Atlantic Avenue/ East 29th Street	AM	2,284	2,682	2,961	41.2%
		PM	2,432	2,914	3,298	44.3%
6.	Atlantic Avenue/ East 27th Street	AM	2,181	2,564	2,755	33.3%
		PM	2,234	2,690	2,973	38.1%
13.	Long Beach Boulevard/ Spring Street	AM	3,292	3,802	4,018	29.8%
		PM	3,710	4,426	4,725	29.5%
22.	Long Beach Boulevard/ I-405 NB Ramp	AM	2,171	2,486	2,571	21.3%
		PM	2,408	2,814	2,980	29.0%
23.	I-405 SB Ramps/ Crest Drive	AM	1,098	1,222	1,275	29.9%
		PM	918	1,031	1,059	19.9%
28.	Pasadena Avenue/ Spring Street	AM	1,265	1,518	1,740	46.7%
		PM	1,686	2,128	2,456	42.6%

General Note:
Net Project Percent Increase (4) = [Column (3) – Column (2)] / [Column (3) – Column (1)].

11.0 PROJECT SPECIFIC IMPROVEMENTS

- **Atlantic Avenue/Memorial Medical Center-East 28th Street**: Remove the west leg of the intersection (the Memorial Medical Center driveway will be realigned and extended to intersect at East Patterson Street). Remove the traffic signal and install a stop sign on the east leg. Remove the existing NB left-turn lane.

- **Atlantic Avenue/East Patterson Street-Memorial Medical Center**: Modify the raised median on the south leg to provide an exclusive NB left-turn lane. Restripe the SB approach to add an exclusive SB right-turn lane. Install red curb on the west side of Atlantic Avenue for 100 feet north of the intersection to prohibit parking. Develop the west leg of the intersection (the realignment of the Memorial Medical Center driveway) to provide an exclusive left-turn lane and a shared through/right-turn lane. Remove the stop sign and "Stop" pavement marking on the east leg of the intersection. Install a 5-phase traffic signal providing protected/permitted left-turn phasing in the northbound and southbound directions.

- **Pasadena Avenue/Willow Street**: Install two-phase traffic signal.

12.0 CONGESTION MANAGEMENT PROGRAM COMPLIANCE ASSESSMENT

The Congestion Management Program (CMP) was created statewide as a result of Proposition 111 and has been implemented locally by the Los Angeles County Metropolitan Transportation Authority (LACMTA). The CMP for Los Angeles County requires that the traffic impact of individual development projects of potential regional significance be analyzed. A specific system of arterial roadways plus all freeways comprise the CMP system.

12.1 Traffic Impact Review

As required by the *2004 Congestion Management Program for Los Angeles County*, a review has been made of designated monitoring locations on the CMP highway system for potential impact analysis.

Per CMP TIA criteria, the geographic area examined in the TIA must include the following, at a minimum:

- All CMP arterial monitoring intersections, including freeway on and off-ramp intersections, where the project will add 50 or more trips during either the AM or PM weekday peak hours.

- Mainline freeway-monitoring stations where the project will add 150 or more trips, in either direction, during the AM or PM weekday peak hours.

12.1.1 *Intersections*

The following CMP intersection monitoring locations in the project vicinity have been identified:

CMP Station	Location
35	Lakewood Boulevard at Willow Street
37	Pacific Coast Highway at Alamitos Boulevard
41	7th Street at Alamitos Boulevard
42	7th Street at Redondo Boulevard

As stated earlier, the CMP guidelines require that arterial monitoring intersection locations must be examined if the proposed project will add 50 or more trips during either the AM or PM weekday peak hours (of adjacent street traffic) at CMP monitoring intersections. Based on the proposed project's trip generation potential, trip distribution and trip assignment, the Long Beach Memorial Medical Center will not add 50 or more trips at the identified CMP intersections during either the weekday AM peak hour or PM peak hour. Therefore a CMP intersection traffic impact analysis is not required.

12.1.2 *Freeways*

The following CMP freeway monitoring locations in the project vicinity have been identified:

CMP Station	Location
1065	I-405 Freeway n/o Route 22
1066	I-405 Freeway at Sante Fe Ave
1067	I-405 Freeway s/o Rte 110 at Carson scales
1078	I-710 Freeway n/o Jct Rte 1 (PCH) at Willow Street
1079	I-710 Freeway n/o Jct Rte 405, s/o Del Amo

The proposed project will not add 150 or more trips (in either direction) during the weekday AM and PM peak hours at CMP mainline freeway monitoring locations as stated in the CMP manual as the threshold for a traffic impact assessment. Therefore, a CMP freeway traffic impact analysis is not required.

Based on the result of this CMP evaluation, it is concluded that the proposed project will not have any significant traffic impact on the Congestion Management Program Highway System.

12.2 Transit Impact Review

As required by the 2004 Congestion Management Program for Los Angeles County, a review has been made of the CMP transit service. As previously discussed, a number of transit services exist in the project area, necessitating the following transit impact review.

The project trip generation, as shown in *Table 5-2*, was adjusted by values set forth in the CMP (i.e., person trips equal 1.4 times vehicle trips, and transit trips equal 15 percent of the total person trips) to estimate project-related transit trip generation. Pursuant to the CMP guidelines, the proposed project is forecasted to generate 146 transit trips (112 inbound and 34 outbound) during the AM peak hour and 206 transit trips (60 inbound and 146 outbound) during the PM peak hour. Over a 24-hour period the proposed project is forecasted to generate 1,969 daily weekday transit trips.

It is anticipated that the existing transit service in the project area would be able to accommodate the project generated transit trips. As indicated earlier, the project site is currently serviced by Long Beach Transit (LBT) 5, which travels north and south on Long Beach Boulevard adjacent to the site, and LBT 61 and 62, which travels along Atlantic Avenue.

Since the CMP does not provide guidance as to what constitutes a transit impact, it cannot be determined whether these person trips would have a significant impact. Nevertheless, given the number of transit trips generated by the project and the existing transit routes in the project vicinity, it can be concluded that the public transit system would not be significantly impacted by the proposed project.

13.0 CITY CODE PARKING ANALYSIS

To determine the number of parking spaces required to support the proposed Long Beach Memorial Medical Center project, parking demand was calculated using parking codes per the *City of Long Beach Title 21 Zoning Regulations: Chapter 21.41 - Off-street parking and loading requirements*

The City of Long Beach zoning code specifies a parking ratio of 2 spaces per bed for hospitals and 5 spaces per 1,000 gross floor area (GFA) of medical office uses; the central plant was parked at 2 spaces per 1,000 SF plus 1 space per 5,000 SF of storage yard. The City parking codes were applied to the existing and proposed development tabulation of the Long Beach Memorial Medical Center, as provided by Sapphos Environmental, Inc. ***Table 13-1*** summarizes the square-footage information, and the parking requirements for the existing land uses and proposed expansion project. As shown, direct application of the City's code to the existing development results in a code-parking requirement of 3,187 spaces, while the proposed expansion project has a code-parking requirement of 1,466 spaces, for a combined, code-parking requirement of 4,653 spaces.

With a current parking supply of 3,452 parking spaces, the Long Beach Memorial Medical Center Campus will have a deficiency of 1,201 parking spaces when compared to the City of Long Beach parking code requirement.

TABLE 13-1
CITY CODE PARKING REQUIREMENTS[59]

Project Description	Size (SF or # of Beds)	City of Long Beach Code Parking Ratio	Spaces Required
Existing Development			
LBMMC Hospital	459 Beds	2 spaces per bed	918
Miller Children's Hospital	281 Beds	2 spaces per bed	562
LBMMC remaining facilities	341,153 SF	5 spaces per 1,000 SF	1,707
		Existing Development Code Parking Requirement:	3,187
		Existing Parking Supply:	3,452
		Parking Surplus/Deficiency (+/-):	+265
Phase I Development			
Todd Cancer Institute Medical Office Building	83,630 SF	5 spaces per 1,000 SF	418
Miller Children's Hospital Pediatric Inpatient Tower	72 Beds	2 spaces per bed	144
Miller Children's Hospital Pediatric Outpatient Building	80,000 SF	5 spaces per 1,000 SF	400
Central Plant	3,500 SF	2 spaces per 1,000 SF plus 1 space per 5,000 SF of yard area	8
		Subtotal – Phase I Code Parking Requirement	970
Phase II Development			
Todd Cancer Institute Medical Office Building	42,300 SF	5 spaces per 1,000 SF	212
Miller Children's Hospital Pediatric Inpatient Tower	92 Beds	2 spaces per bed	184
Millers Children's Hospital Link Building	20,000 SF	5 spaces per 1,000 SF	100
		Subtotal – Phase II Code Parking Requirement	496
		Proposed Development Code Parking Requirement:	1,466
		Total Code Parking Requirement (Existing + Proposed)	4,653
		Existing Parking Supply:	3,452
		Net Parking Surplus/Deficiency (+/-) per Code:	-1,201

[59] Source: City of Long Beach Title 21 Zoning Regulations: Chapter 21.41 - Off-street parking and loading requirements. Note: GLA – Gross Land Area, SF – Square Footage.

14.0 SUMMARY OF FINDINGS AND CONCLUSIONS

- ***Project Description*** – The proposed project involves the development of an 83,630 square-feet (SF) Todd Cancer Institute building, a 72-Bed Miller Children Hospital Pediatric Inpatient Tower, and an 80,000 SF Miller Children Hospital Outpatient Tower for Phase I to be completed by Year 2008. Phase II consists of a 42,300 SF Todd Cancer Institute building and 92-Bed Miller Children Hospital Pediatric Inpatient Tower to be completed by Year 2014.

- ***Study Scope*** – The following intersections were selected for detailed peak hour level of service analyses under Existing (Year 2004) Traffic Conditions, Year 2008 and Year 2014 Background Traffic Conditions and Background plus Project Traffic Conditions:

1) Atlantic Avenue/Spring Street
2) Atlantic Avenue/East 29th Street
3) Atlantic Avenue/Columbia Street
4) Atlantic Ave./Memorial Med. Center-28th St.
5) Atlantic Avenue/East Patterson Street
6) Atlantic Avenue/27th Street
7) Atlantic Avenue/Willow Street
8) Pasadena Avenue/Willow Street
9) Long Beach Boulevard/Willow Street
10) Long Beach Boulevard/27th Street
11) Long Beach Boulevard/Memorial Med. Center
12) Long Beach Boulevard/Columbia Street
13) Long Beach Boulevard/Spring Street
14) Atlantic Avenue/Wardlow Road
15) Atlantic Avenue/I405 SB Ramps
16) Atlantic Avenue/Hill Street
17) California Avenue/Spring Street
18) California Avenue/Willow Street
19) Orange Avenue/Spring Street
20) Orange Avenue/Willow Street
21) Long Beach Boulevard/Wardlow Road
22) Long Beach Boulevard/I-405 NB Ramp
23) I-405 SB Ramps/Crest Drive
24) Long Beach Boulevard/Crest Drive
25) Long Beach Boulevard/Hill Street
26) Pacific Avenue/Spring Street
27) Pacific Avenue/Willow Street
28) Pasadena Avenue/Spring Street

The analysis is focused on assessing potential traffic impacts during the morning and evening commute peak hours (between 7:00-9:00 AM, and 4:00-6:00 PM) on a typical weekday.

- ***Level of Service (LOS) Standards and Significant Impact Criteria*** - Impacts to local and regional transportation systems are considered significant if:

  - The City of Long Beach considers LOS D (ICU = 0.801 - 0.900) to be the minimum acceptable LOS for all other intersections. If the current level of service is worse than LOS D, the current level of service should be maintained; and

  - The project increases traffic demand at the study intersection by 2% of capacity (ICU increase ≥ 0.020), causing or worsening LOS E or F (ICU > 0.901). At unsignalized intersections, a "significant" adverse traffic impact is defined as a project that: adds 2% or more traffic to delay (seconds per vehicle) at an intersection operating LOS E or F.

- ***Existing Traffic Conditions*** – Three (3) of the twenty-eight (28) key study intersections currently operate at an unacceptable LOS E or F during the AM and/or PM peak commute hours. The remaining twenty-five (25) key study intersections currently operate at LOS D or better during both the AM and PM peak commute hours.

- ***Project Trip Generation*** - On a typical weekday, the Long Beach Memorial Medical Center Expansion project is expected to generate approximately generate approximately 9,377 daily trips, with 696 trips (534 inbound, 162 outbound) produced in the AM peak hour and 979 trips (283 inbound, 696 outbound) produced in the PM peak hour on a "typical" weekday.

  - Phase I of the proposed project is forecast to generate 6,762 daily trips, with 487 trips produced in the AM peak hour and 703 trips produced in the PM peak hour on a "typical" weekday.

  - Phase II of the proposed project is forecast to generate 2,615 daily trips, with 209 trips produced in the AM peak hour and 276 trips produced in the PM peak hour on a "typical" weekday.

- ***Related Projects Traffic Characteristics*** – The 43 related projects considered in this traffic analysis are expected to generate a combined total of 97,016 daily trips on a "typical" weekday, with 7,720 trips (4,983 inbound and 2,737 outbound) forecast during the AM peak hour, and 9,497 (3,801 inbound and 5,696 outbound) during the PM peak hour.

- ***Year 2008 Background Traffic Conditions*** – An analysis of future (Year 2008) background traffic conditions indicates that the same three intersections currently operating poorly under existing conditions with the addition of six intersections are expected to operate at an unacceptable level of service (LOS E and/or F) with the addition of ambient traffic growth and related projects traffic. The remaining 19 key study intersections are expected to continue to operate at adequate service levels (LOS D or better) during the weekday AM and PM peak commute hours.

- ***Year 2008 Background plus Project Traffic Conditions*** – The results of the traffic impact analysis indicates that project traffic ***will*** significantly impact 11 of the twenty-eight key study intersections when compared to the City's LOS standards and significant impact criteria defined in this report.

- ***Year 2014 Background Traffic Conditions*** – An analysis of future (Year 2014) background traffic conditions indicates that the same nine (9) intersections projected to operate poorly under Year 2008 conditions plus the Atlantic Avenue/Wardlow Road and I-405 SB Ramps/ Crest Drive intersections are expected to operate at an unacceptable level of service. The remaining 17 key study intersections are expected to continue to operate at adequate service levels (LOS D or better) during the weekday AM and PM peak commute hours.

- ***Year 2014 Background plus Project Traffic Conditions*** – The results of the traffic impact analysis indicates that project traffic ***will*** significantly impact the same 11 intersections identified in Year 2008 with Phase I traffic conditions.

- ***Area-Wide Traffic Improvements*** – A list of recommended measures were identified for the nine significantly impacted intersections under Year 2008 and Year 2014. The Long Beach Memorial Medical Center Expansion project can be expected to pay a fair-share of the construction costs to implement these mitigation measures.

    - **Atlantic Avenue/Spring Street**: Widen and/or restripe to provide an exclusive northbound right-turn lane. Modify existing median and restripe Spring Street to provide a second eastbound left-turn lane and a second westbound left-turn lane. Modify the traffic signal as needed.

    - **Atlantic Avenue/East 29th Street**: Restrict eastbound left-turn movements from 29th Street to northbound Atlantic Avenue.

    - **Atlantic Avenue/East 27th Street**: Restrict eastbound left-turn movements from 27th Street to northbound Atlantic Avenue.

    - **Atlantic Avenue/Willow Street**: No physical mitigation measure feasible; any additional turn lanes will require widening and additional right-of-way.

    - **Long Beach Boulevard/Willow Street**: No physical mitigation measure feasible; any additional turn lanes will require widening and additional right-of-way.

    - **Long Beach Boulevard/Spring Street**: Restripe to provide an exclusive northbound, southbound, and eastbound right-turn lane. Restripe to provide a second eastbound through lane. Modify the traffic signal as needed.

    - **Long Beach Boulevard/Wardlow Road**: No physical mitigation measure feasible; any additional turn lanes will require widening and additional right-of-way.

    - **Long Beach Boulevard/I-405 NB Ramp**: Install a traffic signal.

    - **I-405 SB Ramps/Crest Drive**: Restripe to provide an exclusive westbound right-turn lane.

    - **Pasadena Avenue/Spring Street**: Widen and/or restripe to provide an exclusive northbound left-turn lane and an eastbound right-turn lane. Install a traffic signal.

- ***Project-Specific Improvements*** – The following improvements are proposed as part of the project or are recommended to mitigate its direct traffic impact.

    - **Atlantic Avenue/Memorial Medical Center-East 28th Street**: Remove the west leg of the intersection (the Memorial Medical Center driveway will be realigned and extended to intersect at East Patterson Street). Remove the traffic signal and install a stop sign on the east leg. Remove the existing NB left-turn lane.

- **Atlantic Avenue/East Patterson Street-Memorial Medical Center**: Modify the raised median on the south leg to provide an exclusive NB left-turn lane. Restripe the SB approach to add an exclusive SB right-turn lane. Install red curb on the west side of Atlantic Avenue for 100 feet north of the intersection to prohibit parking. Develop the west leg of the intersection (the realignment of the Memorial Medical Center driveway) to provide an exclusive left-turn lane and a shared through/right-turn lane. Remove the stop sign and "Stop" pavement marking on the east leg of the intersection. Install a 5-phase traffic signal providing protected/permitted left-turn phasing in the northbound and southbound directions.

- **Pasadena Avenue/Willow Street**: Install two-phase traffic signal.

- ***CMP Compliance Assessment*** – No significant impacts are expected to occur on the Los Angeles Congestion Management Program roadway network due to the development and full occupancy of the proposed project.

- ***City Code Parking Analysis*** – The required number of parking spaces for the proposed Long Beach Memorial Medical Center Expansion project, based on City parking code, totals 1,466 spaces while the existing facilities have a code-parking requirement of 3,187 spaces. With an existing parking supply of 3,452 parking spaces, and a combined code-parking requirement of 4,653 spaces, the Long Beach Memorial Medical Center will require an additional (net) of 1,201 parking spaces when compared to the City of Long Beach parking code requirement.

APPENDIX A

EXISTING TRAFFIC COUNT DATA

Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

1

City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: SPRING STREET

File Name : h0410072
Site Code : 00000975
Start Date : 10/5/2004
Page No : 1

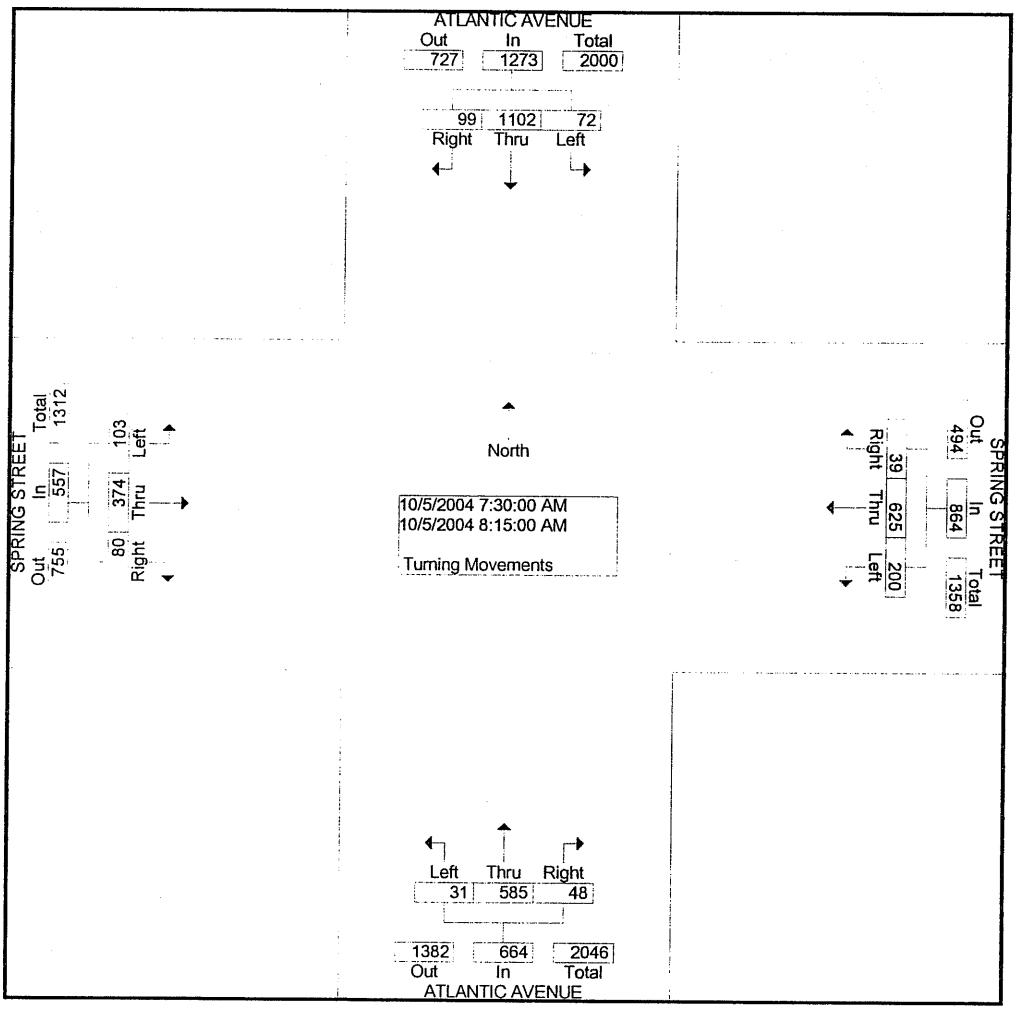
Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			SPRING STREET Westbound			ATLANTIC AVENUE Northbound			SPRING STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	17	233	6	3	91	21	2	93	5	21	63	22	577
07:15 AM	15	240	8	5	100	35	11	104	11	13	50	12	604
07:30 AM	24	229	10	6	122	40	15	144	7	20	147	20	784
07:45 AM	33	274	19	9	187	43	8	168	4	22	75	16	858
Total	89	976	43	23	500	139	36	509	27	76	335	70	2823
08:00 AM	28	347	24	5	171	57	10	139	13	19	70	38	921
08:15 AM	14	252	19	19	145	60	15	134	7	19	82	29	795
08:30 AM	21	249	17	12	116	61	13	119	4	11	63	16	702
08:45 AM	23	247	16	10	99	57	19	158	4	16	66	20	735
Total	86	1095	76	46	531	235	57	550	28	65	281	103	3153
*** BREAK ***													
04:00 PM	22	151	24	11	125	22	19	255	16	10	120	14	789
04:15 PM	27	182	20	19	104	19	15	155	10	7	153	46	757
04:30 PM	20	200	11	15	114	10	10	230	19	7	151	24	811
04:45 PM	26	199	15	13	125	19	22	179	16	7	110	30	761
Total	95	732	70	58	468	70	66	819	61	31	534	114	3118
05:00 PM	15	213	14	26	139	10	19	171	15	7	122	46	797
05:15 PM	17	188	12	34	135	18	31	218	13	5	206	50	927
05:30 PM	10	185	31	27	129	8	19	149	12	7	148	20	745
05:45 PM	10	210	40	21	129	7	19	191	18	4	135	17	801
Total	52	796	97	108	532	43	88	729	58	23	611	133	3270
Grand Total	322	3599	286	235	2031	487	247	2607	174	195	1761	420	12364
Apprch %	7.7	85.5	6.8	8.5	73.8	17.7	8.2	86.1	5.7	8.2	74.1	17.7	
Total %	2.6	29.1	2.3	1.9	16.4	3.9	2.0	21.1	1.4	1.6	14.2	3.4	

Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

File Name : h0410072
Site Code : 00000975
Start Date : 10/5/2004
Page No : 2

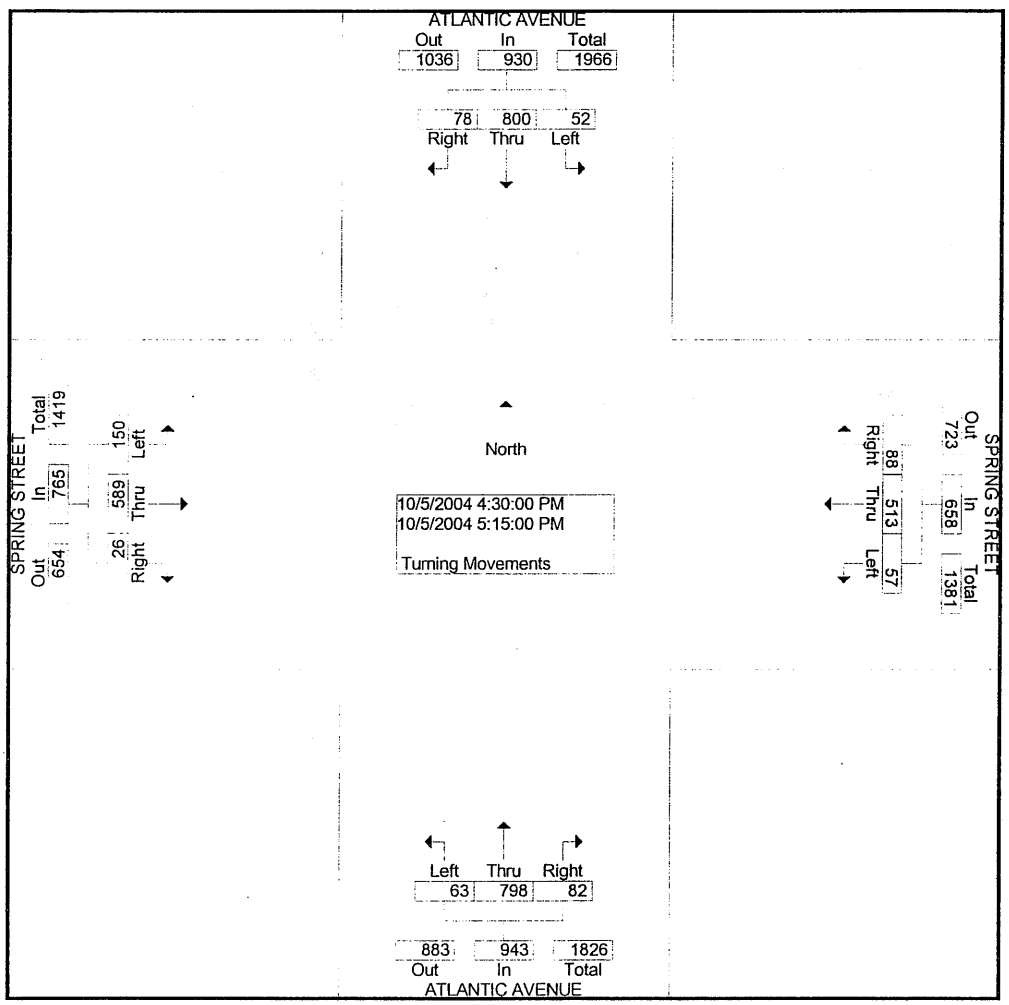
	ATLANTIC AVENUE Southbound				SPRING STREET Westbound				ATLANTIC AVENUE Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	99	1102	72	1273	39	625	200	864	48	585	31	664	80	374	103	557	3358
Percent	7.8	86.6	5.7		4.5	72.3	23.1		7.2	88.1	4.7		14.4	67.1	18.5		
08:00 Volume	28	347	24	399	5	171	57	233	10	139	13	162	19	70	38	127	921
Peak Factor																	0.912
High Int.	08:00 AM				07:45 AM				07:45 AM				07:30 AM				
Volume	28	347	24	399	9	187	43	239	8	168	4	180	20	147	20	187	
Peak Factor				0.798				0.904				0.922				0.745	



Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

File Name : h0410072
Site Code : 00000975
Start Date : 10/5/2004
Page No : 3

	ATLANTIC AVENUE Southbound				SPRING STREET Westbound				ATLANTIC AVENUE Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	78	800	52	930	88	513	57	658	82	798	63	943	26	589	150	765	3296
Percent	8.4	86.0	5.6		13.4	78.0	8.7		8.7	84.6	6.7		3.4	77.0	19.6		
05:15 Volume	17	188	12	217	34	135	18	187	31	218	13	262	5	206	50	261	927
Peak Factor																	0.889
High Int.	05:00 PM				05:15 PM				05:15 PM				05:15 PM				
Volume	15	213	14	242	34	135	18	187	31	218	13	262	5	206	50	261	
Peak Factor				0.961				0.880				0.900				0.733	



Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

2

City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: E. 29TH STREET

File Name : H0410073
Site Code : 00000923
Start Date : 10/5/2004
Page No : 1

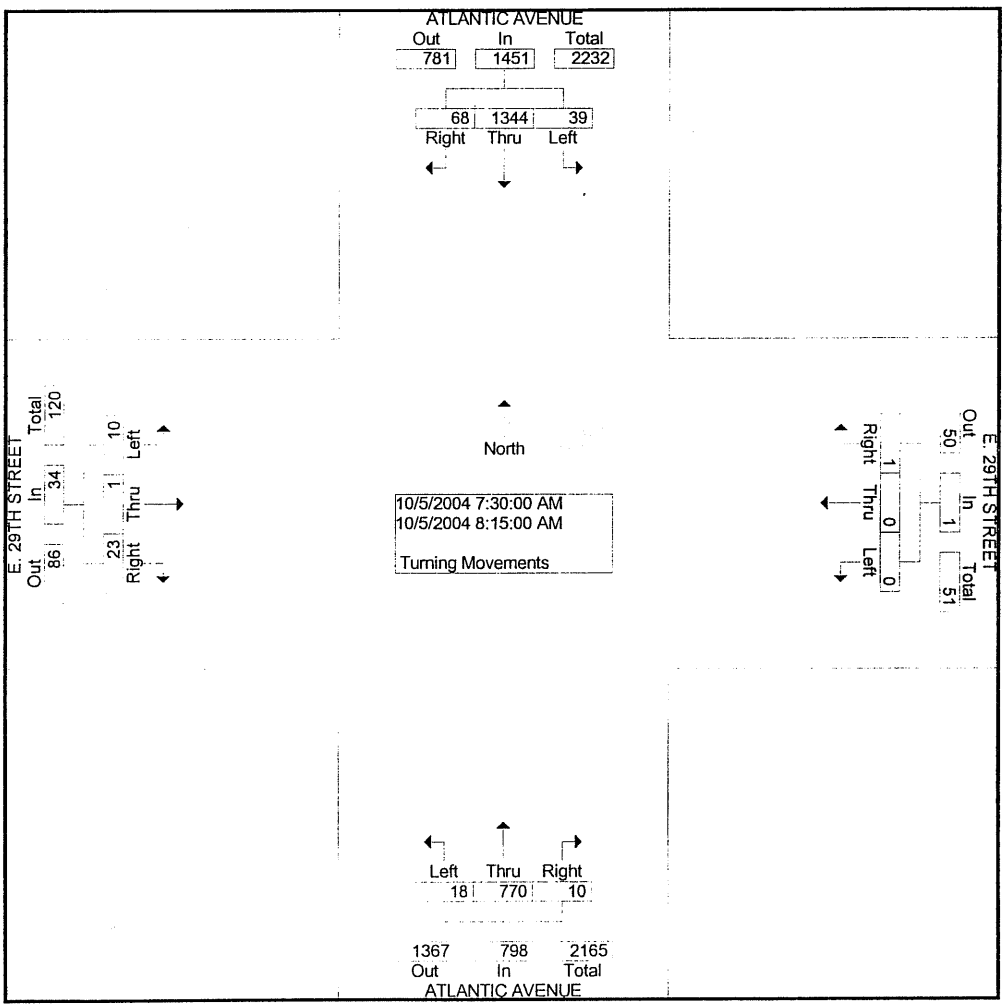
Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			E. 29TH STREET Westbound			ATLANTIC AVENUE Northbound			E. 29TH STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	10	259	2	0	0	0	2	134	6	4	0	4	421
07:15 AM	11	220	2	0	0	0	3	164	1	2	1	8	412
07:30 AM	12	313	3	0	0	0	0	200	4	3	0	3	538
07:45 AM	18	363	6	0	0	0	2	213	3	5	0	1	611
Total	51	1155	13	0	0	0	7	711	14	14	1	16	1982
08:00 AM	15	328	16	1	0	0	5	201	6	8	0	1	581
08:15 AM	23	340	14	0	0	0	3	156	5	7	1	5	554
08:30 AM	26	280	15	1	0	0	5	158	5	14	0	2	506
08:45 AM	15	268	13	1	0	0	4	145	5	7	0	1	459
Total	79	1216	58	3	0	0	17	660	21	36	1	9	2100
*** BREAK ***													
04:00 PM	14	303	8	8	0	5	5	235	4	13	0	3	598
04:15 PM	11	255	7	13	0	1	1	301	2	14	0	8	613
04:30 PM	6	238	2	9	0	4	1	328	4	12	0	6	610
04:45 PM	4	224	1	12	0	3	2	320	2	16	0	11	595
Total	35	1020	18	42	0	13	9	1184	12	55	0	28	2416
05:00 PM	4	230	1	19	0	0	1	316	1	18	0	7	597
05:15 PM	2	235	3	13	0	2	3	353	0	13	0	6	630
05:30 PM	2	236	2	13	1	3	3	301	0	10	0	9	580
05:45 PM	2	206	2	6	0	0	0	311	2	15	0	1	545
Total	10	907	8	51	1	5	7	1281	3	56	0	23	2352
Grand Total	175	4298	97	96	1	18	40	3836	50	161	2	76	8850
Apprch %	3.8	94.0	2.1	83.5	0.9	15.7	1.0	97.7	1.3	67.4	0.8	31.8	
Total %	2.0	48.6	1.1	1.1	0.0	0.2	0.5	43.3	0.6	1.8	0.0	0.9	

Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

File Name : H0410073
Site Code : 00000923
Start Date : 10/5/2004
Page No : 2

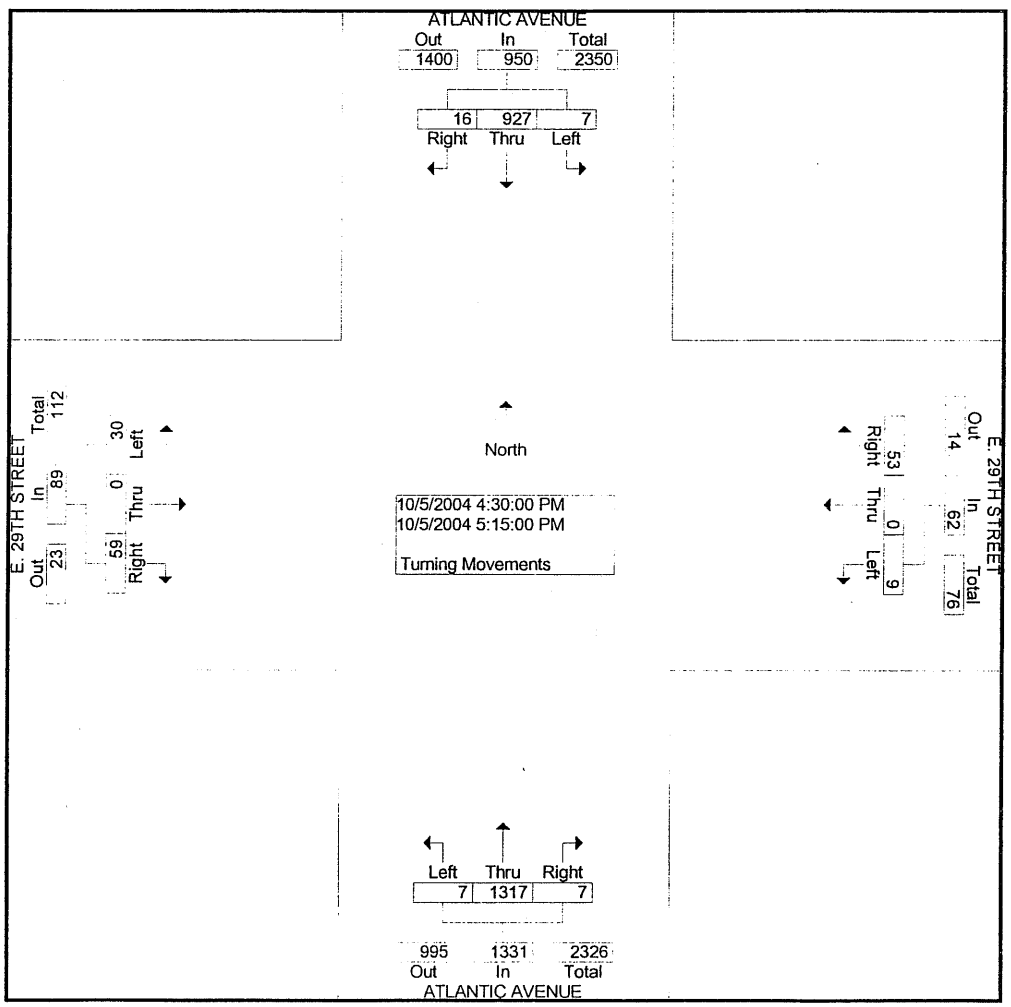
	ATLANTIC AVENUE Southbound				E. 29TH STREET Westbound				ATLANTIC AVENUE Northbound				E. 29TH STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	68	1344	39	1451	1	0	0	1	10	770	18	798	23	1	10	34	2284
Percent	4.7	92.6	2.7		100.0	0.0	0.0		1.3	96.5	2.3		67.6	2.9	29.4		
07:45 Volume	18	363	6	387	0	0	0	0	2	213	3	218	5	0	1	6	611
Peak Factor																	0.935
High Int.	07:45 AM				08:00 AM				07:45 AM				08:15 AM				
Volume	18	363	6	387	1	0	0	1	2	213	3	218	7	1	5	13	
Peak Factor				0.937				0.250				0.915				0.654	



Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

File Name : H0410073
Site Code : 00000923
Start Date : 10/5/2004
Page No : 3

	ATLANTIC AVENUE Southbound				E. 29TH STREET Westbound				ATLANTIC AVENUE Northbound				E. 29TH STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	16	927	7	950	53	0	9	62	7	1317	7	1331	59	0	30	89	2432
Percent	1.7	97.6	0.7		85.5	0.0	14.5		0.5	98.9	0.5		66.3	0.0	33.7		
05:15 Volume	2	235	3	240	13	0	2	15	3	353	0	356	13	0	6	19	630
Peak Factor																	0.965
High Int.	04:30 PM				05:00 PM				05:15 PM				04:45 PM				
Volume	6	238	2	246	19	0	0	19	3	353	0	356	16	0	11	27	
Peak Factor				0.965				0.816				0.935				0.824	



Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

3

City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: COLUMBIA STREET

File Name : H0410074
Site Code : 00002246
Start Date : 10/5/2004
Page No : 1

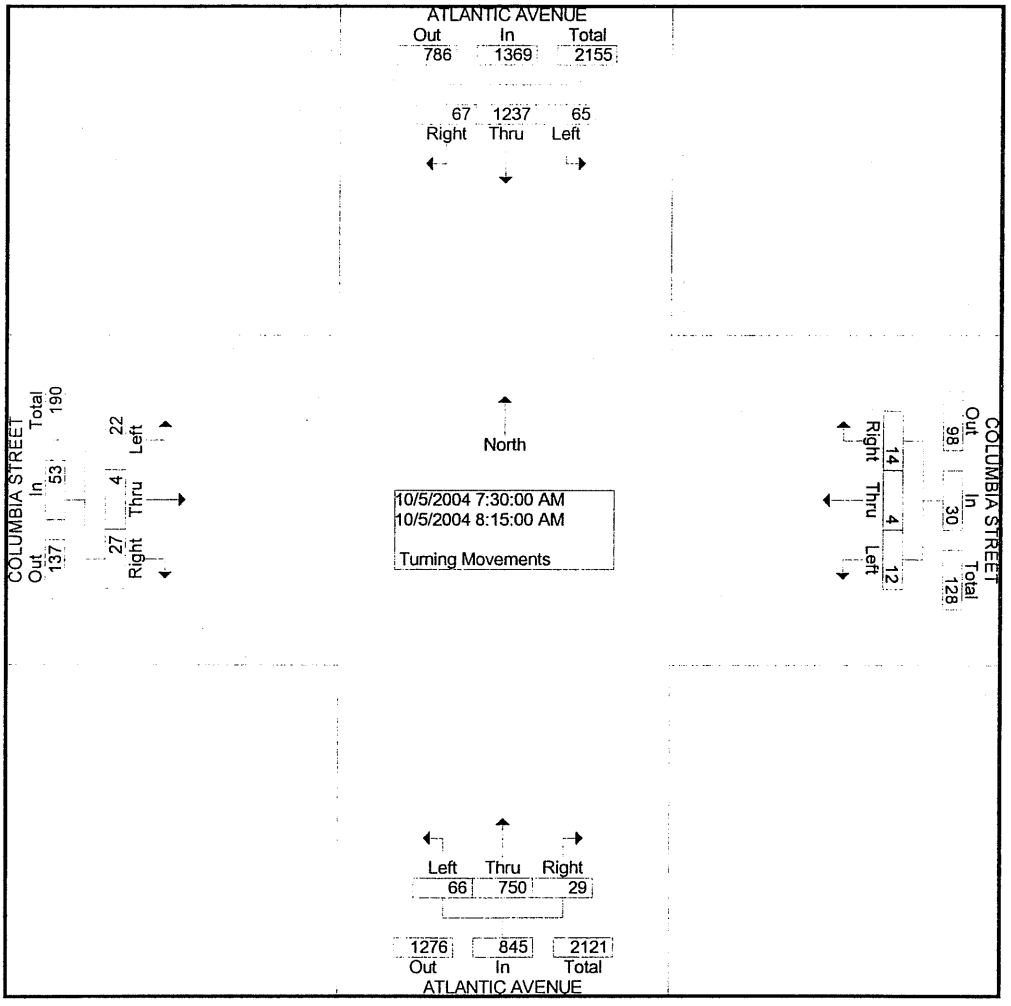
Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			COLUMBIA STREET Westbound			ATLANTIC AVENUE Northbound			COLUMBIA STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	6	199	7	2	0	1	3	146	5	7	1	5	382
07:15 AM	18	280	9	0	0	0	0	183	12	3	1	4	510
07:30 AM	14	318	11	1	0	0	6	216	8	8	0	6	588
07:45 AM	16	332	14	2	2	0	5	205	20	8	2	6	612
Total	54	1129	41	5	2	1	14	750	45	26	4	21	2092
08:00 AM	19	302	12	3	2	7	11	164	14	6	1	3	544
08:15 AM	18	285	28	8	0	5	7	165	24	5	1	7	553
08:30 AM	14	255	18	2	1	2	6	137	27	7	0	1	470
08:45 AM	30	251	21	12	2	7	6	173	27	16	2	7	554
Total	81	1093	79	25	5	21	30	639	92	34	4	18	2121
*** BREAK ***													
04:00 PM	18	246	4	20	1	2	2	234	15	11	2	10	565
04:15 PM	18	262	3	18	1	9	1	282	9	5	3	21	632
04:30 PM	18	227	4	34	4	13	4	279	15	17	3	22	640
04:45 PM	21	256	10	19	5	12	10	229	19	15	10	32	638
Total	75	991	21	91	11	36	17	1024	58	48	18	85	2475
05:00 PM	19	247	4	37	1	8	1	287	7	25	1	21	658
05:15 PM	10	251	0	16	0	6	2	282	14	21	1	21	624
05:30 PM	11	217	3	17	0	7	1	272	7	21	1	18	575
05:45 PM	8	228	1	10	4	8	2	267	3	14	0	15	560
Total	48	943	8	80	5	29	6	1108	31	81	3	75	2417
Grand Total	258	4156	149	201	23	87	67	3521	226	189	29	199	9105
Apprch %	5.7	91.1	3.3	64.6	7.4	28.0	1.8	92.3	5.9	45.3	7.0	47.7	
Total %	2.8	45.6	1.6	2.2	0.3	1.0	0.7	38.7	2.5	2.1	0.3	2.2	

Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

File Name : H0410074
Site Code : 00002246
Start Date : 10/5/2004
Page No : 2

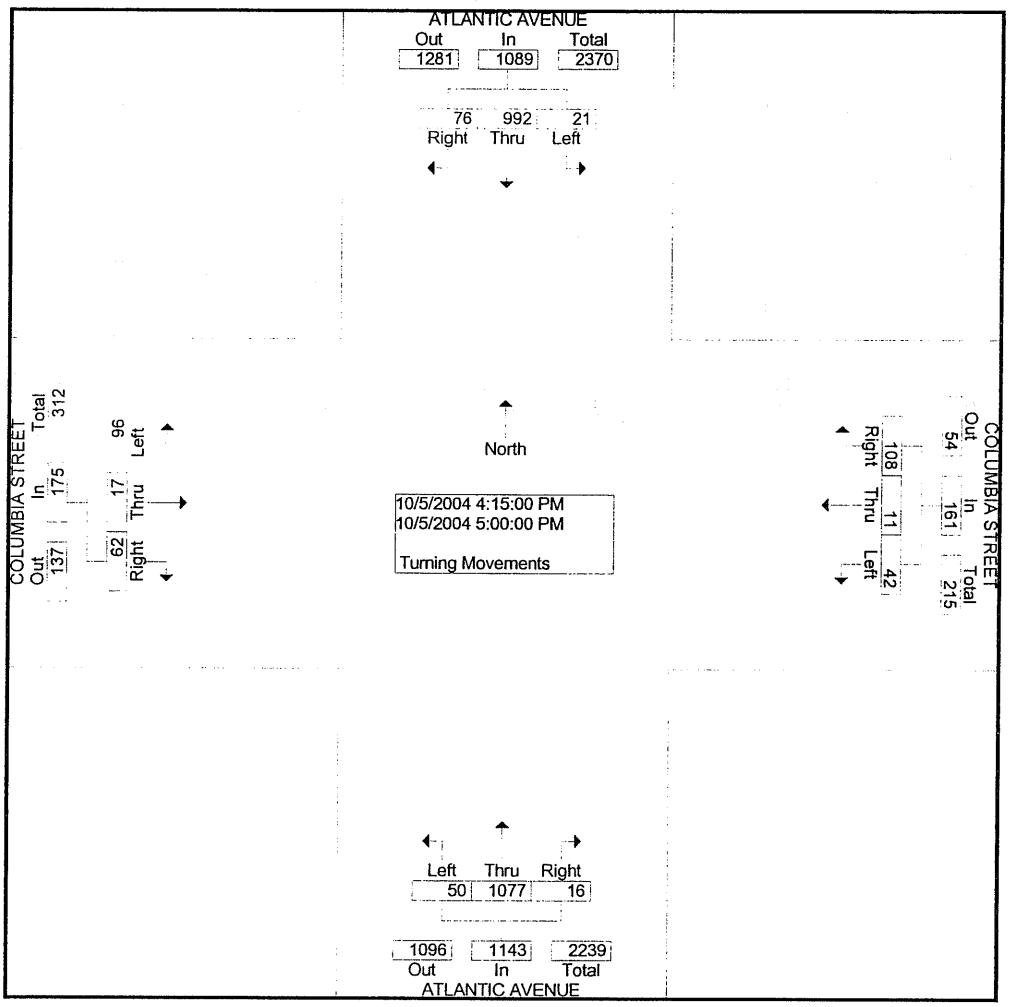
	ATLANTIC AVENUE Southbound				COLUMBIA STREET Westbound				ATLANTIC AVENUE Northbound				COLUMBIA STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	67	1237	65	1369	14	4	12	30	29	750	66	845	27	4	22	53	2297
Percent	4.9	90.4	4.7		46.7	13.3	40.0		3.4	88.8	7.8		50.9	7.5	41.5		
07:45 Volume	16	332	14	362	2	2	0	4	5	205	20	230	8	2	6	16	612
Peak Factor																	0.938
High Int.	07:45 AM				08:15 AM				07:30 AM				07:45 AM				
Volume	16	332	14	362	8	0	5	13	6	216	8	230	8	2	6	16	
Peak Factor				0.945				0.577				0.918				0.828	



Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

File Name : H0410074
Site Code : 00002246
Start Date : 10/5/2004
Page No : 3

	ATLANTIC AVENUE Southbound				COLUMBIA STREET Westbound				ATLANTIC AVENUE Northbound				COLUMBIA STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:15 PM																
Volume	76	992	21	1089	108	11	42	161	16	1077	50	1143	62	17	96	175	2568
Percent	7.0	91.1	1.9		67.1	6.8	26.1		1.4	94.2	4.4		35.4	9.7	54.9		
05:00 Volume	19	247	4	270	37	1	8	46	1	287	7	295	25	1	21	47	658
Peak Factor																	0.976
High Int.	04:45 PM				04:30 PM				04:30 PM				04:45 PM				
Volume	21	256	10	287	34	4	13	51	4	279	15	298	15	10	32	57	
Peak Factor				0.949				0.789				0.959				0.768	



Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

(4)

City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: EAST PATTERSON/28TH ST.

File Name : H0410075
Site Code : 00003874
Start Date : 10/5/2004
Page No : 1

Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			EAST 28TH STREET Westbound			ATLANTIC AVENUE Northbound			EAST PATTERSON Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	21	200	6	0	0	0	3	158	8	4	1	7	408
07:15 AM	32	248	9	1	0	1	10	194	9	7	0	6	517
07:30 AM	27	297	6	2	0	0	5	217	14	7	0	11	586
07:45 AM	38	300	15	4	2	3	14	209	16	10	0	9	620
Total	118	1045	36	7	2	4	32	778	47	28	1	33	2131
08:00 AM	35	264	12	2	0	3	10	169	30	7	2	9	543
08:15 AM	52	240	8	3	2	3	19	179	41	9	0	7	563
08:30 AM	28	228	10	1	1	4	7	161	16	11	0	15	482
08:45 AM	38	225	13	5	2	4	16	195	15	10	1	12	536
Total	153	957	43	11	5	14	52	704	102	37	3	43	2124
*** BREAK ***													
04:00 PM	26	232	6	3	0	2	3	224	13	15	2	33	559
04:15 PM	17	239	11	10	0	3	5	239	13	12	1	36	586
04:30 PM	21	247	7	2	0	5	8	264	10	25	0	51	640
04:45 PM	20	246	1	4	0	4	7	254	16	21	0	27	600
Total	84	964	25	19	0	14	23	981	52	73	3	147	2385
05:00 PM	13	247	1	11	0	9	1	242	14	27	2	42	609
05:15 PM	13	271	0	2	2	0	0	256	11	19	0	33	607
05:30 PM	23	210	4	5	0	2	0	245	15	17	0	31	552
05:45 PM	22	212	1	1	0	3	1	197	12	14	0	33	496
Total	71	940	6	19	2	14	2	940	52	77	2	139	2264
Grand Total	426	3906	110	56	9	46	109	3403	253	215	9	362	8904
Apprch %	9.6	87.9	2.5	50.5	8.1	41.4	2.9	90.4	6.7	36.7	1.5	61.8	
Total %	4.8	43.9	1.2	0.6	0.1	0.5	1.2	38.2	2.8	2.4	0.1	4.1	

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File Name : H0410075
Site Code : 00003874
Start Date : 10/5/2004
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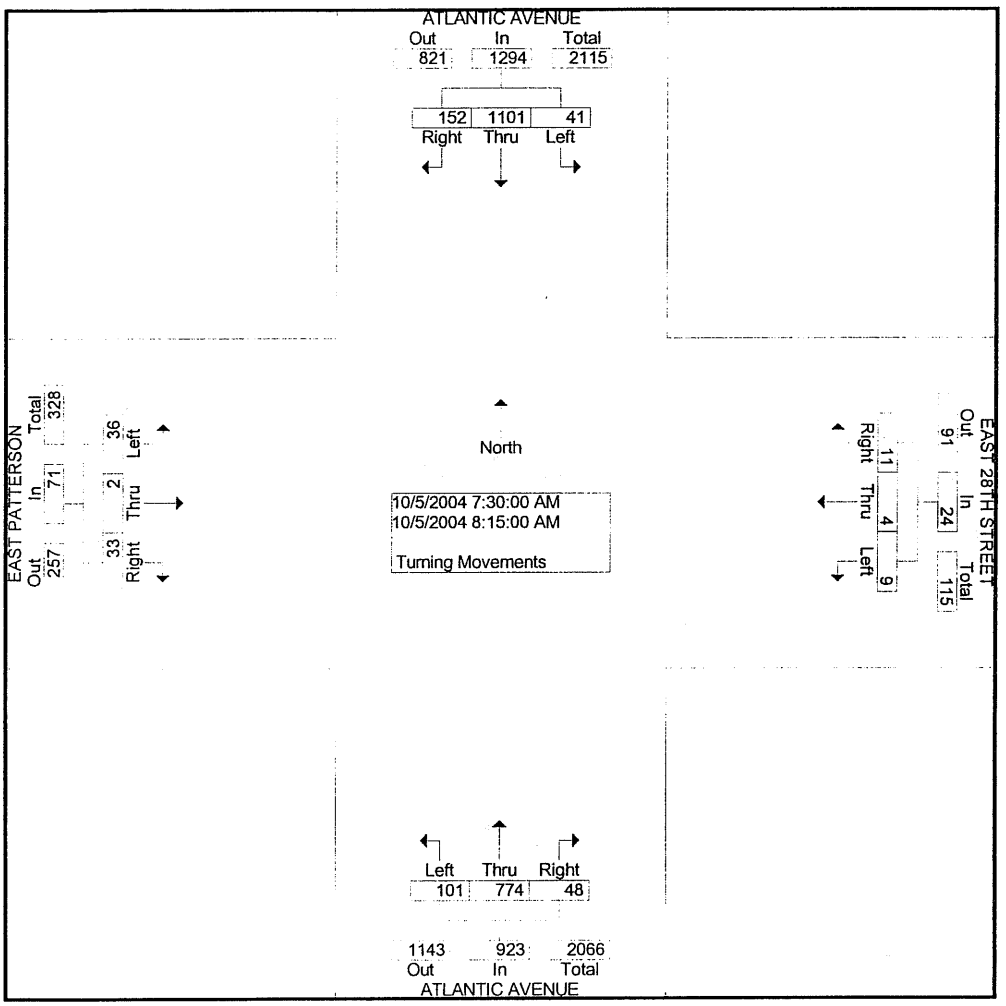
	ATLANTIC AVENUE Southbound				EAST 28TH STREET Westbound				ATLANTIC AVENUE Northbound				EAST PATTERSON Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	152	1101	41	1294	11	4	9	24	48	774	101	923	33	2	36	71	2312
Percent	11.7	85.1	3.2		45.8	16.7	37.5		5.2	83.9	10.9		46.5	2.8	50.7		
07:45 Volume	38	300	15	353	4	2	3	9	14	209	16	239	10	0	9	19	620
Peak Factor																	0.932
High Int.	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
Volume	38	300	15	353	4	2	3	9	14	209	16	239	10	0	9	19	
Peak Factor				0.916				0.667				0.965				0.934	



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File Name : H0410075
Site Code : 00003874
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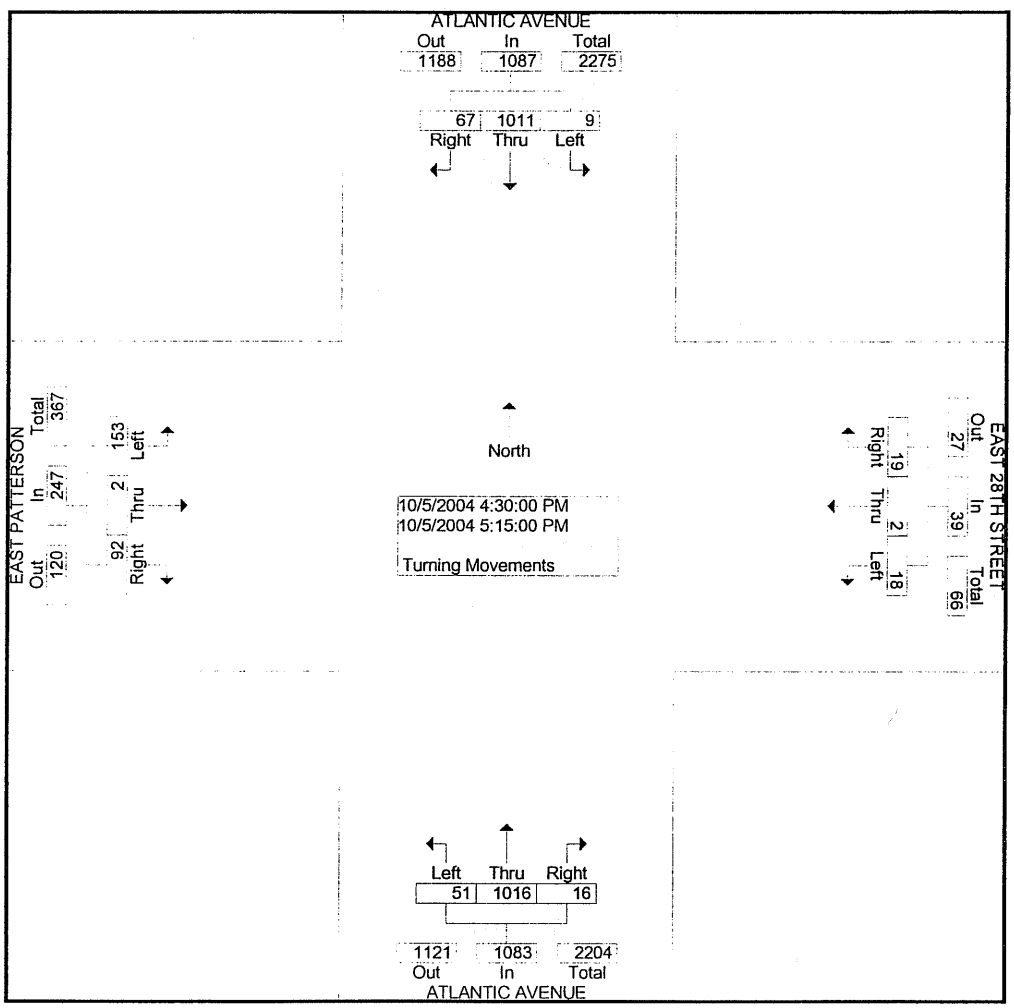
	ATLANTIC AVENUE Southbound				EAST 28TH STREET Westbound				ATLANTIC AVENUE Northbound				EAST PATTERSON Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	67	1011	9	1087	19	2	18	39	16	1016	51	1083	92	2	153	247	2456
Percent	6.2	93.0	0.8		48.7	5.1	46.2		1.5	93.8	4.7		37.2	0.8	61.9		
04:30 Volume	21	247	7	275	2	0	5	7	8	264	10	282	25	0	51	76	640
Peak Factor																	0.959
High Int.	05:15 PM				05:00 PM				04:30 PM				04:30 PM				
Volume	13	271	0	284	11	0	9	20	8	264	10	282	25	0	51	76	
Peak Factor				0.957				0.488				0.960				0.813	



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City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: EAST PATTERSON STREET

File Name : H0410076
Site Code : 00003871
Start Date : 10/5/2004
Page No : 1

Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			EAST PATTESON STREET Westbound			ATLANTIC AVENUE Northbound			EAST PATTESON STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	0	192	5	3	0	1	2	155	0	0	0	0	358
07:15 AM	0	251	5	4	0	1	4	207	0	0	0	0	472
07:30 AM	0	295	9	4	0	1	4	233	0	0	0	0	546
07:45 AM	0	316	10	1	0	0	9	245	0	0	0	0	581
Total	0	1054	29	12	0	3	19	840	0	0	0	0	1957
08:00 AM	0	256	14	1	0	0	4	214	0	0	0	0	489
08:15 AM	0	246	11	2	0	0	4	234	0	0	0	0	497
08:30 AM	0	220	10	6	0	2	2	185	0	0	0	0	425
08:45 AM	0	229	14	11	0	2	10	209	0	0	0	0	475
Total	0	951	49	20	0	4	20	842	0	0	0	0	1886
*** BREAK ***													
04:00 PM	0	250	7	12	0	2	2	231	0	0	0	0	504
04:15 PM	0	252	3	7	0	3	1	256	0	0	0	0	522
04:30 PM	0	281	2	10	0	3	3	267	0	0	0	0	566
04:45 PM	0	264	4	10	0	1	5	276	0	0	0	0	560
Total	0	1047	16	39	0	9	11	1030	0	0	0	0	2152
05:00 PM	0	273	6	9	0	1	1	249	0	0	0	0	539
05:15 PM	0	296	0	10	0	4	0	250	0	0	0	0	560
05:30 PM	0	235	4	12	0	2	1	250	0	0	0	0	504
05:45 PM	0	221	1	3	0	1	1	215	0	0	0	0	442
Total	0	1025	11	34	0	8	3	964	0	0	0	0	2045
Grand Total	0	4077	105	105	0	24	53	3676	0	0	0	0	8040
Apprch %	0.0	97.5	2.5	81.4	0.0	18.6	1.4	98.6	0.0	0.0	0.0	0.0	
Total %	0.0	50.7	1.3	1.3	0.0	0.3	0.7	45.7	0.0	0.0	0.0	0.0	

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File Name : H0410076
Site Code : 00003871
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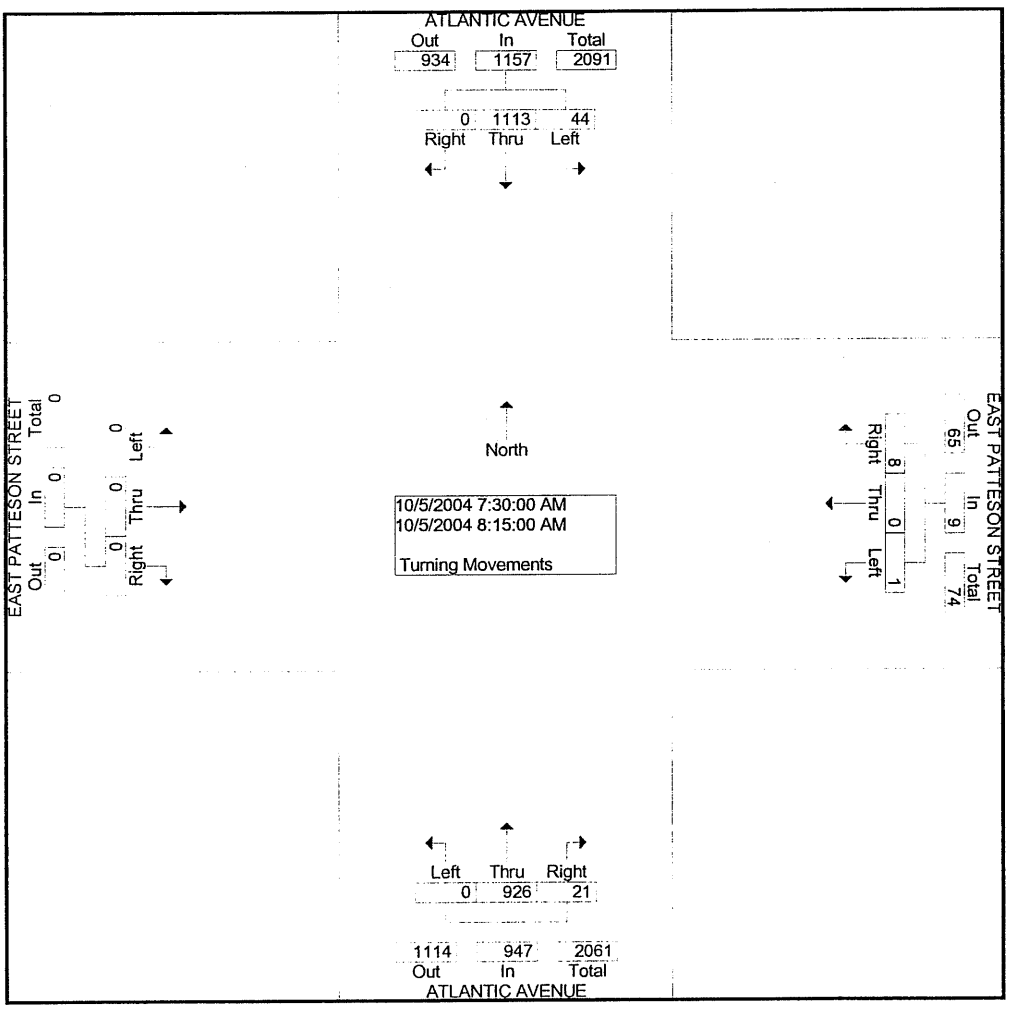
	ATLANTIC AVENUE Southbound				EAST PATTESON STREET Westbound				ATLANTIC AVENUE Northbound				EAST PATTESON STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	0	1113	44	1157	8	0	1	9	21	926	0	947	0	0	0	0	2113
Percent	0.0	96.2	3.8		88.9	0.0	11.1		2.2	97.8	0.0		0.0	0.0	0.0		
07:45 Volume	0	316	10	326	1	0	0	1	9	245	0	254	0	0	0	0	581
Peak Factor																	0.909
High Int.	07:45 AM				07:30 AM				07:45 AM				6:45:00 AM				
Volume	0	316	10	326	4	0	1	5	9	245	0	254					
Peak Factor				0.887				0.450				0.932					



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File Name : H0410076
Site Code : 00003871
Start Date : 10/5/2004
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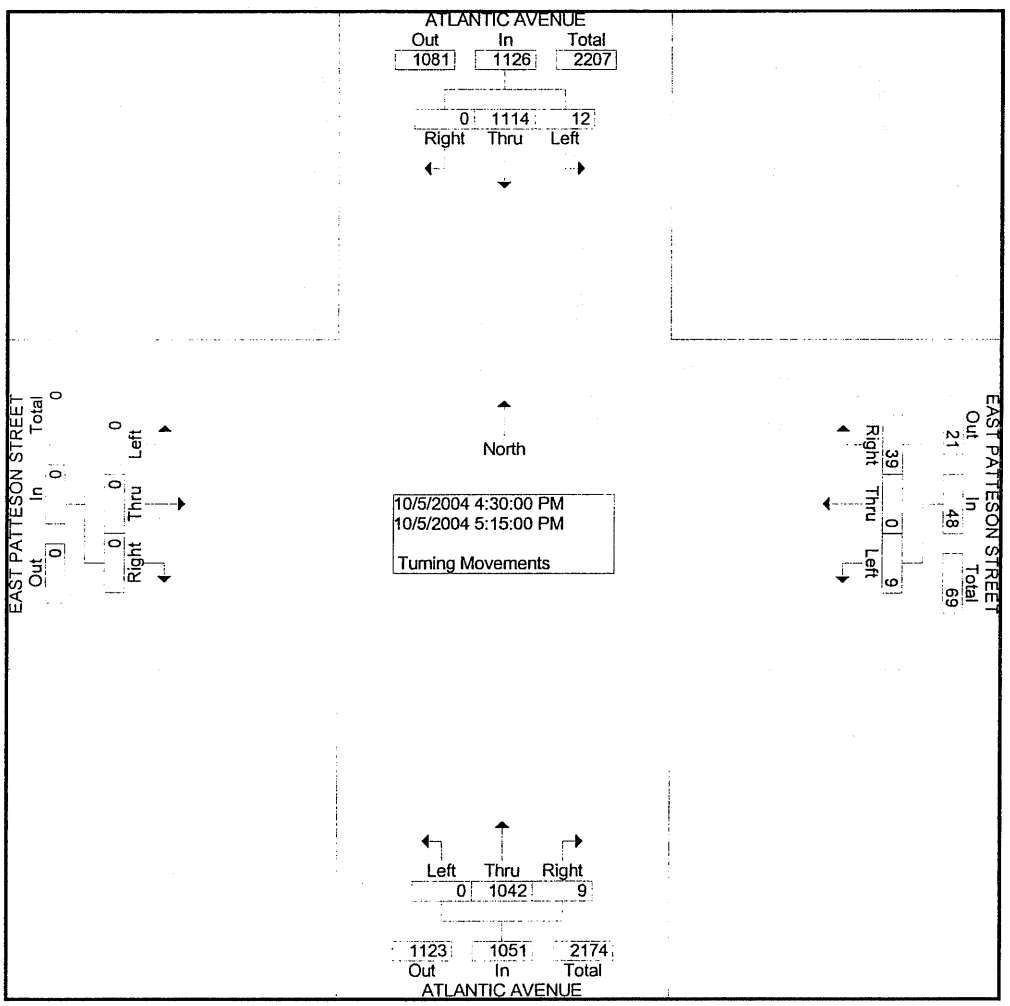
	ATLANTIC AVENUE Southbound				EAST PATTESON STREET Westbound				ATLANTIC AVENUE Northbound				EAST PATTESON STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	1114	12	1126	39	0	9	48	9	1042	0	1051	0	0	0	0	2225
Percent	0.0	98.9	1.1		81.3	0.0	18.8		0.9	99.1	0.0		0.0	0.0	0.0		
04:30 Volume	0	281	2	283	10	0	3	13	3	267	0	270	0	0	0	0	566
Peak Factor																	0.983
High Int.	05:15 PM				05:15 PM				04:45 PM								
Volume	0	296	0	296	10	0	4	14	5	276	0	281					
Peak Factor				0.951				0.857				0.935					



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(6)

City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: 27TH STREET

File Name : H0410077
Site Code : 00000921
Start Date : 10/5/2004
Page No : 1

Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			27TH STREET Westbound			ATLANTIC AVENUE Northbound			27TH STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	71	137	5	4	0	0	4	163	30	3	1	4	422
07:15 AM	44	186	2	5	1	1	2	217	22	3	0	11	494
07:30 AM	59	223	4	6	0	1	7	215	25	7	0	7	554
07:45 AM	107	184	15	10	2	0	5	189	49	5	1	6	573
Total	281	730	26	25	3	2	18	784	126	18	2	28	2043
08:00 AM	72	187	8	8	2	1	4	211	31	5	0	5	534
08:15 AM	74	167	10	9	1	1	2	215	28	4	1	8	520
08:30 AM	39	171	7	11	1	0	2	177	31	6	1	0	446
08:45 AM	44	177	8	5	0	2	2	196	52	6	1	5	498
Total	229	702	33	33	4	4	10	799	142	21	3	18	1998
*** BREAK ***													
04:00 PM	15	247	15	6	0	3	4	211	6	19	4	23	553
04:15 PM	16	241	6	9	0	1	3	224	10	18	1	16	545
04:30 PM	19	236	6	15	1	1	1	220	3	32	2	28	564
04:45 PM	10	238	8	2	0	0	2	252	8	25	3	24	572
Total	60	962	35	32	1	5	10	907	27	94	10	91	2234
05:00 PM	9	238	10	9	0	1	1	188	3	22	2	24	507
05:15 PM	11	269	12	10	0	0	3	187	2	32	5	13	544
05:30 PM	16	221	12	7	1	1	3	205	3	20	2	25	516
05:45 PM	10	210	7	8	3	0	2	178	2	17	3	17	457
Total	46	938	41	34	4	2	9	758	10	91	12	79	2024
Grand Total	616	3332	135	124	12	13	47	3248	305	224	27	216	8299
Apprch %	15.1	81.6	3.3	83.2	8.1	8.7	1.3	90.2	8.5	48.0	5.8	46.3	
Total %	7.4	40.1	1.6	1.5	0.1	0.2	0.6	39.1	3.7	2.7	0.3	2.6	

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File Name : H0410077
Site Code : 00000921
Start Date : 10/5/2004
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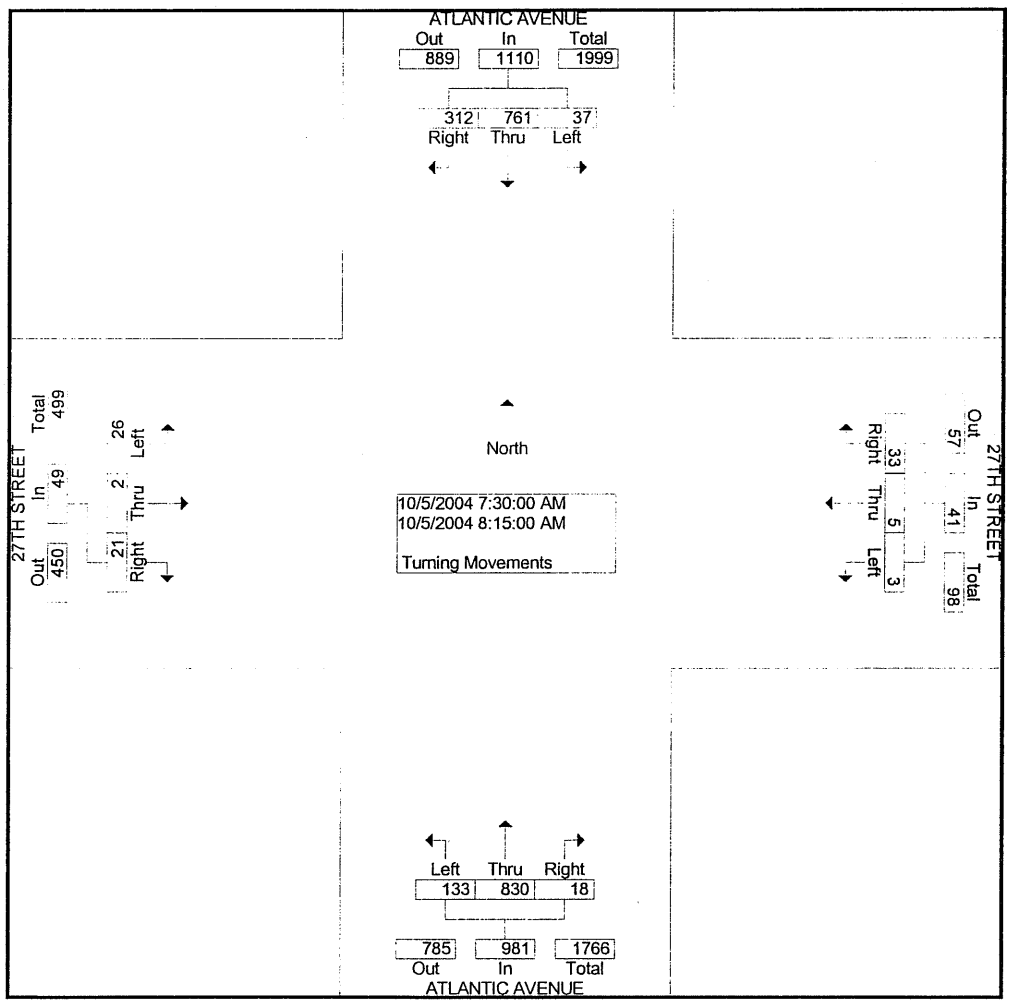
	ATLANTIC AVENUE Southbound				27TH STREET Westbound				ATLANTIC AVENUE Northbound				27TH STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	312	761	37	1110	33	5	3	41	18	830	133	981	21	2	26	49	2181
Percent	28.1	68.6	3.3		80.5	12.2	7.3		1.8	84.6	13.6		42.9	4.1	53.1		
07:45 Volume	107	184	15	306	10	2	0	12	5	189	49	243	5	1	6	12	573
Peak Factor																	0.952
High Int.	07:45 AM				07:45 AM				07:30 AM				07:30 AM				
Volume	107	184	15	306	10	2	0	12	7	215	25	247	7	0	7	14	
Peak Factor				0.907				0.854				0.993				0.875	



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File Name : H0410077
Site Code : 00000921
Start Date : 10/5/2004
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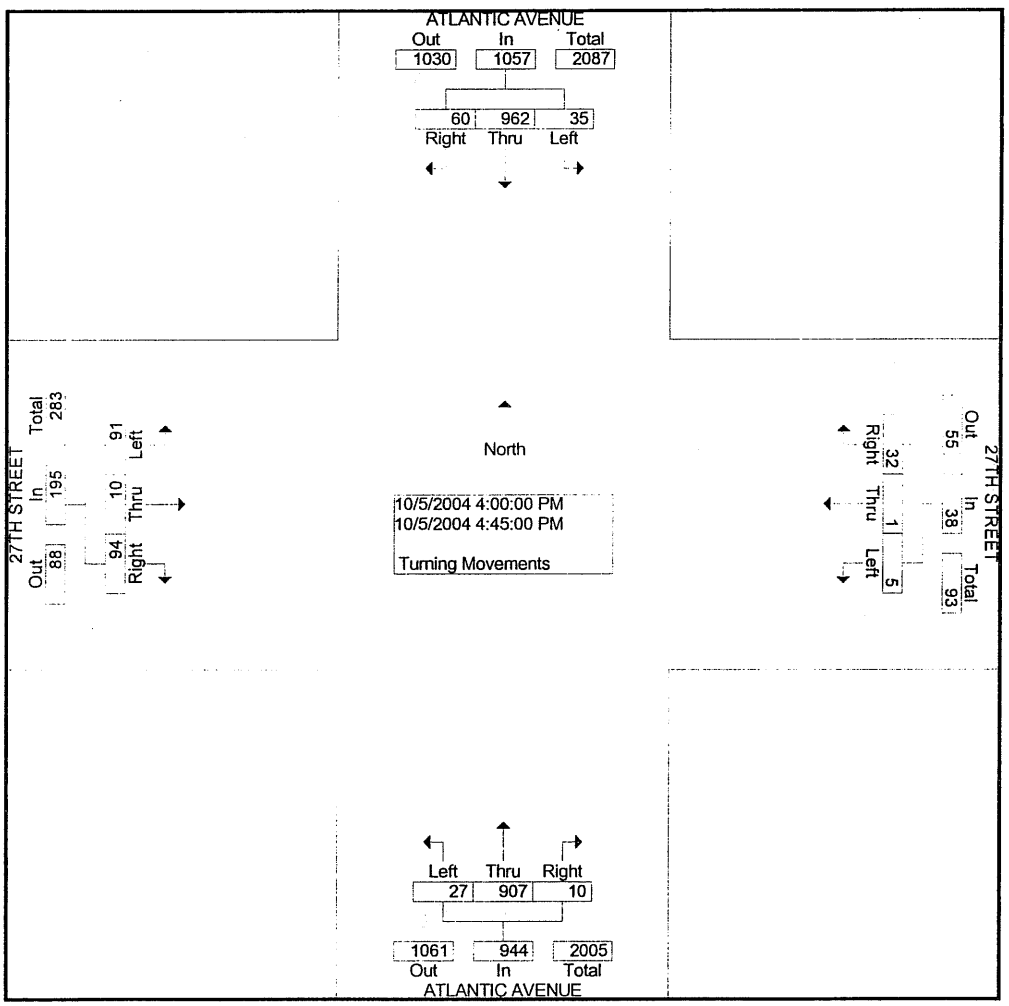
	ATLANTIC AVENUE Southbound				27TH STREET Westbound				ATLANTIC AVENUE Northbound				27TH STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:00 PM																
Volume	60	962	35	1057	32	1	5	38	10	907	27	944	94	10	91	195	2234
Percent	5.7	91.0	3.3		84.2	2.6	13.2		1.1	96.1	2.9		48.2	5.1	46.7		
04:45 Volume	10	238	8	256	2	0	0	2	2	252	8	262	25	3	24	52	572
Peak Factor																	0.976
High Int.	04:00 PM				04:30 PM				04:45 PM				04:30 PM				
Volume	15	247	15	277	15	1	1	17	2	252	8	262	32	2	28	62	
Peak Factor				0.954				0.559				0.901				0.786	



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City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: WILLOW STREET

File Name : h0410078
Site Code : 00000916
Start Date : 10/5/2004
Page No : 1

Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			WILLOW STREET Westbound			ATLANTIC AVENUE Northbound			WILLOW STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	11	59	5	38	130	3	14	102	17	13	141	32	565
07:15 AM	8	100	18	34	212	23	22	106	17	14	254	16	824
07:30 AM	12	177	24	17	209	19	33	137	42	22	224	36	952
07:45 AM	19	152	28	83	207	14	31	164	29	18	247	50	1042
Total	50	488	75	172	758	59	100	509	105	67	866	134	3383
08:00 AM	24	106	19	52	216	7	27	139	29	14	188	51	872
08:15 AM	22	115	14	49	197	9	19	109	18	18	262	56	888
08:30 AM	13	115	27	71	175	12	25	99	16	15	148	20	736
08:45 AM	29	118	20	70	263	28	18	94	17	17	125	19	818
Total	88	454	80	242	851	56	89	441	80	64	723	146	3314
*** BREAK ***													
04:00 PM	56	143	37	45	174	44	16	87	24	40	254	34	954
04:15 PM	31	152	54	54	228	37	32	125	19	18	256	14	1020
04:30 PM	31	178	47	36	195	26	33	119	44	21	205	23	958
04:45 PM	40	173	69	31	191	22	13	112	23	31	263	33	1001
Total	158	646	207	166	788	129	94	443	110	110	978	104	3933
05:00 PM	49	169	65	22	178	26	19	155	44	17	258	35	1037
05:15 PM	35	155	86	34	221	17	16	138	39	41	230	26	1038
05:30 PM	23	145	50	31	228	20	26	150	10	28	338	47	1096
05:45 PM	22	148	44	57	208	10	18	132	11	20	304	18	992
Total	129	617	245	144	835	73	79	575	104	106	1130	126	4163
Grand Total	425	2205	607	724	3232	317	362	1968	399	347	3697	510	14793
Apprch %	13.1	68.1	18.8	16.9	75.6	7.4	13.3	72.1	14.6	7.6	81.2	11.2	
Total %	2.9	14.9	4.1	4.9	21.8	2.1	2.4	13.3	2.7	2.3	25.0	3.4	

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File Name : h0410078
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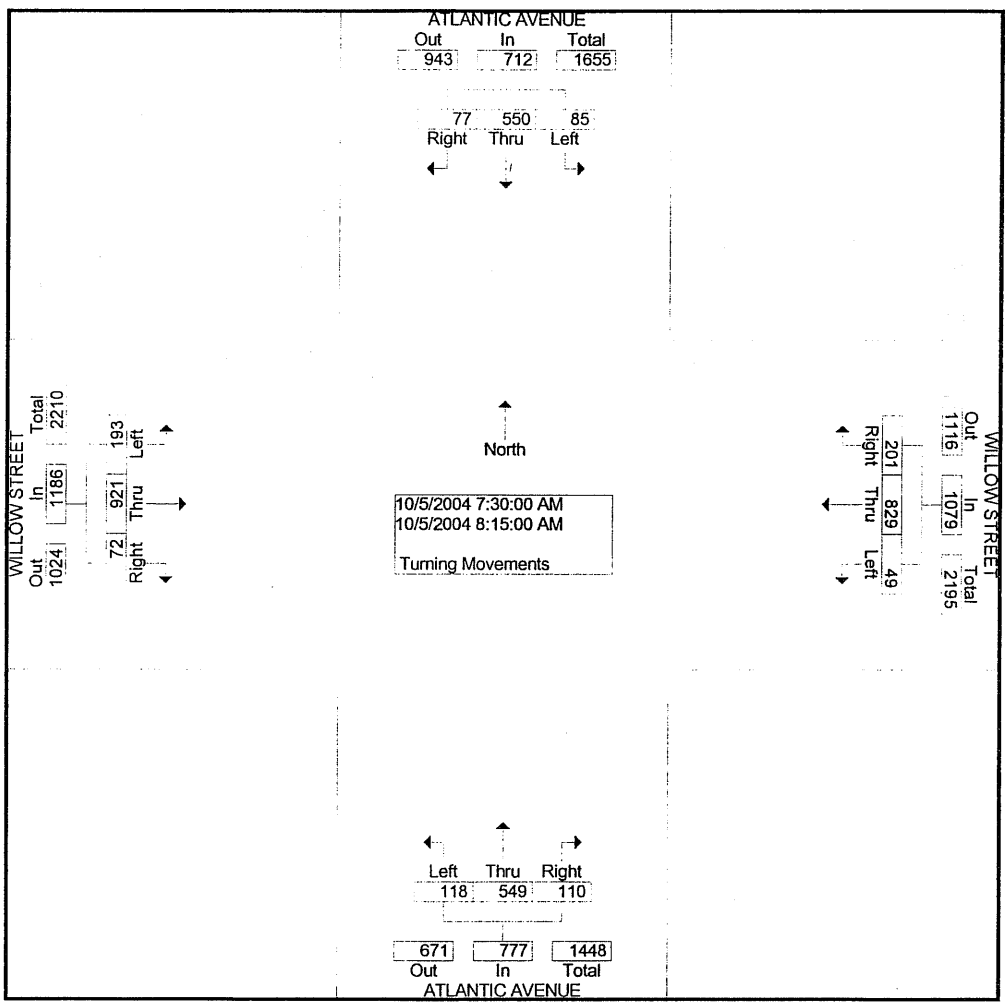
	ATLANTIC AVENUE Southbound				WILLOW STREET Westbound				ATLANTIC AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	77	550	85	712	201	829	49	1079	110	549	118	777	72	921	193	1186	3754
Percent	10.8	77.2	11.9		18.6	76.8	4.5		14.2	70.7	15.2		6.1	77.7	16.3		
07:45 Volume	19	152	28	199	83	207	14	304	31	164	29	224	18	247	50	315	1042
Peak Factor																	0.901
High Int.	07:30 AM				07:45 AM				07:45 AM				08:15 AM				
Volume	12	177	24	213	83	207	14	304	31	164	29	224	18	262	56	336	
Peak Factor				0.836				0.887				0.867				0.882	



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File Name : h0410078
Site Code : 00000916
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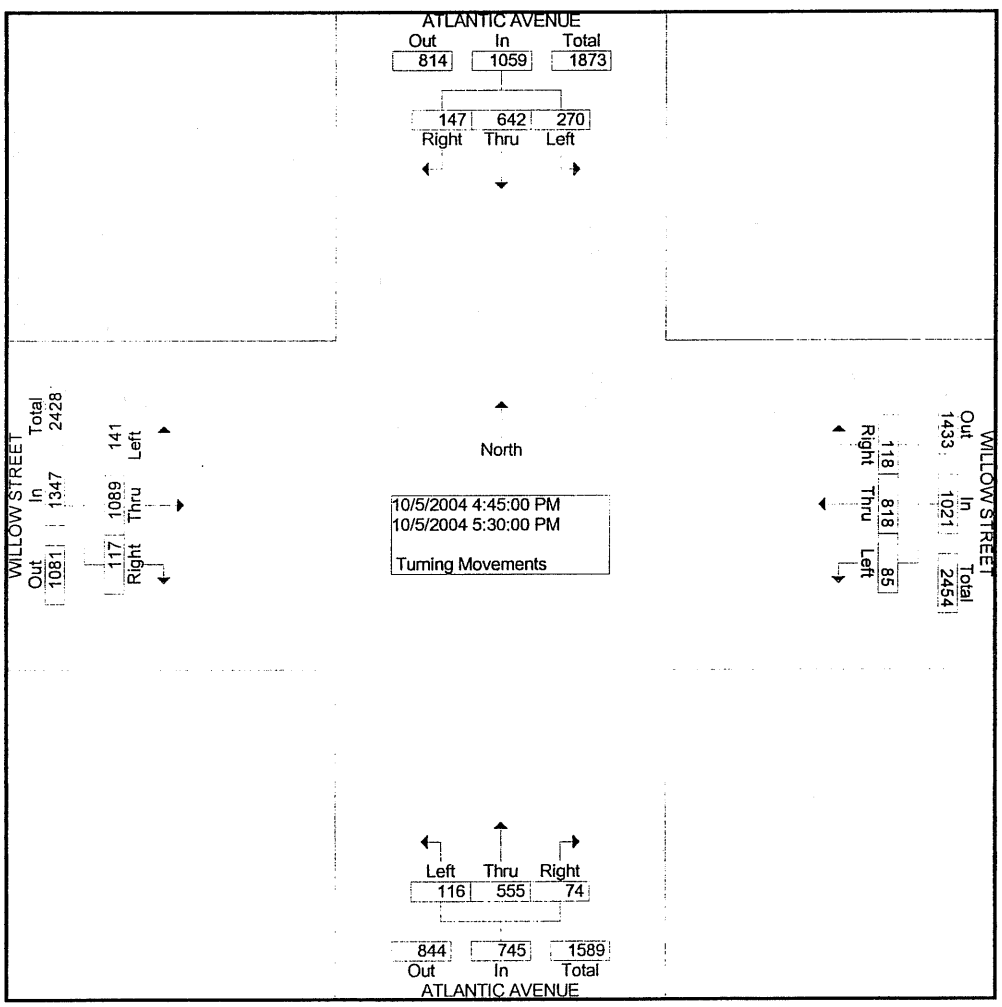
	ATLANTIC AVENUE Southbound				WILLOW STREET Westbound				ATLANTIC AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	147	642	270	1059	118	818	85	1021	74	555	116	745	117	1089	141	1347	4172
Percent	13.9	60.6	25.5		11.6	80.1	8.3		9.9	74.5	15.6		8.7	80.8	10.5		
05:30 Volume	23	145	50	218	31	228	20	279	26	150	10	186	28	338	47	413	1096
Peak Factor																	0.952
High Int.	05:00 PM				05:30 PM				05:00 PM				05:30 PM				
Volume	49	169	65	283	31	228	20	279	19	155	44	218	28	338	47	413	
Peak Factor				0.936				0.915				0.854				0.815	



Transportation Studies, Inc.
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City: LONG BEACH
N-S Direction: PASADENA AVENUE
E-W Direction: WILLOW STREET

File Name : H0410079
Site Code : 00000976
Start Date : 10/5/2004
Page No : 1

Groups Printed- Turning Movements

	PASADENA AVENUE Southbound			WILLOW STREET Westbound			PASADENA AVENUE Northbound			WILLOW STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	10	0	1	3	184	0	0	0	0	0	246	5	449
07:15 AM	3	0	0	1	198	0	0	0	0	0	249	10	461
07:30 AM	11	0	2	3	223	0	0	0	0	0	271	20	530
07:45 AM	11	0	0	2	291	0	0	0	0	0	292	15	611
Total	35	0	3	9	896	0	0	0	0	0	1058	50	2051
08:00 AM	3	0	0	1	283	0	0	0	0	0	290	6	583
08:15 AM	3	0	2	0	223	0	0	0	0	0	224	11	463
08:30 AM	2	0	2	1	238	0	0	0	0	0	185	6	434
08:45 AM	1	0	0	1	288	0	0	0	0	0	252	1	543
Total	9	0	4	3	1032	0	0	0	0	0	951	24	2023
*** BREAK ***													
04:00 PM	5	0	0	1	188	0	0	0	0	0	283	4	481
04:15 PM	3	0	2	0	239	0	0	0	0	0	305	4	553
04:30 PM	4	0	0	2	350	0	0	0	0	0	286	10	652
04:45 PM	3	0	1	2	281	0	0	0	0	0	324	3	614
Total	15	0	3	5	1058	0	0	0	0	0	1198	21	2300
05:00 PM	2	0	2	0	252	0	0	0	0	0	302	3	561
05:15 PM	3	0	0	1	233	0	0	0	0	0	301	6	544
05:30 PM	3	0	1	5	280	0	0	0	0	0	351	4	644
05:45 PM	2	0	1	0	268	0	0	0	0	0	300	5	576
Total	10	0	4	6	1033	0	0	0	0	0	1254	18	2325
Grand Total	69	0	14	23	4019	0	0	0	0	0	4461	113	8699
Apprch %	83.1	0.0	16.9	0.6	99.4	0.0	0.0	0.0	0.0	0.0	97.5	2.5	
Total %	0.8	0.0	0.2	0.3	46.2	0.0	0.0	0.0	0.0	0.0	51.3	1.3	

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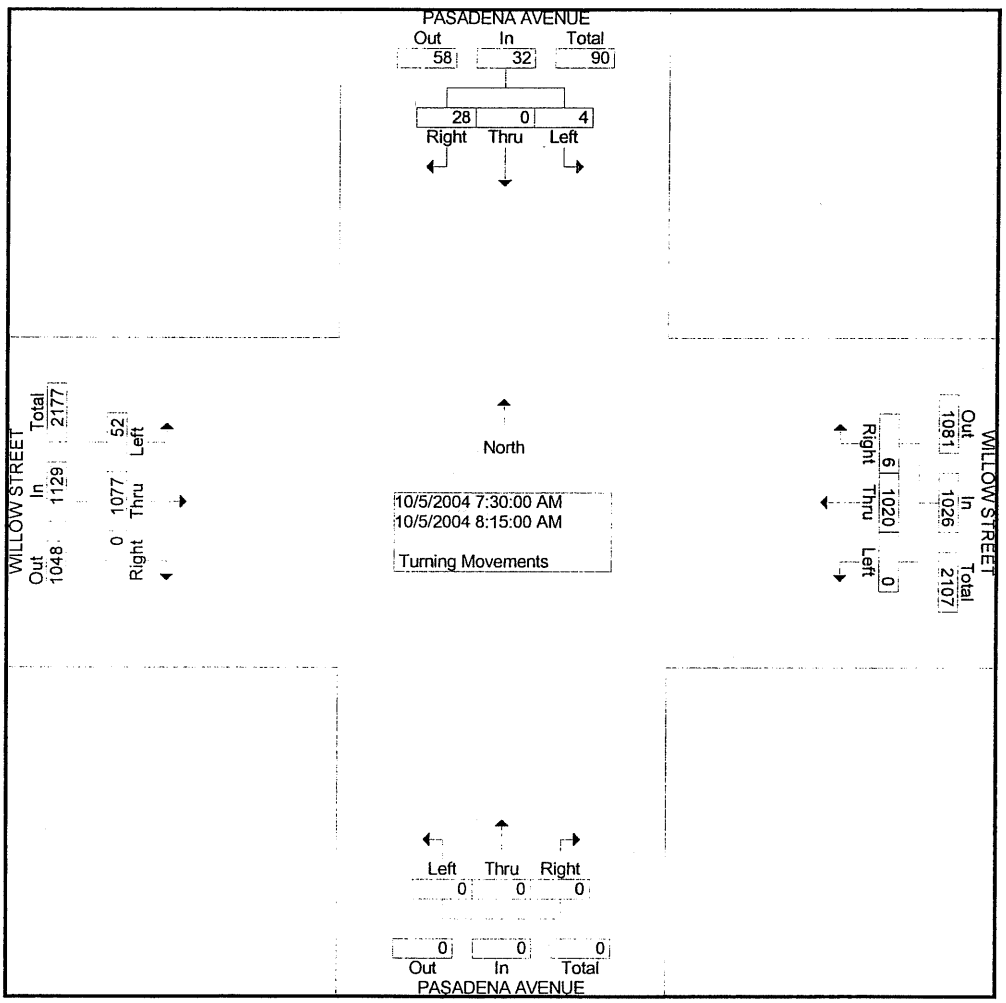
File Name : H0410079
Site Code : 00000976
Start Date : 10/5/2004
Page No : 2

	PASADENA AVENUE Southbound				WILLOW STREET Westbound				PASADENA AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	28	0	4	32	6	1020	0	1026	0	0	0	0	0	1077	52	1129	2187
Percent	87.5	0.0	12.5		0.6	99.4	0.0		0.0	0.0	0.0		0.0	95.4	4.6		
07:45 Volume	11	0	0	11	2	291	0	293	0	0	0	0	0	292	15	307	611
Peak Factor																	0.895
High Int.	07:30 AM				07:45 AM				6:45:00 AM				07:45 AM				
Volume	11	0	2	13	2	291	0	293	0	0	0	0	0	292	15	307	
Peak Factor				0.615				0.875								0.919	



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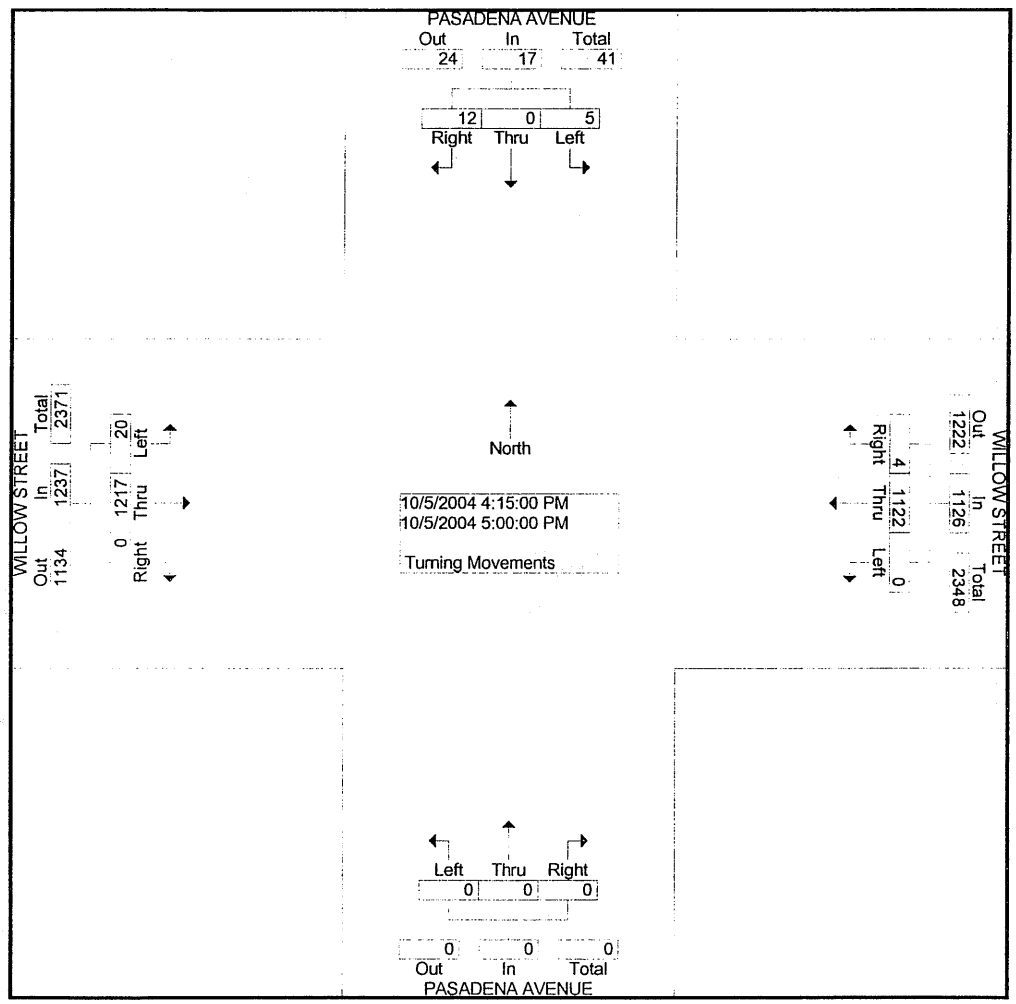
File Name : H0410079
Site Code : 00000976
Start Date : 10/5/2004
Page No : 3

	PASADENA AVENUE Southbound				WILLOW STREET Westbound				PASADENA AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:15 PM																
Volume	12	0	5	17	4	1122	0	1126	0	0	0	0	0	1217	20	1237	2380
Percent	70.6	0.0	29.4		0.4	99.6	0.0		0.0	0.0	0.0		0.0	98.4	1.6		
04:30 Volume	4	0	0	4	2	350	0	352	0	0	0	0	0	286	10	296	652
Peak Factor																	0.913
High Int.	04:15 PM				04:30 PM								04:45 PM				
Volume	3	0	2	5	2	350	0	352	0	0	0	0	0	324	3	327	
Peak Factor				0.850				0.800								0.946	



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9

City: LONG BEACH
N-S Direction: LONG BEACH BOULEVARD
E-W Direction: WILLOW STREET

File Name : H0410080
Site Code : 00000916
Start Date : 10/5/2004
Page No : 1

Groups Printed- Turning Movements

	LONG BEACH BOULEVARD Southbound			WILLOW STREET Westbound			LONG BEACH BOULEVARD Northbound			WILLOW STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	18	70	7	16	171	17	24	91	46	12	114	30	616
07:15 AM	32	131	18	12	216	32	22	95	74	23	196	30	881
07:30 AM	38	232	21	16	169	24	23	122	76	21	190	50	982
07:45 AM	27	163	99	24	209	29	17	128	69	26	364	78	1233
Total	115	596	145	68	765	102	86	436	265	82	864	188	3712
08:00 AM	51	210	36	11	202	31	13	179	54	17	208	74	1086
08:15 AM	29	131	27	44	221	27	34	118	38	36	213	43	961
08:30 AM	37	122	26	25	195	25	14	66	28	23	164	61	786
08:45 AM	31	126	24	28	179	15	17	67	22	41	162	39	751
Total	148	589	113	108	797	98	78	430	142	117	747	217	3584
*** BREAK ***													
04:00 PM	10	158	32	22	229	12	18	152	42	29	225	49	978
04:15 PM	13	154	50	18	230	32	27	154	37	21	255	32	1023
04:30 PM	10	167	34	16	197	29	18	160	49	64	237	58	1039
04:45 PM	31	173	46	27	227	46	13	187	65	38	255	46	1154
Total	64	652	162	83	883	119	76	653	193	152	972	185	4194
05:00 PM	19	199	41	11	195	34	16	195	86	19	276	62	1153
05:15 PM	10	195	41	18	202	31	18	149	59	32	270	41	1066
05:30 PM	14	180	53	15	187	50	16	162	32	22	284	38	1053
05:45 PM	10	157	41	15	232	25	16	100	29	31	307	51	1014
Total	53	731	176	59	816	140	66	606	206	104	1137	192	4286
Grand Total	380	2568	596	318	3261	459	306	2125	806	455	3720	782	15776
Apprch %	10.7	72.5	16.8	7.9	80.8	11.4	9.5	65.6	24.9	9.2	75.0	15.8	
Total %	2.4	16.3	3.8	2.0	20.7	2.9	1.9	13.5	5.1	2.9	23.6	5.0	

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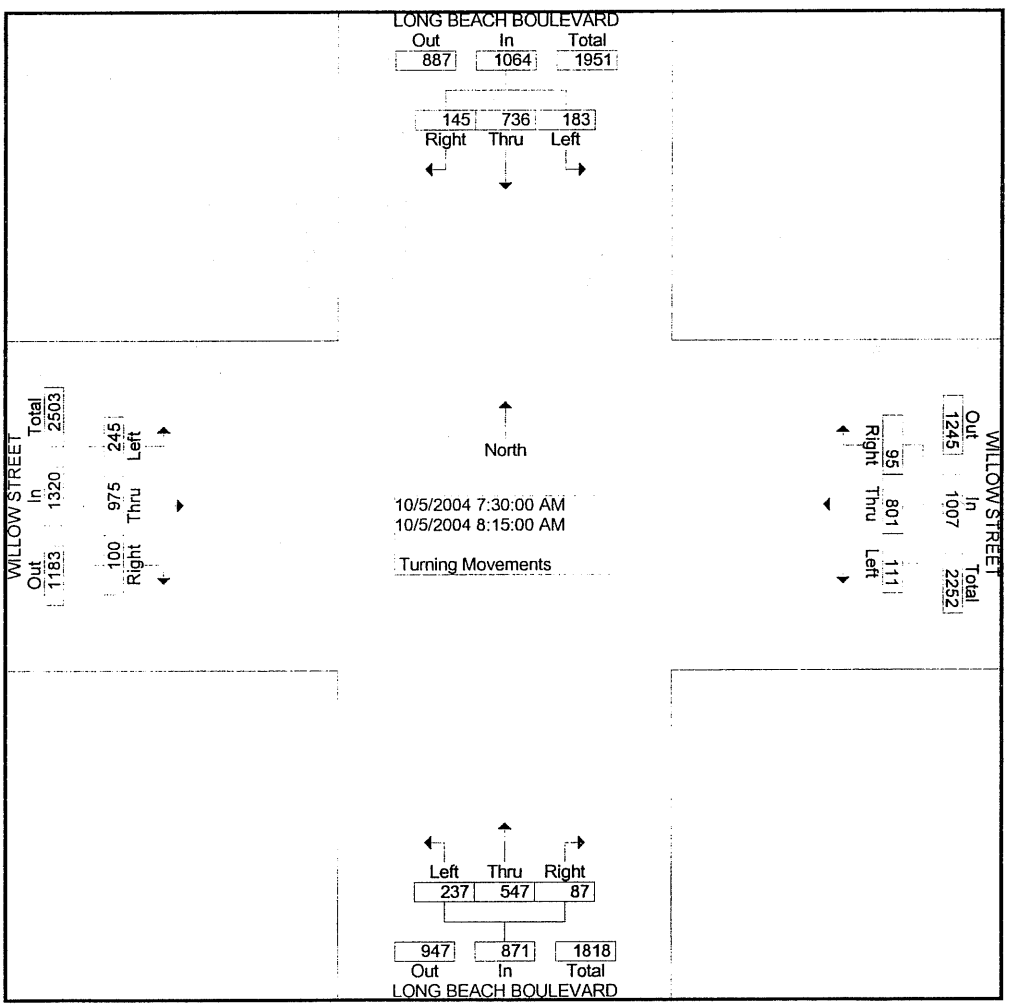
File Name : H0410080
Site Code : 00000916
Start Date : 10/5/2004
Page No : 2

	LONG BEACH BOULEVARD Southbound				WILLOW STREET Westbound				LONG BEACH BOULEVARD Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	145	736	183	1064	95	801	111	1007	87	547	237	871	100	975	245	1320	4262
Percent	13.6	69.2	17.2		9.4	79.5	11.0		10.0	62.8	27.2		7.6	73.9	18.6		
07:45 Volume	27	163	99	289	24	209	29	262	17	128	69	214	26	364	78	468	1233
Peak Factor																	0.864
High Int.	08:00 AM				08:15 AM				08:00 AM				07:45 AM				
Volume	51	210	36	297	44	221	27	292	13	179	54	246	26	364	78	468	
Peak Factor				0.896				0.862				0.885				0.705	



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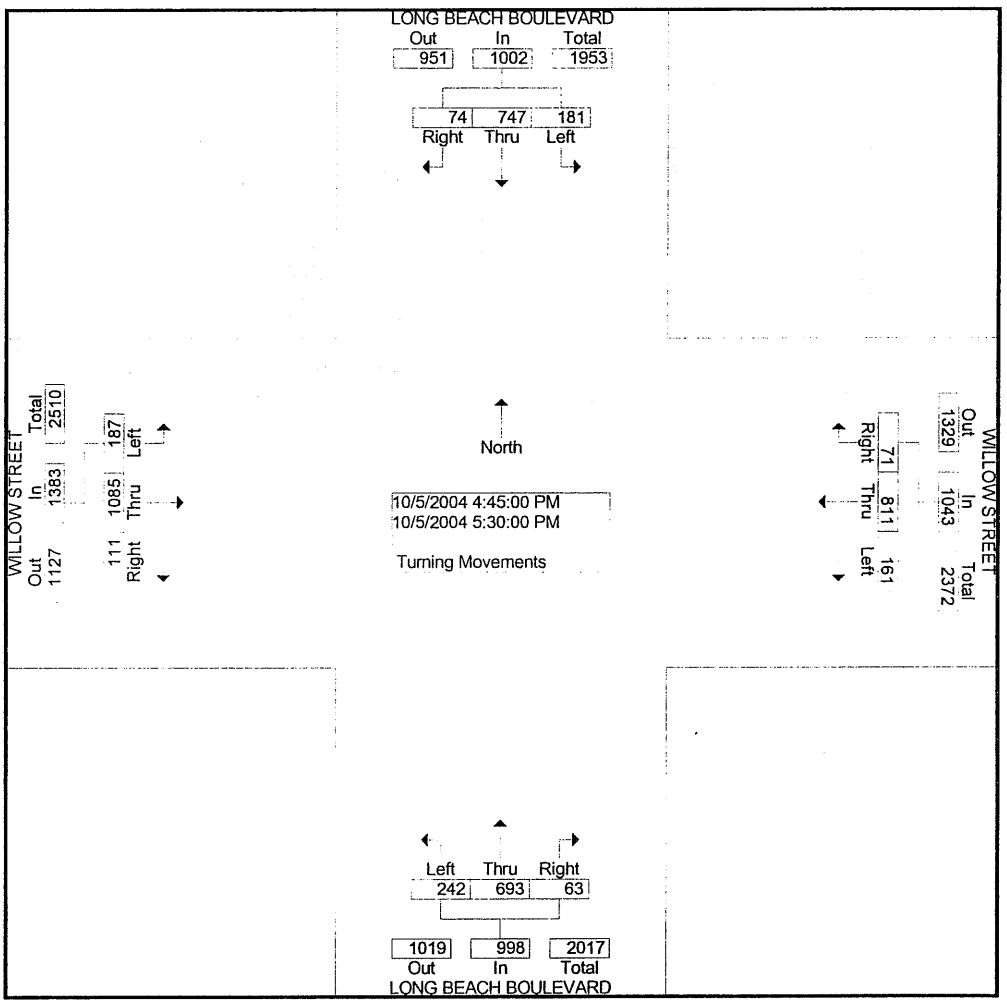
File Name : H0410080
Site Code : 00000916
Start Date : 10/5/2004
Page No : 3

	LONG BEACH BOULEVARD Southbound				WILLOW STREET Westbound				LONG BEACH BOULEVARD Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	74	747	181	1002	71	811	161	1043	63	693	242	998	111	1085	187	1383	4426
Percent	7.4	74.6	18.1		6.8	77.8	15.4		6.3	69.4	24.2		8.0	78.5	13.5		
04:45 Volume	31	173	46	250	27	227	46	300	13	187	65	265	38	255	46	339	1154
Peak Factor																	0.959
High Int.	05:00 PM				04:45 PM				05:00 PM				05:00 PM				
Volume	19	199	41	259	27	227	46	300	16	195	86	297	19	276	62	357	
Peak Factor				0.967				0.869				0.840				0.968	



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(10)

City: LONG BEACH
N-S Direction: LONG BEACH BOULEVARD
E-W Direction: 27TH STREET

File Name : H0410081
Site Code : 00000976
Start Date : 10/5/2004
Page No : 1

Groups Printed- Turning Movements

	LONG BEACH BOULEVARD Southbound			27TH STREET Westbound			LONG BEACH BOULEVARD Northbound			27TH STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	0	194	0	10	0	0	3	140	0	0	0	0	347
07:15 AM	0	214	0	17	0	0	13	150	0	0	0	0	394
07:30 AM	0	232	0	42	0	0	20	145	0	0	0	0	439
07:45 AM	0	267	0	30	0	0	25	214	0	0	0	0	536
Total	0	907	0	99	0	0	61	649	0	0	0	0	1716
08:00 AM	0	204	0	15	0	0	16	164	0	0	0	0	399
08:15 AM	0	230	0	12	0	0	11	166	0	0	0	0	419
08:30 AM	0	219	0	15	0	0	7	177	0	0	0	0	418
08:45 AM	0	229	0	20	0	0	13	176	0	0	0	0	438
Total	0	882	0	62	0	0	47	683	0	0	0	0	1674
*** BREAK ***													
04:00 PM	0	232	0	52	0	0	8	229	0	0	0	0	521
04:15 PM	0	246	0	32	0	0	10	232	0	0	0	0	520
04:30 PM	0	229	0	81	0	0	6	217	0	0	0	0	533
04:45 PM	0	217	0	85	0	0	4	224	0	0	0	0	530
Total	0	924	0	250	0	0	28	902	0	0	0	0	2104
05:00 PM	0	243	0	127	0	0	6	210	0	0	0	0	586
05:15 PM	0	211	0	46	0	0	6	228	0	0	0	0	491
05:30 PM	0	283	0	32	0	0	4	246	0	0	0	0	565
05:45 PM	0	243	0	32	0	0	1	221	0	0	0	0	497
Total	0	980	0	237	0	0	17	905	0	0	0	0	2139
Grand Total	0	3693	0	648	0	0	153	3139	0	0	0	0	7633
Apprch %	0.0	100.0	0.0	100.0	0.0	0.0	4.6	95.4	0.0	0.0	0.0	0.0	
Total %	0.0	48.4	0.0	8.5	0.0	0.0	2.0	41.1	0.0	0.0	0.0	0.0	

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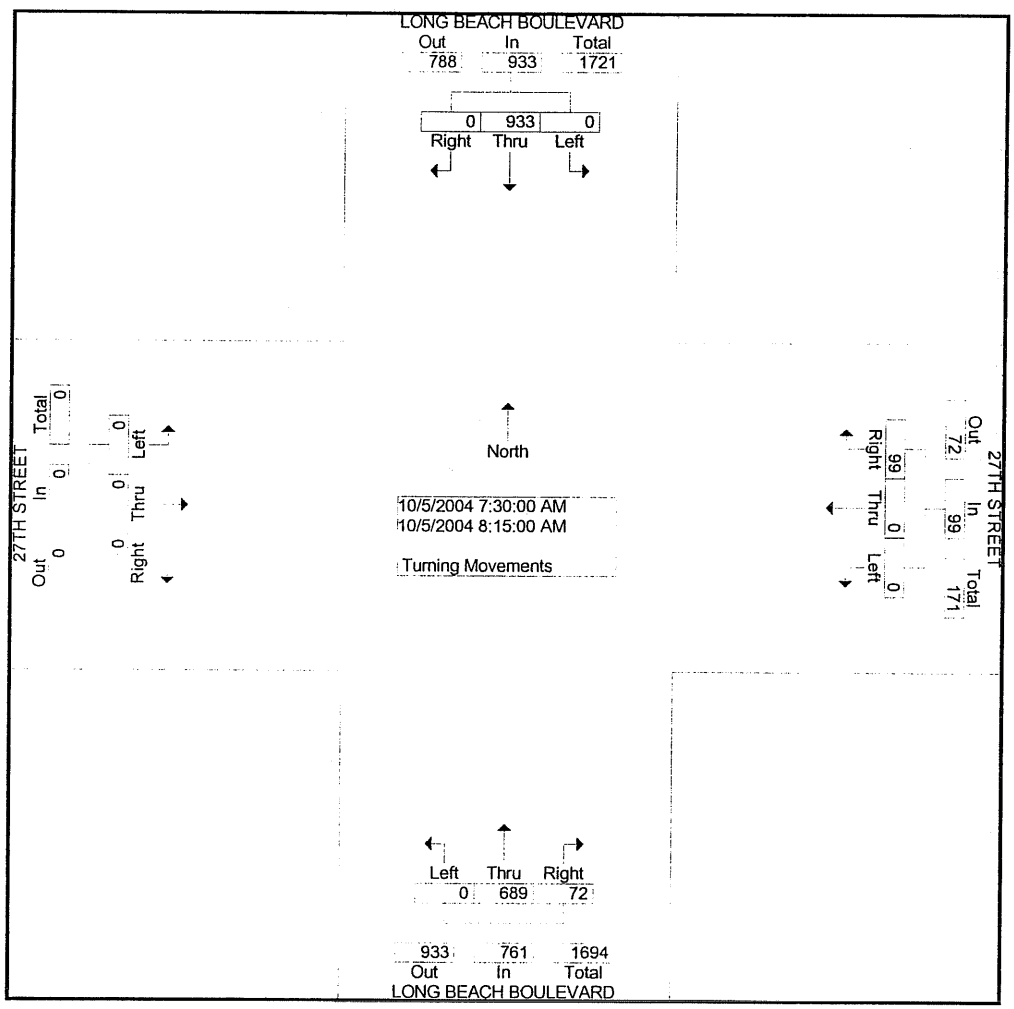
File Name : H0410081
Site Code : 00000976
Start Date : 10/5/2004
Page No : 2

	LONG BEACH BOULEVARD Southbound				27TH STREET Westbound				LONG BEACH BOULEVARD Northbound				27TH STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	0	933	0	933	99	0	0	99	72	689	0	761	0	0	0	0	1793
Percent	0.0	100.0	0.0		100.0	0.0	0.0		9.5	90.5	0.0		0.0	0.0	0.0		
07:45 Volume	0	267	0	267	30	0	0	30	25	214	0	239	0	0	0	0	536
Peak Factor																	0.836
High Int.	07:45 AM				07:30 AM				07:45 AM				6:45:00 AM				
Volume	0	267	0	267	42	0	0	42	25	214	0	239					
Peak Factor				0.874				0.589				0.796					



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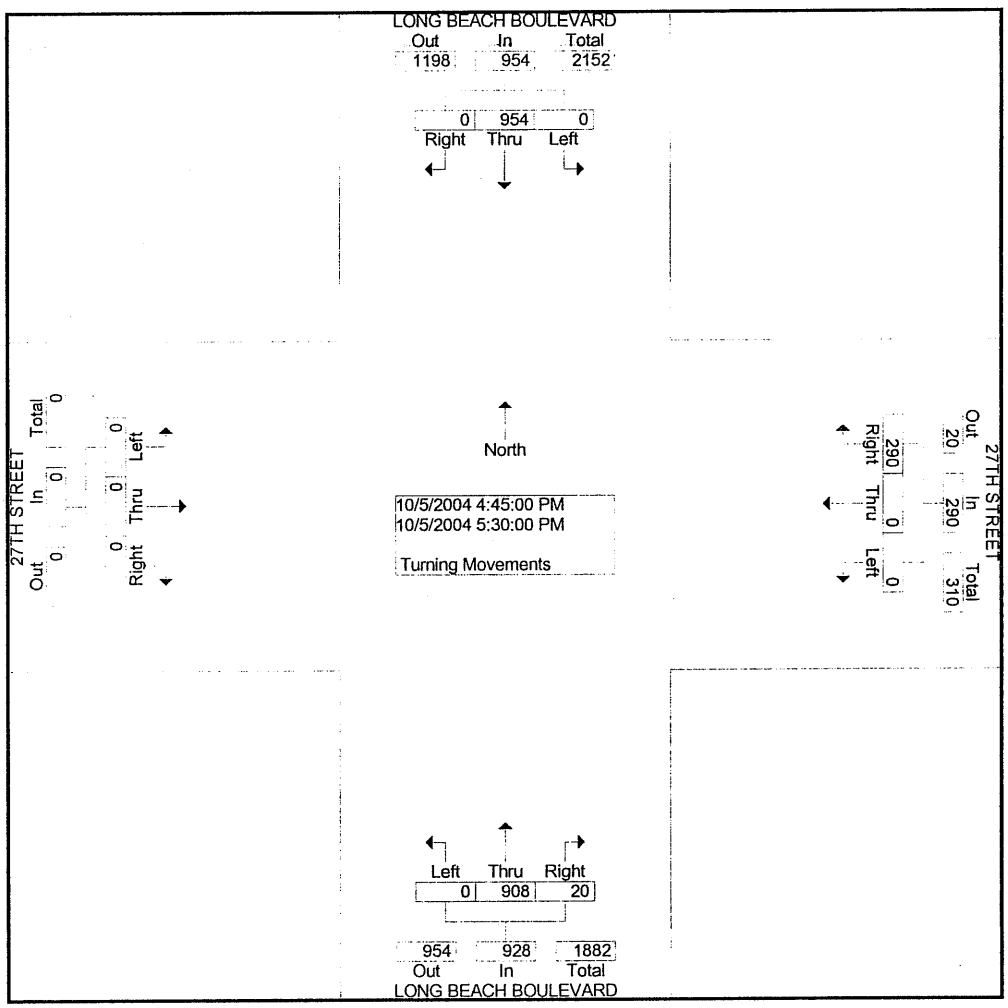
File Name : H0410081
Site Code : 00000976
Start Date : 10/5/2004
Page No : 3

	LONG BEACH BOULEVARD Southbound				27TH STREET Westbound				LONG BEACH BOULEVARD Northbound				27TH STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	0	954	0	954	290	0	0	290	20	908	0	928	0	0	0	0	2172
Percent	0.0	100.0	0.0		100.0	0.0	0.0		2.2	97.8	0.0		0.0	0.0	0.0		
05:00 Volume	0	243	0	243	127	0	0	127	6	210	0	216	0	0	0	0	586
Peak Factor																	0.927
High Int.	05:30 PM				05:00 PM				05:30 PM								
Volume	0	283	0	283	127	0	0	127	4	246	0	250					
Peak Factor				0.843				0.571				0.928					



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(11)

City: LONG BEACH
N-S Direction: LONG BEACH BOULEVARD
E-W Direction: EAST PATTERSON STREET

File Name : H0410082
Site Code : 00002246
Start Date : 10/12/2004
Page No : 1

Groups Printed- Turning Movements

	LONG BEACH BOULEVARD Southbound			EAST PATTERSON STREET Westbound			LONG BEACH BOULEVARD Northbound			EAST PATTERSON STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	0	185	5	0	0	0	2	143	0	0	0	0	335
07:15 AM	0	246	14	2	0	0	6	173	0	0	0	0	441
07:30 AM	0	274	9	0	0	1	2	205	0	0	0	0	491
07:45 AM	0	231	7	1	0	2	6	215	0	0	0	0	462
Total	0	936	35	3	0	3	16	736	0	0	0	0	1729
08:00 AM	0	222	7	2	0	0	5	205	0	0	0	0	441
08:15 AM	0	230	16	10	0	0	2	208	0	0	0	0	466
08:30 AM	0	236	10	4	0	1	9	189	0	0	0	0	449
08:45 AM	0	222	4	5	0	3	3	188	0	0	0	0	425
Total	0	910	37	21	0	4	19	790	0	0	0	0	1781
*** BREAK ***													
04:00 PM	0	219	13	17	0	5	7	255	0	0	0	0	516
04:15 PM	0	194	12	12	0	6	8	277	0	0	0	0	509
04:30 PM	0	269	12	14	0	15	7	339	0	0	0	0	656
04:45 PM	0	253	12	10	0	8	10	296	0	0	0	0	589
Total	0	935	49	53	0	34	32	1167	0	0	0	0	2270
05:00 PM	0	262	10	13	0	10	4	337	0	0	0	0	636
05:15 PM	0	247	3	9	0	7	7	261	0	0	0	0	534
05:30 PM	0	213	7	11	0	8	5	290	0	0	0	0	534
05:45 PM	0	216	16	5	0	12	6	255	0	0	0	0	510
Total	0	938	36	38	0	37	22	1143	0	0	0	0	2214
Grand Total	0	3719	157	115	0	78	89	3836	0	0	0	0	7994
Apprch %	0.0	95.9	4.1	59.6	0.0	40.4	2.3	97.7	0.0	0.0	0.0	0.0	
Total %	0.0	46.5	2.0	1.4	0.0	1.0	1.1	48.0	0.0	0.0	0.0	0.0	

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File Name : H0410082
Site Code : 00002246
Start Date : 10/12/2004
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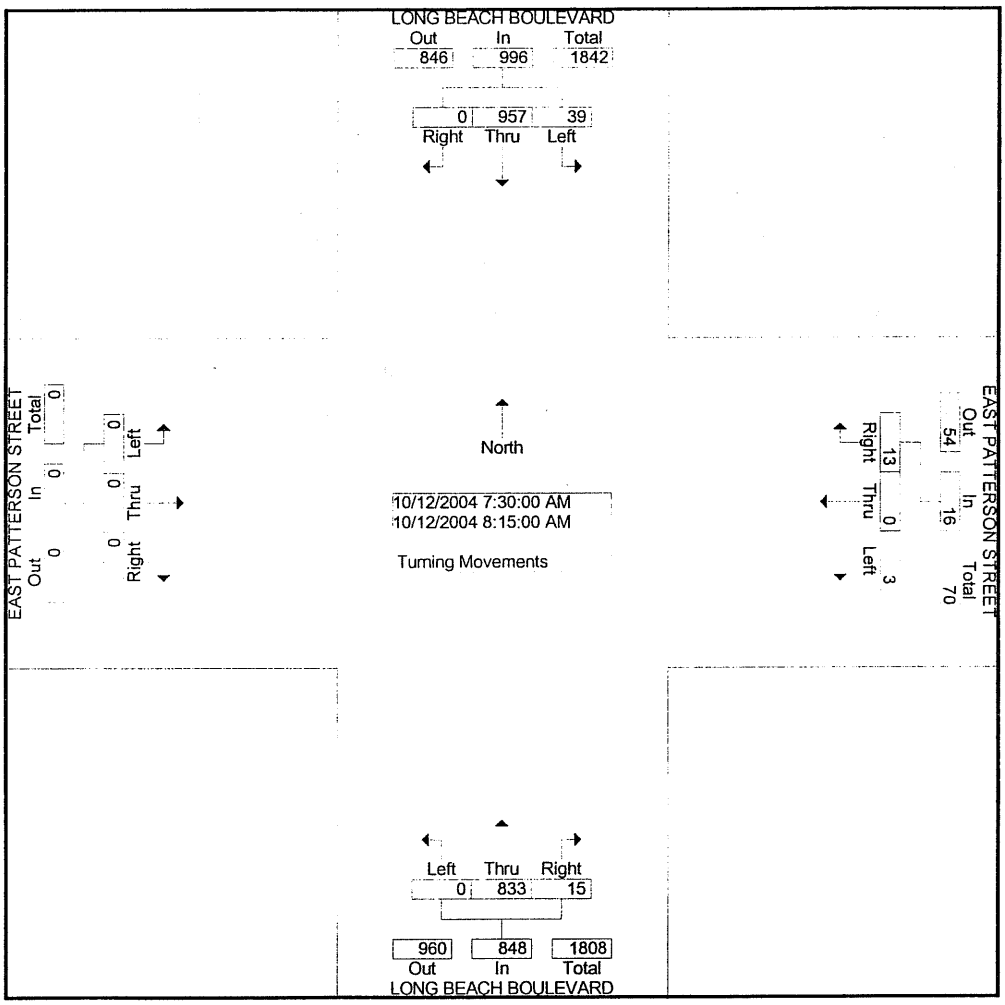
	LONG BEACH BOULEVARD Southbound				EAST PATTERSON STREET Westbound				LONG BEACH BOULEVARD Northbound				EAST PATTERSON STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	0	957	39	996	13	0	3	16	15	833	0	848	0	0	0	0	1860
Percent	0.0	96.1	3.9		81.3	0.0	18.8		1.8	98.2	0.0		0.0	0.0	0.0		
07:30 Volume	0	274	9	283	0	0	1	1	2	205	0	207	0	0	0	0	491
Peak Factor																	0.947
High Int.	07:30 AM				08:15 AM				07:45 AM				6:45:00 AM				
Volume	0	274	9	283	10	0	0	10	6	215	0	221					
Peak Factor				0.880				0.400				0.959					



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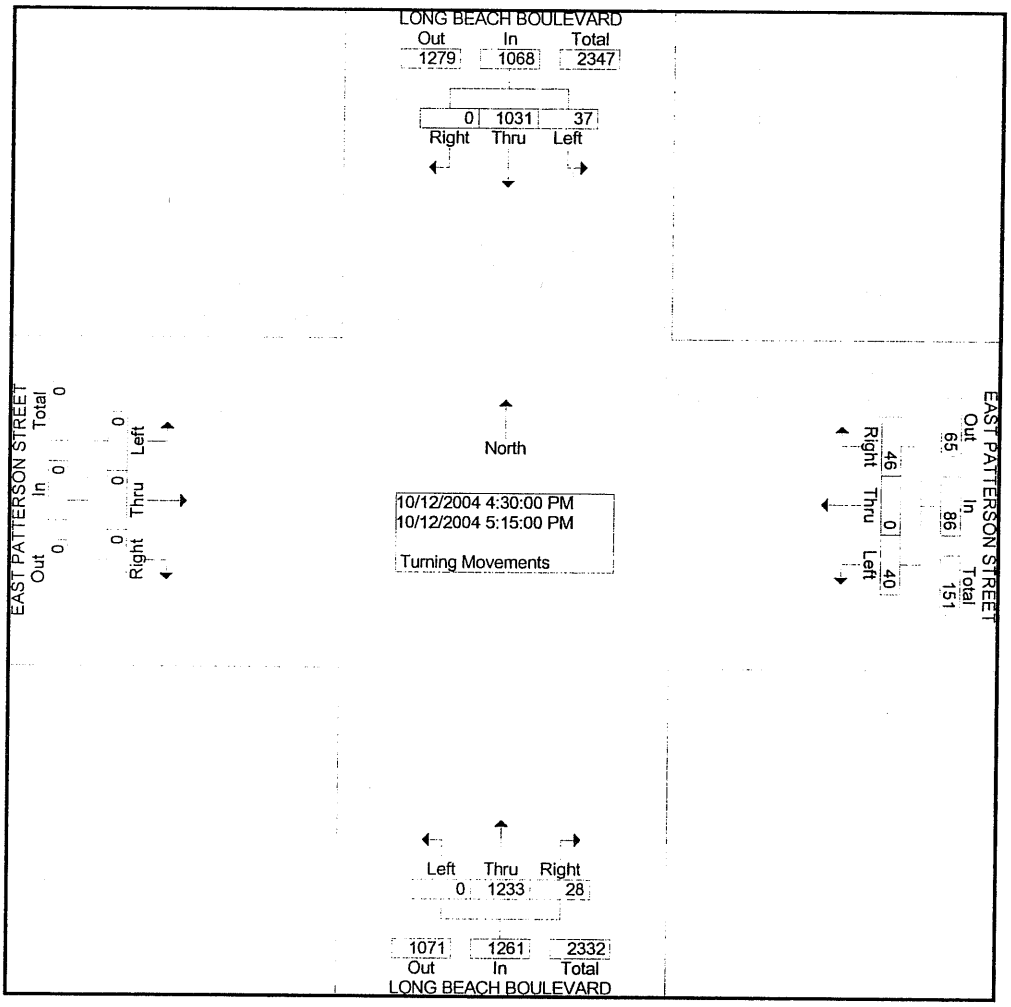
File Name : H0410082
Site Code : 00002246
Start Date : 10/12/2004
Page No : 3

	LONG BEACH BOULEVARD Southbound				EAST PATTERSON STREET Westbound				LONG BEACH BOULEVARD Northbound				EAST PATTERSON STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	1031	37	1068	46	0	40	86	28	1233	0	1261	0	0	0	0	2415
Percent	0.0	96.5	3.5		53.5	0.0	46.5		2.2	97.8	0.0		0.0	0.0	0.0		
04:30 Volume	0	269	12	281	14	0	15	29	7	339	0	346	0	0	0	0	656
Peak Factor																	0.920
High Int.	04:30 PM				04:30 PM				04:30 PM								
Volume	0	269	12	281	14	0	15	29	7	339	0	346					
Peak Factor				0.950				0.741				0.911					



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12

City: LONG BEACH
N-S Direction: LONG BEACH BOULEVARD
E-W Direction: COLUMBIA STREET

File Name : H0410083
Site Code : 00000979
Start Date : 10/5/2004
Page No : 1

Groups Printed- Turning Movements

	LONG BEACH BOULEVARD Southbound			COLUMBIA STREET Westbound			LONG BEACH BOULEVARD Northbound			COLUMBIA STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	2	157	15	11	0	4	10	97	2	3	0	1	302
07:15 AM	1	216	16	2	0	8	15	168	1	3	0	1	431
07:30 AM	4	255	15	5	0	3	8	220	1	6	0	0	517
07:45 AM	4	255	17	5	1	4	21	239	0	4	2	3	555
Total	11	883	63	23	1	19	54	724	4	16	2	5	1805
08:00 AM	1	249	24	5	1	1	19	181	2	3	0	2	488
08:15 AM	4	230	25	3	0	3	29	163	1	3	1	1	463
08:30 AM	2	214	25	9	0	2	25	172	4	4	1	0	458
08:45 AM	4	226	33	17	0	7	21	181	1	1	2	0	493
Total	11	919	107	34	1	13	94	697	8	11	4	3	1902
*** BREAK ***													
04:00 PM	4	193	18	31	0	18	7	229	1	3	1	2	507
04:15 PM	9	218	13	23	0	16	12	278	8	1	1	2	581
04:30 PM	4	232	5	35	1	16	10	344	1	8	1	2	659
04:45 PM	5	193	11	33	2	12	11	334	4	10	1	3	619
Total	22	836	47	122	3	62	40	1185	14	22	4	9	2366
05:00 PM	3	230	12	34	3	14	11	348	1	4	2	1	663
05:15 PM	2	202	13	25	0	21	10	315	5	7	1	4	605
05:30 PM	0	240	8	41	0	16	9	258	1	2	0	3	578
05:45 PM	0	197	10	24	0	11	10	263	2	4	0	1	522
Total	5	869	43	124	3	62	40	1184	9	17	3	9	2368
Grand Total	49	3507	260	303	8	156	228	3790	35	66	13	26	8441
Apprch %	1.3	91.9	6.8	64.9	1.7	33.4	5.6	93.5	0.9	62.9	12.4	24.8	
Total %	0.6	41.5	3.1	3.6	0.1	1.8	2.7	44.9	0.4	0.8	0.2	0.3	

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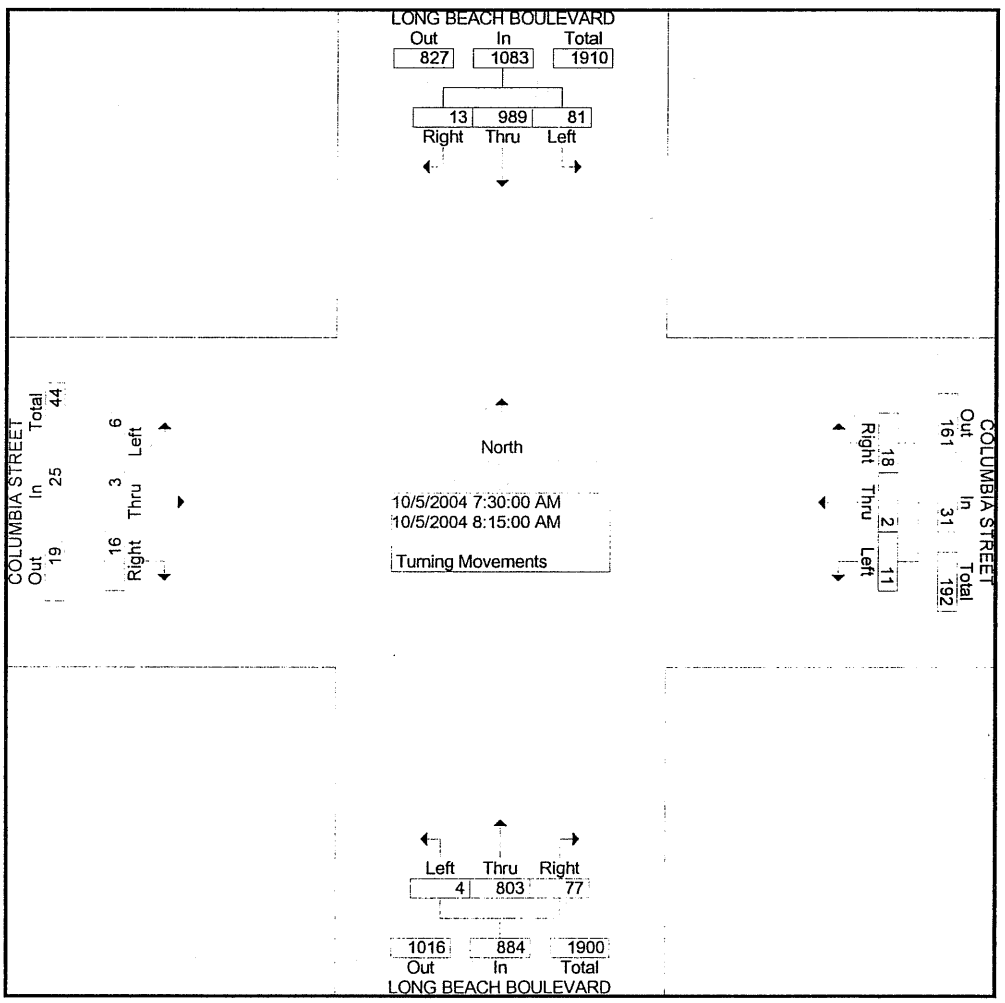
File Name : H0410083
Site Code : 00000979
Start Date : 10/5/2004
Page No : 2

	LONG BEACH BOULEVARD Southbound				COLUMBIA STREET Westbound				LONG BEACH BOULEVARD Northbound				COLUMBIA STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	13	989	81	1083	18	2	11	31	77	803	4	884	16	3	6	25	2023
Percent	1.2	91.3	7.5		58.1	6.5	35.5		8.7	90.8	0.5		64.0	12.0	24.0		
07:45 Volume	4	255	17	276	5	1	4	10	21	239	0	260	4	2	3	9	555
Peak Factor																	0.911
High Int.	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
Volume	4	255	17	276	5	1	4	10	21	239	0	260	4	2	3	9	
Peak Factor				0.981				0.775				0.850				0.694	



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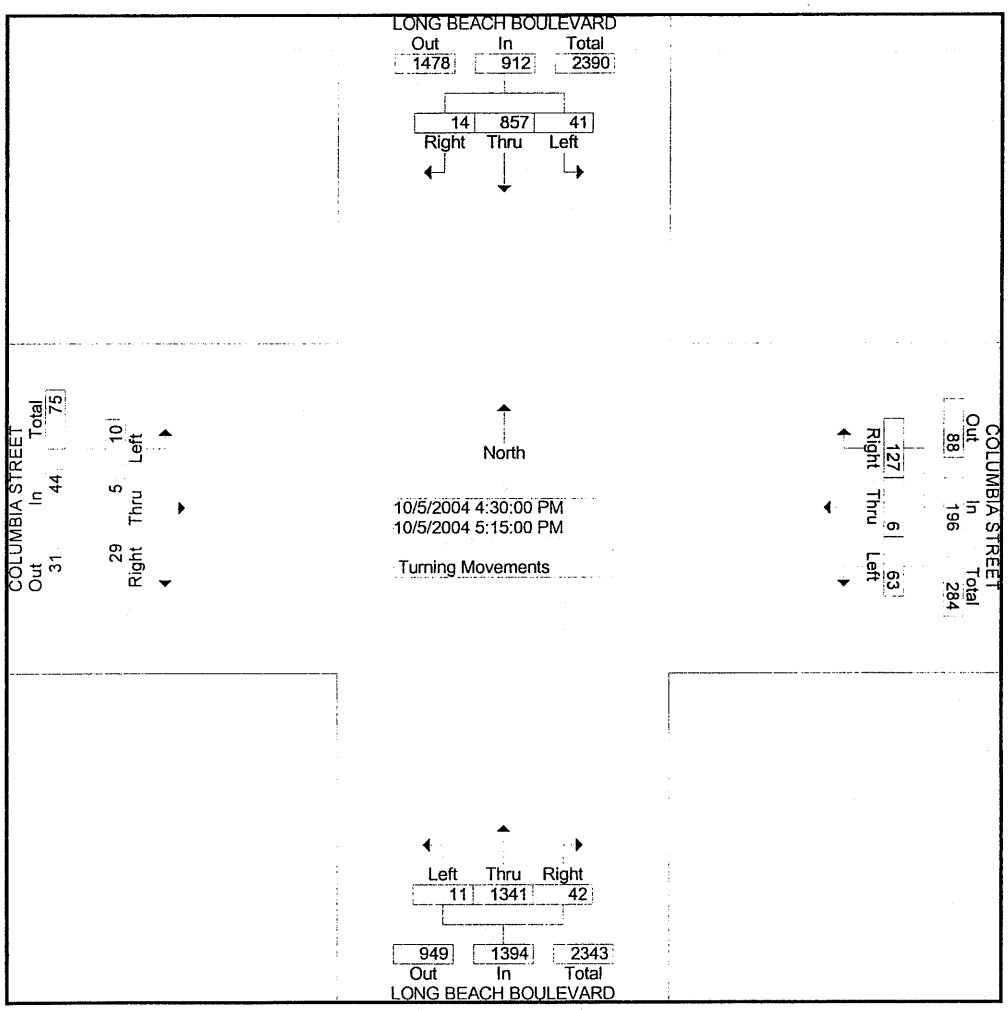
File Name : H0410083
Site Code : 00000979
Start Date : 10/5/2004
Page No : 3

	LONG BEACH BOULEVARD Southbound				COLUMBIA STREET Westbound				LONG BEACH BOULEVARD Northbound				COLUMBIA STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	14	857	41	912	127	6	63	196	42	1341	11	1394	29	5	10	44	2546
Percent	1.5	94.0	4.5		64.8	3.1	32.1		3.0	96.2	0.8		65.9	11.4	22.7		
05:00 Volume	3	230	12	245	34	3	14	51	11	348	1	360	4	2	1	7	663
Peak Factor																	0.960
High Int.	05:00 PM				04:30 PM				05:00 PM				04:45 PM				
Volume	3	230	12	245	35	1	16	52	11	348	1	360	10	1	3	14	
Peak Factor				0.931				0.942				0.968				0.786	



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13

City: LONG BEACH
N-S Direction: LONG BEACH BOULEVARD
E-W Direction: SPRING STREET

File Name : H0410084
Site Code : 00000975
Start Date : 10/5/2004
Page No : 1

Groups Printed- Turning Movements

	LONG BEACH BOULEVARD Southbound			SPRING STREET Westbound			LONG BEACH BOULEVARD Northbound			SPRING STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	28	134	13	18	41	15	17	124	11	18	72	16	507
07:15 AM	48	179	32	8	117	45	10	130	4	14	78	20	685
07:30 AM	22	251	10	13	120	30	36	185	7	21	101	51	847
07:45 AM	49	238	12	21	140	36	22	183	8	14	112	47	882
Total	147	802	67	60	418	126	85	622	30	67	363	134	2921
08:00 AM	34	252	24	30	98	41	16	170	6	14	84	30	799
08:15 AM	42	235	24	16	91	37	14	183	4	24	77	17	764
08:30 AM	36	175	20	39	75	48	14	179	6	17	48	28	685
08:45 AM	29	190	27	19	62	34	27	172	4	12	42	24	642
Total	141	852	95	104	326	160	71	704	20	67	251	99	2890
*** BREAK ***													
04:00 PM	16	186	24	25	77	30	38	268	12	13	114	53	856
04:15 PM	32	231	16	18	96	23	57	227	10	12	88	37	847
04:30 PM	17	155	15	24	109	47	34	238	11	17	96	41	804
04:45 PM	24	208	23	32	92	31	45	288	15	14	84	42	898
Total	89	780	78	99	374	131	174	1021	48	56	382	173	3405
05:00 PM	14	191	15	22	114	24	23	247	17	12	140	37	856
05:15 PM	15	199	10	18	144	37	39	276	19	15	165	46	983
05:30 PM	14	193	16	11	127	28	45	327	16	7	149	40	973
05:45 PM	15	197	13	22	113	21	68	214	19	8	80	25	795
Total	58	780	54	73	498	110	175	1064	71	42	534	148	3607
Grand Total	435	3214	294	336	1616	527	505	3411	169	232	1530	554	12823
Apprch %	11.0	81.5	7.5	13.6	65.2	21.3	12.4	83.5	4.1	10.0	66.1	23.9	
Total %	3.4	25.1	2.3	2.6	12.6	4.1	3.9	26.6	1.3	1.8	11.9	4.3	

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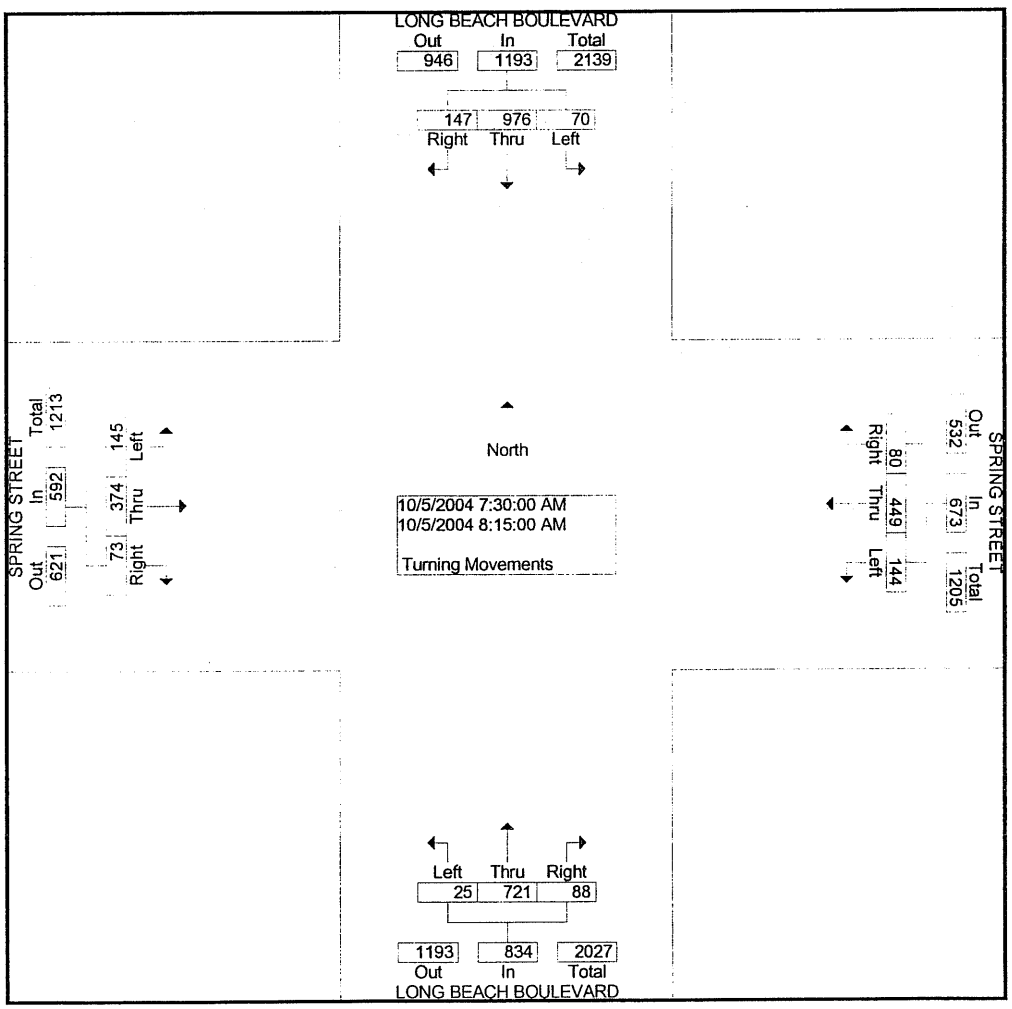
File Name : H0410084
Site Code : 00000975
Start Date : 10/5/2004
Page No : 2

	LONG BEACH BOULEVARD Southbound				SPRING STREET Westbound				LONG BEACH BOULEVARD Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	147	976	70	1193	80	449	144	673	88	721	25	834	73	374	145	592	3292
Percent	12.3	81.8	5.9		11.9	66.7	21.4		10.6	86.5	3.0		12.3	63.2	24.5		
07:45 Volume	49	238	12	299	21	140	36	197	22	183	8	213	14	112	47	173	882
Peak Factor																	0.933
High Int.	08:00 AM				07:45 AM				07:30 AM				07:30 AM				
Volume	34	252	24	310	21	140	36	197	36	185	7	228	21	101	51	173	
Peak Factor				0.962				0.854				0.914				0.855	



Transportation Studies, Inc.
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File Name : H0410084
Site Code : 00000975
Start Date : 10/5/2004
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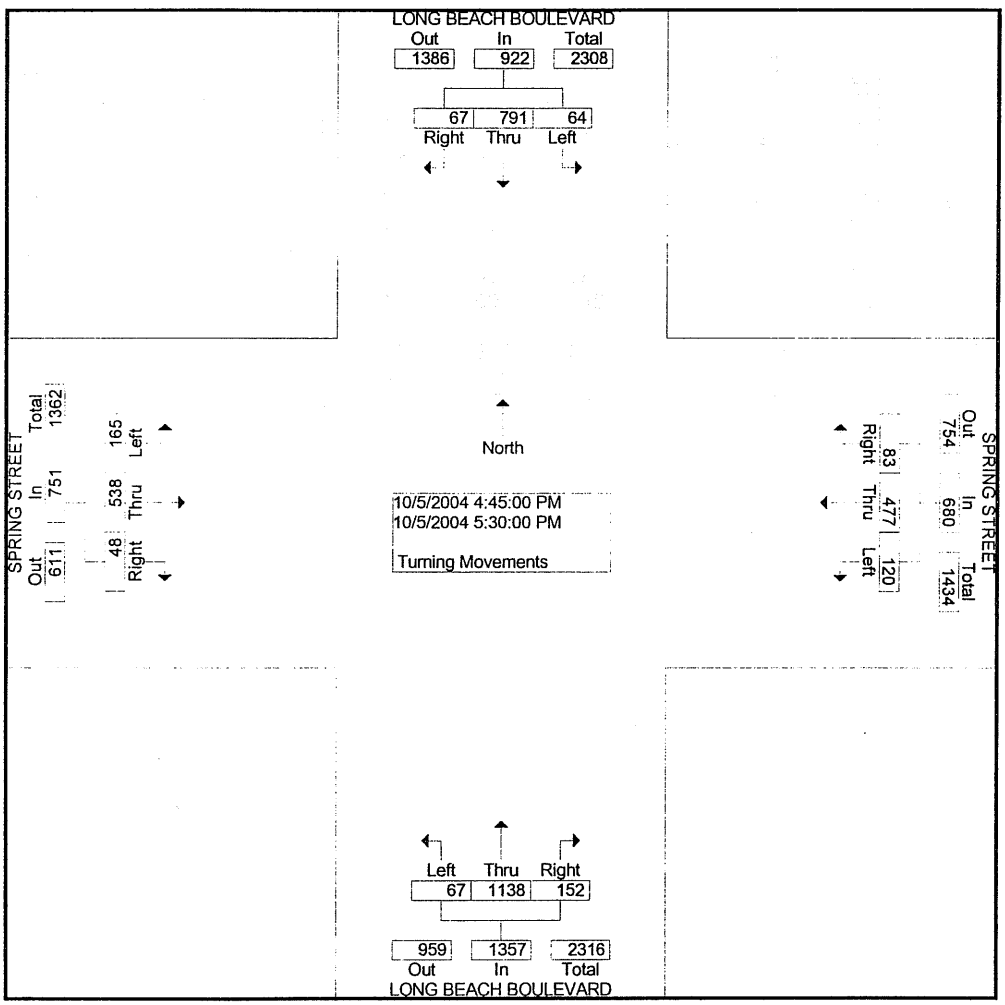
	LONG BEACH BOULEVARD Southbound				SPRING STREET Westbound				LONG BEACH BOULEVARD Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	67	791	64	922	83	477	120	680	152	1138	67	1357	48	538	165	751	3710
Percent	7.3	85.8	6.9		12.2	70.1	17.6		11.2	83.9	4.9		6.4	71.6	22.0		
05:15 Volume	15	199	10	224	18	144	37	199	39	276	19	334	15	165	46	226	983
Peak Factor																	0.944
High Int.	04:45 PM				05:15 PM				05:30 PM				05:15 PM				
Volume	24	208	23	255	18	144	37	199	45	327	16	388	15	165	46	226	
Peak Factor				0.904				0.854				0.874				0.831	



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(14)

City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: WARDLOW ROAD

File Name : H0410085
Site Code : 00003873
Start Date : 10/6/2004
Page No : 1

Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			WARDLOW ROAD Westbound			ATLANTIC AVENUE Northbound			WARDLOW ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	38	148	15	11	101	19	8	89	20	14	62	12	537
07:15 AM	43	241	21	7	116	20	14	114	19	16	78	23	712
07:30 AM	49	240	20	8	129	28	6	141	25	17	100	44	807
07:45 AM	41	251	22	12	129	34	9	166	31	11	132	55	893
Total	171	880	78	38	475	101	37	510	95	58	372	134	2949
08:00 AM	78	220	27	12	129	32	12	184	25	7	104	41	871
08:15 AM	40	195	26	16	114	12	13	151	23	13	105	35	743
08:30 AM	43	162	19	25	118	21	7	154	36	16	109	34	744
08:45 AM	38	170	23	14	101	27	7	170	25	19	95	24	713
Total	199	747	95	67	462	92	39	659	109	55	413	134	3071
*** BREAK ***													
04:00 PM	49	194	25	12	101	24	19	249	26	21	100	32	852
04:15 PM	48	198	31	21	97	21	14	228	44	21	138	37	898
04:30 PM	57	179	21	14	82	20	15	250	35	12	131	53	869
04:45 PM	55	186	23	27	89	15	15	248	36	14	162	49	919
Total	209	757	100	74	369	80	63	975	141	68	531	171	3538
05:00 PM	52	193	15	24	98	17	18	275	37	18	133	47	927
05:15 PM	49	169	24	24	75	14	11	254	43	14	142	62	881
05:30 PM	57	170	26	24	84	11	19	245	33	25	138	54	886
05:45 PM	42	188	34	20	86	24	23	252	38	7	126	50	890
Total	200	720	99	92	343	66	71	1026	151	64	539	213	3584
Grand Total	779	3104	372	271	1649	339	210	3170	496	245	1855	652	13142
Apprch %	18.3	72.9	8.7	12.0	73.0	15.0	5.4	81.8	12.8	8.9	67.4	23.7	
Total %	5.9	23.6	2.8	2.1	12.5	2.6	1.6	24.1	3.8	1.9	14.1	5.0	

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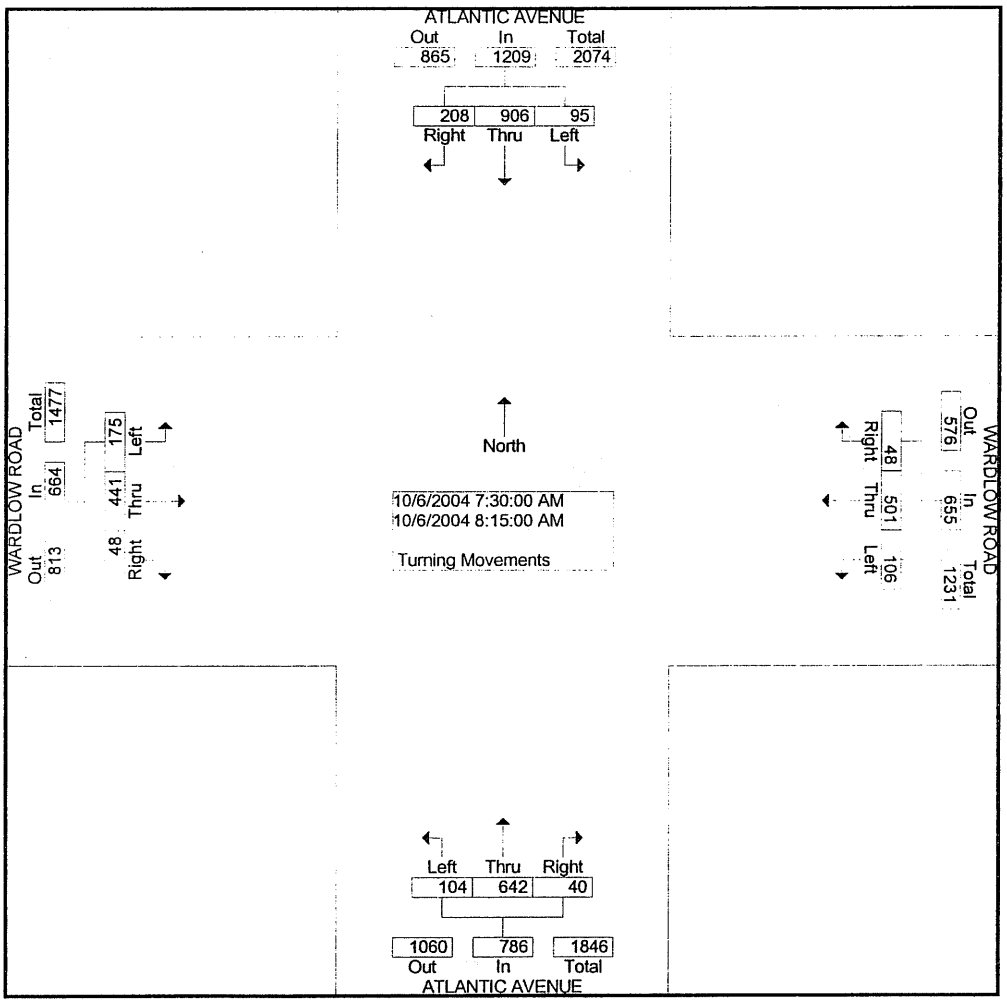
File Name : H0410085
Site Code : 00003873
Start Date : 10/6/2004
Page No : 2

	ATLANTIC AVENUE Southbound				WARDLOW ROAD Westbound				ATLANTIC AVENUE Northbound				WARDLOW ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	208	906	95	1209	48	501	106	655	40	642	104	786	48	441	175	664	3314
Percent	17.2	74.9	7.9		7.3	76.5	16.2		5.1	81.7	13.2		7.2	66.4	26.4		
07:45 Volume	41	251	22	314	12	129	34	175	9	166	31	206	11	132	55	198	893
Peak Factor																	0.928
High Int.	08:00 AM				07:45 AM				08:00 AM				07:45 AM				
Volume	78	220	27	325	12	129	34	175	12	184	25	221	11	132	55	198	
Peak Factor				0.930				0.936				0.889				0.838	



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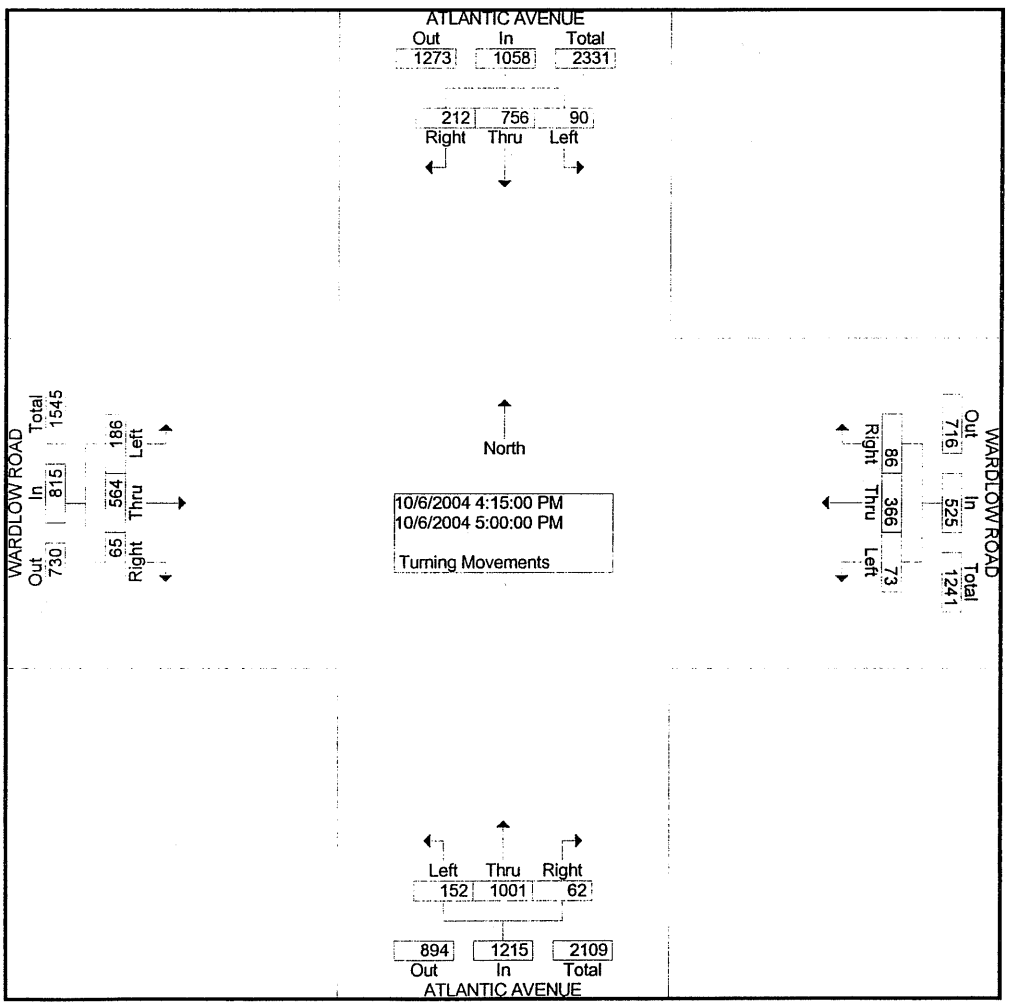
File Name : H0410085
Site Code : 00003873
Start Date : 10/6/2004
Page No : 3

	ATLANTIC AVENUE Southbound				WARDLOW ROAD Westbound				ATLANTIC AVENUE Northbound				WARDLOW ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:15 PM																
Volume	212	756	90	1058	86	366	73	525	62	1001	152	1215	65	564	186	815	3613
Percent	20.0	71.5	8.5		16.4	69.7	13.9		5.1	82.4	12.5		8.0	69.2	22.8		
05:00 Volume	52	193	15	260	24	98	17	139	18	275	37	330	18	133	47	198	927
Peak Factor																	0.974
High Int.	04:15 PM				04:15 PM				05:00 PM				04:45 PM				
Volume	48	198	31	277	21	97	21	139	18	275	37	330	14	162	49	225	
Peak Factor				0.955				0.944				0.920				0.906	



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(15)

City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: I-405 SB RAMPS

File Name : H0410086
Site Code : 00003872
Start Date : 10/6/2004
Page No : 1

Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			I-405 SB RAMPS Westbound			ATLANTIC AVENUE Northbound			I-405 SB RAMPS Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	72	150	0	0	0	0	48	80	0	52	0	26	428
07:15 AM	78	240	0	0	0	0	73	113	0	42	0	13	559
07:30 AM	74	258	0	0	0	0	69	130	0	57	0	32	620
07:45 AM	69	283	0	0	0	0	46	169	0	72	0	34	673
Total	293	931	0	0	0	0	236	492	0	223	0	105	2280
08:00 AM	66	278	0	0	0	0	40	180	0	57	0	46	667
08:15 AM	56	237	0	0	0	0	52	152	0	60	0	44	601
08:30 AM	71	238	0	0	0	0	41	130	0	68	0	37	585
08:45 AM	52	278	0	0	0	0	40	143	0	61	0	36	610
Total	245	1031	0	0	0	0	173	605	0	246	0	163	2463
*** BREAK ***													
04:00 PM	67	258	0	0	0	0	56	206	0	46	0	51	684
04:15 PM	65	248	0	0	0	0	70	216	0	37	0	58	694
04:30 PM	67	218	0	0	0	0	80	239	0	33	0	60	697
04:45 PM	58	218	0	0	0	0	111	248	0	26	0	57	718
Total	257	942	0	0	0	0	317	909	0	142	0	226	2793
05:00 PM	69	227	0	0	0	0	78	269	0	17	0	73	733
05:15 PM	56	196	0	0	0	0	85	271	0	41	0	52	701
05:30 PM	63	187	0	0	0	0	64	259	0	28	0	76	677
05:45 PM	59	220	0	0	0	0	58	230	0	44	0	79	690
Total	247	830	0	0	0	0	285	1029	0	130	0	280	2801
Grand Total	1042	3734	0	0	0	0	1011	3035	0	741	0	774	10337
Apprch %	21.8	78.2	0.0	0.0	0.0	0.0	25.0	75.0	0.0	48.9	0.0	51.1	
Total %	10.1	36.1	0.0	0.0	0.0	0.0	9.8	29.4	0.0	7.2	0.0	7.5	

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File Name : H0410086
Site Code : 00003872
Start Date : 10/6/2004
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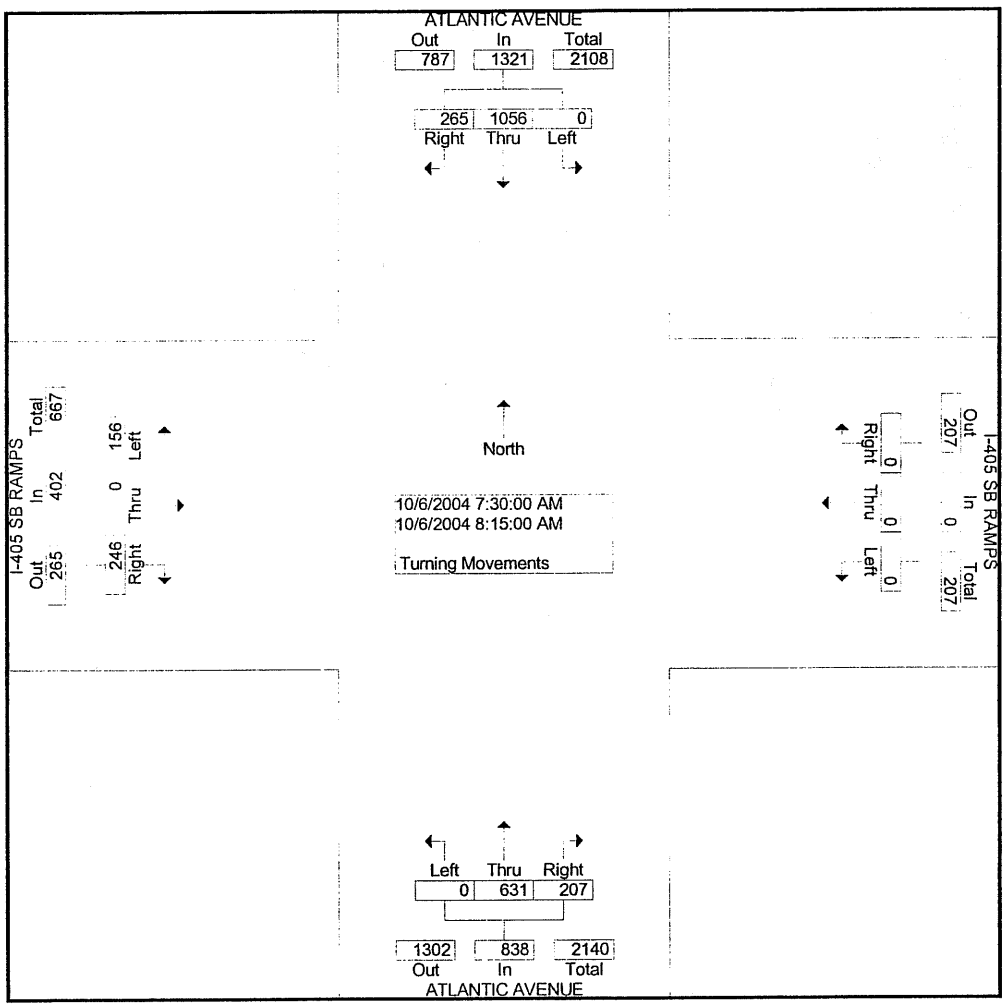
	ATLANTIC AVENUE Southbound				I-405 SB RAMPS Westbound				ATLANTIC AVENUE Northbound				I-405 SB RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	265	1056	0	1321	0	0	0	0	207	631	0	838	246	0	156	402	2561
Percent	20.1	79.9	0.0		0.0	0.0	0.0		24.7	75.3	0.0		61.2	0.0	38.8		
07:45 Volume	69	283	0	352	0	0	0	0	46	169	0	215	72	0	34	106	673
Peak Factor																	0.951
High Int.	07:45 AM				6:45:00 AM				08:00 AM				07:45 AM				
Volume	69	283	0	352	0	0	0	0	40	180	0	220	72	0	34	106	
Peak Factor				0.938								0.952				0.948	



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File Name : H0410086
Site Code : 00003872
Start Date : 10/6/2004
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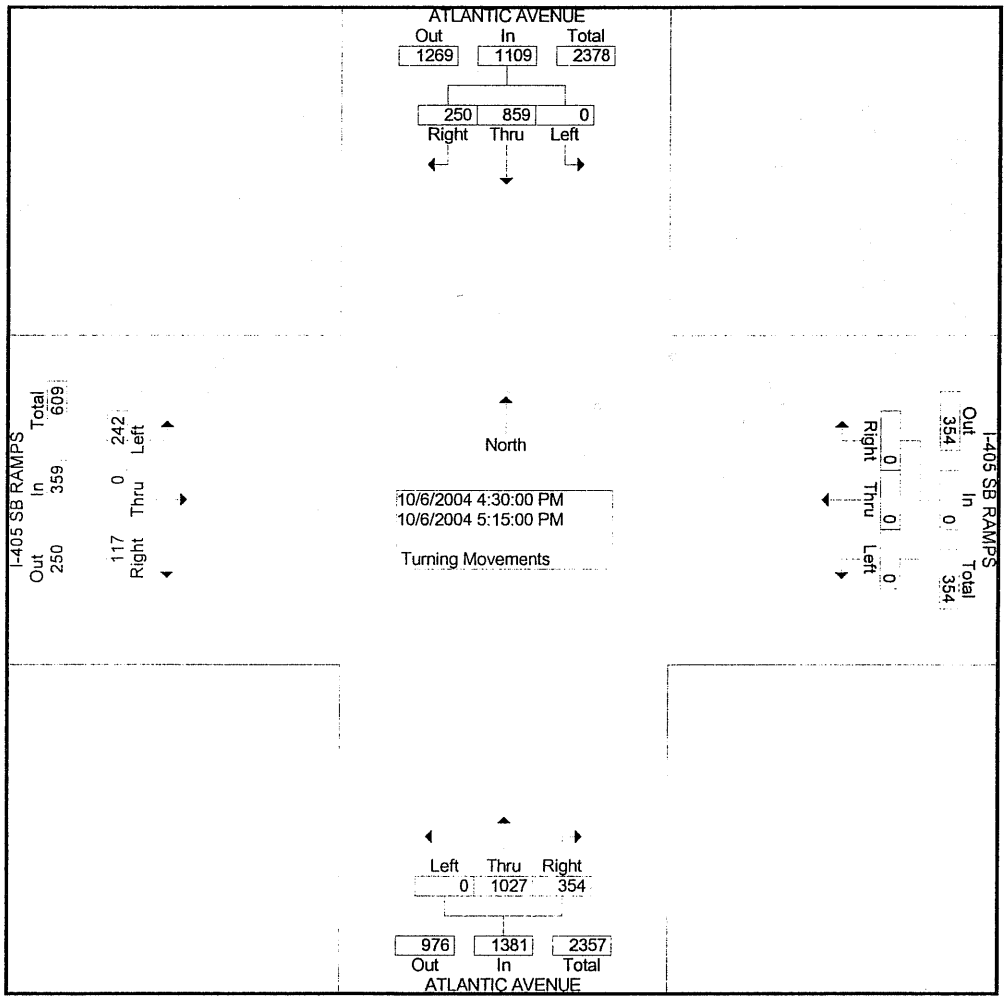
	ATLANTIC AVENUE Southbound				I-405 SB RAMPS Westbound				ATLANTIC AVENUE Northbound				I-405 SB RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	250	859	0	1109	0	0	0	0	354	1027	0	1381	117	0	242	359	2849
Percent	22.5	77.5	0.0		0.0	0.0	0.0		25.6	74.4	0.0		32.6	0.0	67.4		
05:00 Volume	69	227	0	296	0	0	0	0	78	269	0	347	17	0	73	90	733
Peak Factor																	0.972
High Int.	05:00 PM								04:45 PM				04:30 PM				
Volume	69	227	0	296	0	0	0	0	111	248	0	359	33	0	60	93	
Peak Factor				0.937								0.962				0.965	



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(16)

City: LONG BEACH
N-S Direction: ATLANTIC AVENUE
E-W Direction: HILL STREET

File Name : H0410087
Site Code : 00000978
Start Date : 10/6/2004
Page No : 1

Groups Printed- Turning Movements

	ATLANTIC AVENUE Southbound			HILL STREET Westbound			ATLANTIC AVENUE Northbound			HILL STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	10	99	7	10	21	5	6	119	10	7	43	1	338
07:15 AM	8	159	8	11	45	4	11	142	17	1	40	3	449
07:30 AM	2	204	8	18	89	15	4	104	9	4	47	7	511
07:45 AM	6	186	13	16	52	11	4	171	12	12	56	11	550
Total	26	648	36	55	207	35	25	536	48	24	186	22	1848
08:00 AM	6	163	8	15	49	7	7	131	11	9	42	7	455
08:15 AM	7	129	11	8	33	2	0	118	2	3	38	2	353
08:30 AM	9	146	12	7	25	2	5	112	3	9	43	12	385
08:45 AM	12	142	14	9	27	5	7	109	4	9	44	13	395
Total	34	580	45	39	134	16	19	470	20	30	167	34	1588
*** BREAK ***													
04:00 PM	7	161	8	15	37	8	8	174	8	14	65	12	517
04:15 PM	7	148	15	14	44	11	4	167	7	11	60	12	500
04:30 PM	20	196	22	9	48	6	8	197	13	8	42	10	579
04:45 PM	10	187	19	22	29	3	8	202	7	13	51	9	560
Total	44	692	64	60	158	28	28	740	35	46	218	43	2156
05:00 PM	17	178	21	12	51	12	6	171	12	16	75	10	581
05:15 PM	18	159	19	23	44	12	4	140	13	9	55	14	510
05:30 PM	11	146	24	12	50	9	7	186	17	5	57	11	535
05:45 PM	19	148	20	16	42	11	10	159	15	7	53	13	513
Total	65	631	84	63	187	44	27	656	57	37	240	48	2139
Grand Total	169	2551	229	217	686	123	99	2402	160	137	811	147	7731
Apprch %	5.7	86.5	7.8	21.2	66.9	12.0	3.7	90.3	6.0	12.5	74.1	13.4	
Total %	2.2	33.0	3.0	2.8	8.9	1.6	1.3	31.1	2.1	1.8	10.5	1.9	

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File Name : H0410087
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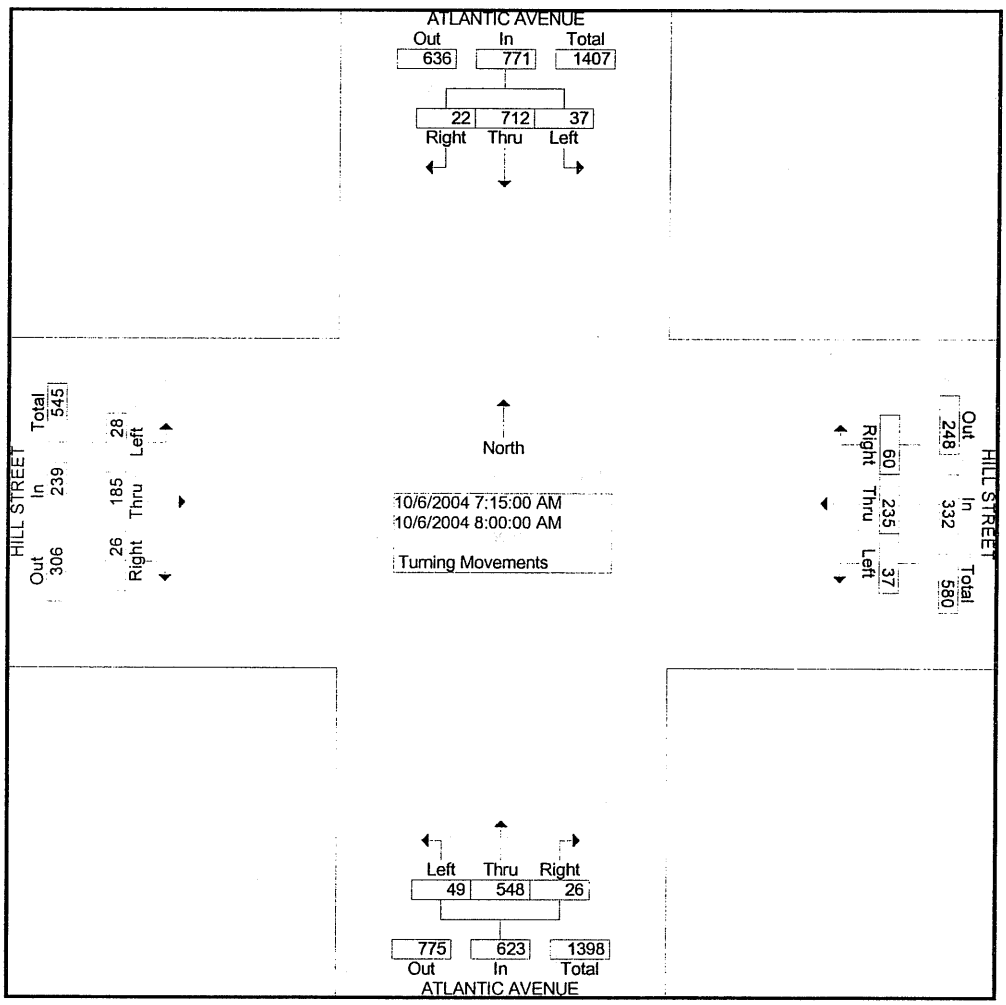
	ATLANTIC AVENUE Southbound				HILL STREET Westbound				ATLANTIC AVENUE Northbound				HILL STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	22	712	37	771	60	235	37	332	26	548	49	623	26	185	28	239	1965
Percent	2.9	92.3	4.8		18.1	70.8	11.1		4.2	88.0	7.9		10.9	77.4	11.7		
07:45 Volume	6	186	13	205	16	52	11	79	4	171	12	187	12	56	11	79	550
Peak Factor																	0.893
High Int.	07:30 AM				07:30 AM				07:45 AM				07:45 AM				
Volume	2	204	8	214	18	89	15	122	4	171	12	187	12	56	11	79	
Peak Factor				0.901				0.680				0.833				0.756	



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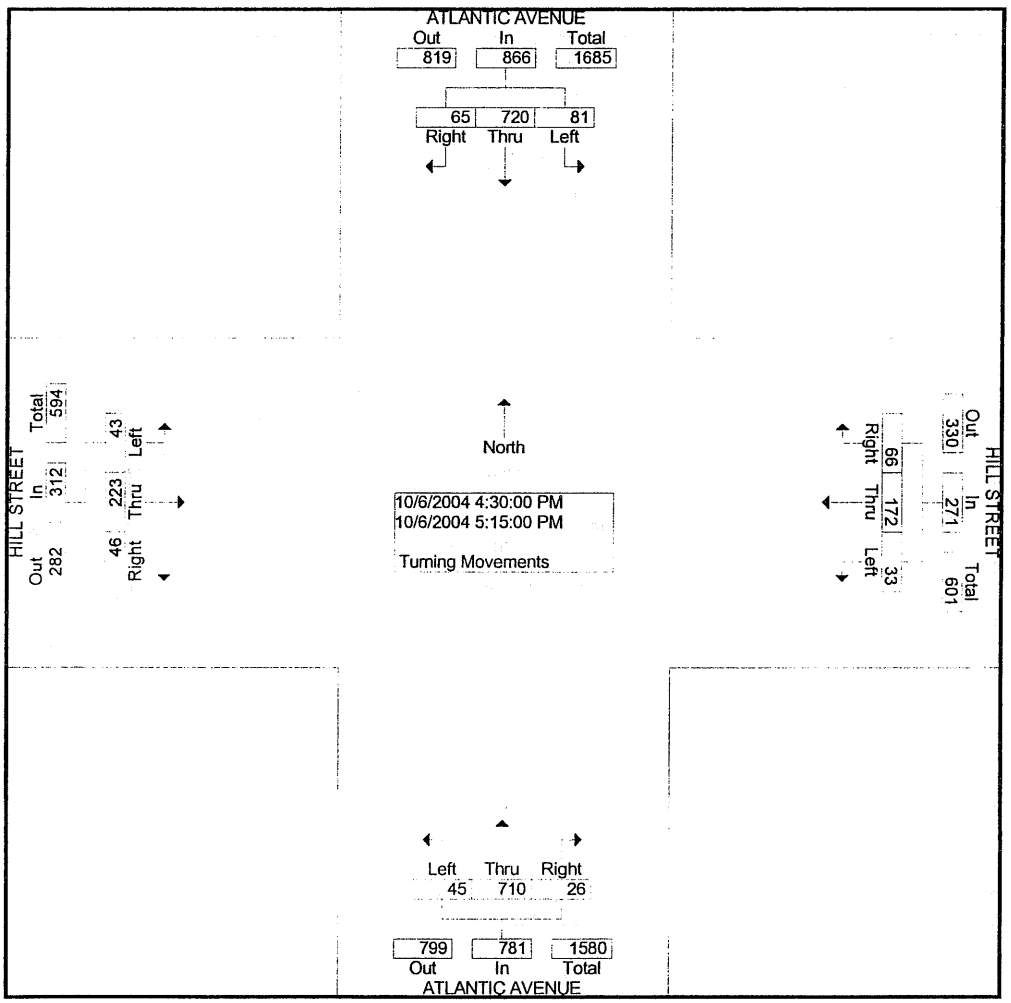
	ATLANTIC AVENUE Southbound				HILL STREET Westbound				ATLANTIC AVENUE Northbound				HILL STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	65	720	81	866	66	172	33	271	26	710	45	781	46	223	43	312	2230
Percent	7.5	83.1	9.4		24.4	63.5	12.2		3.3	90.9	5.8		14.7	71.5	13.8		
05:00 Volume	17	178	21	216	12	51	12	75	6	171	12	189	16	75	10	101	581
Peak Factor																	0.960
High Int.	04:30 PM				05:15 PM				04:30 PM				05:00 PM				
Volume	20	196	22	238	23	44	12	79	8	197	13	218	16	75	10	101	
Peak Factor				0.910				0.858				0.896				0.772	



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(17)

City: LONG BEACH
N-S Direction: CALIFORNIA AVENUE
E-W Direction: SPRING STREET

File Name : H0410088
Site Code : 00000918
Start Date : 10/6/2004
Page No : 1

Groups Printed- Turning Movements

	CALIFORNIA AVENUE Southbound			SPRING STREET Westbound			CALIFORNIA AVENUE Northbound			SPRING STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	2	3	1	1	140	10	6	36	4	6	82	3	294
07:15 AM	9	25	4	3	148	9	4	48	5	22	93	7	377
07:30 AM	3	23	7	2	165	7	9	59	6	11	92	10	394
07:45 AM	4	34	4	10	147	7	9	84	8	11	102	14	434
Total	18	85	16	16	600	33	28	227	23	50	369	34	1499
08:00 AM	1	36	3	7	303	7	5	58	5	0	96	10	531
08:15 AM	1	25	3	8	186	7	1	35	6	4	83	13	372
08:30 AM	2	13	1	5	179	2	5	25	5	4	80	5	326
08:45 AM	0	12	2	1	185	1	4	7	1	5	8	5	231
Total	4	86	9	21	853	17	15	125	17	13	267	33	1460
*** BREAK ***													
04:00 PM	4	38	7	3	123	14	4	25	4	6	154	14	396
04:15 PM	6	29	5	2	127	11	5	29	8	6	166	5	399
04:30 PM	6	20	7	3	120	10	6	29	3	4	163	6	377
04:45 PM	4	54	10	4	116	15	6	31	2	13	145	1	401
Total	20	141	29	12	486	50	21	114	17	29	628	26	1573
05:00 PM	4	87	11	4	140	5	6	51	2	7	171	6	494
05:15 PM	3	63	7	1	147	7	4	49	4	4	282	3	574
05:30 PM	2	28	5	0	142	10	2	40	6	7	162	3	407
05:45 PM	1	24	4	1	142	7	4	28	9	2	161	0	383
Total	10	202	27	6	571	29	16	168	21	20	776	12	1858
Grand Total	52	514	81	55	2510	129	80	634	78	112	2040	105	6390
Apprch %	8.0	79.4	12.5	2.0	93.2	4.8	10.1	80.1	9.8	5.0	90.4	4.7	
Total %	0.8	8.0	1.3	0.9	39.3	2.0	1.3	9.9	1.2	1.8	31.9	1.6	

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File Name : H0410088
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Start Date : 10/6/2004
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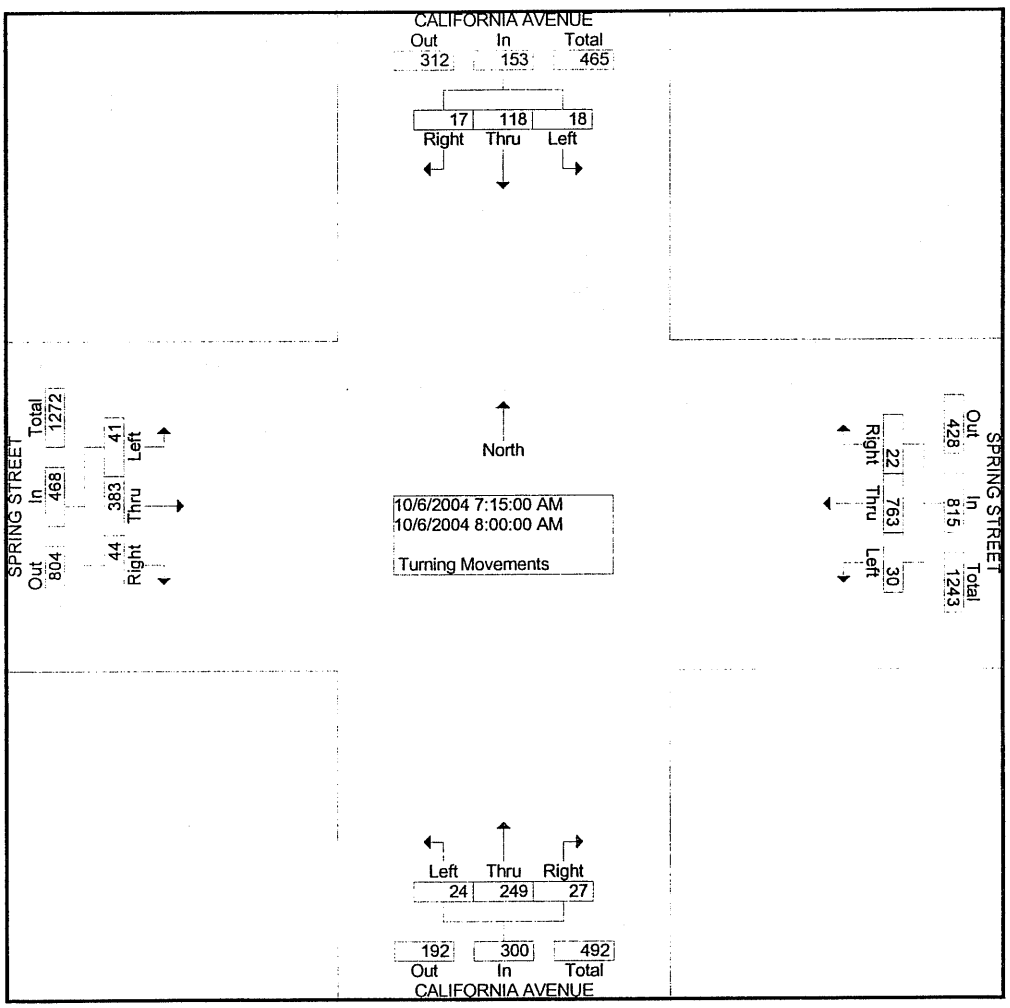
	CALIFORNIA AVENUE Southbound				SPRING STREET Westbound				CALIFORNIA AVENUE Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	17	118	18	153	22	763	30	815	27	249	24	300	44	383	41	468	1736
Percent	11.1	77.1	11.8		2.7	93.6	3.7		9.0	83.0	8.0		9.4	81.8	8.8		
08:00 Volume	1	36	3	40	7	303	7	317	5	58	5	68	0	96	10	106	531
Peak Factor																	0.817
High Int.	07:45 AM				08:00 AM				07:45 AM				07:45 AM				
Volume	4	34	4	42	7	303	7	317	9	84	8	101	11	102	14	127	
Peak Factor				0.911				0.643				0.743				0.921	



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File Name : H0410088
Site Code : 00000918
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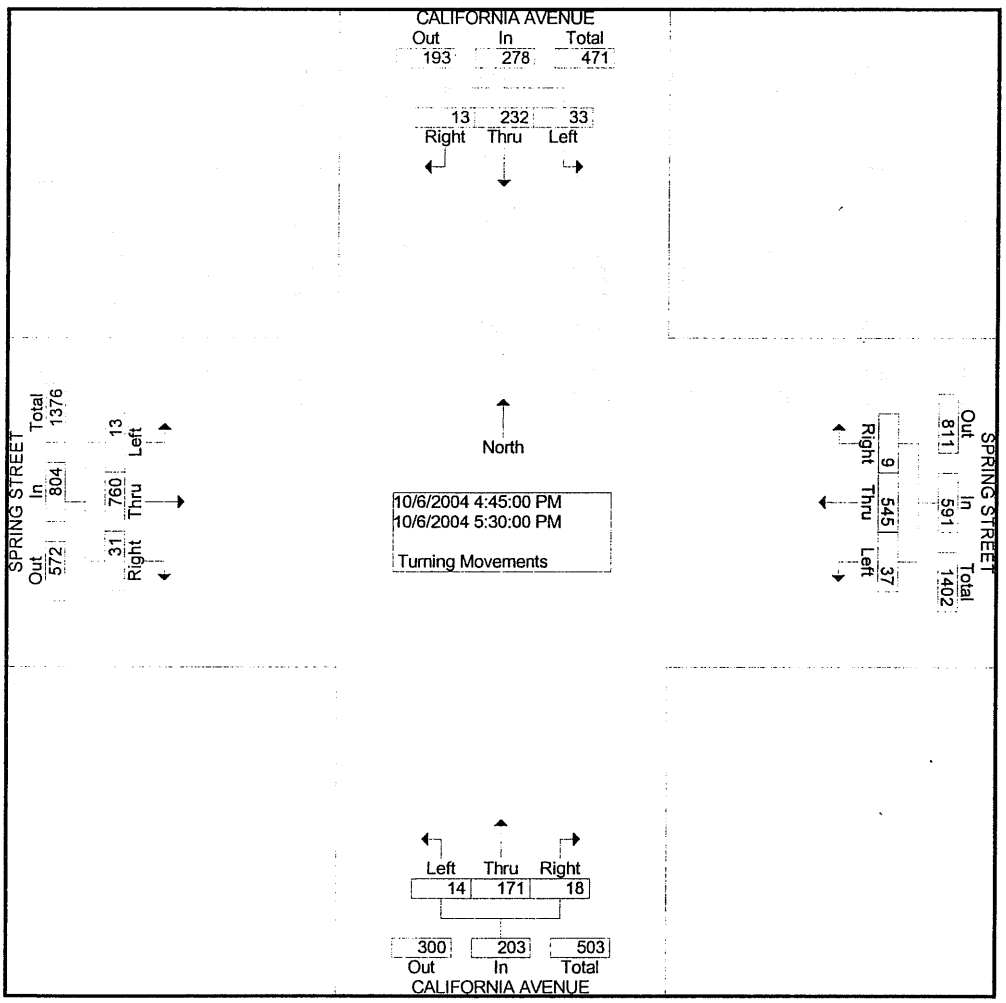
	CALIFORNIA AVENUE Southbound				SPRING STREET Westbound				CALIFORNIA AVENUE Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	13	232	33	278	9	545	37	591	18	171	14	203	31	760	13	804	1876
Percent	4.7	83.5	11.9		1.5	92.2	6.3		8.9	84.2	6.9		3.9	94.5	1.6		
05:15 Volume	3	63	7	73	1	147	7	155	4	49	4	57	4	282	3	289	574
Peak Factor																	0.817
High Int.	05:00 PM				05:15 PM				05:00 PM				05:15 PM				
Volume	4	87	11	102	1	147	7	155	6	51	2	59	4	282	3	289	
Peak Factor				0.681				0.953				0.860				0.696	



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(18)

City: LONG BEACH
N-S Direction: CALIFORNIA AVENUE
E-W Direction: WILLOW STREET

File Name : H0410089
Site Code : 00000917
Start Date : 10/13/2004
Page No : 1

Groups Printed- Turning Movements

	CALIFORNIA AVENUE Southbound			WILLOW STREET Westbound			CALIFORNIA AVENUE Northbound			WILLOW STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	8	35	7	14	215	10	16	32	9	7	228	8	589
07:15 AM	7	53	3	7	224	13	13	57	8	8	227	4	624
07:30 AM	8	24	8	12	243	9	12	51	19	6	273	12	677
07:45 AM	4	15	16	18	203	7	16	45	14	5	247	4	594
Total	27	127	34	51	885	39	57	185	50	26	975	28	2484
08:00 AM	5	17	3	12	281	5	10	29	8	4	234	9	617
08:15 AM	2	14	5	7	240	9	9	17	5	4	183	4	499
08:30 AM	9	9	4	9	290	9	7	13	7	5	212	4	578
08:45 AM	6	17	6	3	247	8	4	9	13	4	208	5	530
Total	22	57	18	31	1058	31	30	68	33	17	837	22	2224
*** BREAK ***													
04:00 PM	6	29	11	7	245	23	13	25	12	8	303	8	690
04:15 PM	6	34	20	9	249	16	9	35	15	11	308	4	716
04:30 PM	10	27	29	8	252	15	6	22	22	12	351	6	760
04:45 PM	8	25	13	14	245	9	9	35	12	15	323	6	714
Total	30	115	73	38	991	63	37	117	61	46	1285	24	2880
05:00 PM	10	33	12	6	247	11	11	25	7	15	331	10	718
05:15 PM	12	29	18	11	258	21	12	26	9	15	308	12	731
05:30 PM	5	17	11	11	273	11	9	33	20	15	343	11	759
05:45 PM	6	17	10	5	209	14	12	23	12	16	325	6	655
Total	33	96	51	33	987	57	44	107	48	61	1307	39	2863
Grand Total	112	395	176	153	3921	190	168	477	192	150	4404	113	10451
Apprch %	16.4	57.8	25.8	3.6	92.0	4.5	20.1	57.0	22.9	3.2	94.4	2.4	
Total %	1.1	3.8	1.7	1.5	37.5	1.8	1.6	4.6	1.8	1.4	42.1	1.1	

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File Name : H0410089
Site Code : 00000917
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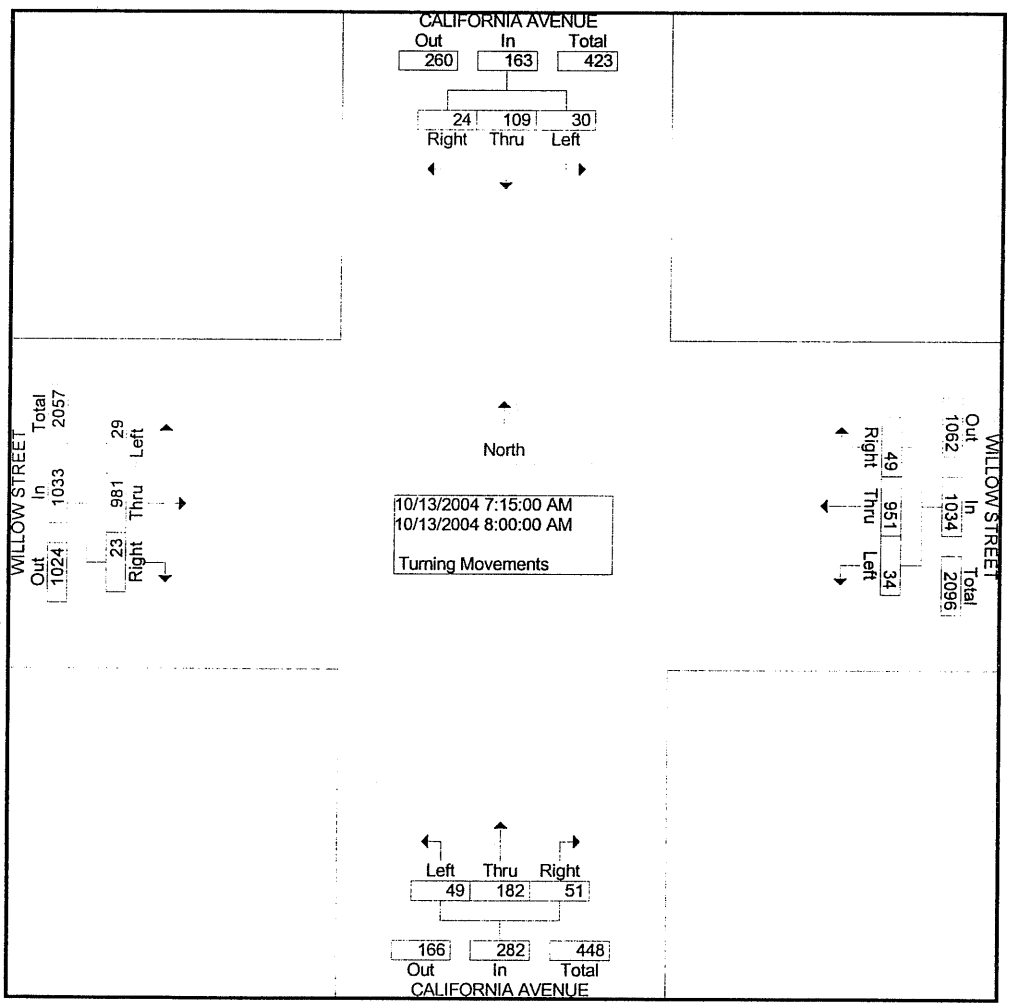
	CALIFORNIA AVENUE Southbound				WILLOW STREET Westbound				CALIFORNIA AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	24	109	30	163	49	951	34	1034	51	182	49	282	23	981	29	1033	2512
Percent	14.7	66.9	18.4		4.7	92.0	3.3		18.1	64.5	17.4		2.2	95.0	2.8		
07:30 Volume	8	24	8	40	12	243	9	264	12	51	19	82	6	273	12	291	677
Peak Factor																	0.928
High Int.	07:15 AM				08:00 AM				07:30 AM				07:30 AM				
Volume	7	53	3	63	12	281	5	298	12	51	19	82	6	273	12	291	
Peak Factor				0.647				0.867				0.860				0.887	



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File Name : H0410089
Site Code : 00000917
Start Date : 10/13/2004
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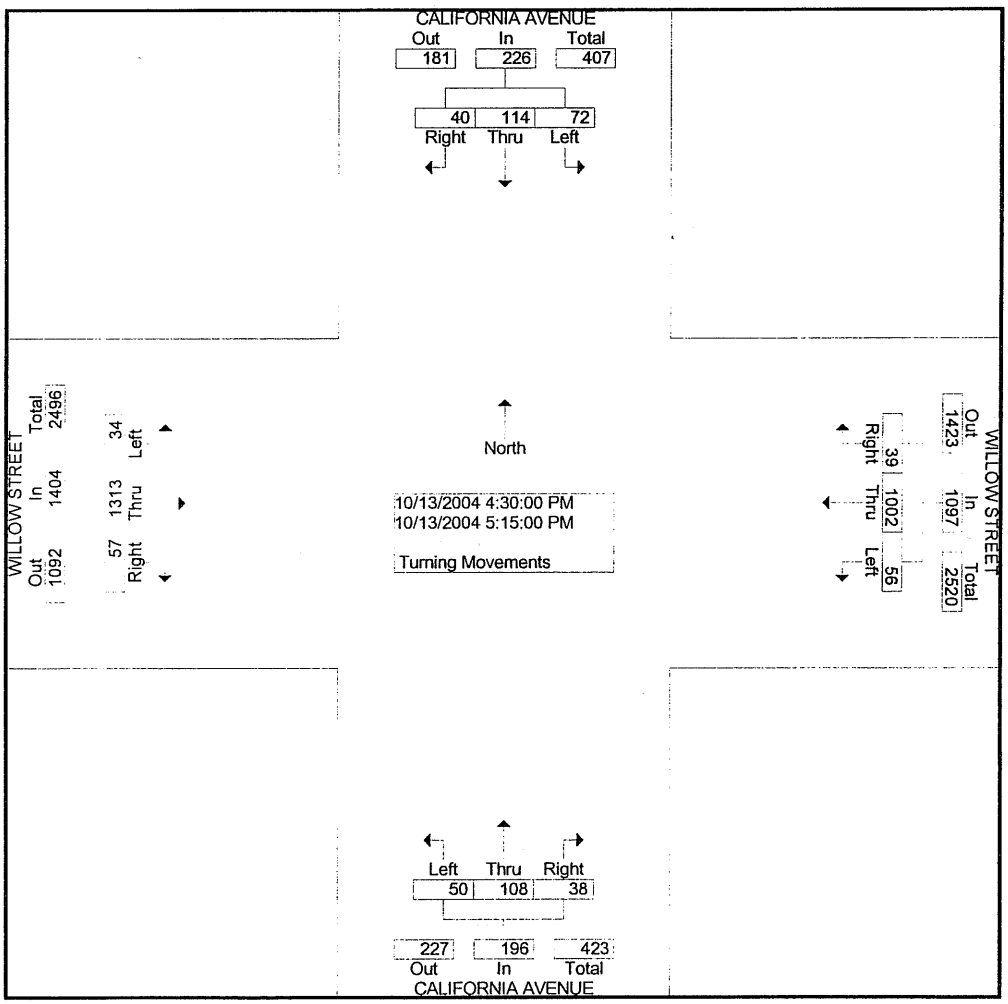
	CALIFORNIA AVENUE Southbound				WILLOW STREET Westbound				CALIFORNIA AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	40	114	72	226	39	1002	56	1097	38	108	50	196	57	1313	34	1404	2923
Percent	17.7	50.4	31.9		3.6	91.3	5.1		19.4	55.1	25.5		4.1	93.5	2.4		
04:30 Volume	10	27	29	66	8	252	15	275	6	22	22	50	12	351	6	369	760
Peak Factor																	0.962
High Int.	04:30 PM				05:15 PM				04:45 PM				04:30 PM				
Volume	10	27	29	66	11	258	21	290	9	35	12	56	12	351	6	369	
Peak Factor				0.856				0.946				0.875				0.951	



Transportation Studies, Inc.
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Irvine, CA. 92614

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City: LONG BEACH
N-S Direction: ORANGE AVENUE
E-W Direction: SPRING STREET

File Name : H0410090
Site Code : 00000092
Start Date : 10/6/2004
Page No : 1

Groups Printed- Turning Movements

	ORANGE AVENUE Southbound			SPRING STREET Westbound			ORANGE AVENUE Northbound			SPRING STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	17	88	22	15	74	6	3	74	3	6	64	16	388
07:15 AM	18	144	14	28	149	8	6	94	4	6	87	18	576
07:30 AM	20	142	32	23	178	8	6	110	8	4	114	21	666
07:45 AM	24	138	30	22	214	13	7	96	5	7	99	18	673
Total	79	512	98	88	615	35	22	374	20	23	364	73	2303
08:00 AM	24	122	35	20	191	8	11	105	7	6	97	17	643
08:15 AM	28	115	34	27	182	8	10	88	3	10	77	8	590
08:30 AM	17	99	18	20	161	11	7	82	8	9	55	16	503
08:45 AM	15	119	28	29	152	7	10	88	9	9	73	16	555
Total	84	455	115	96	686	34	38	363	27	34	302	57	2291
*** BREAK ***													
04:00 PM	16	122	39	23	114	7	10	112	8	4	151	17	623
04:15 PM	19	127	36	21	93	5	13	123	7	3	145	12	604
04:30 PM	22	131	36	42	89	4	9	146	11	1	169	32	692
04:45 PM	31	138	37	33	78	9	9	111	5	8	177	25	661
Total	88	518	148	119	374	25	41	492	31	16	642	86	2580
05:00 PM	24	126	39	45	100	3	8	139	11	4	158	27	684
05:15 PM	22	147	23	61	128	9	5	129	5	5	156	26	716
05:30 PM	21	120	40	37	82	4	10	142	4	5	153	22	640
05:45 PM	18	141	34	25	119	8	10	103	8	6	153	20	645
Total	85	534	136	168	429	24	33	513	28	20	620	95	2685
Grand Total	336	2019	497	471	2104	118	134	1742	106	93	1928	311	9859
Apprch %	11.8	70.8	17.4	17.5	78.1	4.4	6.8	87.9	5.3	4.0	82.7	13.3	
Total %	3.4	20.5	5.0	4.8	21.3	1.2	1.4	17.7	1.1	0.9	19.6	3.2	

Transportation Studies, Inc.
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File Name : H0410090
Site Code : 00000092
Start Date : 10/6/2004
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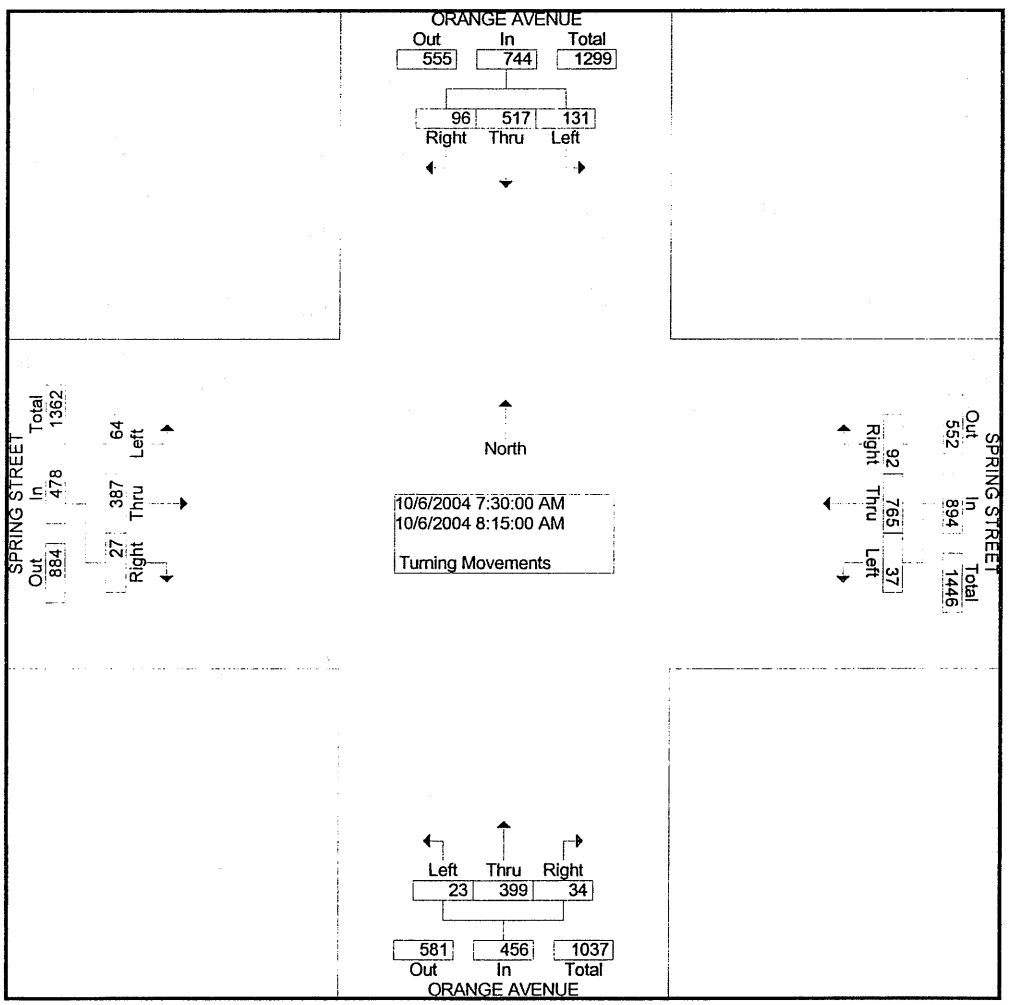
	ORANGE AVENUE Southbound				SPRING STREET Westbound				ORANGE AVENUE Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	96	517	131	744	92	765	37	894	34	399	23	456	27	387	64	478	2572
Percent	12.9	69.5	17.6		10.3	85.6	4.1		7.5	87.5	5.0		5.6	81.0	13.4		
07:45 Volume	24	138	30	192	22	214	13	249	7	96	5	108	7	99	18	124	673
Peak Factor																	0.955
High Int.	07:30 AM				07:45 AM				07:30 AM				07:30 AM				
Volume	20	142	32	194	22	214	13	249	6	110	8	124	4	114	21	139	
Peak Factor				0.959				0.898				0.919				0.860	



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File Name : H0410090
Site Code : 00000092
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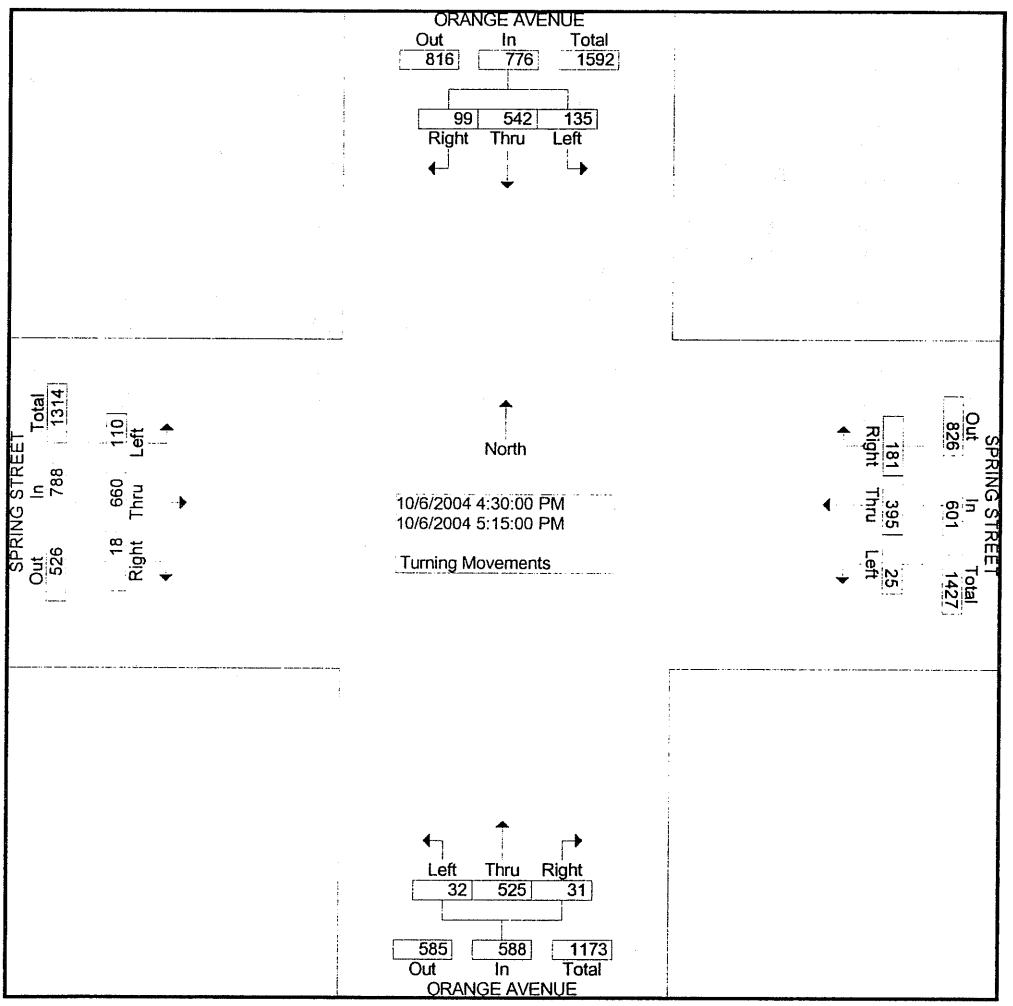
	ORANGE AVENUE Southbound				SPRING STREET Westbound				ORANGE AVENUE Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	99	542	135	776	181	395	25	601	31	525	32	588	18	660	110	788	2753
Percent	12.8	69.8	17.4		30.1	65.7	4.2		5.3	89.3	5.4		2.3	83.8	14.0		
05:15 Volume	22	147	23	192	61	128	9	198	5	129	5	139	5	156	26	187	716
Peak Factor																	0.961
High Int.	04:45 PM				05:15 PM				04:30 PM				04:45 PM				
Volume	31	138	37	206	61	128	9	198	9	146	11	166	8	177	25	210	
Peak Factor				0.942				0.759				0.886				0.938	



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City: LONG BEACH
N-S Direction: ORANGE AVENUE
E-W Direction: WILLOW STREET

File Name : H0410091
Site Code : 00000979
Start Date : 10/6/2004
Page No : 1

Groups Printed- Turning Movements

	ORANGE AVENUE Southbound			WILLOW STREET Westbound			ORANGE AVENUE Northbound			WILLOW STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	9	70	6	11	125	8	5	47	5	8	169	9	472
07:15 AM	20	100	7	1	145	9	7	51	4	15	240	11	610
07:30 AM	23	122	4	16	277	29	14	96	10	30	217	19	857
07:45 AM	23	127	4	14	273	18	26	90	15	34	310	22	956
Total	75	419	21	42	820	64	52	284	34	87	936	61	2895
08:00 AM	16	118	12	8	251	14	42	104	22	11	214	17	829
08:15 AM	15	75	9	9	249	13	19	73	8	16	227	28	741
08:30 AM	19	102	4	6	227	7	18	70	11	18	162	15	659
08:45 AM	12	112	4	14	268	18	15	80	12	11	182	13	741
Total	62	407	29	37	995	52	94	327	53	56	785	73	2970
*** BREAK ***													
04:00 PM	20	124	18	5	254	28	29	99	13	12	284	24	910
04:15 PM	19	122	14	8	266	29	30	115	17	20	325	17	982
04:30 PM	12	97	11	8	248	28	29	105	10	11	324	21	904
04:45 PM	16	139	9	6	221	15	24	110	13	12	319	24	908
Total	67	482	52	27	989	100	112	429	53	55	1252	86	3704
05:00 PM	20	96	8	16	237	27	31	87	7	23	277	21	850
05:15 PM	29	100	14	12	251	28	28	101	6	21	345	20	955
05:30 PM	15	99	15	10	226	17	18	76	13	23	328	22	862
05:45 PM	17	128	13	7	206	13	36	100	25	13	295	16	869
Total	81	423	50	45	920	85	113	364	51	80	1245	79	3536
Grand Total	285	1731	152	151	3724	301	371	1404	191	278	4218	299	13105
Apprch %	13.1	79.8	7.0	3.6	89.2	7.2	18.9	71.4	9.7	5.8	88.0	6.2	
Total %	2.2	13.2	1.2	1.2	28.4	2.3	2.8	10.7	1.5	2.1	32.2	2.3	

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File Name : H0410091
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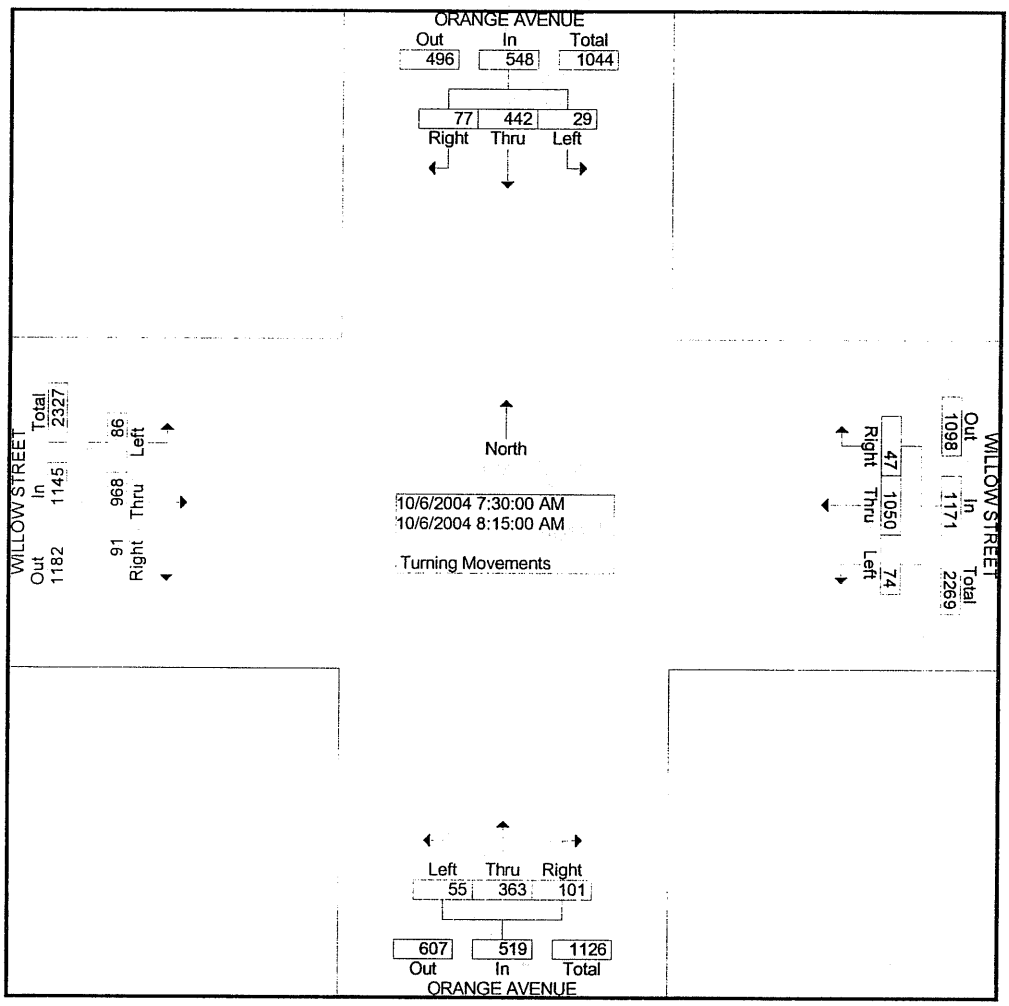
	ORANGE AVENUE Southbound				WILLOW STREET Westbound				ORANGE AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	77	442	29	548	47	1050	74	1171	101	363	55	519	91	968	86	1145	3383
Percent	14.1	80.7	5.3		4.0	89.7	6.3		19.5	69.9	10.6		7.9	84.5	7.5		
07:45 Volume	23	127	4	154	14	273	18	305	26	90	15	131	34	310	22	366	956
Peak Factor																	0.885
High Int.	07:45 AM				07:30 AM				08:00 AM				07:45 AM				
Volume	23	127	4	154	16	277	29	322	42	104	22	168	34	310	22	366	
Peak Factor				0.890				0.909				0.772				0.782	



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File Name : H0410091
Site Code : 00000979
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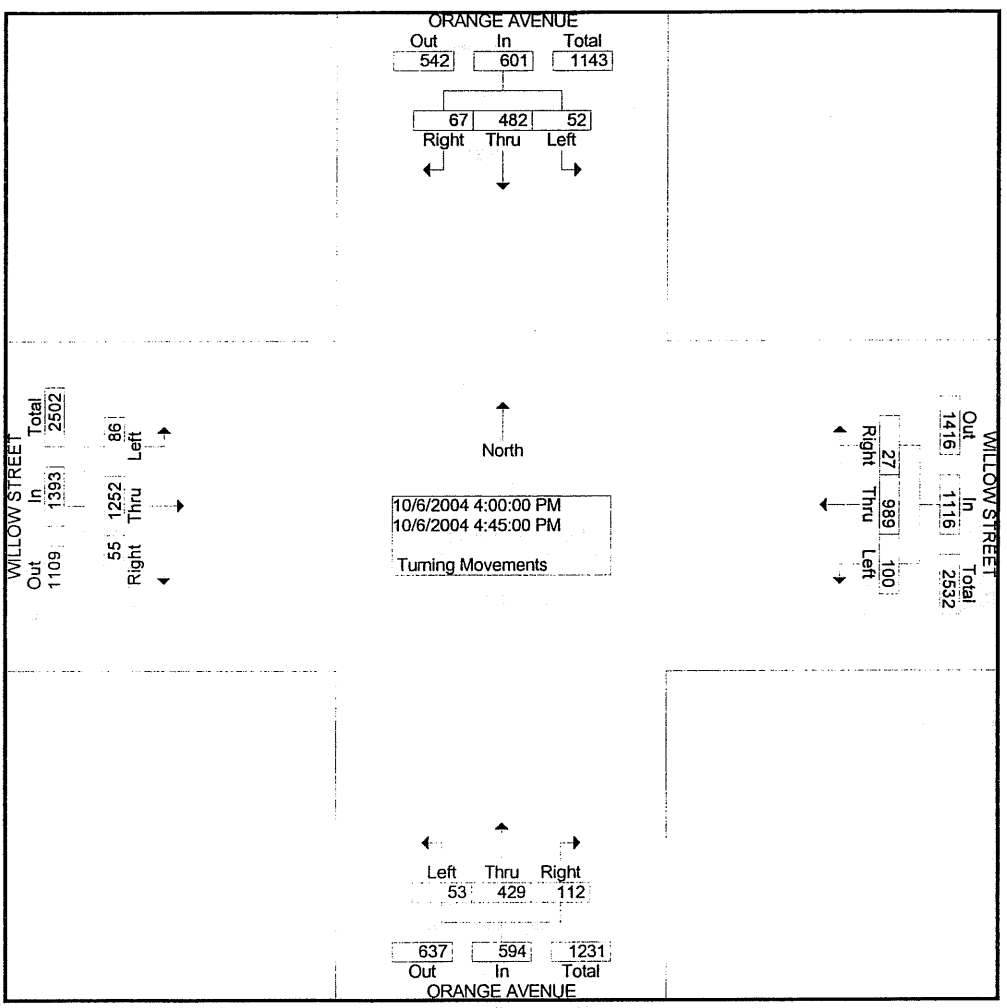
	ORANGE AVENUE Southbound				WILLOW STREET Westbound				ORANGE AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:00 PM																
Volume	67	482	52	601	27	989	100	1116	112	429	53	594	55	1252	86	1393	3704
Percent	11.1	80.2	8.7		2.4	88.6	9.0		18.9	72.2	8.9		3.9	89.9	6.2		
04:15 Volume	19	122	14	155	8	266	29	303	30	115	17	162	20	325	17	362	982
Peak Factor																	0.943
High Int.	04:45 PM				04:15 PM				04:15 PM				04:15 PM				
Volume	16	139	9	164	8	266	29	303	30	115	17	162	20	325	17	362	
Peak Factor				0.916				0.921				0.917				0.962	



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(21)

City: LONG BEACH
N-S Direction: LONG BEACH BOULEVARD
E-W Direction: WARDLOW ROAD

File Name : H0410093
Site Code : 00001944
Start Date : 10/7/2004
Page No : 1

Groups Printed- Turning Movements

	LONG BEACH BOULEVARD Southbound			WARDLOW ROAD Westbound			LONG BEACH BOULEVARD Northbound			WARDLOW ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	69	141	14	5	143	16	12	85	54	5	59	34	637
07:15 AM	94	187	10	6	147	25	19	108	58	2	106	41	803
07:30 AM	109	227	15	7	163	20	15	121	59	6	105	35	882
07:45 AM	127	231	13	9	184	15	33	158	61	16	166	62	1075
Total	399	786	52	27	637	76	79	472	232	29	436	172	3397
08:00 AM	100	188	13	6	175	32	36	158	61	12	105	79	965
08:15 AM	107	184	16	9	171	27	32	152	66	14	108	73	959
08:30 AM	93	175	14	7	164	30	28	147	55	13	100	61	887
08:45 AM	87	179	19	11	156	23	32	143	50	30	104	69	903
Total	387	726	62	33	666	112	128	600	232	69	417	282	3714
*** BREAK ***													
04:00 PM	83	153	16	18	161	22	26	222	101	13	130	67	1012
04:15 PM	72	183	20	20	148	26	29	213	68	9	159	64	1011
04:30 PM	70	154	19	16	139	28	40	223	69	17	158	80	1013
04:45 PM	84	171	19	13	142	22	38	244	78	7	144	58	1020
Total	309	661	74	67	590	98	133	902	316	46	591	269	4056
05:00 PM	73	211	23	13	141	15	36	210	87	10	147	66	1032
05:15 PM	84	219	26	14	159	19	42	203	75	13	151	64	1069
05:30 PM	79	222	31	16	157	18	48	209	71	19	153	56	1079
05:45 PM	66	208	27	12	146	20	39	195	64	15	147	59	998
Total	302	860	107	55	603	72	165	817	297	57	598	245	4178
Grand Total	1397	3033	295	182	2496	358	505	2791	1077	201	2042	968	15345
Apprch %	29.6	64.2	6.2	6.0	82.2	11.8	11.5	63.8	24.6	6.3	63.6	30.1	
Total %	9.1	19.8	1.9	1.2	16.3	2.3	3.3	18.2	7.0	1.3	13.3	6.3	

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File Name : H0410093
Site Code : 00001944
Start Date : 10/7/2004
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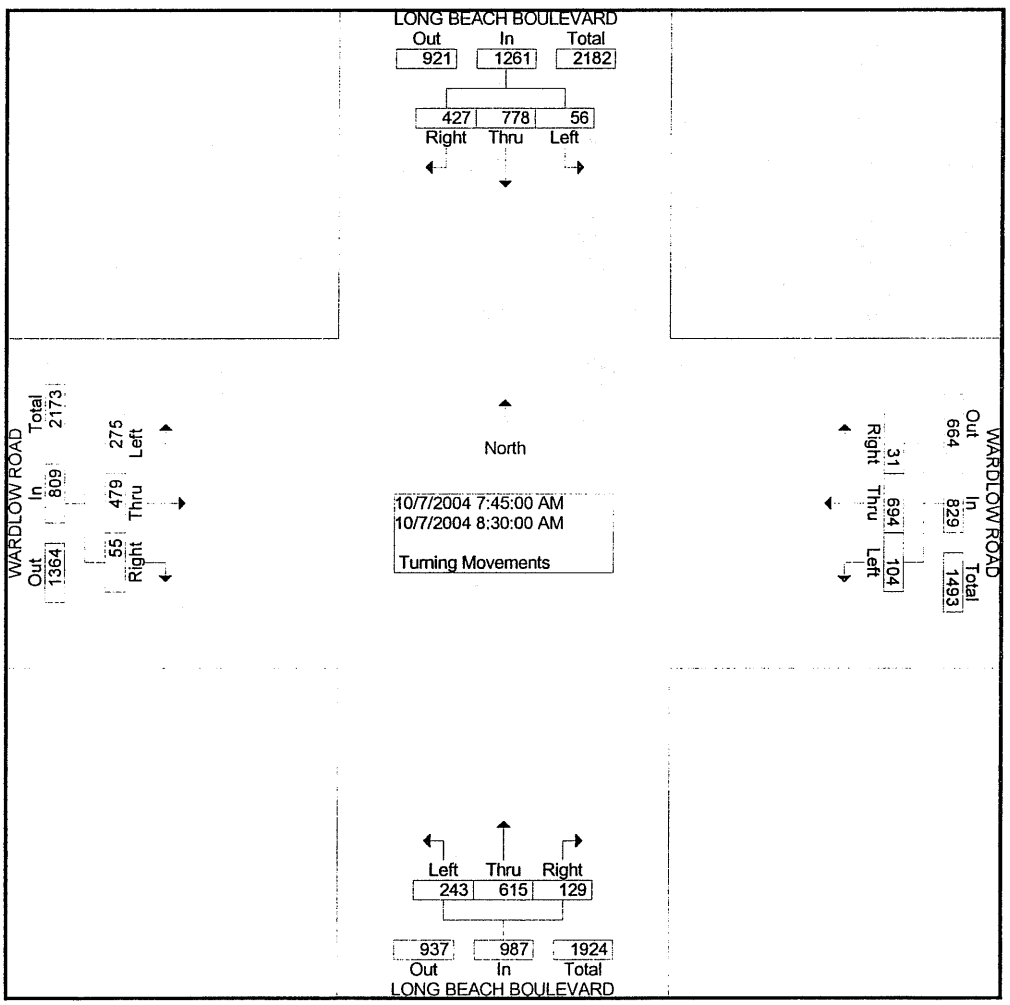
	LONG BEACH BOULEVARD Southbound				WARDLOW ROAD Westbound				LONG BEACH BOULEVARD Northbound				WARDLOW ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:45 AM																
Volume	427	778	56	1261	31	694	104	829	129	615	243	987	55	479	275	809	3886
Percent	33.9	61.7	4.4		3.7	83.7	12.5		13.1	62.3	24.6		6.8	59.2	34.0		
07:45 Volume	127	231	13	371	9	184	15	208	33	158	61	252	16	166	62	244	1075
Peak Factor																	0.904
High Int.	07:45 AM				08:00 AM				08:00 AM				07:45 AM				
Volume	127	231	13	371	6	175	32	213	36	158	61	255	16	166	62	244	
Peak Factor				0.850				0.973				0.968				0.829	



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File Name : H0410093
Site Code : 00001944
Start Date : 10/7/2004
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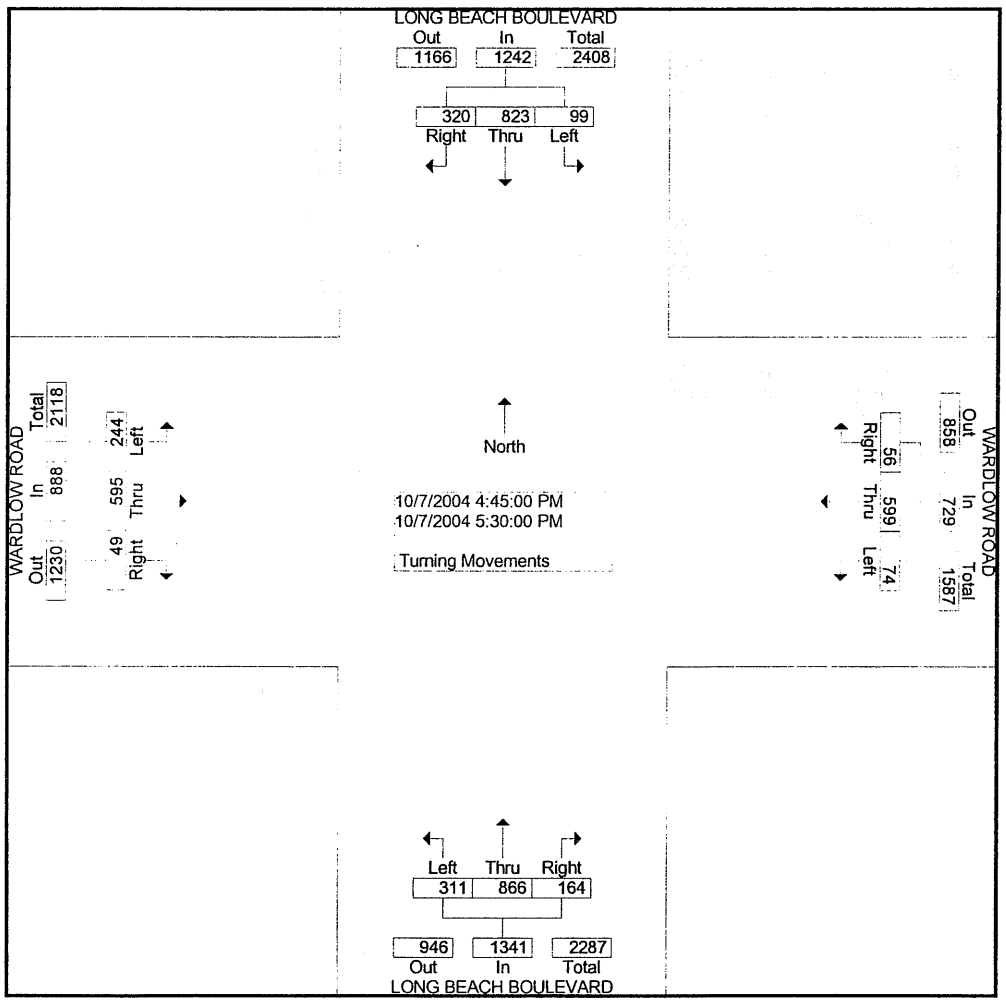
	LONG BEACH BOULEVARD Southbound				WARDLOW ROAD Westbound				LONG BEACH BOULEVARD Northbound				WARDLOW ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	320	823	99	1242	56	599	74	729	164	866	311	1341	49	595	244	888	4200
Percent	25.8	66.3	8.0		7.7	82.2	10.2		12.2	64.6	23.2		5.5	67.0	27.5		
05:30 Volume	79	222	31	332	16	157	18	191	48	209	71	328	19	153	56	228	1079
Peak Factor																	0.973
High Int.	05:30 PM				05:15 PM				04:45 PM				05:15 PM				
Volume	79	222	31	332	14	159	19	192	38	244	78	360	13	151	64	228	
Peak Factor				0.935				0.949				0.931				0.974	



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City: LONG BEACH
N-S Direction: LONG BEACH BOULEVARD
E-W Direction: I-405 NB RAMPS

File Name : H0410092
Site Code : 00001883
Start Date : 10/7/2004
Page No : 1

Groups Printed- Turning Movements

	LONG BEACH BOULEVARD Southbound			I-405 NB RAMPS Westbound			LONG BEACH BOULEVARD Northbound			I-405 NB RAMPS Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	0	151	0	29	0	36	0	98	0	0	0	0	314
07:15 AM	0	209	0	36	0	48	0	122	0	0	0	0	415
07:30 AM	0	264	0	42	0	51	0	164	0	0	0	0	521
07:45 AM	0	273	0	54	0	36	0	198	0	0	0	0	561
Total	0	897	0	161	0	171	0	582	0	0	0	0	1811
08:00 AM	0	236	0	62	0	53	0	199	0	0	0	0	550
08:15 AM	0	222	0	66	0	48	0	203	0	0	0	0	539
08:30 AM	0	204	0	57	0	46	0	196	0	0	0	0	503
08:45 AM	0	221	0	51	0	38	0	194	0	0	0	0	504
Total	0	883	0	236	0	185	0	792	0	0	0	0	2096
*** BREAK ***													
04:00 PM	0	183	0	78	0	49	0	254	0	0	0	0	564
04:15 PM	0	222	0	70	0	39	0	258	0	0	0	0	589
04:30 PM	0	198	0	65	0	41	0	279	0	0	0	0	583
04:45 PM	0	201	0	63	0	41	0	284	0	0	0	0	589
Total	0	804	0	276	0	170	0	1075	0	0	0	0	2325
05:00 PM	0	217	0	70	0	36	0	267	0	0	0	0	590
05:15 PM	0	229	0	76	0	40	0	257	0	0	0	0	602
05:30 PM	0	251	0	82	0	45	0	249	0	0	0	0	627
05:45 PM	0	234	0	75	0	39	0	231	0	0	0	0	579
Total	0	931	0	303	0	160	0	1004	0	0	0	0	2398
Grand Total	0	3515	0	976	0	686	0	3453	0	0	0	0	8630
Apprch %	0.0	100.0	0.0	58.7	0.0	41.3	0.0	100.0	0.0	0.0	0.0	0.0	
Total %	0.0	40.7	0.0	11.3	0.0	7.9	0.0	40.0	0.0	0.0	0.0	0.0	

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File Name : H0410092
Site Code : 00001883
Start Date : 10/7/2004
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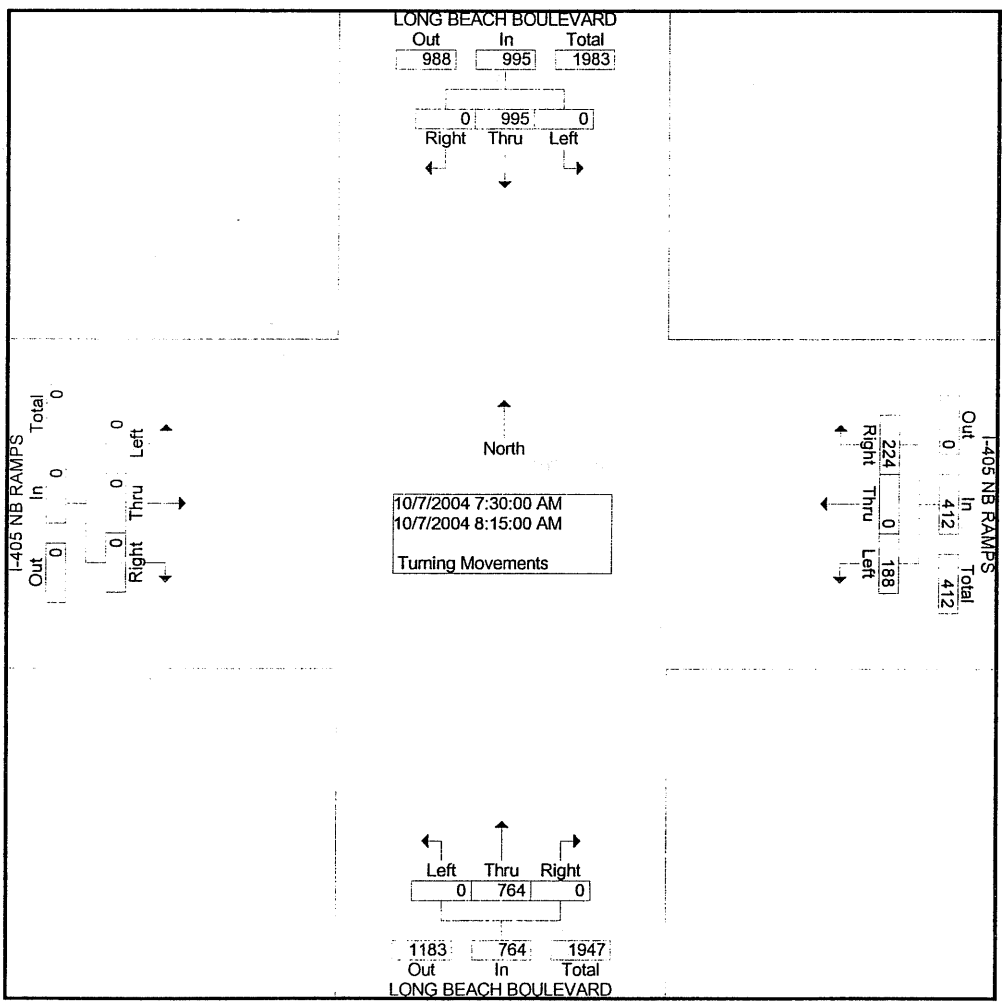
	LONG BEACH BOULEVARD Southbound				I-405 NB RAMPS Westbound				LONG BEACH BOULEVARD Northbound				I-405 NB RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	0	995	0	995	224	0	188	412	0	764	0	764	0	0	0	0	2171
Percent	0.0	100.0	0.0		54.4	0.0	45.6		0.0	100.0	0.0		0.0	0.0	0.0		
07:45 Volume	0	273	0	273	54	0	36	90	0	198	0	198	0	0	0	0	561
Peak Factor																	0.967
High Int.	07:45 AM				08:00 AM				08:15 AM				6:45:00 AM				
Volume	0	273	0	273	62	0	53	115	0	203	0	203					
Peak Factor				0.911				0.896				0.941					



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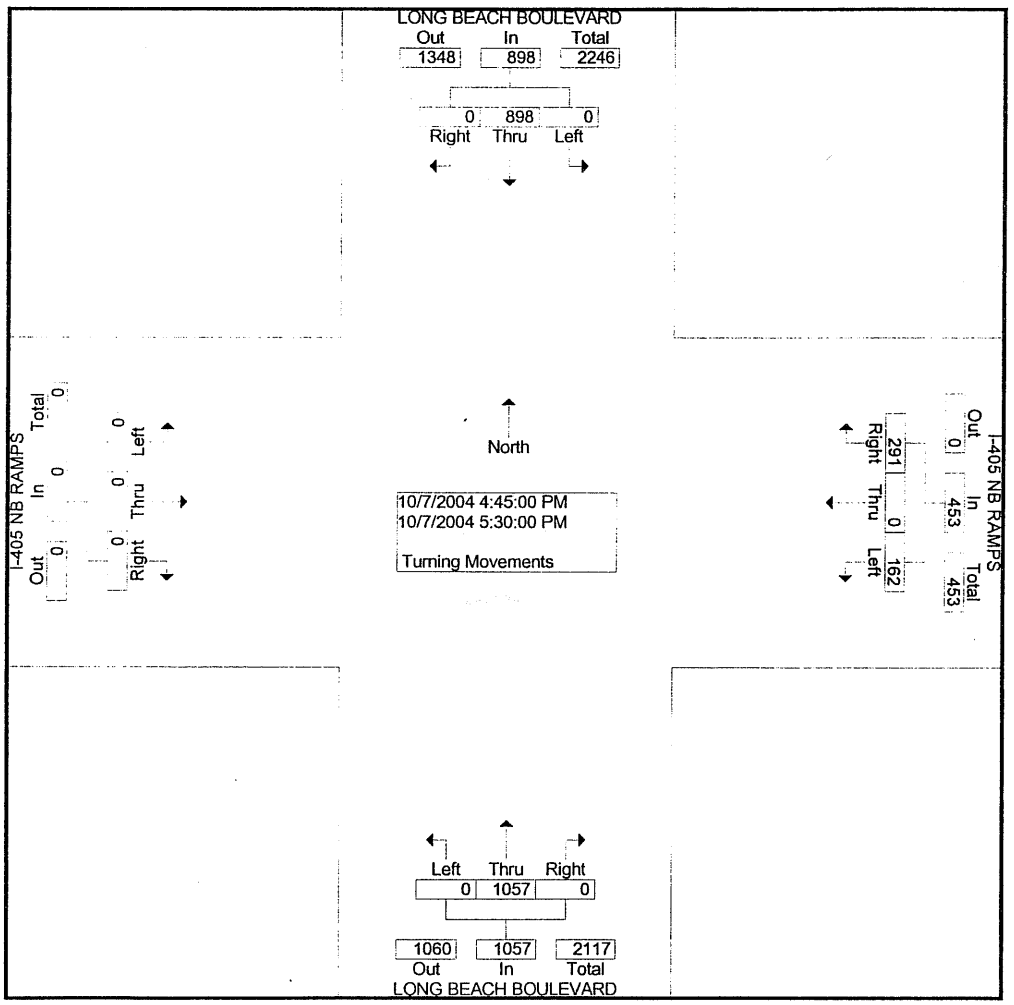
File Name : H0410092
Site Code : 00001883
Start Date : 10/7/2004
Page No : 3

	LONG BEACH BOULEVARD Southbound				I-405 NB RAMPS Westbound				LONG BEACH BOULEVARD Northbound				I-405 NB RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	0	898	0	898	291	0	162	453	0	1057	0	1057	0	0	0	0	2408
Percent	0.0	100.0	0.0		64.2	0.0	35.8		0.0	100.0	0.0		0.0	0.0	0.0		
05:30 Volume	0	251	0	251	82	0	45	127	0	249	0	249	0	0	0	0	627
Peak Factor																	0.960
High Int.	05:30 PM				05:30 PM				04:45 PM								
Volume	0	251	0	251	82	0	45	127	0	284	0	284					
Peak Factor				0.894				0.892				0.930					



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1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

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City: LONG BEACH
N-S Direction: I-405 SB RAMPS
E-W Direction: CREST DRIVE

File Name : H0410094
Site Code : 00001883
Start Date : 10/7/2004
Page No : 1

Groups Printed- Turning Movements

	I-405 SB RAMPS Southbound			CREST DRIVE Westbound			I-405 SB RAMPS Northbound			CREST DRIVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	21	0	28	75	2	0	0	0	0	0	5	72	203
07:15 AM	21	0	30	107	2	0	0	0	0	0	4	108	272
07:30 AM	29	0	25	84	0	0	0	0	0	0	1	102	241
07:45 AM	43	0	35	120	0	0	0	0	0	0	6	93	297
Total	114	0	118	386	4	0	0	0	0	0	16	375	1013
08:00 AM	35	0	50	111	1	0	0	0	0	0	7	84	288
08:15 AM	38	0	33	85	0	0	0	0	0	0	4	66	226
08:30 AM	29	0	33	82	0	0	0	0	0	0	6	61	211
08:45 AM	21	0	29	72	3	0	0	0	0	0	3	59	187
Total	123	0	145	350	4	0	0	0	0	0	20	270	912
*** BREAK ***													
04:00 PM	24	0	25	98	2	0	0	0	0	0	5	45	199
04:15 PM	21	0	30	88	1	0	0	0	0	0	7	69	216
04:30 PM	30	0	37	98	3	0	0	0	0	0	12	59	239
04:45 PM	26	0	22	105	5	0	0	0	0	0	8	63	229
Total	101	0	114	389	11	0	0	0	0	0	32	236	883
05:00 PM	13	0	23	108	2	0	0	0	0	0	8	62	216
05:15 PM	20	0	29	108	9	0	0	0	0	0	7	61	234
05:30 PM	24	0	31	97	4	0	0	0	0	0	8	67	231
05:45 PM	23	0	24	88	5	0	0	0	0	0	6	60	206
Total	80	0	107	401	20	0	0	0	0	0	29	250	887
Grand Total	418	0	484	1526	39	0	0	0	0	0	97	1131	3695
Apprch %	46.3	0.0	53.7	97.5	2.5	0.0	0.0	0.0	0.0	0.0	7.9	92.1	
Total %	11.3	0.0	13.1	41.3	1.1	0.0	0.0	0.0	0.0	0.0	2.6	30.6	

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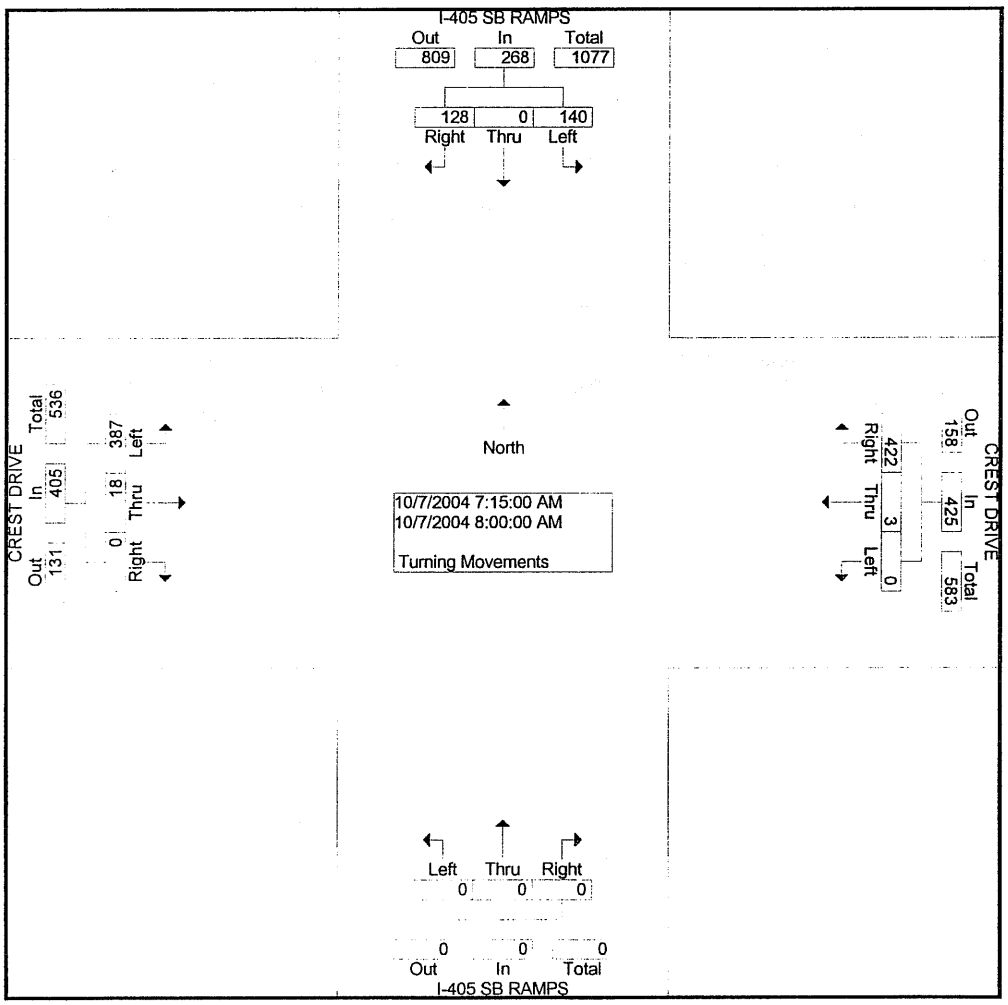
File Name : H0410094
Site Code : 00001883
Start Date : 10/7/2004
Page No : 2

	I-405 SB RAMPS Southbound				CREST DRIVE Westbound				I-405 SB RAMPS Northbound				CREST DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	128	0	140	268	422	3	0	425	0	0	0	0	0	18	387	405	1098
Percent	47.8	0.0	52.2		99.3	0.7	0.0		0.0	0.0	0.0		0.0	4.4	95.6		
07:45 Volume	43	0	35	78	120	0	0	120	0	0	0	0	0	6	93	99	297
Peak Factor																	0.924
High Int.	08:00 AM				07:45 AM				6:45:00 AM				07:15 AM				
Volume	35	0	50	85	120	0	0	120	0	0	0	0	0	4	108	112	
Peak Factor				0.788				0.885								0.904	



Transportation Studies, Inc.
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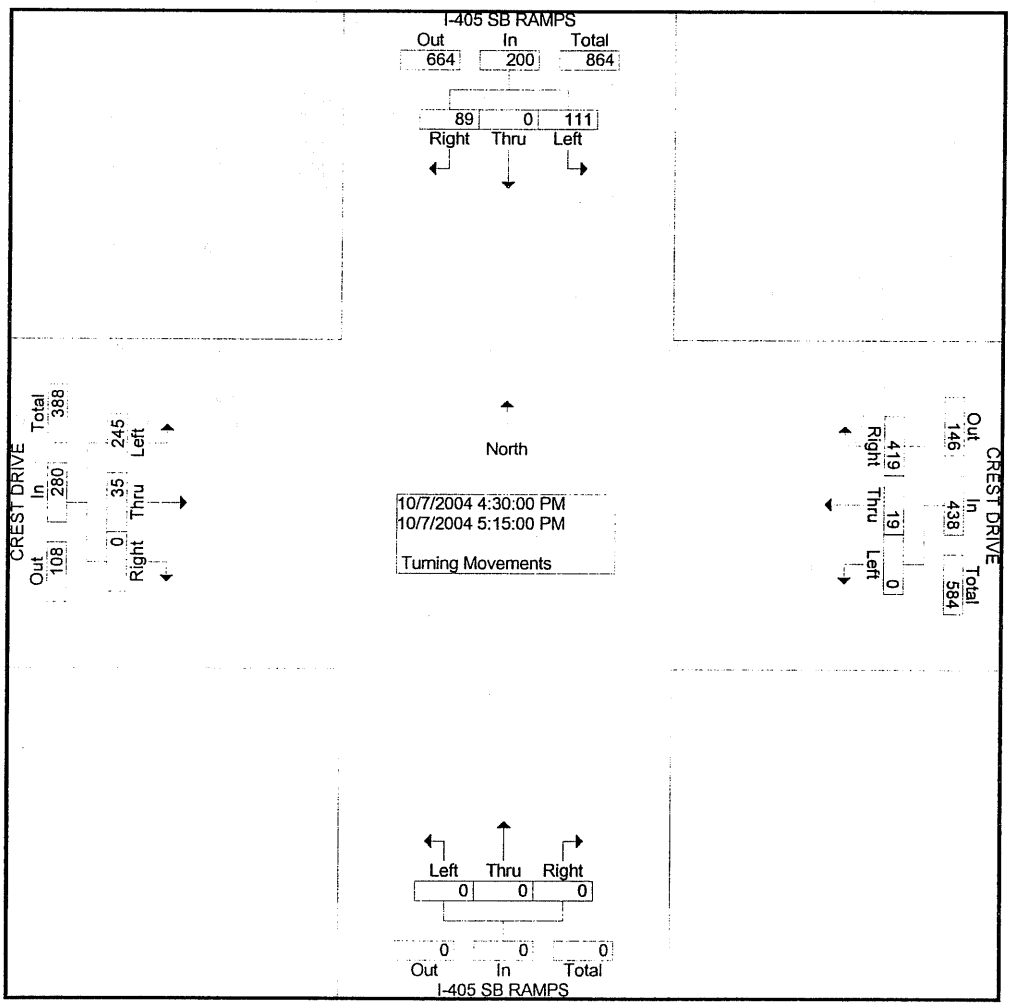
File Name : H0410094
Site Code : 00001883
Start Date : 10/7/2004
Page No : 3

	I-405 SB RAMPS Southbound				CREST DRIVE Westbound				I-405 SB RAMPS Northbound				CREST DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	89	0	111	200	419	19	0	438	0	0	0	0	0	35	245	280	918
Percent	44.5	0.0	55.5		95.7	4.3	0.0		0.0	0.0	0.0		0.0	12.5	87.5		
04:30 Volume	30	0	37	67	98	3	0	101	0	0	0	0	0	12	59	71	239
Peak Factor																	0.960
High Int.	04:30 PM				05:15 PM								04:30 PM				
Volume	30	0	37	67	108	9	0	117	0	0	0	0	0	12	59	71	
Peak Factor				0.746				0.936								0.986	



Transportation Studies, Inc.
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City: LONG BEACH
N-S Direction: LONG BEACH BOULEVARD
E-W Direction: CREST DRIVE

File Name : H0410095
Site Code : 00001944
Start Date : 10/7/2004
Page No : 1

Groups Printed- Turning Movements

	LONG BEACH BOULEVARD Southbound			CREST DRIVE Westbound			LONG BEACH BOULEVARD Northbound			CREST DRIVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	44	160	0	0	0	0	0	105	41	36	0	0	386
07:15 AM	56	221	0	0	0	0	0	127	56	28	0	0	488
07:30 AM	48	251	0	0	0	0	0	165	38	25	0	0	527
07:45 AM	54	237	0	0	0	0	0	201	58	43	0	0	593
Total	202	869	0	0	0	0	0	598	193	132	0	0	1994
08:00 AM	53	219	0	0	0	0	0	239	50	54	0	0	615
08:15 AM	63	212	0	0	0	0	0	196	28	40	0	0	539
08:30 AM	59	212	0	0	0	0	0	183	26	37	0	0	517
08:45 AM	46	195	0	0	0	0	0	172	32	36	0	0	481
Total	221	838	0	0	0	0	0	790	136	167	0	0	2152
*** BREAK ***													
04:00 PM	47	195	0	0	0	0	0	255	54	32	0	0	583
04:15 PM	42	195	0	0	0	0	0	266	50	33	0	0	586
04:30 PM	41	196	0	0	0	0	0	258	57	46	0	0	598
04:45 PM	57	192	0	0	0	0	0	304	54	31	0	0	638
Total	187	778	0	0	0	0	0	1083	215	142	0	0	2405
05:00 PM	57	211	0	0	0	0	0	264	53	31	0	0	616
05:15 PM	61	211	0	0	0	0	0	266	58	35	0	0	631
05:30 PM	56	209	0	0	0	0	0	261	47	39	0	0	612
05:45 PM	44	204	0	0	0	0	0	253	52	31	0	0	584
Total	218	835	0	0	0	0	0	1044	210	136	0	0	2443
Grand Total	828	3320	0	0	0	0	0	3515	754	577	0	0	8994
Apprch %	20.0	80.0	0.0	0.0	0.0	0.0	0.0	82.3	17.7	100.0	0.0	0.0	
Total %	9.2	36.9	0.0	0.0	0.0	0.0	0.0	39.1	8.4	6.4	0.0	0.0	

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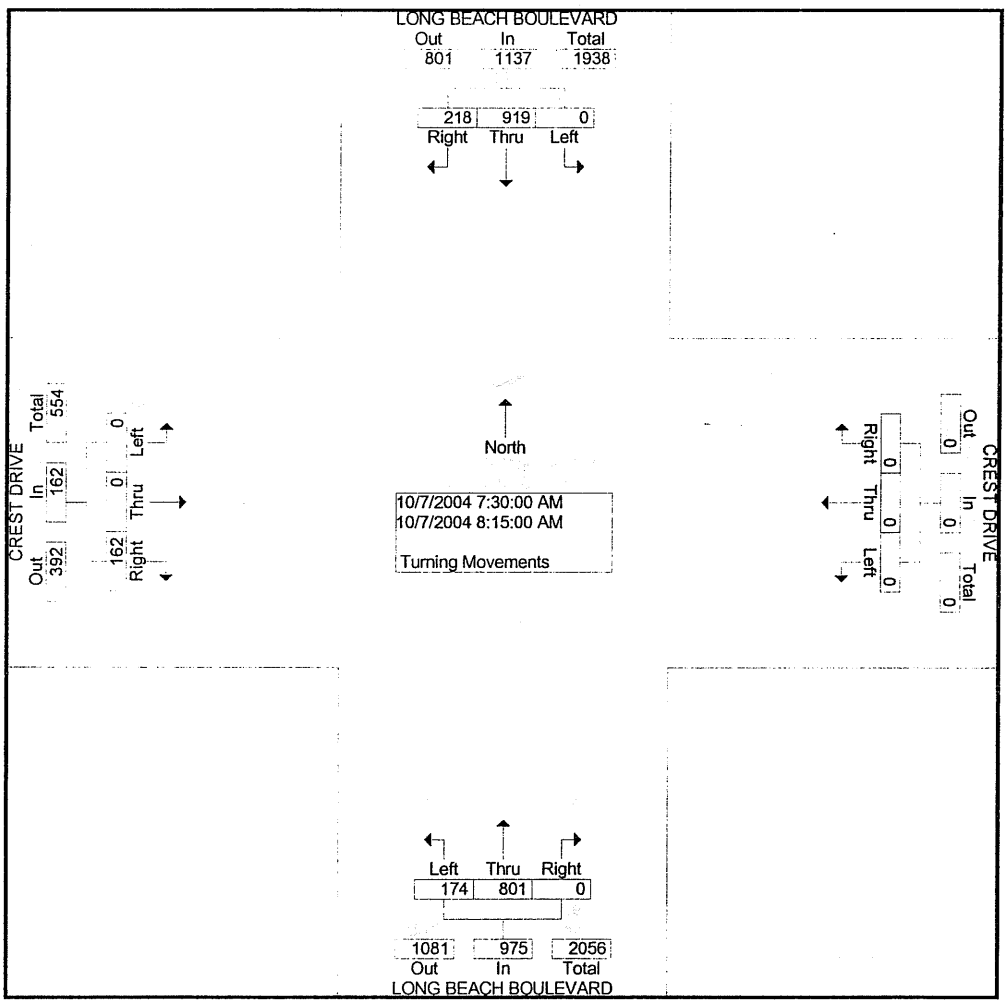
File Name : H0410095
Site Code : 00001944
Start Date : 10/7/2004
Page No : 2

	LONG BEACH BOULEVARD Southbound				CREST DRIVE Westbound				LONG BEACH BOULEVARD Northbound				CREST DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	218	919	0	1137	0	0	0	0	0	801	174	975	162	0	0	162	2274
Percent	19.2	80.8	0.0		0.0	0.0	0.0		0.0	82.2	17.8		100.0	0.0	0.0		
08:00 Volume	53	219	0	272	0	0	0	0	0	239	50	289	54	0	0	54	615
Peak Factor																	0.924
High Int.	07:30 AM				6:45:00 AM				08:00 AM				08:00 AM				
Volume	48	251	0	299	0	0	0	0	0	239	50	289	54	0	0	54	
Peak Factor				0.951								0.843				0.750	



Transportation Studies, Inc.
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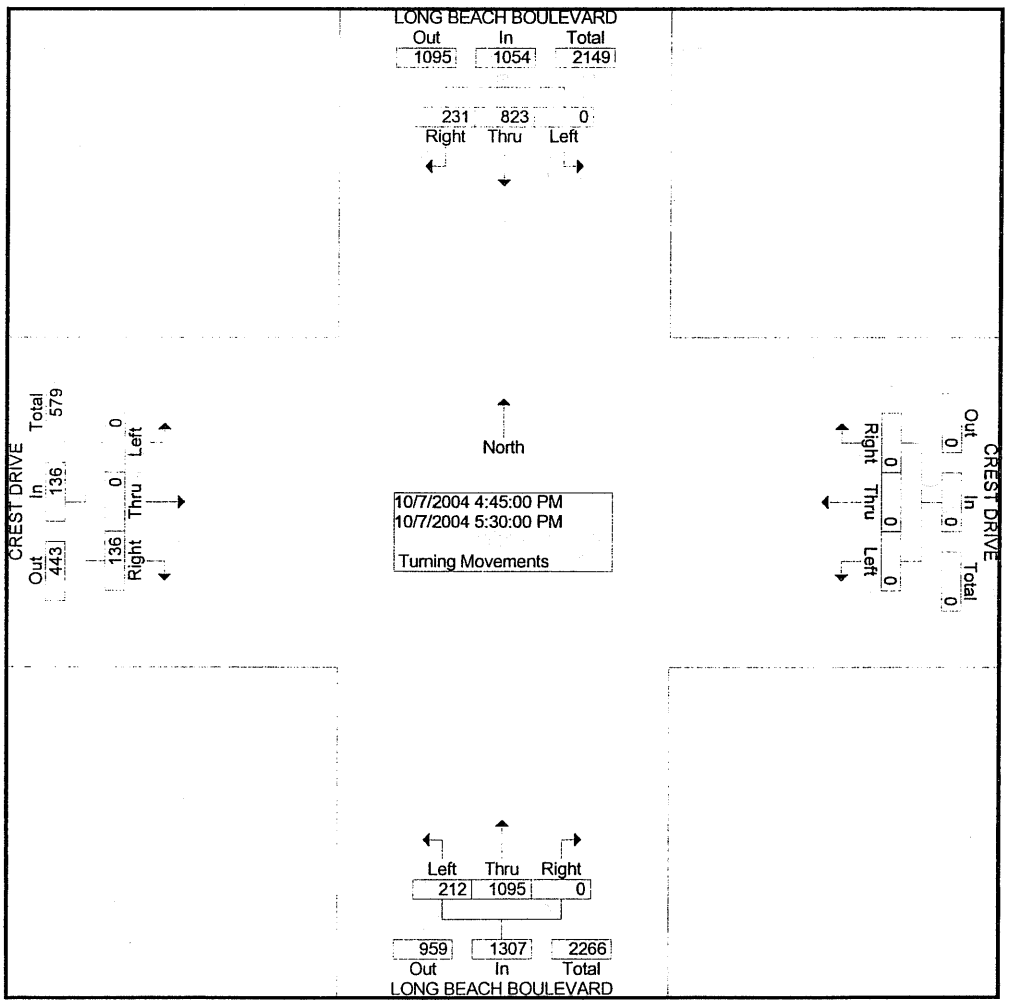
File Name : H0410095
Site Code : 00001944
Start Date : 10/7/2004
Page No : 3

	LONG BEACH BOULEVARD Southbound				CREST DRIVE Westbound				LONG BEACH BOULEVARD Northbound				CREST DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	231	823	0	1054	0	0	0	0	0	1095	212	1307	136	0	0	136	2497
Percent	21.9	78.1	0.0		0.0	0.0	0.0		0.0	83.8	16.2		100.0	0.0	0.0		
04:45 Volume	57	192	0	249	0	0	0	0	0	304	54	358	31	0	0	31	638
Peak Factor																	0.978
High Int.	05:15 PM								04:45 PM				05:30 PM				
Volume	61	211	0	272	0	0	0	0	0	304	54	358	39	0	0	39	
Peak Factor				0.969								0.913				0.872	



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Transportation Studies, Inc.
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City: LONG BEACH
N-S Direction: LONG BEACH BOULEVARD
E-W Direction: HILL STREET

File Name : H0410096
Site Code : 00000923
Start Date : 10/14/2004
Page No : 1

Groups Printed- Turning Movements

	LONG BEACH BOULEVARD Southbound			HILL STREET Westbound			LONG BEACH BOULEVARD Northbound			HILL STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	10	90	13	7	31	17	11	88	3	3	45	4	322
07:15 AM	6	138	11	6	32	9	10	124	6	4	27	9	382
07:30 AM	2	199	15	17	44	20	7	148	6	14	32	15	519
07:45 AM	4	193	15	20	50	17	15	195	11	10	43	7	580
Total	22	620	54	50	157	63	43	555	26	31	147	35	1803
08:00 AM	9	200	26	13	44	11	17	198	13	11	39	10	591
08:15 AM	4	167	19	8	25	16	12	144	6	7	20	3	431
08:30 AM	8	155	18	9	26	12	13	155	12	3	28	2	441
08:45 AM	11	185	15	10	23	8	17	133	11	2	25	5	445
Total	32	707	78	40	118	47	59	630	42	23	112	20	1908
*** BREAK ***													
04:00 PM	14	209	22	13	46	9	21	204	16	10	37	10	611
04:15 PM	13	226	30	11	53	13	9	181	14	8	46	6	610
04:30 PM	17	198	28	15	28	8	15	205	16	6	32	8	576
04:45 PM	11	234	29	14	37	9	5	212	18	14	32	16	631
Total	55	867	109	53	164	39	50	802	64	38	147	40	2428
05:00 PM	13	207	28	13	41	2	13	212	19	6	40	11	605
05:15 PM	13	196	33	17	55	13	10	194	14	10	42	15	612
05:30 PM	16	244	28	12	53	11	7	210	18	8	31	9	647
05:45 PM	14	225	24	15	45	13	13	218	23	19	36	10	655
Total	56	872	113	57	194	39	43	834	74	43	149	45	2519
Grand Total	165	3066	354	200	633	188	195	2821	206	135	555	140	8658
Apprch %	4.6	85.5	9.9	19.6	62.0	18.4	6.1	87.6	6.4	16.3	66.9	16.9	
Total %	1.9	35.4	4.1	2.3	7.3	2.2	2.3	32.6	2.4	1.6	6.4	1.6	

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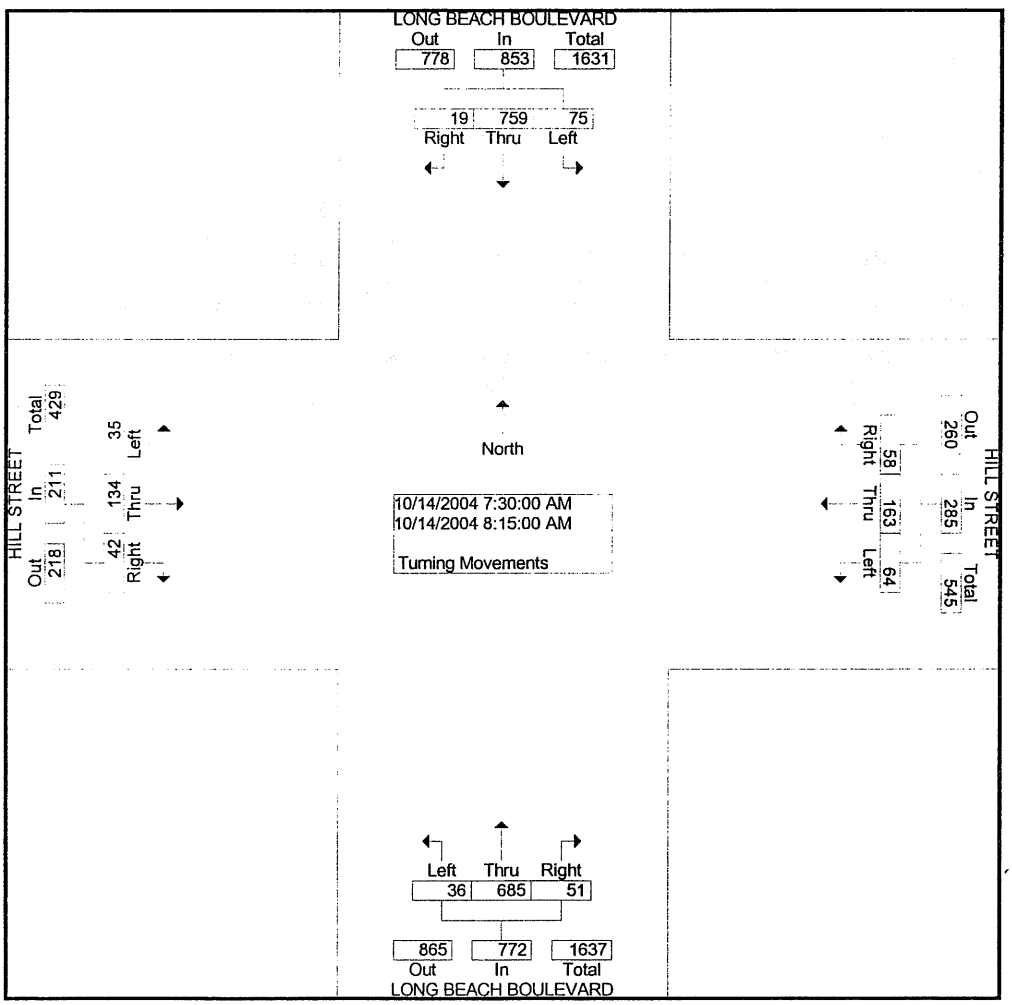
File Name : H0410096
Site Code : 00000923
Start Date : 10/14/2004
Page No : 2

	LONG BEACH BOULEVARD Southbound				HILL STREET Westbound				LONG BEACH BOULEVARD Northbound				HILL STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	19	759	75	853	58	163	64	285	51	685	36	772	42	134	35	211	2121
Percent	2.2	89.0	8.8		20.4	57.2	22.5		6.6	88.7	4.7		19.9	63.5	16.6		
08:00 Volume	9	200	26	235	13	44	11	68	17	198	13	228	11	39	10	60	591
Peak Factor																	0.897
High Int.	08:00 AM				07:45 AM				08:00 AM				07:30 AM				
Volume	9	200	26	235	20	50	17	87	17	198	13	228	14	32	15	61	
Peak Factor				0.907				0.819				0.846				0.865	



Transportation Studies, Inc.
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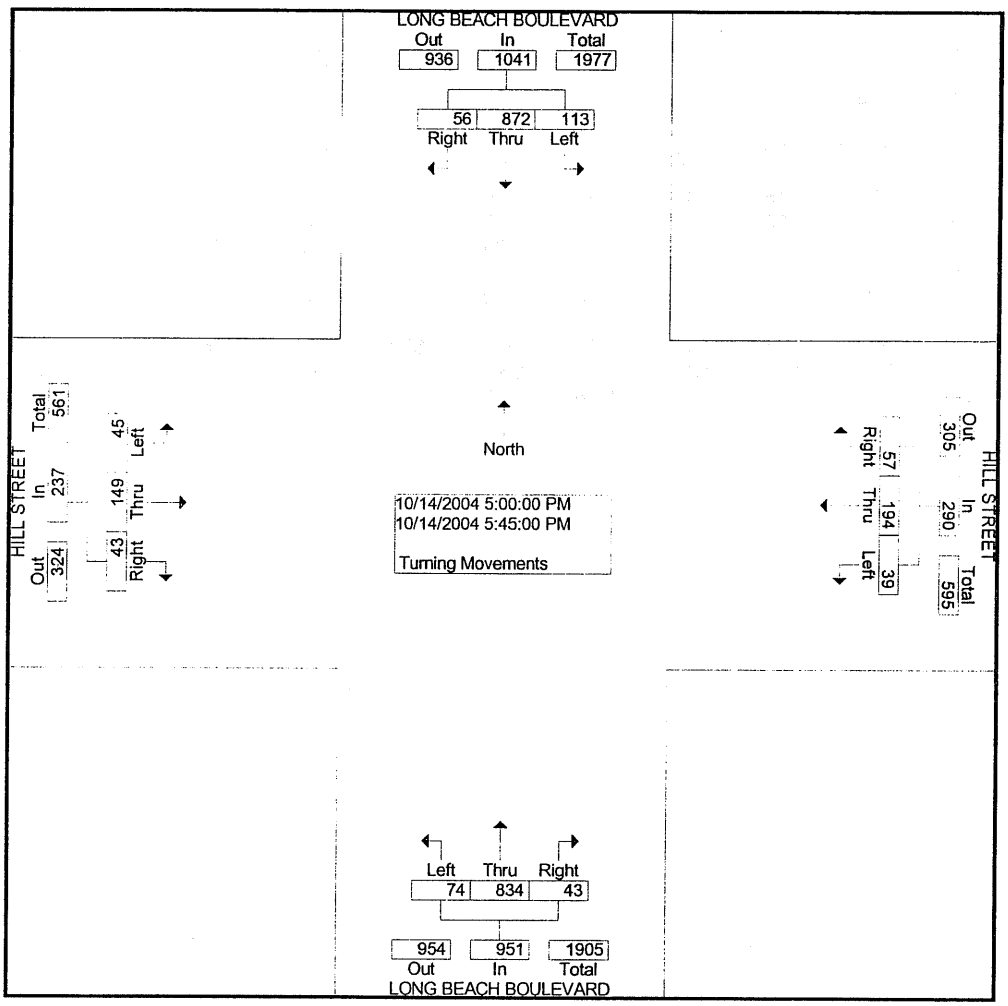
File Name : H0410096
Site Code : 00000923
Start Date : 10/14/2004
Page No : 3

	LONG BEACH BOULEVARD Southbound				HILL STREET Westbound				LONG BEACH BOULEVARD Northbound				HILL STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	56	872	113	1041	57	194	39	290	43	834	74	951	43	149	45	237	2519
Percent	5.4	83.8	10.9		19.7	66.9	13.4		4.5	87.7	7.8		18.1	62.9	19.0		
05:45 Volume	14	225	24	263	15	45	13	73	13	218	23	254	19	36	10	65	655
Peak Factor																	0.961
High Int.	05:30 PM				05:15 PM				05:45 PM				05:15 PM				
Volume	16	244	28	288	17	55	13	85	13	218	23	254	10	42	15	67	
Peak Factor				0.904				0.853				0.936				0.884	



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(26)

City: LONG BEACH
N-S Direction: PACIFIC AVENUE
E-W Direction: SPRING STREET

File Name : H0410097
Site Code : 00002245
Start Date : 10/7/2004
Page No : 1

Groups Printed- Turning Movements

	PACIFIC AVENUE Southbound			SPRING STREET Westbound			PACIFIC AVENUE Northbound			SPRING STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	4	34	5	13	51	12	13	22	11	1	75	2	243
07:15 AM	8	56	8	13	94	25	27	65	17	8	94	6	421
07:30 AM	3	79	13	13	125	35	48	117	14	18	107	11	583
07:45 AM	7	97	25	20	115	41	39	119	19	9	102	14	607
Total	22	266	51	59	385	113	127	323	61	36	378	33	1854
08:00 AM	4	72	19	11	89	45	30	90	18	4	69	14	465
08:15 AM	2	77	10	12	71	47	43	99	6	9	61	10	447
08:30 AM	2	80	10	11	63	47	31	80	4	8	49	5	390
08:45 AM	1	65	11	7	57	31	29	87	5	7	41	5	346
Total	9	294	50	41	280	170	133	356	33	28	220	34	1648
*** BREAK ***													
04:00 PM	4	93	7	20	87	33	39	87	15	7	92	6	490
04:15 PM	2	77	13	13	71	24	49	112	19	6	77	10	473
04:30 PM	1	75	18	18	91	28	53	112	9	7	94	1	507
04:45 PM	3	68	18	18	91	28	57	108	10	9	91	7	508
Total	10	313	56	69	340	113	198	419	53	29	354	24	1978
05:00 PM	2	77	15	16	86	34	53	119	13	9	98	11	533
05:15 PM	2	74	20	18	104	45	60	145	27	14	101	5	615
05:30 PM	11	71	13	13	79	30	55	99	23	12	111	9	526
05:45 PM	5	67	18	11	87	31	46	87	25	14	103	4	498
Total	20	289	66	58	356	140	214	450	88	49	413	29	2172
Grand Total	61	1162	223	227	1361	536	672	1548	235	142	1365	120	7652
Apprch %	4.2	80.4	15.4	10.7	64.1	25.2	27.4	63.1	9.6	8.7	83.9	7.4	
Total %	0.8	15.2	2.9	3.0	17.8	7.0	8.8	20.2	3.1	1.9	17.8	1.6	

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File Name : H0410097
Site Code : 00002245
Start Date : 10/7/2004
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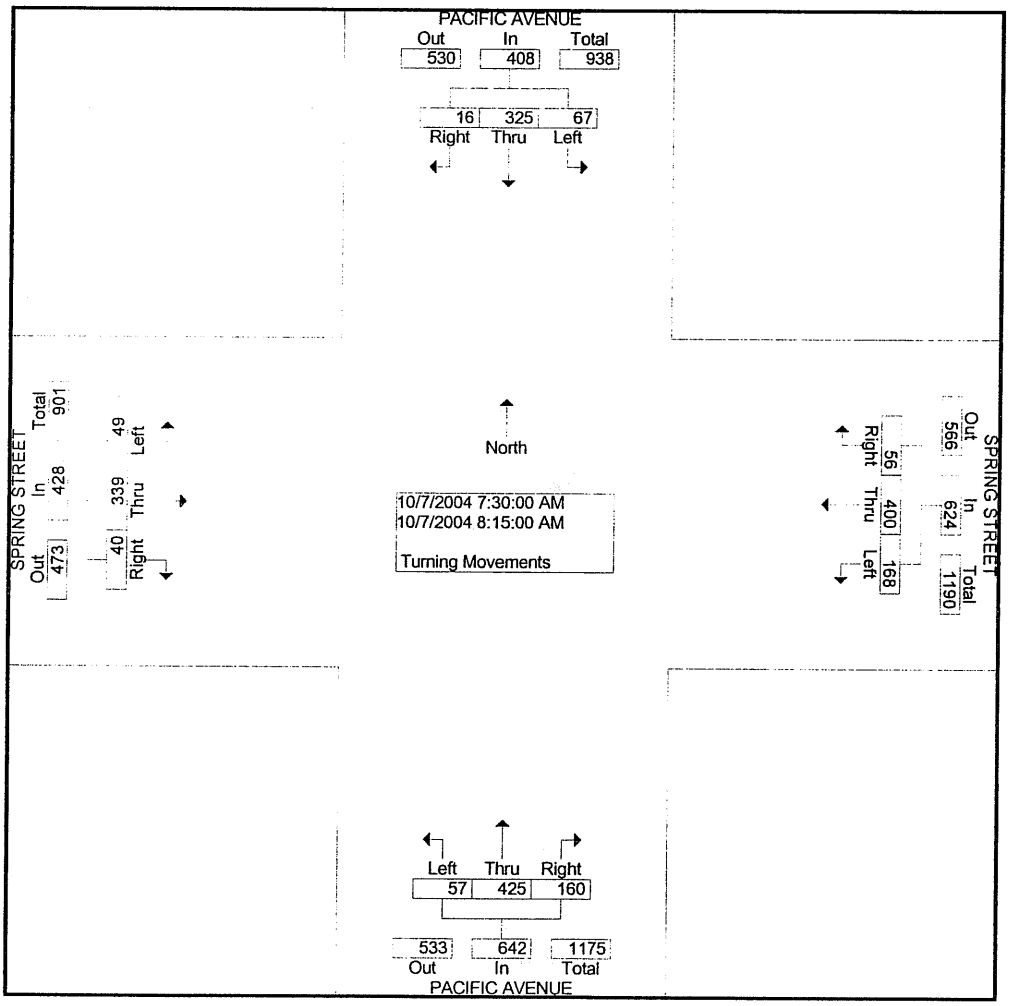
	PACIFIC AVENUE Southbound				SPRING STREET Westbound				PACIFIC AVENUE Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	16	325	67	408	56	400	168	624	160	425	57	642	40	339	49	428	2102
Percent	3.9	79.7	16.4		9.0	64.1	26.9		24.9	66.2	8.9		9.3	79.2	11.4		
07:45 Volume	7	97	25	129	20	115	41	176	39	119	19	177	9	102	14	125	607
Peak Factor																	0.866
High Int.	07:45 AM				07:45 AM				07:30 AM				07:30 AM				
Volume	7	97	25	129	20	115	41	176	48	117	14	179	18	107	11	136	
Peak Factor				0.791				0.886				0.897				0.787	



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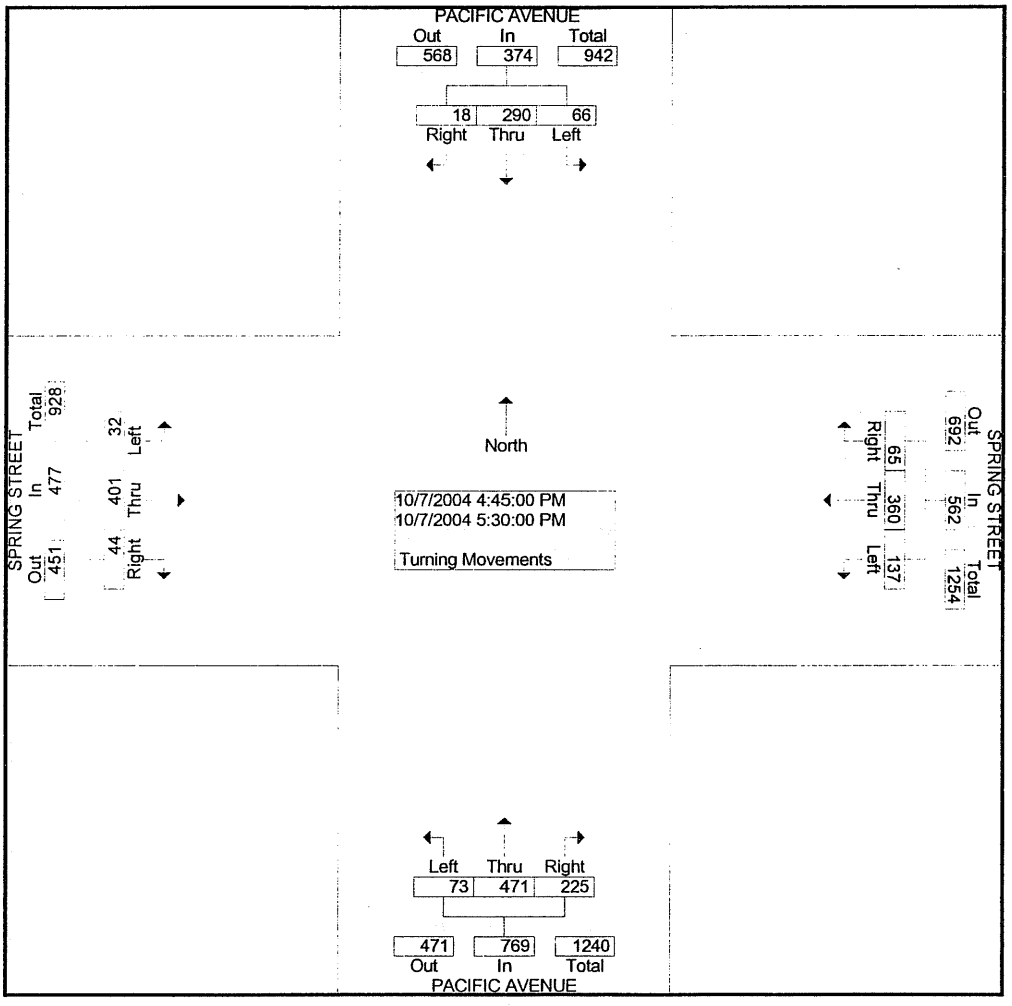
File Name : H0410097
Site Code : 00002245
Start Date : 10/7/2004
Page No : 3

	PACIFIC AVENUE Southbound				SPRING STREET Westbound				PACIFIC AVENUE Northbound				SPRING STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	18	290	66	374	65	360	137	562	225	471	73	769	44	401	32	477	2182
Percent	4.8	77.5	17.6		11.6	64.1	24.4		29.3	61.2	9.5		9.2	84.1	6.7		
05:15 Volume	2	74	20	96	18	104	45	167	60	145	27	232	14	101	5	120	615
Peak Factor																	0.887
High Int.	05:15 PM				05:15 PM				05:15 PM				05:30 PM				
Volume	2	74	20	96	18	104	45	167	60	145	27	232	12	111	9	132	
Peak Factor				0.974				0.841				0.829				0.903	



Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

(27)

City: LONG BEACH
N-S Direction: PACIFIC AVENUE
E-W Direction: WILLOW STREET

File Name : H0410098
Site Code : 00000921
Start Date : 10/7/2004
Page No : 1

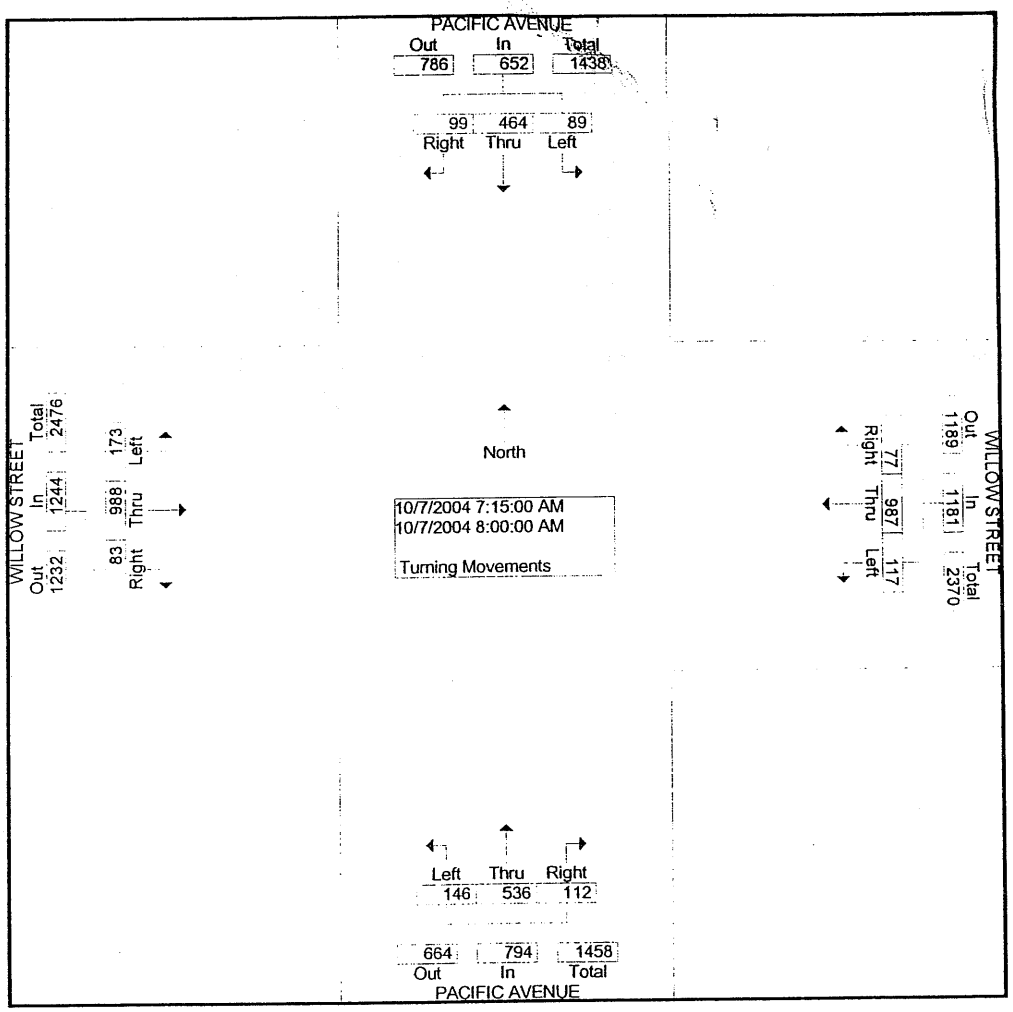
Groups Printed- Turning Movements

	PACIFIC AVENUE Southbound			WILLOW STREET Westbound			PACIFIC AVENUE Northbound			WILLOW STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	7	65	14	20	192	17	20	72	29	9	175	37	657
07:15 AM	28	78	18	16	268	28	25	103	35	8	229	33	869
07:30 AM	27	117	23	19	237	35	24	130	30	18	235	48	943
07:45 AM	20	143	19	11	260	29	38	160	41	31	284	54	1090
Total	82	403	74	66	957	109	107	465	135	66	923	172	3559
08:00 AM	24	126	29	31	222	25	25	143	40	26	240	38	969
08:15 AM	19	89	23	20	214	26	23	94	27	24	215	36	810
08:30 AM	21	99	18	19	214	40	20	76	38	18	207	33	803
08:45 AM	19	92	24	22	197	38	19	83	26	20	199	31	770
Total	83	406	94	92	847	129	87	396	131	88	861	138	3352
*** BREAK ***													
04:00 PM	22	91	31	25	203	43	38	109	41	46	235	29	913
04:15 PM	15	100	32	20	204	29	36	106	46	39	237	29	893
04:30 PM	23	94	23	24	215	48	27	88	40	36	238	33	889
04:45 PM	29	89	28	26	220	48	46	124	40	28	261	45	984
Total	89	374	114	95	842	168	147	427	167	149	971	136	3679
05:00 PM	40	103	24	18	196	45	50	110	44	23	296	37	986
05:15 PM	32	97	27	15	206	39	33	129	33	33	292	28	964
05:30 PM	34	102	35	19	248	47	24	119	43	23	304	37	1035
05:45 PM	37	102	38	17	196	41	29	84	38	28	277	57	944
Total	143	404	124	69	846	172	136	442	158	107	1169	159	3929
Grand Total	397	1587	406	322	3492	578	477	1730	591	410	3924	605	14519
Apprch %	16.6	66.4	17.0	7.3	79.5	13.2	17.0	61.8	21.1	8.3	79.4	12.2	
Total %	2.7	10.9	2.8	2.2	24.1	4.0	3.3	11.9	4.1	2.8	27.0	4.2	

Transportation Studies, Inc.
1350 Reynolds Avenue
Suite 115
Irvine, CA. 92614

File Name : H0410098
Site Code : 00000921
Start Date : 10/7/2004
Page No : 2

	PACIFIC AVENUE Southbound				WILLOW STREET Westbound				PACIFIC AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	99	464	89	652	77	987	117	1181	112	536	146	794	83	988	173	1244	3871
Percent	15.2	71.2	13.7		6.5	83.6	9.9		14.1	67.5	18.4		6.7	79.4	13.9		
07:45 Volume	20	143	19	182	11	260	29	300	38	160	41	239	31	284	54	369	1090
Peak Factor																	0.888
High Int.	07:45 AM				07:15 AM				07:45 AM				07:45 AM				
Volume	20	143	19	182	16	268	28	312	38	160	41	239	31	284	54	369	
Peak Factor				0.896				0.946				0.831				0.843	



Transportation Studies, Inc.
1350 Reynolds Avenue
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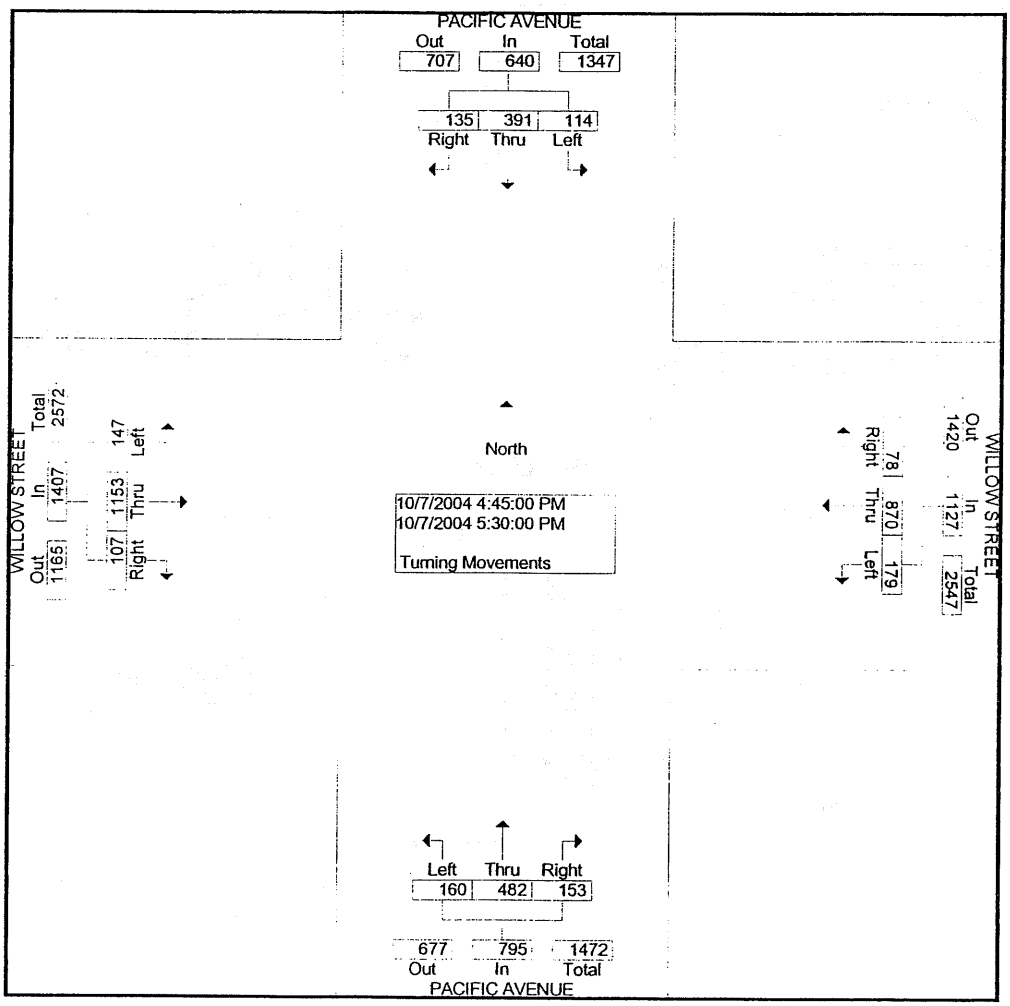
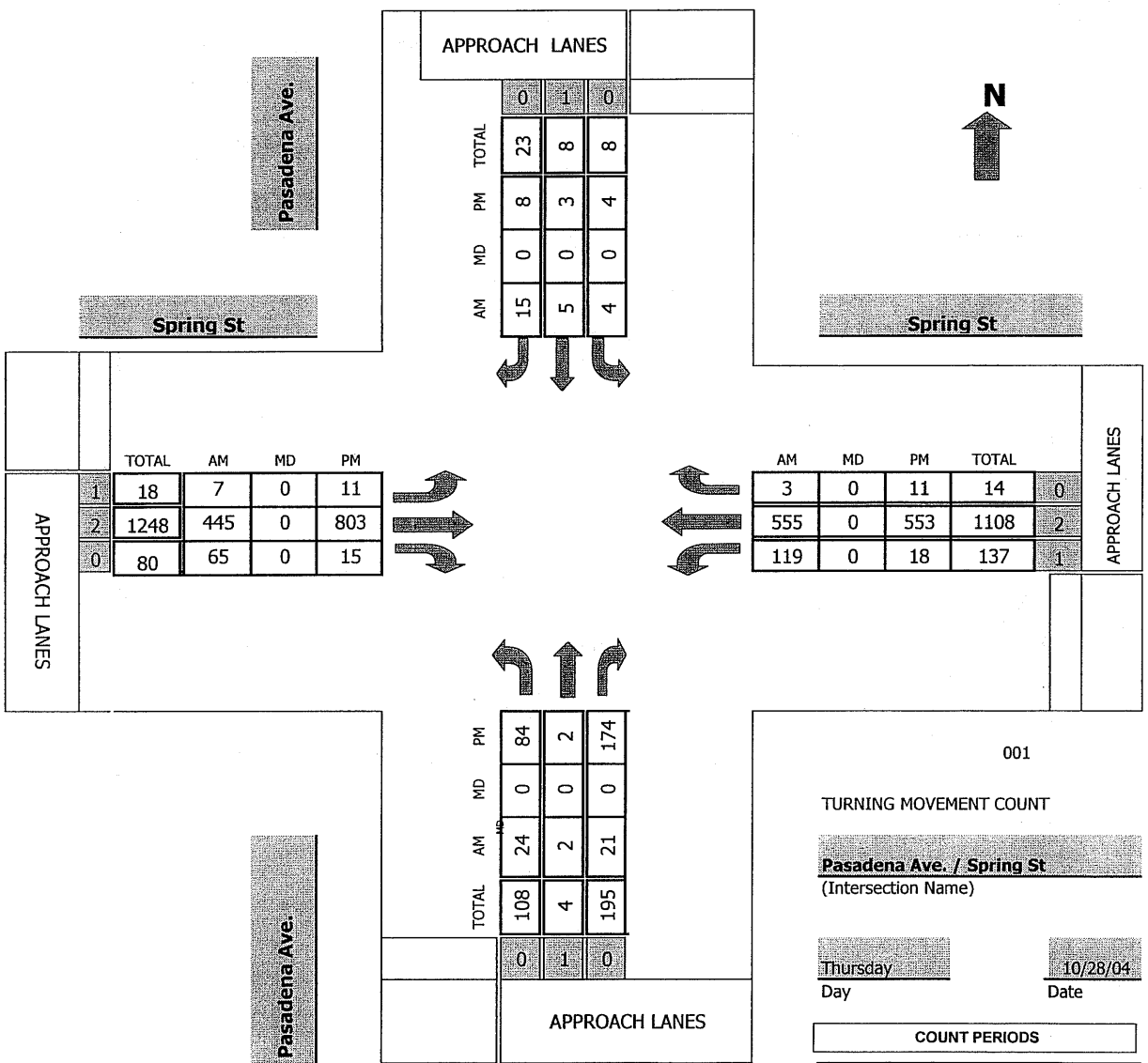
File Name : H0410098
Site Code : 00000921
Start Date : 10/7/2004
Page No : 3

	PACIFIC AVENUE Southbound				WILLOW STREET Westbound				PACIFIC AVENUE Northbound				WILLOW STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	135	391	114	640	78	870	179	1127	153	482	160	795	107	1153	147	1407	3969
Percent	21.1	61.1	17.8		6.9	77.2	15.9		19.2	60.6	20.1		7.6	81.9	10.4		
05:30 Volume	34	102	35	171	19	248	47	314	24	119	43	186	23	304	37	364	1035
Peak Factor																	0.959
High Int.	05:30 PM				05:30 PM				04:45 PM				05:30 PM				
Volume	34	102	35	171	19	248	47	314	46	124	40	210	23	304	37	364	
Peak Factor				0.936				0.897				0.946				0.966	



TMC Summary of Pasadena Ave./Spring St

Project #: 04-2078-001



001

TURNING MOVEMENT COUNT

Pasadena Ave. / Spring St
(Intersection Name)

Thursday — Day

10/28/04 — Date

COUNT PERIODS			
am	7:00 AM	-	9:00 AM
noon	4:00 PM	-	6:00 PM
pm	4:00 PM	-	6:00 PM

AM PEAK HOUR	730 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	500 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Pasadena Ave. DATE: 10/28/2004 LOCATION: City of Long Beach

E-W STREET: Spring St DAY: THURSDAY PROJECT# 04-2078-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	6	1	4	0	1	1	0	69	22	27	81	0	212
7:15 AM	4	0	5	2	0	0	1	107	8	16	128	0	271
7:30 AM	5	1	4	1	0	1	1	109	12	19	133	0	286
7:45 AM	8	1	8	0	1	4	3	120	17	26	142	1	331
8:00 AM	2	0	7	2	0	5	3	105	20	39	154	1	338
8:15 AM	9	0	2	1	4	5	0	111	16	35	126	1	310
8:30 AM	5	0	6	1	1	5	1	64	17	39	117	4	260
8:45 AM	2	0	7	3	3	2	1	74	17	33	106	3	251
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													
TOTAL VOLUMES =	41	3	43	10	10	23	10	759	129	234	987	10	2259

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	24	2	21	4	5	15	7	445	65	119	555	3	1265
PEAK HR. FACTOR:		0.691			0.600			0.923			0.872		0.936

CONTROL: 2-Way Stop N&S

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Pasadena Ave. DATE: 10/28/2004 LOCATION: City of Long Beach

E-W STREET: Spring St DAY: THURSDAY PROJECT# 04-2078-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	8	0	21	1	2	2	1	161	5	4	132	1	338
4:15 PM	7	0	21	1	1	3	0	162	6	8	118	2	329
4:30 PM	12	2	41	1	0	6	0	171	4	5	102	1	345
4:45 PM	13	1	40	3	0	1	2	182	5	5	145	1	398
5:00 PM	25	1	64	3	2	2	4	182	8	6	134	9	440
5:15 PM	17	0	40	1	0	1	2	192	2	8	150	0	413
5:30 PM	22	0	34	0	0	3	2	220	3	1	138	1	424
5:45 PM	20	1	36	0	1	2	3	209	2	3	131	1	409
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL VOLUMES =	NL 124	NT 5	NR 297	SL 10	ST 6	SR 20	EL 14	ET 1479	ER 35	WL 40	WT 1050	WR 16	TOTAL 3096

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	84	2	174	4	3	8	11	803	15	18	553	11	1686
PEAK HR. FACTOR:		0.722			0.536			0.921			0.921		0.958

CONTROL: 2-Way Stop N&S

APPENDIX B

LEVEL OF SERVICE CALCULATION Worksheets

YEAR 2008 TRAFFIC CONDITIONS

LINSCOTT, LAW & GREENSPAN, ENGINEERS
1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu1.wk4

Atlantic Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	31	1	1600	0.019 *	1	32	1	1600	0.020 *	0	32	1	1600	0.020 *	8	40	1	1600	0.025 *	0	40	1	1600	0.025 *
Nb Thru	585	2	3200	0.198	23	608	2	3200	0.206	62	670	2	3200	0.228	24	694	2	3200	0.237	0	694	2	3200	0.237
Nb Right	48	0	0	-	2	50	0	0	-	9	59	0	0	-	5	64	0	0	-	0	64	0	0	-
Sb Left	72	1	1600	0.045	3	75	1	1600	0.047	30	105	1	1600	0.066	0	105	1	1600	0.066	0	105	1	1600	0.066
Sb Thru	1102	2	3200	0.375 *	44	1146	2	3200	0.390 *	74	1220	2	3200	0.413 *	97	1317	2	3200	0.451 *	0	1317	2	3200	0.451 *
Sb Right	99	0	0	-	4	103	0	0	-	0	103	0	0	-	24	127	0	0	-	0	127	0	0	-
Eb Left	103	1	1600	0.064	4	107	1	1600	0.067	0	107	1	1600	0.067	10	117	1	1600	0.073	0	117	2	2880	0.041 *
Eb Thru	374	2	3200	0.142 *	15	389	2	3200	0.148 *	71	460	2	3200	0.170 *	3	463	2	3200	0.171 *	0	463	2	3200	0.171
Eb Right	80	0	0	-	3	83	0	0	-	1	84	0	0	-	0	84	0	0	-	0	84	0	0	-
Wb Left	200	1	1600	0.125 *	8	208	1	1600	0.130 *	2	210	1	1600	0.131 *	18	228	1	1600	0.143 *	0	228	2	2880	0.079
Wb Thru	625	2	3200	0.195	25	650	2	3200	0.203	48	698	2	3200	0.218	13	711	2	3200	0.222	0	711	2	3200	0.222 *
Wb Right	39	1	1600	0.024	2	41	1	1600	0.025	5	46	1	1600	0.028	0	46	1	1600	0.028	0	46	1	1600	0.028
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.150 *
ICU				0.781					0.808					0.854					0.910					0.889
LOS				C					D					D					E					D

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.056
Significant Impact: YES

Area Traffic Mitigation: Add 2nd EBL & WBL

3358 134 3492 302 3794 202 3996

LINSCOTT, LAW & GREENSPAN, ENGINEERS
1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu1.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	63	1	1600	0.039 *	3	66	1	1600	0.041 *	1	67	1	1600	0.042	4	71	1	1600	0.044	0	71	1	1600	0.044
Nb Thru	798	2	3200	0.275	32	830	2	3200	0.286	100	930	2	3200	0.319 *	106	1036	2	3200	0.359 *	0	1036	2	3200	0.359 *
Nb Right	82	0	0	-	3	85	0	0	-	4	89	0	0	-	22	111	0	0	-	0	111	0	0	-
Sb Left	52	1	1600	0.033	2	54	1	1600	0.034	51	105	1	1600	0.066 *	0	105	1	1600	0.066 *	0	105	1	1600	0.066 *
Sb Thru	800	2	3200	0.274 *	32	832	2	3200	0.285 *	79	911	2	3200	0.310	51	962	2	3200	0.330	0	962	2	3200	0.330
Sb Right	78	0	0	-	3	81	0	0	-	0	81	0	0	-	13	94	0	0	-	0	94	0	0	-
Eb Left	150	1	1600	0.094 *	6	156	1	1600	0.098 *	0	156	1	1600	0.098 *	55	211	1	1600	0.132 *	0	211	2	2880	0.073 *
Eb Thru	589	2	3200	0.192	24	613	2	3200	0.200	127	740	2	3200	0.240	18	758	2	3200	0.245	0	758	2	3200	0.245
Eb Right	26	0	0	-	1	27	0	0	-	0	27	0	0	-	0	27	0	0	-	0	27	0	0	-
Wb Left	57	1	1600	0.036	2	59	1	1600	0.037	11	70	1	1600	0.044	9	79	1	1600	0.050	0	79	2	2880	0.028
Wb Thru	513	2	3200	0.160 *	21	534	2	3200	0.167 *	123	657	2	3200	0.205 *	7	664	2	3200	0.207 *	0	664	2	3200	0.207 *
Wb Right	88	1	1600	0.055	4	92	1	1600	0.057	45	137	1	1600	0.085	0	137	1	1600	0.085	0	137	1	1600	0.085
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				0.687					0.711					0.808					0.884					0.825
LOS				B					C					D					D					D

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.076
Significant Impact: NO

Area Traffic Mitigation: Add 2nd EBL & WBL

3296 133 3429 541 3969 285 4255

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	1	23	0	0	1	18	770	10	39	1344	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	11	1	24	0	0	1	19	811	11	41	1415	72
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1977	2392	743	1668	2422	411	1486			821		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1977	2392	743	1668	2422	411	1486			821		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	69	97	93	100	100	100	96			95		
cM capacity (veh/h)	34	30	358	53	29	590	448			804		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	1	19	540	281	41	943	543
Volume Left	11	0	19	0	0	41	0	0
Volume Right	24	1	0	0	11	0	0	72
cSH	87	590	448	1700	1700	804	1700	1700
Volume to Capacity	0.41	0.00	0.04	0.32	0.17	0.05	0.55	0.32
Queue Length (ft)	42	0	3	0	0	4	0	0
Control Delay (s)	72.5	11.1	13.4	0.0	0.0	9.7	0.0	0.0
Lane LOS	F	B	B			A		
Approach Delay (s)	72.5	11.1	0.3			0.3		
Approach LOS	F	B						

Intersection Summary			
Average Delay	1.4	LOS A	
Intersection Capacity Utilization	51.4%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	1	24	0	0	1	19	872	10	41	1475	71
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	11	1	25	0	0	1	20	918	11	43	1553	75
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2176	2645	814	1852	2677	464	1627			928		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2176	2645	814	1852	2677	464	1627			928		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	56	95	92	100	100	100	95			94		
cM capacity (veh/h)	24	20	321	37	19	545	395			732		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	37	1	20	612	316	43	1035	592
Volume Left	11	0	20	0	0	43	0	0
Volume Right	25	1	0	0	11	0	0	75
cSH	64	545	395	1700	1700	732	1700	1700
Volume to Capacity	0.57	0.00	0.05	0.36	0.19	0.06	0.61	0.35
Queue Length (ft)	60	0	4	0	0	5	0	0
Control Delay (s)	119.0	11.6	14.6	0.0	0.0	10.2	0.0	0.0
Lane LOS	F	B	B			B		
Approach Delay (s)	119.0	11.6	0.3			0.3		
Approach LOS	F	B						

Intersection Summary			
Average Delay	1.9	LOS A	
Intersection Capacity Utilization	55.3%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	1	37	0	0	1	51	904	10	41	1553	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	16	1	39	0	0	1	54	952	11	43	1635	113
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2362	2847	874	2007	2898	481	1747			962		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2362	2847	874	2007	2898	481	1747			962		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	92	87	100	100	100	85			94		
cM capacity (veh/h)	16	13	293	24	12	531	355			711		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	56	1	54	634	328	43	1090	658
Volume Left	16	0	54	0	0	43	0	0
Volume Right	39	1	0	0	11	0	0	113
cSH	46	531	355	1700	1700	711	1700	1700
Volume to Capacity	1.22	0.00	0.15	0.37	0.19	0.06	0.64	0.39
Queue Length (ft)	131	0	13	0	0	5	0	0
Control Delay (s)	345.2	11.8	16.9	0.0	0.0	10.4	0.0	0.0
Lane LOS	F	B	C			B		
Approach Delay (s)	345.2	11.8	0.9			0.3		
Approach LOS	F	B						

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	58.8%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	30	0	59	9	0	53	7	1317	7	7	927	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	32	0	62	9	0	56	7	1386	7	7	976	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1763	2407	496	1969	2412	697	993			1394		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1763	2407	496	1969	2412	697	993			1394		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	30	100	88	71	100	85	99			98		
cM capacity (veh/h)	45	32	519	32	32	384	692			487		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	94	65	7	924	469	7	651	342
Volume Left	32	9	7	0	0	7	0	0
Volume Right	62	56	0	0	7	0	0	17
cSH	114	148	692	1700	1700	487	1700	1700
Volume to Capacity	0.82	0.44	0.01	0.54	0.28	0.02	0.38	0.20
Queue Length (ft)	120	49	1	0	0	1	0	0
Control Delay (s)	112.5	47.1	10.3	0.0	0.0	12.5	0.0	0.0
Lane LOS	F	E	B			B		
Approach Delay (s)	112.5	47.1	0.1			0.1		
Approach LOS	F	E						

Intersection Summary			
Average Delay	5.4	LOS A	
Intersection Capacity Utilization	53.3%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	31	0	61	9	0	55	7	1475	7	7	1054	17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	33	0	64	9	0	58	7	1553	7	7	1109	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1982	2708	564	2205	2713	780	1127			1560		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1982	2708	564	2205	2713	780	1127			1560		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	86	54	100	83	99			98		
cM capacity (veh/h)	30	20	469	21	20	338	615			420		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	97	67	7	1035	525	7	740	388
Volume Left	33	9	7	0	0	7	0	0
Volume Right	64	58	0	0	7	0	0	18
cSH	78	107	615	1700	1700	420	1700	1700
Volume to Capacity	1.24	0.63	0.01	0.61	0.31	0.02	0.44	0.23
Queue Length (ft)	183	78	1	0	0	1	0	0
Control Delay (s)	275.1	83.1	10.9	0.0	0.0	13.7	0.0	0.0
Lane LOS	F	F	B			B		
Approach Delay (s)	275.1	83.1	0.1			0.1		
Approach LOS	F	F						

Intersection Summary			
Average Delay	11.3	LOS B	
Intersection Capacity Utilization	58.5%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	59	0	127	9	0	55	24	1579	7	7	1095	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	62	0	134	9	0	58	25	1662	7	7	1153	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2127	2907	596	2441	2924	835	1193			1669		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2127	2907	596	2441	2924	835	1193			1669		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	70	12	100	81	96			98		
cM capacity (veh/h)	22	14	447	11	14	311	581			381		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	196	67	25	1108	561	7	768	424
Volume Left	62	9	25	0	0	7	0	0
Volume Right	134	58	0	0	7	0	0	40
cSH	62	63	581	1700	1700	381	1700	1700
Volume to Capacity	3.13	1.06	0.04	0.65	0.33	0.02	0.45	0.25
Queue Length (ft)	Err	132	3	0	0	1	0	0
Control Delay (s)	Err	241.5	11.5	0.0	0.0	14.6	0.0	0.0
Lane LOS	F	F	B			B		
Approach Delay (s)	Err	241.5	0.2			0.1		
Approach LOS	F	F						

Intersection Summary			
Average Delay	625.2		
Intersection Capacity Utilization	71.2%	ICU Level of Service	C

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Columbia Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Columbia Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu3.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	66	1	1600	0.041 *	3	69	1	1600	0.043 *	0	69	1	1600	0.043 *	0	69	1	1600	0.043 *	0	69	1	1600	0.043 *
Nb Thru	750	2	3200	0.243	30	780	2	3200	0.253	71	851	2	3200	0.275	63	914	2	3200	0.295	0	914	2	3200	0.295
Nb Right	29	0	0	-	1	30	0	0	-	0	30	0	0	-	0	30	0	0	-	0	30	0	0	-
Sb Left	65	1	1600	0.041	3	68	1	1600	0.042	0	68	1	1600	0.042	0	68	1	1600	0.042	0	68	1	1600	0.042
Sb Thru	1237	2	3200	0.408 *	49	1286	2	3200	0.424 *	77	1363	2	3200	0.448 *	90	1453	2	3200	0.476 *	0	1453	2	3200	0.476 *
Sb Right	67	0	0	-	3	70	0	0	-	0	70	0	0	-	0	70	0	0	-	0	70	0	0	-
Eb Left	22	0	0	0.000	1	23	0	0	0.000	0	23	0	0	0.000	0	23	0	0	0.000	0	23	0	0	0.000
Eb Thru	4	1	1600	0.033 *	0	4	1	1600	0.034 *	0	4	1	1600	0.034 *	0	4	1	1600	0.034 *	0	4	1	1600	0.034 *
Eb Right	27	0	0	-	1	28	0	0	-	0	28	0	0	-	0	28	0	0	-	0	28	0	0	-
Wb Left	12	0	0	0.000 *	0	12	0	0	0.000 *	0	12	0	0	0.000 *	0	12	0	0	0.000 *	0	12	0	0	0.000 *
Wb Thru	4	1	1600	0.019	0	4	1	1600	0.020	0	4	1	1600	0.020	0	4	1	1600	0.020	0	4	1	1600	0.020
Wb Right	14	0	0	-	1	15	0	0	-	0	15	0	0	-	0	15	0	0	-	0	15	0	0	-
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.582					0.601					0.625					0.653					0.653
LOS				A					B					B					B					B

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.028
Significant Impact: NO

Area Traffic Mitigation:

2297 92 2389 148 2537 153 2690

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Columbia Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Columbia Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu3.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	50	1	1600	0.031 *	2	52	1	1600	0.033 *	0	52	1	1600	0.033 *	0	52	1	1600	0.033 *	0	52	1	1600	0.033 *
Nb Thru	1077	2	3200	0.342	43	1120	2	3200	0.355	105	1225	2	3200	0.388	121	1346	2	3200	0.426	0	1346	2	3200	0.426
Nb Right	16	0	0	-	1	17	0	0	-	0	17	0	0	-	0	17	0	0	-	0	17	0	0	-
Sb Left	21	1	1600	0.013	1	22	1	1600	0.014	0	22	1	1600	0.014	0	22	1	1600	0.014	0	22	1	1600	0.014
Sb Thru	992	2	3200	0.334 *	40	1032	2	3200	0.347 *	90	1122	2	3200	0.375 *	106	1228	2	3200	0.408 *	0	1228	2	3200	0.408 *
Sb Right	76	0	0	-	3	79	0	0	-	0	79	0	0	-	0	79	0	0	-	0	79	0	0	-
Eb Left	96	0	0	0.000	4	100	0	0	0.000	0	100	0	0	0.000	0	100	0	0	0.000	0	100	0	0	0.000
Eb Thru	17	1	1600	0.109 *	1	18	1	1600	0.114 *	0	18	1	1600	0.114 *	0	18	1	1600	0.114 *	0	18	1	1600	0.114 *
Eb Right	62	0	0	-	2	64	0	0	-	0	64	0	0	-	0	64	0	0	-	0	64	0	0	-
Wb Left	42	0	0	0.000 *	2	44	0	0	0.000 *	0	44	0	0	0.000 *	0	44	0	0	0.000 *	0	44	0	0	0.000 *
Wb Thru	11	1	1600	0.101	0	11	1	1600	0.105	0	11	1	1600	0.105	0	11	1	1600	0.105	0	11	1	1600	0.105
Wb Right	108	0	0	-	4	112	0	0	-	0	112	0	0	-	0	112	0	0	-	0	112	0	0	-
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.574					0.594					0.622					0.655					0.655
LOS				A					A					B					B					B

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.033
Significant Impact: NO

Area Traffic Mitigation:

2568 103 2671 195 2866 227 3093

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Memorial Medical Center / 28th Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Memorial Medical Center / 28th Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu4.wk4

Date: 12/17/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	101	1	1600	0.063 *	4	105	1	1600	0.066 *	0	105	1	1600	0.066 *	18	123	1	1600	0.077 *	0	123	1	1600	0.077 *
Nb Thru	774	2	3200	0.257	31	805	2	3200	0.267	71	876	2	3200	0.289	63	939	2	3200	0.309	0	939	2	3200	0.309
Nb Right	48	0	0	-	2	50	0	0	-	0	50	0	0	-	0	50	0	0	-	0	50	0	0	-
Sb Left	41	1	1600	0.026	2	43	1	1600	0.027	0	43	1	1600	0.027	0	43	1	1600	0.027	0	43	1	1600	0.027
Sb Thru	1101	2	3200	0.344 *	44	1145	2	3200	0.358 *	77	1222	2	3200	0.382 *	43	1265	2	3200	0.395 *	0	1265	2	3200	0.395 *
Sb Right	152	1	1600	0.095	6	158	1	1600	0.099	0	158	1	1600	0.099	34	192	1	1600	0.120	0	192	1	1600	0.120
Eb Left	36	1	1600	0.023 *	1	37	1	1600	0.023 *	0	37	1	1600	0.023 *	11	48	1	1600	0.030 *	0	48	1	1600	0.030 *
Eb Thru	2	1	1600	0.022	0	2	1	1600	0.023	0	2	1	1600	0.023	0	2	1	1600	0.026	0	2	1	1600	0.026
Eb Right	33	0	0	-	1	34	0	0	-	0	34	0	0	-	5	39	0	0	-	0	39	0	0	-
Wb Left	9	0	0	0.000	0	9	0	0	0.000	0	9	0	0	0.000	0	9	0	0	0.000	0	9	0	0	0.000
Wb Thru	4	1	1600	0.015 *	0	4	1	1600	0.016 *	0	4	1	1600	0.016 *	0	4	1	1600	0.016 *	0	4	1	1600	0.016 *
Wb Right	11	0	0	-	0	11	0	0	-	0	11	0	0	-	0	11	0	0	-	0	11	0	0	-
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				0.565					0.583					0.607					0.638					0.638
LOS				A					A					B					B					B

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.031
Significant Impact: NO

Area Traffic Mitigation:

2312 91 2403 148 2551 174 2725

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	14	11	976	52	43	1470
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	15	12	1027	55	45	1547
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1919	541			1082	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1919	541			1082	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	73	98			93	
cM capacity (veh/h)	55	485			640	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	26	685	397	45	774	774
Volume Left	15	0	0	45	0	0
Volume Right	12	0	55	0	0	0
cSH	90	1700	1700	640	1700	1700
Volume to Capacity	0.29	0.40	0.23	0.07	0.46	0.46
Queue Length (ft)	27	0	0	6	0	0
Control Delay (s)	60.7	0.0	0.0	11.0	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	60.7	0.0		0.3		
Approach LOS	F					

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	52.8%	ICU Level of Service	A

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N-S St: Atlantic Avenue
E-W St: Memorial Medical Center / 28th Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu4.wk4

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Memorial Medical Center / 28th Street
Peak hr: PM
Annual Growth: 1.00%

Date: 12/17/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	51	1	1600	0.032 *	2	53	1	1600	0.033 *	0	53	1	1600	0.033 *	9	62	1	1600	0.039 *	0	62	1	1600	0.039 *
Nb Thru	1016	2	3200	0.323	41	1057	2	3200	0.335	105	1162	2	3200	0.368	62	1224	2	3200	0.388	0	1224	2	3200	0.388
Nb Right	16	0	0	-	1	17	0	0	-	0	17	0	0	-	0	17	0	0	-	0	17	0	0	-
Sb Left	9	1	1600	0.006	0	9	1	1600	0.006	0	9	1	1600	0.006	0	9	1	1600	0.006	0	9	1	1600	0.006
Sb Thru	1011	2	3200	0.316 *	40	1051	2	3200	0.329 *	90	1141	2	3200	0.357 *	98	1239	2	3200	0.387 *	0	1239	2	3200	0.387 *
Sb Right	67	1	1600	0.042	3	70	1	1600	0.044	0	70	1	1600	0.044	18	88	1	1600	0.055	0	88	1	1600	0.055
Eb Left	153	1	1600	0.096 *	6	159	1	1600	0.099 *	0	159	1	1600	0.099 *	45	204	1	1600	0.128 *	0	204	1	1600	0.128 *
Eb Thru	2	1	1600	0.059	0	2	1	1600	0.061	0	2	1	1600	0.061	0	2	1	1600	0.075	0	2	1	1600	0.075
Eb Right	92	0	0	-	4	96	0	0	-	0	96	0	0	-	22	118	0	0	-	0	118	0	0	-
Wb Left	18	0	0	0.000	1	19	0	0	0.000	0	19	0	0	0.000	0	19	0	0	0.000	0	19	0	0	0.000
Wb Thru	2	1	1600	0.024 *	0	2	1	1600	0.025 *	0	2	1	1600	0.025 *	0	2	1	1600	0.025 *	0	2	1	1600	0.025 *
Wb Right	19	0	0	-	1	20	0	0	-	0	20	0	0	-	0	20	0	0	-	0	20	0	0	-
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				0.588					0.606					0.634					0.699					0.699
LOS				A					B					B					B					B

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.065
Significant Impact: NO

Area Traffic Mitigation:

2456 99 2555 195 2749 254 3004

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	21	20	1442	19	9	1317
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	22	21	1518	20	9	1386
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2240	769			1538	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2240	769			1538	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	37	94			98	
cM capacity (veh/h)	35	344			428	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	43	1012	526	9	693	693
Volume Left	22	0	0	9	0	0
Volume Right	21	0	20	0	0	0
cSH	62	1700	1700	428	1700	1700
Volume to Capacity	0.69	0.60	0.31	0.02	0.41	0.41
Queue Length (ft)	75	0	0	2	0	0
Control Delay (s)	144.8	0.0	0.0	13.6	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	144.8	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	52.6%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	8	926	21	44	1113
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	1	8	975	22	46	1172
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1664	498			997	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1664	498			997	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			93	
cM capacity (veh/h)	82	517			690	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	9	650	347	46	586	586
Volume Left	1	0	0	46	0	0
Volume Right	8	0	22	0	0	0
cSH	325	1700	1700	690	1700	1700
Volume to Capacity	0.03	0.38	0.20	0.07	0.34	0.34
Queue Length (ft)	2	0	0	5	0	0
Control Delay (s)	16.4	0.0	0.0	10.6	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	16.4	0.0		0.4		
Approach LOS	C					

Intersection Summary			
Average Delay	0.3	LOS A	
Intersection Capacity Utilization	42.4%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	3	10	1032	28	54	1227
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	3	11	1086	29	57	1292
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1861	558			1116	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1861	558			1116	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	98			91	
cM capacity (veh/h)	59	473			622	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	14	724	392	57	646	646
Volume Left	3	0	0	57	0	0
Volume Right	11	0	29	0	0	0
cSH	180	1700	1700	622	1700	1700
Volume to Capacity	0.08	0.43	0.23	0.09	0.38	0.38
Queue Length (ft)	6	0	0	8	0	0
Control Delay (s)	26.6	0.0	0.0	11.4	0.0	0.0
Lane LOS	D			B		
Approach Delay (s)	26.6	0.0		0.5		
Approach LOS	D					

Intersection Summary			
Average Delay	0.4	LOS A	
Intersection Capacity Utilization	45.7%	ICU Level of Service	A

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(714) 641-1587

REALIGNMENT SCENARIO (5 PHASE SIGNAL)

N-S St: Atlantic Avenue
E-W St: East Patterson Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\realignment\2008\icu5.wk4

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ East Patterson Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	242	1	1600	0.151 *	10	252	1	1600	0.157 *	0	252	1	1600	0.157 *	23	275	1	1600	0.172 *	0	275	1	1600	0.172 *
Nb Thru	825	2	3200	0.264	33	858	2	3200	0.275	69	927	2	3200	0.298	50	977	2	3200	0.314	0	977	2	3200	0.314
Nb Right	21	0	0	-	1	22	0	0	-	6	28	0	0	-	0	28	0	0	-	0	28	0	0	-
Sb Left	44	1	1600	0.028	2	46	1	1600	0.029	8	54	1	1600	0.034	0	54	1	1600	0.034	0	54	1	1600	0.034
Sb Thru	1080	2	3200	0.338 *	43	1123	2	3200	0.351 *	69	1192	2	3200	0.373 *	47	1239	2	3200	0.387 *	0	1239	2	3200	0.387 *
Sb Right	156	1	1600	0.098	6	162	1	1600	0.101	0	162	1	1600	0.101	42	204	1	1600	0.128	0	204	1	1600	0.128
Eb Left	38	1	1600	0.024 *	2	40	1	1600	0.025 *	0	40	1	1600	0.025 *	13	53	1	1600	0.033 *	0	53	1	1600	0.033 *
Eb Thru	0	1	1600	0.021	0	0	1	1600	0.021	0	0	1	1600	0.021	0	0	1	1600	0.026	0	0	1	1600	0.026
Eb Right	33	0	0	-	1	34	0	0	-	0	34	0	0	-	8	42	0	0	-	0	42	0	0	-
Wb Left	1	0	0	0.000	0	1	0	0	0.000	2	3	0	0	0.000	0	3	0	0	0.000	0	3	0	0	0.000
Wb Thru	0	1	1600	0.006 *	0	0	1	1600	0.006 *	0	0	1	1600	0.008 *	0	0	1	1600	0.008 *	0	0	1	1600	0.008 *
Wb Right	8	0	0	-	0	8	0	0	-	2	10	0	0	-	0	10	0	0	-	0	10	0	0	-
Yellow Allowance:				0.120 **					0.120 *					0.120 *					0.120 **					0.120 **
ICU				0.639					0.659					0.683					0.720					0.720
LOS				B					B					B					C					C

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.037
Significant Impact: NO

Area Traffic Mitigation:

2448 98 2546 156 2702 183 2885

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	9	39	1042	9	12	1114
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	9	41	1097	9	13	1173
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1713	553			1106	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1713	553			1106	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	91			98	
cM capacity (veh/h)	80	477			627	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	51	731	375	13	586	586
Volume Left	9	0	0	13	0	0
Volume Right	41	0	9	0	0	0
cSH	246	1700	1700	627	1700	1700
Volume to Capacity	0.21	0.43	0.22	0.02	0.34	0.34
Queue Length (ft)	19	0	0	2	0	0
Control Delay (s)	23.3	0.0	0.0	10.9	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	23.3	0.0		0.1		
Approach LOS	C					

Intersection Summary			
Average Delay	0.6	LOS A	
Intersection Capacity Utilization	42.4%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	17	53	1177	12	16	1245
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	18	56	1239	13	17	1311
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1934	626			1252	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1934	626			1252	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	87			97	
cM capacity (veh/h)	56	427			552	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	74	826	426	17	655	655
Volume Left	18	0	0	17	0	0
Volume Right	56	0	13	0	0	0
cSH	164	1700	1700	552	1700	1700
Volume to Capacity	0.45	0.49	0.25	0.03	0.39	0.39
Queue Length (ft)	52	0	0	2	0	0
Control Delay (s)	43.9	0.0	0.0	11.7	0.0	0.0
Lane LOS	E			B		
Approach Delay (s)	43.9	0.0		0.1		
Approach LOS	E					

Intersection Summary			
Average Delay	1.3	LOS A	
Intersection Capacity Utilization	47.3%	ICU Level of Service	A

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INTERSECTION CAPACITY UTILIZATION

REALIGNMENT SCENARIO (5 PHASE SIGNAL)

N-S St: Atlantic Avenue
E-W St: East Patterson Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\realignment\2008\icu5.wk4

Atlantic Avenue @ East Patterson Street
Peak hr: PM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	84	1	1600	0.053 *	3	87	1	1600	0.055 *	0	87	1	1600	0.055 *	13	100	1	1600	0.063 *	0	100	1	1600	0.063 *
Nb Thru	991	2	3200	0.313	40	1031	2	3200	0.325	93	1124	2	3200	0.355	65	1189	2	3200	0.375	0	1189	2	3200	0.375
Nb Right	9	0	0	-	0	9	0	0	-	3	12	0	0	-	0	12	0	0	-	0	12	0	0	-
Sb Left	12	1	1600	0.008	0	12	1	1600	0.008	4	16	1	1600	0.010	0	16	1	1600	0.010	0	16	1	1600	0.010
Sb Thru	1022	2	3200	0.319 *	41	1063	2	3200	0.332 *	86	1149	2	3200	0.359 *	83	1232	2	3200	0.385 *	0	1232	2	3200	0.385 *
Sb Right	69	1	1600	0.043	3	72	1	1600	0.045	0	72	1	1600	0.045	23	95	1	1600	0.059	0	95	1	1600	0.059
Eb Left	155	1	1600	0.097 *	6	161	1	1600	0.101 *	0	161	1	1600	0.101 *	56	217	1	1600	0.136 *	0	217	1	1600	0.136 *
Eb Thru	0	1	1600	0.058	0	0	1	1600	0.060	0	0	1	1600	0.060	0	0	1	1600	0.079	0	0	1	1600	0.079
Eb Right	92	0	0	-	4	96	0	0	-	0	96	0	0	-	31	127	0	0	-	0	127	0	0	-
Wb Left	9	0	0	0.000	0	9	0	0	0.000	8	17	0	0	0.000	0	17	0	0	0.000	0	17	0	0	0.000
Wb Thru	0	1	1600	0.030 *	0	0	1	1600	0.031 *	0	0	1	1600	0.044 *	0	0	1	1600	0.044 *	0	0	1	1600	0.044 *
Wb Right	39	0	0	-	2	41	0	0	-	12	53	0	0	-	0	53	0	0	-	0	53	0	0	-
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				0.619					0.639					0.679					0.748					0.748
LOS				B					B					B					C					C

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.069
Significant Impact: NO

Area Traffic Mitigation:

2482 99 2581 206 2787 271 3058

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	26	2	21	3	5	33	133	830	18	37	761	312
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	27	2	22	3	5	35	140	874	19	39	801	328
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1633	2052	401	1665	2371	446	1129			893		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1633	2052	401	1665	2371	446	1129			893		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	35	95	96	93	79	94	77			95		
cM capacity (veh/h)	42	40	599	47	25	560	614			755		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	29	22	43	140	582	310	39	401	401	328
Volume Left	27	0	3	140	0	0	39	0	0	0
Volume Right	0	22	35	0	0	19	0	0	0	328
cSH	42	599	127	614	1700	1700	755	1700	1700	1700
Volume to Capacity	0.70	0.04	0.34	0.23	0.34	0.18	0.05	0.24	0.24	0.19
Queue Length (ft)	66	3	34	22	0	0	4	0	0	0
Control Delay (s)	201.2	11.2	47.1	12.6	0.0	0.0	10.0	0.0	0.0	0.0
Lane LOS	F	B	E	B			B			
Approach Delay (s)	119.8		47.1	1.7			0.3			
Approach LOS	F		E							

Intersection Summary			
Average Delay	4.5	LOS A	
Intersection Capacity Utilization	43.2%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	27	2	22	3	5	34	138	936	19	38	861	324
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	28	2	23	3	5	36	145	985	20	40	906	341
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1808	2282	453	1843	2613	503	1247			1005		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1808	2282	453	1843	2613	503	1247			1005		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	92	96	90	68	93	74			94		
cM capacity (veh/h)	27	27	554	32	17	514	554			685		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	31	23	44	145	657	348	40	453	453	341
Volume Left	28	0	3	145	0	0	40	0	0	0
Volume Right	0	23	36	0	0	20	0	0	0	341
cSH	27	554	91	554	1700	1700	685	1700	1700	1700
Volume to Capacity	1.13	0.04	0.48	0.26	0.39	0.20	0.06	0.27	0.27	0.20
Queue Length (ft)	90	3	52	26	0	0	5	0	0	0
Control Delay (s)	431.1	11.8	76.9	13.8	0.0	0.0	10.6	0.0	0.0	0.0
Lane LOS	F	B	F	B			B			
Approach Delay (s)	250.2		76.9	1.7			0.3			
Approach LOS	F		F							

Intersection Summary			
Average Delay	7.6	LOS A	
Intersection Capacity Utilization	46.4%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	35	2	25	3	5	34	142	1002	19	38	881	358
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	37	2	26	3	5	36	149	1055	20	40	927	377
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1872	2381	464	1935	2748	537	1304			1075		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1872	2381	464	1935	2748	537	1304			1075		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	91	95	88	60	93	72			94		
cM capacity (veh/h)	21	23	545	26	13	488	527			644		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	39	26	44	149	703	372	40	464	464	377
Volume Left	37	0	3	149	0	0	40	0	0	0
Volume Right	0	26	36	0	0	20	0	0	0	377
cSH	22	545	74	527	1700	1700	644	1700	1700	1700
Volume to Capacity	1.81	0.05	0.59	0.28	0.41	0.22	0.06	0.27	0.27	0.22
Queue Length (ft)	127	4	65	29	0	0	5	0	0	0
Control Delay (s)	765.3	11.9	107.9	14.5	0.0	0.0	11.0	0.0	0.0	0.0
Lane LOS	F	B	F	B			B			
Approach Delay (s)	461.5		107.9	1.8			0.3			
Approach LOS	F		F							

Intersection Summary			
Average Delay	14.0		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	91	10	94	5	1	32	27	907	10	35	962	60
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	96	11	99	5	1	34	28	955	11	37	1013	63
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1655	2108	506	1701	2166	483	1076			965		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1655	2108	506	1701	2166	483	1076			965		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	77	81	86	97	94	96			95		
cM capacity (veh/h)	55	46	511	37	42	530	644			709		

Volume Total	106	99	40	28	636	329	37	506	506	63
Volume Left	96	0	5	28	0	0	37	0	0	0
Volume Right	0	99	34	0	0	11	0	0	0	63
cSH	54	511	173	644	1700	1700	709	1700	1700	1700
Volume to Capacity	1.97	0.19	0.23	0.04	0.37	0.19	0.05	0.30	0.30	0.04
Queue Length (ft)	260	18	21	3	0	0	4	0	0	0
Control Delay (s)	617.2	13.7	32.0	10.8	0.0	0.0	10.4	0.0	0.0	0.0
Lane LOS	F	B	D	B			B			
Approach Delay (s)	326.3		32.0	0.3			0.3			
Approach LOS	F		D							

Average Delay	29.3	LOS D	
Intersection Capacity Utilization	47.5%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	95	10	98	5	1	33	28	1038	10	36	1093	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	100	11	103	5	1	35	29	1093	11	38	1151	65
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1867	2388	575	1916	2448	552	1216			1103		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1867	2388	575	1916	2448	552	1216			1103		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	65	78	75	96	93	95			94		
cM capacity (veh/h)	37	30	461	21	27	478	569			629		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	111	103	41	29	728	375	38	575	575	65
Volume Left	100	0	5	29	0	0	38	0	0	0
Volume Right	0	103	35	0	0	11	0	0	0	65
cSH	36	461	114	569	1700	1700	629	1700	1700	1700
Volume to Capacity	3.07	0.22	0.36	0.05	0.43	0.22	0.06	0.34	0.34	0.04
Queue Length (ft)	Err	21	36	4	0	0	5	0	0	0
Control Delay (s)	Err	15.0	53.1	11.7	0.0	0.0	11.1	0.0	0.0	0.0
Lane LOS	F	C	F	B			B			
Approach Delay (s)	5179.2		53.1	0.3			0.3			
Approach LOS	F		F							

Intersection Summary			
Average Delay	420.2	LOS F	
Intersection Capacity Utilization	51.5%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	128	10	109	5	1	33	31	1082	10	36	1189	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	135	11	115	5	1	35	33	1139	11	38	1252	84
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1997	2542	626	2031	2621	575	1336			1149		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1997	2542	626	2031	2621	575	1336			1149		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	55	73	64	95	92	94			94		
cM capacity (veh/h)	29	23	427	14	21	461	512			604		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	145	115	41	33	759	390	38	626	626	84
Volume Left	135	0	5	33	0	0	38	0	0	0
Volume Right	0	115	35	0	0	11	0	0	0	84
cSH	28	427	84	512	1700	1700	604	1700	1700	1700
Volume to Capacity	5.16	0.27	0.49	0.06	0.45	0.23	0.06	0.37	0.37	0.05
Queue Length (ft)	Err	27	52	5	0	0	5	0	0	0
Control Delay (s)	Err	16.5	83.5	12.5	0.0	0.0	11.4	0.0	0.0	0.0
Lane LOS	F	C	F	B			B			
Approach Delay (s)	5593.8		83.5	0.3			0.3			
Approach LOS	F		F							

Intersection Summary			
Average Delay	510.6		
Intersection Capacity Utilization	55.9%	ICU Level of Service	A

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu7.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	118	1	1600	0.074 *	5	123	1	1600	0.077 *	0	123	1	1600	0.077	4	127	1	1600	0.079	0	127	1	1600	0.079
Nb Thru	549	2	3200	0.206	22	571	2	3200	0.214	48	619	2	3200	0.232 *	52	671	2	3200	0.248 *	0	671	2	3200	0.248 *
Nb Right	110	0	0	-	4	114	0	0	-	9	123	0	0	-	0	123	0	0	-	0	123	0	0	-
Sb Left	85	1	1600	0.053	3	88	1	1600	0.055	20	108	1	1600	0.068 *	4	112	1	1600	0.070 *	0	112	1	1600	0.070 *
Sb Thru	550	2	3200	0.196 *	22	572	2	3200	0.204 *	30	602	2	3200	0.219	16	618	2	3200	0.225	0	618	2	3200	0.225
Sb Right	77	0	0	-	3	80	0	0	-	20	100	0	0	-	2	102	0	0	-	0	102	0	0	-
Eb Left	193	2	2880	0.067 *	8	201	2	2880	0.070 *	8	209	2	2880	0.072 *	3	212	2	2880	0.074 *	0	212	2	2880	0.074 *
Eb Thru	921	3	4800	0.207	37	958	3	4800	0.215	55	1013	3	4800	0.227	1	1014	3	4800	0.227	0	1014	3	4800	0.227
Eb Right	72	0	0	-	3	75	0	0	-	1	76	0	0	-	0	76	0	0	-	0	76	0	0	-
Wb Left	49	1	1600	0.031	2	51	1	1600	0.032	3	54	1	1600	0.034	0	54	1	1600	0.034	0	54	1	1600	0.034
Wb Thru	829	3	4800	0.215 *	33	862	3	4800	0.223 *	58	920	3	4800	0.239 *	4	924	3	4800	0.243 *	0	924	3	4800	0.243 *
Wb Right	201	0	0	-	8	209	0	0	-	18	227	0	0	-	15	242	0	0	-	0	242	0	0	-
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.732					0.754					0.791					0.815					0.815
LOS				C					C					C					D					D

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.024
Significant Impact: NO

Area Traffic Mitigation:

3754 150 3904 270 4174 101 4275

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu7.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	116	1	1600	0.073	5	121	1	1600	0.075	3	124	1	1600	0.077	3	127	1	1600	0.079	0	127	1	1600	0.079
Nb Thru	555	2	3200	0.197 *	22	577	2	3200	0.204 *	60	637	2	3200	0.224 *	27	664	2	3200	0.233 *	0	664	2	3200	0.233 *
Nb Right	74	0	0	-	3	77	0	0	-	4	81	0	0	-	0	81	0	0	-	0	81	0	0	-
Sb Left	270	1	1600	0.169 *	11	281	1	1600	0.176 *	12	293	1	1600	0.183 *	20	313	1	1600	0.196 *	0	313	1	1600	0.196 *
Sb Thru	642	2	3200	0.247	26	668	2	3200	0.256	73	741	2	3200	0.282	76	817	2	3200	0.309	0	817	2	3200	0.309
Sb Right	147	0	0	-	6	153	0	0	-	9	162	0	0	-	11	173	0	0	-	0	173	0	0	-
Eb Left	141	2	2880	0.049	6	147	2	2880	0.051	22	169	2	2880	0.059	11	180	2	2880	0.062	0	180	2	2880	0.062
Eb Thru	1089	3	4800	0.251 *	44	1133	3	4800	0.261 *	83	1216	3	4800	0.279 *	5	1221	3	4800	0.280 *	0	1221	3	4800	0.280 *
Eb Right	117	0	0	-	5	122	0	0	-	3	125	0	0	-	0	125	0	0	-	0	125	0	0	-
Wb Left	85	1	1600	0.053 *	3	88	1	1600	0.055 *	12	100	1	1600	0.063 *	0	100	1	1600	0.063 *	0	100	1	1600	0.063 *
Wb Thru	818	3	4800	0.195	33	851	3	4800	0.203	54	905	3	4800	0.217	3	908	3	4800	0.219	0	908	3	4800	0.219
Wb Right	118	0	0	-	5	123	0	0	-	14	137	0	0	-	7	144	0	0	-	0	144	0	0	-
Yellow Allowance:				**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***
ICU				**0.850**					**0.876**					**0.929**					**0.952**					**0.952**
LOS				**D**					**D**					**E**					**E**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.023
Significant Impact: YES

Area Traffic Mitigation:

4172	169	4341	349	4688	163	4853	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	52	1077	0	0	1020	6	0	0	0	4	0	28
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	55	1134	0	0	1074	6	0	0	0	4	0	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1080			1134			1631	2323	378	1564	2320	361
vC1, stage 1 conf vol							1243	1243		1077	1077	
vC2, stage 2 conf vol							387	1080		487	1243	
vCu, unblocked vol	1080			1134			1631	2323	378	1564	2320	361
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			100	100	100	91	100	95
cM capacity (veh/h)	641			612			41	23	620	48	23	636

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	55	453	453	227	268	537	275	0	34
Volume Left	55	0	0	0	0	0	0	0	4
Volume Right	0	0	0	0	0	0	6	0	29
cSH	641	1700	1700	1700	612	1700	1700	1700	251
Volume to Capacity	0.09	0.27	0.27	0.13	0.00	0.32	0.16	0.00	0.13
Queue Length (ft)	7	0	0	0	0	0	0	0	11
Control Delay (s)	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6
Lane LOS	B							A	C
Approach Delay (s)	0.5				0.0			0.0	21.6
Approach LOS								A	C

Intersection Summary				
Average Delay	0.6	LOS A		
Intersection Capacity Utilization	31.9%	ICU Level of Service		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	54	1182	0	0	1146	6	0	0	0	4	0	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	57	1244	0	0	1206	6	0	0	0	4	0	31
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1213			1244			1791	2571	415	1738	2567	405
vC1, stage 1 conf vol							1358	1358		1209	1209	
vC2, stage 2 conf vol							433	1213		528	1358	
vCu, unblocked vol	1213			1244			1791	2571	415	1738	2567	405
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			100			100	100	100	88	100	95
cM capacity (veh/h)	571			555			30	16	587	35	16	595

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	57	498	498	249	302	603	308	0	35
Volume Left	57	0	0	0	0	0	0	0	4
Volume Right	0	0	0	0	0	0	6	0	31
cSH	571	1700	1700	1700	555	1700	1700	1700	203
Volume to Capacity	0.10	0.29	0.29	0.15	0.00	0.35	0.18	0.00	0.17
Queue Length (ft)	8	0	0	0	0	0	0	0	15
Control Delay (s)	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4
Lane LOS	B							A	D
Approach Delay (s)	0.5				0.0			0.0	26.4
Approach LOS								A	D

Intersection Summary			
Average Delay	0.6	LOS A	
Intersection Capacity Utilization	34.0%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	87	1182	0	0	1148	14	0	0	0	43	0	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	92	1244	0	0	1208	15	0	0	0	45	0	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1223			1244			1867	2651	415	1814	2643	410
vC1, stage 1 conf vol							1427	1427		1216	1216	
vC2, stage 2 conf vol							440	1223		598	1427	
vCu, unblocked vol	1223			1244			1867	2651	415	1814	2643	410
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	84			100			100	100	100	0	100	94
cM capacity (veh/h)	566			555			25	13	587	29	13	591

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	92	498	498	249	302	604	317	0	82
Volume Left	92	0	0	0	0	0	0	0	45
Volume Right	0	0	0	0	0	0	15	0	37
cSH	566	1700	1700	1700	555	1700	1700	1700	51
Volume to Capacity	0.16	0.29	0.29	0.15	0.00	0.36	0.19	0.00	1.62
Queue Length (ft)	14	0	0	0	0	0	0	0	196
Control Delay (s)	12.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	480.3
Lane LOS	B							A	F
Approach Delay (s)	0.9				0.0			0.0	480.3
Approach LOS								A	F

Intersection Summary			
Average Delay	15.4		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	20	1217	0	0	1122	4	0	0	0	5	0	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	21	1281	0	0	1181	4	0	0	0	5	0	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1185			1281			1729	2508	427	1652	2506	396
vC1, stage 1 conf vol							1323	1323		1183	1183	
vC2, stage 2 conf vol							406	1185		469	1323	
vCu, unblocked vol	1185			1281			1729	2508	427	1652	2506	396
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			100	100	100	88	100	98
cM capacity (veh/h)	585			538			37	18	576	43	18	603

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	21	512	512	256	295	591	299	0	18
Volume Left	21	0	0	0	0	0	0	0	5
Volume Right	0	0	0	0	0	0	4	0	13
cSH	585	1700	1700	1700	538	1700	1700	1700	124
Volume to Capacity	0.04	0.30	0.30	0.15	0.00	0.35	0.18	0.00	0.14
Queue Length (ft)	3	0	0	0	0	0	0	0	12
Control Delay (s)	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.7
Lane LOS	B							A	E
Approach Delay (s)	0.2				0.0			0.0	38.7
Approach LOS								A	E

Intersection Summary			
Average Delay	0.4	LOS A	
Intersection Capacity Utilization	34.8%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	21	1382	0	0	1231	4	0	0	0	5	0	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	22	1455	0	0	1296	4	0	0	0	5	0	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1300			1455			1944	2799	485	1827	2797	434
vC1, stage 1 conf vol							1499	1499		1298	1298	
vC2, stage 2 conf vol							445	1300		529	1499	
vCu, unblocked vol	1300			1455			1944	2799	485	1827	2797	434
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			100	100	100	83	100	98
cM capacity (veh/h)	529			461			25	12	528	31	12	570

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	22	582	582	291	324	648	328	0	18
Volume Left	22	0	0	0	0	0	0	0	5
Volume Right	0	0	0	0	0	0	4	0	13
cSH	529	1700	1700	1700	461	1700	1700	1700	94
Volume to Capacity	0.04	0.34	0.34	0.17	0.00	0.38	0.19	0.00	0.19
Queue Length (ft)	3	0	0	0	0	0	0	0	16
Control Delay (s)	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.8
Lane LOS	B							A	F
Approach Delay (s)	0.2				0.0			0.0	51.8
Approach LOS								A	F

Intersection Summary			
Average Delay	0.4	LOS A	
Intersection Capacity Utilization	38.1%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	38	1382	0	0	1242	8	0	0	0	150	0	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	40	1455	0	0	1307	8	0	0	0	158	0	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1316			1455			2009	2851	485	1876	2846	440
vC1, stage 1 conf vol							1535	1535		1312	1312	
vC2, stage 2 conf vol							475	1316		565	1535	
vCu, unblocked vol	1316			1455			2009	2851	485	1876	2846	440
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			100	100	100	0	100	93
cM capacity (veh/h)	521			461			21	11	528	28	11	565

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	40	582	582	291	327	654	335	0	197
Volume Left	40	0	0	0	0	0	0	0	158
Volume Right	0	0	0	0	0	0	8	0	39
cSH	521	1700	1700	1700	461	1700	1700	1700	35
Volume to Capacity	0.08	0.34	0.34	0.17	0.00	0.38	0.20	0.00	5.69
Queue Length (ft)	6	0	0	0	0	0	0	0	Err
Control Delay (s)	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Err
Lane LOS	B							A	F
Approach Delay (s)	0.3				0.0			0.0	Err
Approach LOS								A	F

Intersection Summary			
Average Delay	654.6		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A

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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu9.wk4

Long Beach Boulevard @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	237	1	1600	0.148 *	9	246	1	1600	0.154 *	1	247	1	1600	0.155 *	0	247	1	1600	0.155 *	0	247	1	1600	0.155 *
Nb Thru	547	3	4800	0.132	22	569	3	4800	0.137	24	593	3	4800	0.144	28	621	3	4800	0.152	0	621	3	4800	0.152
Nb Right	87	0	0	-	3	90	0	0	-	9	99	0	0	-	8	107	0	0	-	0	107	0	0	-
Sb Left	183	1	1600	0.114	7	190	1	1600	0.119	4	194	1	1600	0.121	19	213	1	1600	0.133	0	213	1	1600	0.133
Sb Thru	736	2	3200	0.230 *	29	765	2	3200	0.239 *	16	781	2	3200	0.244 *	8	789	2	3200	0.247 *	0	789	3	4800	0.201 *
Sb Right	145	1	1600	0.091	6	151	1	1600	0.094	23	174	1	1600	0.109	0	174	1	1600	0.109	0	174	0	0	-
Eb Left	245	1	1600	0.153 *	10	255	1	1600	0.159 *	13	268	1	1600	0.167 *	15	283	1	1600	0.177 *	0	283	1	1600	0.177 *
Eb Thru	975	3	4800	0.203	39	1014	3	4800	0.211	50	1064	3	4800	0.222	4	1068	3	4800	0.223	0	1068	3	4800	0.223
Eb Right	100	1	1600	0.063	4	104	1	1600	0.065	0	104	1	1600	0.065	0	104	1	1600	0.065	0	104	1	1600	0.065
Wb Left	111	1	1600	0.069	4	115	1	1600	0.072	2	117	1	1600	0.073	3	120	1	1600	0.075	0	120	1	1600	0.075
Wb Thru	801	3	4800	0.167 *	32	833	3	4800	0.174 *	72	905	3	4800	0.189 *	5	910	3	4800	0.190 *	0	910	3	4800	0.190 *
Wb Right	95	1	1600	0.059	4	99	1	1600	0.062	4	103	1	1600	0.064	0	103	1	1600	0.064	0	103	1	1600	0.064
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.878					0.906					0.935					0.949					0.903
LOS				D					E					E					E					E

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.014
Significant Impact: NO

Area Traffic Mitigation: Convert SBR to SBT

4262 169 4431 218 4649 90 4739

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu9.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	242	1	1600	0.151 *	10	252	1	1600	0.157 *	0	252	1	1600	0.157 *	0	252	1	1600	0.157 *	0	252	1	1600	0.157 *
Nb Thru	693	3	4800	0.158	28	721	3	4800	0.164	32	753	3	4800	0.176	15	768	3	4800	0.180	0	768	3	4800	0.180
Nb Right	63	0	0	-	3	66	0	0	-	25	91	0	0	-	4	95	0	0	-	0	95	0	0	-
Sb Left	181	1	1600	0.113	7	188	1	1600	0.118	5	193	1	1600	0.121	10	203	1	1600	0.127	0	203	1	1600	0.127
Sb Thru	747	2	3200	0.233 *	30	777	2	3200	0.243 *	38	815	2	3200	0.255 *	40	855	2	3200	0.267 *	0	855	3	4800	0.197 *
Sb Right	74	1	1600	0.046	3	77	1	1600	0.048	14	91	1	1600	0.057	0	91	1	1600	0.057	0	91	0	0	-
Eb Left	187	1	1600	0.117	7	194	1	1600	0.122	25	219	1	1600	0.137	7	226	1	1600	0.142	0	226	1	1600	0.142
Eb Thru	1085	3	4800	0.226 *	43	1128	3	4800	0.235 *	77	1205	3	4800	0.251 *	3	1208	3	4800	0.252 *	0	1208	3	4800	0.252 *
Eb Right	111	1	1600	0.069	4	115	1	1600	0.072	1	116	1	1600	0.073	0	116	1	1600	0.073	0	116	1	1600	0.073
Wb Left	161	1	1600	0.101 *	6	167	1	1600	0.105 *	17	184	1	1600	0.115 *	11	195	1	1600	0.122 *	0	195	1	1600	0.122 *
Wb Thru	811	3	4800	0.169	32	843	3	4800	0.176	43	886	3	4800	0.185	25	911	3	4800	0.190	0	911	3	4800	0.190
Wb Right	71	1	1600	0.044	3	74	1	1600	0.046	7	81	1	1600	0.051	0	81	1	1600	0.051	0	81	1	1600	0.051
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.891					0.920					0.958					0.978					0.908
LOS				D					E					E					E					E

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.020
Significant Impact: NO

Area Traffic Mitigation: Convert SBR to SBT

4426 176 4602 284 4887 115 5001

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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: 27th Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu10.wk4

Long Beach Boulevard @ 27th Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	689	2	3200	0.215	28	717	2	3200	0.224	42	759	2	3200	0.237	37	796	2	3200	0.249	0	796	2	3200	0.249
Nb Right	72	1	1600	0.045	3	75	1	1600	0.047	0	75	1	1600	0.047	7	82	1	1600	0.051	0	82	1	1600	0.051
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	933	2	3200	0.292 *	37	970	2	3200	0.303 *	43	1013	2	3200	0.317 *	28	1041	2	3200	0.325 *	0	1041	2	3200	0.325 *
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	99	1	1600	0.062 *	4	103	1	1600	0.064 *	0	103	1	1600	0.064 *	6	109	1	1600	0.068 *	0	109	1	1600	0.068 *
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.454					0.467					0.481					0.493					0.493
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.012
Significant Impact: NO

Area Traffic Mitigation:

1793 72 1865 85 1950 78 2028

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ 27th Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: 27th Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu10.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	908	2	3200	0.284	36	944	2	3200	0.295	64	1008	2	3200	0.315	20	1028	2	3200	0.321	0	1028	2	3200	0.321
Nb Right	20	1	1600	0.013	1	21	1	1600	0.013	0	21	1	1600	0.013	3	24	1	1600	0.015	0	24	1	1600	0.015
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	954	2	3200	0.298 *	38	992	2	3200	0.310 *	53	1045	2	3200	0.327 *	50	1095	2	3200	0.342 *	0	1095	2	3200	0.342 *
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	290	1	1600	0.181 *	12	302	1	1600	0.189 *	0	302	1	1600	0.189 *	25	327	1	1600	0.204 *	0	327	1	1600	0.204 *
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.579					0.599					0.616					0.646					0.646
LOS				A					A					B					B					B

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.030
Significant Impact: NO

Area Traffic Mitigation:

2172 87 2259 117 2376 98 2474

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1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: Memorial Medical Center
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu11.wk4

Long Beach Boulevard @ Memorial Medical Center
Peak hr: AM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	833	2	3200	0.260	33	866	2	3200	0.271	42	908	2	3200	0.284	31	939	2	3200	0.294 *	0	939	2	3200	0.294 *
Nb Right	15	1	1600	0.009	1	16	1	1600	0.010	0	16	1	1600	0.010	12	28	1	1600	0.017	0	28	1	1600	0.017
Sb Left	39	1	1600	0.024	2	41	1	1600	0.025	0	41	1	1600	0.025	27	68	1	1600	0.042 *	0	68	1	1600	0.042 *
Sb Thru	957	2	3200	0.299 *	38	995	2	3200	0.311 *	44	1039	2	3200	0.325 *	23	1062	2	3200	0.332	0	1062	2	3200	0.332
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	3	1	1600	0.002	0	3	1	1600	0.002	0	3	1	1600	0.002	4	7	1	1600	0.004	0	7	1	1600	0.004
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	13	1	1600	0.008	1	14	1	1600	0.008	0	14	1	1600	0.008	8	22	1	1600	0.013	0	22	1	1600	0.013
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				0.421					0.433					0.447					0.460					0.460
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.013
Significant Impact: NO

Area Traffic Mitigation:

1860 75 1935 86 2021 105 2126

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Memorial Medical Center
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Memorial Medical Center
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu11.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	1233	2	3200	0.385 *	49	1282	2	3200	0.401 *	64	1346	2	3200	0.421 *	38	1384	2	3200	0.433 *	0	1384	2	3200	0.433 *
Nb Right	28	1	1600	0.018	1	29	1	1600	0.018	0	29	1	1600	0.018	7	36	1	1600	0.023	0	36	1	1600	0.023
Sb Left	37	1	1600	0.023 *	1	38	1	1600	0.024 *	0	38	1	1600	0.024 *	14	52	1	1600	0.033 *	0	52	1	1600	0.033 *
Sb Thru	1031	2	3200	0.322	41	1072	2	3200	0.335	57	1129	2	3200	0.353	33	1162	2	3200	0.363	0	1162	2	3200	0.363
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	40	1	1600	0.025	2	42	1	1600	0.026	0	42	1	1600	0.026	17	59	1	1600	0.037	0	59	1	1600	0.037
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	46	1	1600	0.029	2	48	1	1600	0.030	0	48	1	1600	0.030	36	84	1	1600	0.052	0	84	1	1600	0.052
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**0.553**					**0.571**					**0.591**					**0.623**					**0.623**
LOS				**A**					**A**					**A**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.032
Significant Impact: NO

Area Traffic Mitigation:

2415 96 2511 121 2633 145 2777

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Columbia Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Columbia Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu12.wk4
E-W Split Phase

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	4	1	1600	0.003	0	4	1	1600	0.003	0	4	1	1600	0.003	0	4	1	1600	0.003	0	4	1	1600	0.003
Nb Thru	803	2	3200	0.275 *	32	835	2	3200	0.286 *	42	877	2	3200	0.299 *	39	916	2	3200	0.311 *	0	916	2	3200	0.311 *
Nb Right	77	0	0	-	3	80	0	0	-	0	80	0	0	-	0	80	0	0	-	0	80	0	0	-
Sb Left	81	1	1600	0.051 *	3	84	1	1600	0.053 *	0	84	1	1600	0.053 *	0	84	1	1600	0.053 *	0	84	1	1600	0.053 *
Sb Thru	989	2	3200	0.313	40	1029	2	3200	0.326	44	1073	2	3200	0.339	52	1125	2	3200	0.356	0	1125	2	3200	0.356
Sb Right	13	0	0	-	1	14	0	0	-	0	14	0	0	-	0	14	0	0	-	0	14	0	0	-
Eb Left	6	0	0	0.000	0	6	0	0	0.000	0	6	0	0	0.000	0	6	0	0	0.000	0	6	0	0	0.000
Eb Thru	3	1	1600	0.016 *	0	3	1	1600	0.016 *	0	3	1	1600	0.016 *	0	3	1	1600	0.016 *	0	3	1	1600	0.016 *
Eb Right	16	0	0	-	1	17	0	0	-	0	17	0	0	-	0	17	0	0	-	0	17	0	0	-
Wb Left	11	0	0	0.000	0	11	0	0	0.000	0	11	0	0	0.000	0	11	0	0	0.000	0	11	0	0	0.000
Wb Thru	2	1	1600	0.019 *	0	2	1	1600	0.020 *	0	2	1	1600	0.020 *	0	2	1	1600	0.020 *	0	2	1	1600	0.020 *
Wb Right	18	0	0	-	1	19	0	0	-	0	19	0	0	-	0	19	0	0	-	0	19	0	0	-
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.541					0.555					0.568					0.580					0.580
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.012
Significant Impact: NO

Area Traffic Mitigation:

2023 81 2104 86 2190 91 2281

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Columbia Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Columbia Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu12.wk4
E-W Split Phase

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	11	1	1600	0.007	0	11	1	1600	0.007	0	11	1	1600	0.007	0	11	1	1600	0.007	0	11	1	1600	0.007
Nb Thru	1341	2	3200	0.432 *	54	1395	2	3200	0.449 *	64	1459	2	3200	0.469 *	74	1533	2	3200	0.493 *	0	1533	2	3200	0.493 *
Nb Right	42	0	0	-	2	44	0	0	-	0	44	0	0	-	0	44	0	0	-	0	44	0	0	-
Sb Left	41	1	1600	0.026 *	2	43	1	1600	0.027 *	0	43	1	1600	0.027 *	0	43	1	1600	0.027 *	0	43	1	1600	0.027 *
Sb Thru	857	2	3200	0.272	34	891	2	3200	0.283	57	948	2	3200	0.301	48	996	2	3200	0.316	0	996	2	3200	0.316
Sb Right	14	0	0	-	1	15	0	0	-	0	15	0	0	-	0	15	0	0	-	0	15	0	0	-
Eb Left	10	0	0	0.000	0	10	0	0	0.000	0	10	0	0	0.000	0	10	0	0	0.000	0	10	0	0	0.000
Eb Thru	5	1	1600	0.028 *	0	5	1	1600	0.029 *	0	5	1	1600	0.029 *	0	5	1	1600	0.029 *	0	5	1	1600	0.029 *
Eb Right	29	0	0	-	1	30	0	0	-	0	30	0	0	-	0	30	0	0	-	0	30	0	0	-
Wb Left	63	0	0	0.000	3	66	0	0	0.000	0	66	0	0	0.000	0	66	0	0	0.000	0	66	0	0	0.000
Wb Thru	6	1	1600	0.123 *	0	6	1	1600	0.127 *	0	6	1	1600	0.127 *	0	6	1	1600	0.127 *	0	6	1	1600	0.127 *
Wb Right	127	0	0	-	5	132	0	0	-	0	132	0	0	-	0	132	0	0	-	0	132	0	0	-
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.789					0.812					0.832					0.856					0.856
LOS				C					D					D					D					D

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.024
Significant Impact: NO

Area Traffic Mitigation:

2546 102 2648 121 2769 122 2891

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu13.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	25	1	1600	0.016 *	1	26	1	1600	0.016 *	0	26	1	1600	0.016 *	3	29	1	1600	0.018 *	0	29	1	1600	0.018 *
Nb Thru	721	2	3200	0.253	29	750	2	3200	0.263	25	775	2	3200	0.276	12	787	2	3200	0.288	0	787	2	3200	0.246
Nb Right	88	0	0	-	4	92	0	0	-	17	109	0	0	-	25	134	0	0	-	0	134	1	1600	0.083
Sb Left	70	1	1600	0.044	3	73	1	1600	0.046	19	92	1	1600	0.057	37	129	1	1600	0.081	0	129	1	1600	0.081
Sb Thru	976	2	3200	0.351 *	39	1015	2	3200	0.365 *	29	1044	2	3200	0.374 *	38	1082	2	3200	0.386 *	0	1082	2	3200	0.338 *
Sb Right	147	0	0	-	6	153	0	0	-	0	153	0	0	-	0	153	0	0	-	0	153	1	1600	0.096
Eb Left	145	1	1600	0.091 *	6	151	1	1600	0.094 *	0	151	1	1600	0.094	0	151	1	1600	0.094	0	151	1	1600	0.094
Eb Thru	374	1	1600	0.279	15	389	1	1600	0.291	35	424	1	1600	0.314 *	11	435	1	1600	0.326 *	0	435	1	1600	0.326 *
Eb Right	73	0	0	-	3	76	0	0	-	2	78	0	0	-	8	86	0	0	-	0	86	0	0	-
Wb Left	144	1	1600	0.090	6	150	1	1600	0.094	12	162	1	1600	0.101 *	4	166	1	1600	0.104 *	0	166	1	1600	0.104 *
Wb Thru	449	1	1600	0.281 *	18	467	1	1600	0.292 *	23	490	1	1600	0.306	2	492	1	1600	0.307	0	492	1	1600	0.307
Wb Right	80	1	1600	0.050	3	83	1	1600	0.052	13	96	1	1600	0.060	10	106	1	1600	0.066	0	106	1	1600	0.066
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				0.859					0.887					0.925					0.954					0.906
LOS				D					D					E					E					E

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.029
Significant Impact: YES

Area Traffic Mitigation: Add NBR and SBR

3292 133 3425 175 3600 150 3750

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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu13.wk4

Long Beach Boulevard @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	67	1	1600	0.042	3	70	1	1600	0.044	3	73	1	1600	0.045	11	84	1	1600	0.052	0	84	1	1600	0.052
Nb Thru	1138	2	3200	0.403 *	46	1184	2	3200	0.419 *	38	1222	2	3200	0.438 *	50	1272	2	3200	0.458 *	0	1272	2	3200	0.397 *
Nb Right	152	0	0	-	6	158	0	0	-	23	181	0	0	-	13	194	0	0	-	0	194	1	1600	0.121
Sb Left	64	1	1600	0.040 *	3	67	1	1600	0.042 *	47	114	1	1600	0.071 *	20	134	1	1600	0.083 *	0	134	1	1600	0.083 *
Sb Thru	791	2	3200	0.268	32	823	2	3200	0.279	30	853	2	3200	0.288	20	873	2	3200	0.294	0	873	2	3200	0.273
Sb Right	67	0	0	-	3	70	0	0	-	0	70	0	0	-	0	70	0	0	-	0	70	1	1600	0.044
Eb Left	165	1	1600	0.103	7	172	1	1600	0.107	0	172	1	1600	0.107	0	172	1	1600	0.107	0	172	1	1600	0.107
Eb Thru	538	1	1600	0.366 *	22	560	1	1600	0.381 *	58	618	1	1600	0.417 *	5	623	1	1600	0.423 *	0	623	1	1600	0.423 *
Eb Right	48	0	0	-	2	50	0	0	-	0	50	0	0	-	4	54	0	0	-	0	54	0	0	-
Wb Left	120	1	1600	0.075 *	5	125	1	1600	0.078 *	27	152	1	1600	0.095 *	23	175	1	1600	0.109 *	0	175	1	1600	0.109 *
Wb Thru	477	1	1600	0.298	19	496	1	1600	0.310	60	556	1	1600	0.348	14	570	1	1600	0.356	0	570	1	1600	0.356
Wb Right	83	1	1600	0.052	3	86	1	1600	0.054	37	123	1	1600	0.077	50	173	1	1600	0.108	0	173	1	1600	0.108
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				1.004					1.040					1.141					1.193					1.132
LOS				F					F					F					F					F

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.052
Significant Impact: YES

Area Traffic Mitigation: Add NBR and SBR

3710 151 3861 323 4181 210 4394

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INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: Wardlow Road
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu14.wk4

Atlantic Avenue @ Wardlow Road
Peak hr: AM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	104	1	1600	0.065 *	4	108	1	1600	0.068 *	6	114	1	1600	0.071 *	0	114	1	1600	0.071 *	0	114	1	1600	0.071 *
Nb Thru	642	2	3200	0.213	26	668	2	3200	0.222	55	723	2	3200	0.239	10	733	2	3200	0.243	0	733	2	3200	0.243
Nb Right	40	0	0	-	2	42	0	0	-	0	42	0	0	-	2	44	0	0	-	0	44	0	0	-
Sb Left	95	1	1600	0.059	4	99	1	1600	0.062	1	100	1	1600	0.062	0	100	1	1600	0.062	0	100	1	1600	0.062
Sb Thru	906	2	3200	0.348 *	36	942	2	3200	0.362 *	78	1020	2	3200	0.388 *	38	1058	2	3200	0.400 *	0	1058	2	3200	0.400 *
Sb Right	208	0	0	-	8	216	0	0	-	4	220	0	0	-	0	220	0	0	-	0	220	0	0	-
Eb Left	175	1	1600	0.109 *	7	182	1	1600	0.114 *	2	184	1	1600	0.115 *	0	184	1	1600	0.115 *	0	184	1	1600	0.115 *
Eb Thru	441	2	3200	0.153	18	459	2	3200	0.159	5	464	2	3200	0.164	0	464	2	3200	0.164	0	464	2	3200	0.164
Eb Right	48	0	0	-	2	50	0	0	-	10	60	0	0	-	0	60	0	0	-	0	60	0	0	-
Wb Left	106	1	1600	0.066	4	110	1	1600	0.069	1	111	1	1600	0.070	7	118	1	1600	0.074	0	118	1	1600	0.074
Wb Thru	501	2	3200	0.172 *	20	521	2	3200	0.178 *	7	528	2	3200	0.181 *	0	528	2	3200	0.181 *	0	528	2	3200	0.181 *
Wb Right	48	0	0	-	2	50	0	0	-	0	50	0	0	-	0	50	0	0	-	0	50	0	0	-
Yellow Allowance:				**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***
ICU				**0.834**					**0.862**					**0.895**					**0.907**					**0.907**
LOS				**D**					**D**					**E**					**E**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.012
Significant Impact: NO

Area Traffic Mitigation:

3314 133 3447 169 3616 57 3673

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INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: Wardlow Road
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu14.wk4

Atlantic Avenue @ Wardlow Road
Peak hr: PM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	152	1	1600	0.095 *	6	158	1	1600	0.099 *	12	170	1	1600	0.106 *	0	170	1	1600	0.106	0	170	1	1600	0.106
Nb Thru	1001	2	3200	0.332	40	1041	2	3200	0.345	105	1146	2	3200	0.379	51	1197	2	3200	0.398 *	0	1197	2	3200	0.398 *
Nb Right	62	0	0	-	2	64	0	0	-	1	65	0	0	-	10	75	0	0	-	0	75	0	0	-
Sb Left	90	1	1600	0.056	4	94	1	1600	0.059	1	95	1	1600	0.059	0	95	1	1600	0.059 *	0	95	1	1600	0.059 *
Sb Thru	756	2	3200	0.303 *	30	786	2	3200	0.315 *	74	860	2	3200	0.339 *	19	879	2	3200	0.345	0	879	2	3200	0.345
Sb Right	212	0	0	-	8	220	0	0	-	5	225	0	0	-	0	225	0	0	-	0	225	0	0	-
Eb Left	186	1	1600	0.116 *	7	193	1	1600	0.121 *	2	195	1	1600	0.122 *	0	195	1	1600	0.122 *	0	195	1	1600	0.122 *
Eb Thru	564	2	3200	0.197	23	587	2	3200	0.204	9	596	2	3200	0.209	0	596	2	3200	0.209	0	596	2	3200	0.209
Eb Right	65	0	0	-	3	68	0	0	-	6	74	0	0	-	0	74	0	0	-	0	74	0	0	-
Wb Left	73	1	1600	0.046	3	76	1	1600	0.047	0	76	1	1600	0.047	5	81	1	1600	0.051	0	81	1	1600	0.051
Wb Thru	366	2	3200	0.141 *	15	381	2	3200	0.147 *	8	389	2	3200	0.150 *	0	389	2	3200	0.150 *	0	389	2	3200	0.150 *
Wb Right	86	0	0	-	3	89	0	0	-	1	90	0	0	-	0	90	0	0	-	0	90	0	0	-
Yellow Allowance:				**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***
ICU				**0.795**					**0.822**					**0.857**					**0.869**					**0.869**
LOS				**C**					**D**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.012
Significant Impact: NO

Area Traffic Mitigation:

3613 144 3757 224 3982 85 4066

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INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: I-405 SB Ramps
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu15.wk4

Atlantic Avenue @ I-405 SB Ramps
Peak hr: AM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	631	2	3200	0.262	25	656	2	3200	0.272	99	755	2	3200	0.311	18	773	2	3200	0.321	0	773	2	3200	0.321
Nb Right	207	0	0	-	8	215	0	0	-	24	239	0	0	-	16	255	0	0	-	0	255	0	0	-
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	1056	2	3200	0.330 *	42	1098	2	3200	0.343 *	91	1189	2	3200	0.372 *	101	1290	2	3200	0.403 *	0	1290	2	3200	0.403 *
Sb Right	265	Free	9999999	0.000	11	276	Free	9999999	0.000	1	277	Free	9999999	0.000	0	277	Free	9999999	0.000	0	277	Free	9999999	0.000
Eb Left	156	1	1600	0.098	6	162	1	1600	0.101	1	163	1	1600	0.102	0	163	1	1600	0.102	0	163	1	1600	0.102
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	246	1	1600	0.154 *	10	256	1	1600	0.160 *	38	294	1	1600	0.184 *	19	313	1	1600	0.196 *	0	313	1	1600	0.196 *
Wb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.584**					**0.603**					**0.656**					**0.699**					**0.699**
LOS				**A**					**B**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.043
Significant Impact: NO

Area Traffic Mitigation:

2561 102 2663 254 2917 154 3071

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ I-405 SB Ramps
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: I-405 SB Ramps
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu15.wk4

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	1027	2	3200	0.432 *	41	1068	2	3200	0.449 *	181	1249	2	3200	0.521 *	86	1335	2	3200	0.571 *	0	1335	2	3200	0.571 *
Nb Right	354	0	0	-	14	368	0	0	-	49	417	0	0	-	76	493	0	0	-	0	493	0	0	-
Sb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Sb Thru	859	2	3200	0.268	34	893	2	3200	0.279	78	971	2	3200	0.304	54	1025	2	3200	0.320	0	1025	2	3200	0.320
Sb Right	250	Free	9999999	0.000	10	260	Free	9999999	0.000	3	263	Free	9999999	0.000	0	263	Free	9999999	0.000	0	263	Free	9999999	0.000
Eb Left	242	1	1600	0.151	10	252	1	1600	0.157	2	254	1	1600	0.159	0	254	1	1600	0.159	0	254	1	1600	0.159
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	117	1	1600	0.073	5	122	1	1600	0.076	84	206	1	1600	0.129	10	216	1	1600	0.135	0	216	1	1600	0.135
Wb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.683**					**0.706**					**0.780**					**0.830**					**0.830**
LOS				**B**					**C**					**C**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.050
Significant Impact: NO

Area Traffic Mitigation:

2849 114 2963 397 3360 226 3586

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N-S St: Atlantic Avenue
E-W St: Hill Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu16.wk4

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Hill Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	49	1	1600	0.031 *	2	51	1	1600	0.032 *	0	51	1	1600	0.032 *	0	51	1	1600	0.032 *	0	51	1	1600	0.032 *
Nb Thru	548	2	3200	0.179	22	570	2	3200	0.187	45	615	2	3200	0.201	58	673	2	3200	0.219	0	673	2	3200	0.219
Nb Right	26	0	0	-	1	27	0	0	-	0	27	0	0	-	0	27	0	0	-	0	27	0	0	-
Sb Left	37	1	1600	0.023	1	38	1	1600	0.024	0	38	1	1600	0.024	0	38	1	1600	0.024	0	38	1	1600	0.024
Sb Thru	712	2	3200	0.229 *	28	740	2	3200	0.239 *	24	764	2	3200	0.246 *	16	780	2	3200	0.251 *	0	780	2	3200	0.251 *
Sb Right	22	0	0	-	1	23	0	0	-	0	23	0	0	-	0	23	0	0	-	0	23	0	0	-
Eb Left	28	0	0	0.000 *	1	29	0	0	0.000 *	0	29	0	0	0.000 *	0	29	0	0	0.000 *	0	29	0	0	0.000 *
Eb Thru	185	1	1600	0.149	7	192	1	1600	0.155	25	217	1	1600	0.171	0	217	1	1600	0.171	0	217	1	1600	0.171
Eb Right	26	0	0	-	1	27	0	0	-	0	27	0	0	-	0	27	0	0	-	0	27	0	0	-
Wb Left	37	0	0	0.000	1	38	0	0	0.000	0	38	0	0	0.000	0	38	0	0	0.000	0	38	0	0	0.000
Wb Thru	235	1	1600	0.208 *	9	244	1	1600	0.216 *	20	264	1	1600	0.228 *	0	264	1	1600	0.228 *	0	264	1	1600	0.228 *
Wb Right	60	0	0	-	2	62	0	0	-	0	62	0	0	-	0	62	0	0	-	0	62	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.568**					**0.587**					**0.606**					**0.611**					**0.611**
LOS				**A**					**A**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.005
Significant Impact: NO

Area Traffic Mitigation:

1965 76 2041 114 2155 74 2229

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Hill Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Hill Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu16.wk4

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	45	1	1600	0.028	2	47	1	1600	0.029	0	47	1	1600	0.029	0	47	1	1600	0.029 *	0	47	1	1600	0.029 *
Nb Thru	710	2	3200	0.230 *	28	738	2	3200	0.239 *	47	785	2	3200	0.254 *	30	815	2	3200	0.263	0	815	2	3200	0.263
Nb Right	26	0	0	-	1	27	0	0	-	0	27	0	0	-	0	27	0	0	-	0	27	0	0	-
Sb Left	81	1	1600	0.051 *	3	84	1	1600	0.053 *	0	84	1	1600	0.053 *	0	84	1	1600	0.053	0	84	1	1600	0.053
Sb Thru	720	2	3200	0.245	29	749	2	3200	0.255	66	815	2	3200	0.276	76	891	2	3200	0.300 *	0	891	2	3200	0.300 *
Sb Right	65	0	0	-	3	68	0	0	-	0	68	0	0	-	0	68	0	0	-	0	68	0	0	-
Eb Left	43	0	0	0.000	2	45	0	0	0.000	0	45	0	0	0.000	0	45	0	0	0.000	0	45	0	0	0.000
Eb Thru	223	1	1600	0.195 *	9	232	1	1600	0.203 *	7	239	1	1600	0.207 *	0	239	1	1600	0.207 *	0	239	1	1600	0.207 *
Eb Right	46	0	0	-	2	48	0	0	-	0	48	0	0	-	0	48	0	0	-	0	48	0	0	-
Wb Left	33	0	0	0.000 *	1	34	0	0	0.000 *	0	34	0	0	0.000 *	0	34	0	0	0.000 *	0	34	0	0	0.000 *
Wb Thru	172	1	1600	0.169	7	179	1	1600	0.176	6	185	1	1600	0.180	0	185	1	1600	0.180	0	185	1	1600	0.180
Wb Right	66	0	0	-	3	69	0	0	-	0	69	0	0	-	0	69	0	0	-	0	69	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.576**					**0.595**					**0.614**					**0.636**					**0.636**
LOS				**A**					**A**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.022
Significant Impact: NO

Area Traffic Mitigation:

2230 90 2320 126 2445 106 2552

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INTERSECTION CAPACITY UTILIZATION

N-S St: California Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu17.wk4

California Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	24	1	1600	0.015	1	25	1	1600	0.016	3	28	1	1600	0.017	0	28	1	1600	0.017	0	28	1	1600	0.017
Nb Thru	249	1	1600	0.173 *	10	259	1	1600	0.179 *	16	275	1	1600	0.191 *	0	275	1	1600	0.191 *	0	275	1	1600	0.191 *
Nb Right	27	0	0	-	1	28	0	0	-	2	30	0	0	-	0	30	0	0	-	0	30	0	0	-
Sb Left	18	1	1600	0.011 *	1	19	1	1600	0.012 *	13	32	1	1600	0.020 *	0	32	1	1600	0.020 *	0	32	1	1600	0.020 *
Sb Thru	118	1	1600	0.084	5	123	1	1600	0.088	12	135	1	1600	0.095	0	135	1	1600	0.095	0	135	1	1600	0.095
Sb Right	17	0	0	-	1	18	0	0	-	0	18	0	0	-	0	18	0	0	-	0	18	0	0	-
Eb Left	41	1	1600	0.026 *	2	43	1	1600	0.027 *	1	44	1	1600	0.027 *	0	44	1	1600	0.027 *	0	44	1	1600	0.027 *
Eb Thru	383	2	3200	0.133	15	398	2	3200	0.139	100	498	2	3200	0.174	8	506	2	3200	0.177	0	506	2	3200	0.177
Eb Right	44	0	0	-	2	46	0	0	-	13	59	0	0	-	0	59	0	0	-	0	59	0	0	-
Wb Left	30	1	1600	0.019	1	31	1	1600	0.020	7	38	1	1600	0.024	0	38	1	1600	0.024	0	38	1	1600	0.024
Wb Thru	763	2	3200	0.238 *	31	794	2	3200	0.248 *	74	868	2	3200	0.271 *	31	899	2	3200	0.281 *	0	899	2	3200	0.281 *
Wb Right	22	1	1600	0.014	1	23	1	1600	0.014	19	42	1	1600	0.026	0	42	1	1600	0.026	0	42	1	1600	0.026
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.548**					**0.566**					**0.609**					**0.619**					**0.619**
LOS				**A**					**A**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.010
Significant Impact: NO

Area Traffic Mitigation:

1736 71 1807 260 2067 39 2106

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INTERSECTION CAPACITY UTILIZATION

California Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: California Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu17.wk4

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	14	1	1600	0.009 *	1	15	1	1600	0.009 *	15	30	1	1600	0.018 *	0	30	1	1600	0.018 *	0	30	1	1600	0.018 *
Nb Thru	171	1	1600	0.118	7	178	1	1600	0.123	25	203	1	1600	0.142	0	203	1	1600	0.142	0	203	1	1600	0.142
Nb Right	18	0	0	-	1	19	0	0	-	6	25	0	0	-	0	25	0	0	-	0	25	0	0	-
Sb Left	33	1	1600	0.021	1	34	1	1600	0.021	47	81	1	1600	0.051	0	81	1	1600	0.051	0	81	1	1600	0.051
Sb Thru	232	1	1600	0.153 *	9	241	1	1600	0.159 *	26	267	1	1600	0.176 *	0	267	1	1600	0.176 *	0	267	1	1600	0.176 *
Sb Right	13	0	0	-	1	14	0	0	-	1	15	0	0	-	0	15	0	0	-	0	15	0	0	-
Eb Left	13	1	1600	0.008	1	14	1	1600	0.008	1	15	1	1600	0.009	0	15	1	1600	0.009	0	15	1	1600	0.009
Eb Thru	760	2	3200	0.247 *	30	790	2	3200	0.257 *	205	995	2	3200	0.323 *	40	1035	2	3200	0.335 *	0	1035	2	3200	0.335 *
Eb Right	31	0	0	-	1	32	0	0	-	5	37	0	0	-	0	37	0	0	-	0	37	0	0	-
Wb Left	37	1	1600	0.023 *	1	38	1	1600	0.024 *	3	41	1	1600	0.026 *	0	41	1	1600	0.026 *	0	41	1	1600	0.026 *
Wb Thru	545	2	3200	0.170	22	567	2	3200	0.177	178	745	2	3200	0.233	16	761	2	3200	0.238	0	761	2	3200	0.238
Wb Right	9	1	1600	0.006	0	9	1	1600	0.006	39	48	1	1600	0.030	0	48	1	1600	0.030	0	48	1	1600	0.030
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.532**					**0.549**					**0.643**					**0.655**					**0.655**
LOS				**A**					**A**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.012
Significant Impact: NO

Area Traffic Mitigation:

1876 75 1951 551 2502 56 2558

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INTERSECTION CAPACITY UTILIZATION

N-S St: California Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu18.wk4

California Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2008

Movement	2004 EXISTING TRAFFIC Volume	Lanes	Capacity	V/C Ratio	2008 WITH AMBIENT GROWTH Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	2008 WITH CUMULATIVE PROJECTS Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	2008 WITH PROJECT TRAFFIC Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	2008 WITH MITIGATION Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	49	0	0	0.000	2	51	0	0	0.000	0	51	0	0	0.000	0	51	0	0	0.000	0	51	0	0	0.000
Nb Thru	182	1	1600	0.176 *	7	189	1	1600	0.183 *	15	204	1	1600	0.193 *	0	204	1	1600	0.193 *	0	204	1	1600	0.193 *
Nb Right	51	0	0	-	2	53	0	0	-	1	54	0	0	-	0	54	0	0	-	0	54	0	0	-
Sb Left	30	0	0	0.000 *	1	31	0	0	0.000 *	2	33	0	0	0.000 *	0	33	0	0	0.000 *	0	33	0	0	0.000 *
Sb Thru	109	1	1600	0.102	4	113	1	1600	0.106	12	125	1	1600	0.116	0	125	1	1600	0.116	0	125	1	1600	0.116
Sb Right	24	0	0	-	1	25	0	0	-	2	27	0	0	-	0	27	0	0	-	0	27	0	0	-
Eb Left	29	1	1600	0.018	1	30	1	1600	0.019	12	42	1	1600	0.026 *	0	42	1	1600	0.026 *	0	42	1	1600	0.026 *
Eb Thru	981	3	4800	0.209 *	39	1020	3	4800	0.218 *	78	1098	3	4800	0.234	5	1103	3	4800	0.235	0	1103	3	4800	0.235
Eb Right	23	0	0	-	1	24	0	0	-	0	24	0	0	-	0	24	0	0	-	0	24	0	0	-
Wb Left	34	1	1600	0.021 *	1	35	1	1600	0.022 *	0	35	1	1600	0.022	0	35	1	1600	0.022	0	35	1	1600	0.022
Wb Thru	951	3	4800	0.208	38	989	3	4800	0.217	76	1065	3	4800	0.235 *	19	1084	3	4800	0.239 *	0	1084	3	4800	0.239 *
Wb Right	49	0	0	-	2	51	0	0	-	11	62	0	0	-	0	62	0	0	-	0	62	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.506**					**0.523**					**0.554**					**0.558**					**0.558**
LOS				**A**					**A**					**A**					**A**					**A**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.004
Significant Impact: NO

Area Traffic Mitigation:

2512 99 2611 209 2820 24 2844

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INTERSECTION CAPACITY UTILIZATION

California Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: California Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu18.wk4

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	50	0	0	0.000 *	2	52	0	0	0.000 *	1	53	0	0	0.000 *	0	53	0	0	0.000 *	0	53	0	0	0.000 *
Nb Thru	108	1	1600	0.123	4	112	1	1600	0.127	24	136	1	1600	0.157	0	136	1	1600	0.157	0	136	1	1600	0.157
Nb Right	38	0	0	-	2	40	0	0	-	22	62	0	0	-	0	62	0	0	-	0	62	0	0	-
Sb Left	72	0	0	0.000	3	75	0	0	0.000	14	89	0	0	0.000	0	89	0	0	0.000	0	89	0	0	0.000
Sb Thru	114	1	1600	0.141 *	5	119	1	1600	0.147 *	25	144	1	1600	0.181 *	0	144	1	1600	0.181 *	0	144	1	1600	0.181 *
Sb Right	40	0	0	-	2	42	0	0	-	15	57	0	0	-	0	57	0	0	-	0	57	0	0	-
Eb Left	34	1	1600	0.021	1	35	1	1600	0.022	4	39	1	1600	0.025	0	39	1	1600	0.025	0	39	1	1600	0.025
Eb Thru	1313	3	4800	0.285 *	53	1366	3	4800	0.297 *	96	1462	3	4800	0.317 *	25	1487	3	4800	0.322 *	0	1487	3	4800	0.322 *
Eb Right	57	0	0	-	2	59	0	0	-	1	60	0	0	-	0	60	0	0	-	0	60	0	0	-
Wb Left	56	1	1600	0.035 *	2	58	1	1600	0.036 *	7	65	1	1600	0.041 *	0	65	1	1600	0.041 *	0	65	1	1600	0.041 *
Wb Thru	1002	3	4800	0.217	40	1042	3	4800	0.226	64	1106	3	4800	0.240	10	1116	3	4800	0.242	0	1116	3	4800	0.242
Wb Right	39	0	0	-	2	41	0	0	-	5	46	0	0	-	0	46	0	0	-	0	46	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.561**					**0.580**					**0.639**					**0.644**					**0.644**
LOS				**A**					**A**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.005
Significant Impact: NO

Area Traffic Mitigation:

2923 118 3041 278 3318 35 3354

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INTERSECTION CAPACITY UTILIZATION

N-S St: Orange Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu19.wk4

Orange Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	23	1	1600	0.014 *	1	24	1	1600	0.015 *	19	43	1	1600	0.027 *	0	43	1	1600	0.027 *	0	43	1	1600	0.027 *
Nb Thru	399	2	3200	0.125	16	415	2	3200	0.130	25	440	2	3200	0.137	0	440	2	3200	0.137	0	440	2	3200	0.137
Nb Right	34	1	1600	0.021	1	35	1	1600	0.022	0	35	1	1600	0.022	0	35	1	1600	0.022	0	35	1	1600	0.022
Sb Left	131	1	1600	0.082	5	136	1	1600	0.085	4	140	1	1600	0.088	0	140	1	1600	0.088	0	140	1	1600	0.088
Sb Thru	517	1	1600	0.323 *	21	538	1	1600	0.336 *	26	564	1	1600	0.352 *	0	564	1	1600	0.352 *	0	564	1	1600	0.352 *
Sb Right	96	1	1600	0.060	4	100	1	1600	0.062	38	138	1	1600	0.086	12	150	1	1600	0.094	0	150	1	1600	0.094
Eb Left	64	1	1600	0.040 *	3	67	1	1600	0.042 *	19	86	1	1600	0.053 *	3	89	1	1600	0.055 *	0	89	1	1600	0.055 *
Eb Thru	387	2	3200	0.129	15	402	2	3200	0.135	82	484	2	3200	0.166	5	489	2	3200	0.167	0	489	2	3200	0.167
Eb Right	27	0	0	-	1	28	0	0	-	18	46	0	0	-	0	46	0	0	-	0	46	0	0	-
Wb Left	37	1	1600	0.023	1	38	1	1600	0.024	5	43	1	1600	0.027	0	43	1	1600	0.027	0	43	1	1600	0.027
Wb Thru	765	2	3200	0.268 *	31	796	2	3200	0.279 *	72	868	2	3200	0.301 *	19	887	2	3200	0.307 *	0	887	2	3200	0.307 *
Wb Right	92	0	0	-	4	96	0	0	-	1	97	0	0	-	0	97	0	0	-	0	97	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.745**					**0.772**					**0.833**					**0.841**					**0.841**
LOS				**C**					**C**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.008
Significant Impact: NO

Area Traffic Mitigation:

2572 103 2675 309 2984 39 3023

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INTERSECTION CAPACITY UTILIZATION

Orange Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Orange Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu19.wk4

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	32	1	1600	0.020 *	1	33	1	1600	0.021 *	56	89	1	1600	0.056 *	0	89	1	1600	0.056 *	0	89	1	1600	0.056 *
Nb Thru	525	2	3200	0.164	21	546	2	3200	0.171	53	599	2	3200	0.187	0	599	2	3200	0.187	0	599	2	3200	0.187
Nb Right	31	1	1600	0.019	1	32	1	1600	0.020	23	55	1	1600	0.035	0	55	1	1600	0.035	0	55	1	1600	0.035
Sb Left	135	1	1600	0.084	5	140	1	1600	0.088	1	141	1	1600	0.088	0	141	1	1600	0.088	0	141	1	1600	0.088
Sb Thru	542	1	1600	0.339 *	22	564	1	1600	0.352 *	151	715	1	1600	0.447 *	0	715	1	1600	0.447 *	0	715	1	1600	0.447 *
Sb Right	99	1	1600	0.062	4	103	1	1600	0.064	36	139	1	1600	0.087	6	145	1	1600	0.091	0	145	1	1600	0.091
Eb Left	110	1	1600	0.069 *	4	114	1	1600	0.072 *	61	175	1	1600	0.110	16	191	1	1600	0.120	0	191	1	1600	0.120
Eb Thru	660	2	3200	0.212	26	686	2	3200	0.220	117	803	2	3200	0.298 *	25	828	2	3200	0.306 *	0	828	2	3200	0.306 *
Eb Right	18	0	0	-	1	19	0	0	-	133	152	0	0	-	0	152	0	0	-	0	152	0	0	-
Wb Left	25	1	1600	0.016	1	26	1	1600	0.016	75	101	1	1600	0.063 *	0	101	1	1600	0.063 *	0	101	1	1600	0.063 *
Wb Thru	395	2	3200	0.180 *	16	411	2	3200	0.187 *	128	539	2	3200	0.228	10	549	2	3200	0.232	0	549	2	3200	0.232
Wb Right	181	0	0	-	7	188	0	0	-	4	192	0	0	-	0	192	0	0	-	0	192	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.708**					**0.732**					**0.964**					**0.972**					**0.972**
LOS				**C**					**C**					**E**					**E**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.008
Significant Impact: NO

Area Traffic Mitigation:

2753 109 2862 838 3701 57 3757

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INTERSECTION CAPACITY UTILIZATION

N-S St: Orange Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu20.wk4

Orange Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	55	1	1600	0.034 *	2	57	1	1600	0.036 *	5	62	1	1600	0.039 *	0	62	1	1600	0.039 *	0	62	1	1600	0.039 *
Nb Thru	363	1	1600	0.227	15	378	1	1600	0.236	27	405	1	1600	0.253	0	405	1	1600	0.253	0	405	1	1600	0.253
Nb Right	101	1	1600	0.063	4	105	1	1600	0.066	11	116	1	1600	0.073	0	116	1	1600	0.073	0	116	1	1600	0.073
Sb Left	29	1	1600	0.018	1	30	1	1600	0.019	15	45	1	1600	0.028	0	45	1	1600	0.028	0	45	1	1600	0.028
Sb Thru	442	1	1600	0.276 *	18	460	1	1600	0.287 *	14	474	1	1600	0.296 *	0	474	1	1600	0.296 *	0	474	1	1600	0.296 *
Sb Right	77	1	1600	0.048	3	80	1	1600	0.050	0	80	1	1600	0.050	0	80	1	1600	0.050	0	80	1	1600	0.050
Eb Left	86	1	1600	0.054 *	3	89	1	1600	0.056 *	3	92	1	1600	0.058 *	0	92	1	1600	0.058 *	0	92	1	1600	0.058 *
Eb Thru	968	3	4800	0.221	39	1007	3	4800	0.229	75	1082	3	4800	0.245	5	1087	3	4800	0.247	0	1087	3	4800	0.247
Eb Right	91	0	0	-	4	95	0	0	-	2	97	0	0	-	0	97	0	0	-	0	97	0	0	-
Wb Left	74	1	1600	0.046	3	77	1	1600	0.048	6	83	1	1600	0.052	0	83	1	1600	0.052	0	83	1	1600	0.052
Wb Thru	1050	3	4800	0.229 *	42	1092	3	4800	0.238 *	82	1174	3	4800	0.259 *	19	1193	3	4800	0.263 *	0	1193	3	4800	0.263 *
Wb Right	47	0	0	-	2	49	0	0	-	21	70	0	0	-	0	70	0	0	-	0	70	0	0	-
Yellow Allowance:				**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***
ICU				**0.743**					**0.767**					**0.802**					**0.806**					**0.806**
LOS				**C**					**C**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.004
Significant Impact: NO

Area Traffic Mitigation:

3383 136 3519 261 3780 24 3804

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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Orange Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Orange Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu20.wk4

Date: 11/02/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	53	1	1600	0.033 *	2	55	1	1600	0.034 *	4	59	1	1600	0.037 *	0	59	1	1600	0.037 *	0	59	1	1600	0.037 *
Nb Thru	429	1	1600	0.268	17	446	1	1600	0.279	55	501	1	1600	0.313	0	501	1	1600	0.313	0	501	1	1600	0.313
Nb Right	112	1	1600	0.070	4	116	1	1600	0.073	11	127	1	1600	0.080	0	127	1	1600	0.080	0	127	1	1600	0.080
Sb Left	52	1	1600	0.033	2	54	1	1600	0.034	27	81	1	1600	0.051	0	81	1	1600	0.051	0	81	1	1600	0.051
Sb Thru	482	1	1600	0.301 *	19	501	1	1600	0.313 *	48	549	1	1600	0.343 *	0	549	1	1600	0.343 *	0	549	1	1600	0.343 *
Sb Right	67	1	1600	0.042	3	70	1	1600	0.044	16	86	1	1600	0.054	0	86	1	1600	0.054	0	86	1	1600	0.054
Eb Left	86	1	1600	0.054	3	89	1	1600	0.056	53	142	1	1600	0.089	0	142	1	1600	0.089	0	142	1	1600	0.089
Eb Thru	1252	3	4800	0.272 *	50	1302	3	4800	0.283 *	70	1372	3	4800	0.299 *	25	1397	3	4800	0.304 *	0	1397	3	4800	0.304 *
Eb Right	55	0	0	-	2	57	0	0	-	6	63	0	0	-	0	63	0	0	-	0	63	0	0	-
Wb Left	100	1	1600	0.063 *	4	104	1	1600	0.065 *	14	118	1	1600	0.074 *	0	118	1	1600	0.074 *	0	118	1	1600	0.074 *
Wb Thru	989	3	4800	0.212	40	1029	3	4800	0.220	54	1083	3	4800	0.244	10	1093	3	4800	0.246	0	1093	3	4800	0.246
Wb Right	27	0	0	-	1	28	0	0	-	62	90	0	0	-	0	90	0	0	-	0	90	0	0	-
Yellow Allowance:				**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***
ICU				**0.819**					**0.845**					**0.903**					**0.908**					**0.908**
LOS				**D**					**D**					**E**					**E**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.005
Significant Impact: NO

Area Traffic Mitigation:

3704 147 3851 420 4272 35 4306

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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: Wardlow Road
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu21.wk4

Long Beach Boulevard @ Wardlow Road
Peak hr: AM
Annual Growth: 1.00%

Date: 11/02/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	243	1	1600	0.152 *	10	253	1	1600	0.158 *	7	260	1	1600	0.162 *	10	270	1	1600	0.169 *	0	270	2	2880	0.094 *
Nb Thru	615	3	4800	0.155	25	640	3	4800	0.161	41	681	3	4800	0.170	10	691	3	4800	0.172	0	691	3	4800	0.172
Nb Right	129	0	0	-	5	134	0	0	-	0	134	0	0	-	0	134	0	0	-	0	134	0	0	-
Sb Left	56	1	1600	0.035	2	58	1	1600	0.036	7	65	1	1600	0.041	0	65	1	1600	0.041	0	65	1	1600	0.041
Sb Thru	778	2	3200	0.243 *	31	809	2	3200	0.253 *	48	857	2	3200	0.268 *	38	895	2	3200	0.280 *	0	895	2	3200	0.280 *
Sb Right	427	1	1600	0.267	17	444	1	1600	0.278	9	453	1	1600	0.283	0	453	1	1600	0.283	0	453	1	1600	0.283
Eb Left	275	1	1600	0.172 *	11	286	1	1600	0.179 *	12	298	1	1600	0.186 *	0	298	1	1600	0.186 *	0	298	1	1600	0.186 *
Eb Thru	479	2	3200	0.167	19	498	2	3200	0.174	10	508	2	3200	0.177	0	508	2	3200	0.177	0	508	2	3200	0.177
Eb Right	55	0	0	-	2	57	0	0	-	2	59	0	0	-	0	59	0	0	-	0	59	0	0	-
Wb Left	104	1	1600	0.065	4	108	1	1600	0.068	0	108	1	1600	0.068	0	108	1	1600	0.068	0	108	1	1600	0.068
Wb Thru	694	2	3200	0.227 *	28	722	2	3200	0.236 *	8	730	2	3200	0.241 *	0	730	2	3200	0.241 *	0	730	2	3200	0.241 *
Wb Right	31	0	0	-	1	32	0	0	-	9	41	0	0	-	0	41	0	0	-	0	41	0	0	-
Yellow Allowance:				**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***
ICU				**0.934**					**0.966**					**0.997**					**1.016**					**0.941**
LOS				**E**					**E**					**E**					**F**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.019
Significant Impact: NO

Area Traffic Mitigation: Add 2nd NBL

3886 155 4041 153 4194 58 4252

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Wardlow Road
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Wardlow Road
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu21.wk4

Date: 11/02/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	311	1	1600	0.194 *	12	323	1	1600	0.202 *	11	334	1	1600	0.209 *	51	385	1	1600	0.241 *	0	385	2	2880	0.134 *
Nb Thru	866	3	4800	0.215	35	901	3	4800	0.223	73	974	3	4800	0.238	51	1025	3	4800	0.249	0	1025	3	4800	0.249
Nb Right	164	0	0	-	7	171	0	0	-	0	171	0	0	-	0	171	0	0	-	0	171	0	0	-
Sb Left	99	1	1600	0.062	4	103	1	1600	0.064	9	112	1	1600	0.070	0	112	1	1600	0.070	0	112	1	1600	0.070
Sb Thru	823	2	3200	0.257 *	33	856	2	3200	0.267 *	77	933	2	3200	0.292 *	19	952	2	3200	0.297 *	0	952	2	3200	0.297 *
Sb Right	320	1	1600	0.200	13	333	1	1600	0.208	14	347	1	1600	0.217	0	347	1	1600	0.217	0	347	1	1600	0.217
Eb Left	244	1	1600	0.153 *	10	254	1	1600	0.159 *	11	265	1	1600	0.165 *	0	265	1	1600	0.165 *	0	265	1	1600	0.165 *
Eb Thru	595	2	3200	0.201	24	619	2	3200	0.209	10	629	2	3200	0.213	0	629	2	3200	0.213	0	629	2	3200	0.213
Eb Right	49	0	0	-	2	51	0	0	-	3	54	0	0	-	0	54	0	0	-	0	54	0	0	-
Wb Left	74	1	1600	0.046	3	77	1	1600	0.048	0	77	1	1600	0.048	0	77	1	1600	0.048	0	77	1	1600	0.048
Wb Thru	599	2	3200	0.205 *	24	623	2	3200	0.213 *	20	643	2	3200	0.222 *	0	643	2	3200	0.222 *	0	643	2	3200	0.222 *
Wb Right	56	0	0	-	2	58	0	0	-	8	66	0	0	-	0	66	0	0	-	0	66	0	0	-
Yellow Allowance:				**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***
ICU				**0.949**					**0.981**					**1.028**					**1.065**					**0.958**
LOS				**E**					**E**					**F**					**F**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.037
Significant Impact: YES

Area Traffic Mitigation: Add 2nd NBL

4200 169 4369 236 4604 121 4726

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	188	224	764	0	0	995
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	198	236	804	0	0	1047
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1153	268			804	
vC1, stage 1 conf vol	804					
vC2, stage 2 conf vol	349					
vCu, unblocked vol	1153	268			804	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	68			100	
cM capacity (veh/h)	130	730			816	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	198	236	268	268	268	349	349	349
Volume Left	198	0	0	0	0	0	0	0
Volume Right	0	236	0	0	0	0	0	0
cSH	130	730	1700	1700	1700	1700	1700	1700
Volume to Capacity	1.53	0.32	0.16	0.16	0.16	0.21	0.21	0.21
Queue Length (ft)	347	35	0	0	0	0	0	0
Control Delay (s)	333.3	12.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	B						
Approach Delay (s)	158.7		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	30.1 LOS D		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	198	241	833	0	0	1185
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	208	254	877	0	0	1247
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1293	292			877	
vC1, stage 1 conf vol	877					
vC2, stage 2 conf vol	416					
vCu, unblocked vol	1293	292			877	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	64			100	
cM capacity (veh/h)	105	704			766	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	208	254	292	292	292	416	416	416
Volume Left	208	0	0	0	0	0	0	0
Volume Right	0	254	0	0	0	0	0	0
cSH	105	704	1700	1700	1700	1700	1700	1700
Volume to Capacity	1.98	0.36	0.17	0.17	0.17	0.24	0.24	0.24
Queue Length (ft)	435	41	0	0	0	0	0	0
Control Delay (s)	542.5	13.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	B						
Approach Delay (s)	251.8		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	45.0	LOS E	
Intersection Capacity Utilization	42.3%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	198	241	855	0	0	1123
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	208	254	900	0	0	1182
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1294	300			900	
vC1, stage 1 conf vol	900					
vC2, stage 2 conf vol	394					
vCu, unblocked vol	1294	300			900	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	64			100	
cM capacity (veh/h)	105	696			751	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	208	254	300	300	300	394	394	394
Volume Left	208	0	0	0	0	0	0	0
Volume Right	0	254	0	0	0	0	0	0
cSH	105	696	1700	1700	1700	1700	1700	1700
Volume to Capacity	1.99	0.36	0.18	0.18	0.18	0.23	0.23	0.23
Queue Length (ft)	436	42	0	0	0	0	0	0
Control Delay (s)	544.5	13.1	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	B						
Approach Delay (s)	252.8		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	45.9	LOS E	
Intersection Capacity Utilization	41.1%	ICU Level of Service	A

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ I-405 NB Ramps
Peak hr: AM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: I-405 NB Ramps
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu22.wk4

Date: 11/02/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	764	3	4800	0.159	31	795	3	4800	0.166	38	833	3	4800	0.173	22	855	3	4800	0.178	0	855	3	4800	0.178
Nb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	995	3	4800	0.207 *	40	1035	3	4800	0.216 *	50	1085	3	4800	0.226 *	38	1123	3	4800	0.234 *	0	1123	3	4800	0.234 *
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	188	1	1600	0.118	8	196	1	1600	0.122	2	198	1	1600	0.123	0	198	1	1600	0.123	0	198	1	1600	0.123
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	224	1	1600	0.140 *	9	233	1	1600	0.146 *	8	241	1	1600	0.151 *	0	241	1	1600	0.151 *	0	241	1	1600	0.151 *
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.447**					**0.462**					**0.477**					**0.485**					**0.485**
LOS				**A**					**A**					**A**					**A**					**A**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.008
Significant Impact: NO

Area Traffic Mitigation: Install Traffic Signal

2171 88 2259 98 2357 60 2417

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	162	291	1057	0	0	898
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	171	306	1113	0	0	945
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1428	371			1113	
vC1, stage 1 conf vol	1113					
vC2, stage 2 conf vol	315					
vCu, unblocked vol	1428	371			1113	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	51			100	
cM capacity (veh/h)	86	626			623	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3	SB 4
Volume Total	171	306	371	371	371	315	315	315
Volume Left	171	0	0	0	0	0	0	0
Volume Right	0	306	0	0	0	0	0	0
cSH	86	626	1700	1700	1700	1700	1700	1700
Volume to Capacity	1.99	0.49	0.22	0.22	0.22	0.19	0.19	0.19
Queue Length (ft)	373	67	0	0	0	0	0	0
Control Delay (s)	565.9	16.1	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	C						
Approach Delay (s)	212.7		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	40.0	LOS E	
Intersection Capacity Utilization	47.1%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	169	312	1174	0	0	1014
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	178	328	1236	0	0	1067
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1592	412			1236	
vC1, stage 1 conf vol	1236					
vC2, stage 2 conf vol	356					
vCu, unblocked vol	1592	412			1236	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	44			100	
cM capacity (veh/h)	67	589			559	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	178	328	412	412	412	356	356	356
Volume Left	178	0	0	0	0	0	0	0
Volume Right	0	328	0	0	0	0	0	0
cSH	67	589	1700	1700	1700	1700	1700	1700
Volume to Capacity	2.67	0.56	0.24	0.24	0.24	0.21	0.21	0.21
Queue Length (ft)	442	86	0	0	0	0	0	0
Control Delay (s)	888.0	18.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	C						
Approach Delay (s)	324.0		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	58.4	LOS F	
Intersection Capacity Utilization	50.9%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	169	312	1275	0	0	1033
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	178	328	1342	0	0	1087
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1705	447			1342	
vC1, stage 1 conf vol	1342					
vC2, stage 2 conf vol	362					
vCu, unblocked vol	1705	447			1342	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	41			100	
cM capacity (veh/h)	56	559			509	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	178	328	447	447	447	362	362	362
Volume Left	178	0	0	0	0	0	0	0
Volume Right	0	328	0	0	0	0	0	0
cSH	56	559	1700	1700	1700	1700	1700	1700
Volume to Capacity	3.17	0.59	0.26	0.26	0.26	0.21	0.21	0.21
Queue Length (ft)	Err	95	0	0	0	0	0	0
Control Delay (s)	Err	20.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	C						
Approach Delay (s)	3526.3		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	608.2	LOS F	
Intersection Capacity Utilization	52.9%	ICU Level of Service	A

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ I-405 NB Ramps
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: I-405 NB Ramps
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu22.wk4

Date: 11/02/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	1057	3	4800	0.220 *	42	1099	3	4800	0.229 *	75	1174	3	4800	0.245 *	101	1275	3	4800	0.266 *	0	1275	3	4800	0.266 *
Nb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	898	3	4800	0.187	36	934	3	4800	0.195	80	1014	3	4800	0.211	19	1033	3	4800	0.215	0	1033	3	4800	0.215
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	162	1	1600	0.101	6	168	1	1600	0.105	1	169	1	1600	0.106	0	169	1	1600	0.106	0	169	1	1600	0.106
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	291	1	1600	0.182 *	12	303	1	1600	0.189 *	9	312	1	1600	0.195 *	0	312	1	1600	0.195 *	0	312	1	1600	0.195 *
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.502**					**0.518**					**0.540**					**0.561**					**0.561**
LOS				**A**					**A**					**A**					**A**					**A**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.021
Significant Impact: NO

Area Traffic Mitigation: Install Traffic Signal

2408 96 2504 165 2669 120 2789

Movement	SEL	SER	NWL	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	387	18	3	422	140	128
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	407	19	3	444	147	135
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	447				1059	225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	447				1059	225
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	63				6	83
cM capacity (veh/h)	1113				158	814

Volume Total	426	447	147	135
Volume Left	407	0	147	0
Volume Right	0	444	0	135
cSH	1113	1700	158	814
Volume to Capacity	0.37	0.26	0.94	0.17
Queue Length (ft)	42	0	171	15
Control Delay (s)	9.8	0.0	112.4	10.3
Lane LOS	A		F	B
Approach Delay (s)	9.8	0.0	63.7	
Approach LOS			F	

Intersection Summary			
Average Delay	19.2	LOS C	
Intersection Capacity Utilization	69.4%	ICU Level of Service	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	408	19	3	442	146	138
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	429	20	3	465	154	145
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	468				1115	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	468				1115	236
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	61				0	82
cM capacity (veh/h)	1093				140	803

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	449	468	154	145
Volume Left	429	0	154	0
Volume Right	0	465	0	145
cSH	1093	1700	140	803
Volume to Capacity	0.39	0.28	1.10	0.18
Queue Length (ft)	47	0	213	16
Control Delay (s)	10.1	0.0	168.4	10.5
Lane LOS	B		F	B
Approach Delay (s)	10.1	0.0	91.7	
Approach LOS			F	

Intersection Summary			
Average Delay	26.3	LOS D	
Intersection Capacity Utilization	72.3%	ICU Level of Service	C

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	408	19	3	442	184	138
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	429	20	3	465	194	145
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	468				1115	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	468				1115	236
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	61				0	82
cM capacity (veh/h)	1093				140	803

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	449	468	194	145
Volume Left	429	0	194	0
Volume Right	0	465	0	145
cSH	1093	1700	140	803
Volume to Capacity	0.39	0.28	1.39	0.18
Queue Length (ft)	47	0	313	16
Control Delay (s)	10.1	0.0	271.4	10.5
Lane LOS	B		F	B
Approach Delay (s)	10.1	0.0	159.6	
Approach LOS			F	

Intersection Summary			
Average Delay	46.7	LOS E	
Intersection Capacity Utilization	74.5%	ICU Level of Service	C

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	408	19	3	442	184	138
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	429	20	3	465	194	145
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3				882	3
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3				882	3
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	73				17	87
cM capacity (veh/h)	1619				233	1081

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	449	3	465	194	145
Volume Left	429	0	0	194	0
Volume Right	0	0	465	0	145
cSH	1619	1700	1700	233	1081
Volume to Capacity	0.27	0.00	0.27	0.83	0.13
Queue Length (ft)	27	0	0	161	12
Control Delay (s)	7.8	0.0	0.0	67.7	8.8
Lane LOS	A			F	A
Approach Delay (s)	7.8	0.0		42.5	
Approach LOS				E	

Intersection Summary			
Average Delay	14.2	LOS B	
Intersection Capacity Utilization	60.3%	ICU Level of Service	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	245	35	19	419	111	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	258	37	20	441	117	94
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	461				793	241
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	461				793	241
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	77				57	88
cM capacity (veh/h)	1100				274	798

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	295	461	117	94
Volume Left	258	0	117	0
Volume Right	0	441	0	94
cSH	1100	1700	274	798
Volume to Capacity	0.23	0.27	0.43	0.12
Queue Length (ft)	23	0	51	10
Control Delay (s)	8.4	0.0	27.6	10.1
Lane LOS	A		D	B
Approach Delay (s)	8.4	0.0	19.8	
Approach LOS			C	

Intersection Summary			
Average Delay	6.9	Los A	
Intersection Capacity Utilization	61.0%	ICU Level of Service	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	267	36	20	442	115	96
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	281	38	21	465	121	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	486				854	254
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	486				854	254
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	74				50	87
cM capacity (veh/h)	1077				243	785

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	319	486	121	101
Volume Left	281	0	121	0
Volume Right	0	465	0	101
cSH	1077	1700	243	785
Volume to Capacity	0.26	0.29	0.50	0.13
Queue Length (ft)	26	0	64	11
Control Delay (s)	8.7	0.0	33.6	10.3
Lane LOS	A		D	B
Approach Delay (s)	8.7	0.0	23.0	
Approach LOS			C	

Intersection Summary			
Average Delay	7.7	LOS A	
Intersection Capacity Utilization	64.2%	ICU Level of Service	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	267	36	20	442	134	96
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	281	38	21	465	141	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	486				854	254
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	486				854	254
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	74				42	87
cM capacity (veh/h)	1077				243	785

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	319	486	141	101
Volume Left	281	0	141	0
Volume Right	0	465	0	101
cSH	1077	1700	243	785
Volume to Capacity	0.26	0.29	0.58	0.13
Queue Length (ft)	26	0	82	11
Control Delay (s)	8.7	0.0	38.4	10.3
Lane LOS	A		E	B
Approach Delay (s)	8.7	0.0	26.7	
Approach LOS			D	

Intersection Summary			
Average Delay	8.8	LOS A	
Intersection Capacity Utilization	65.3%	ICU Level of Service	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	267	36	20	442	134	96
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	281	38	21	465	141	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	21				621	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	21				621	21
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				62	90
cM capacity (veh/h)	1595				371	1056

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	319	21	465	141	101
Volume Left	281	0	0	141	0
Volume Right	0	0	465	0	101
cSH	1595	1700	1700	371	1056
Volume to Capacity	0.18	0.01	0.27	0.38	0.10
Queue Length (ft)	16	0	0	43	8
Control Delay (s)	7.0	0.0	0.0	20.5	8.8
Lane LOS	A			C	A
Approach Delay (s)	7.0	0.0		15.6	
Approach LOS				C	

Intersection Summary			
Average Delay	5.7	LOS A	
Intersection Capacity Utilization	53.0%	ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	162	174	801	919	218
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	171	183	843	967	229
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1615	484	1197			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1615	484	1197			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	68	68			
cM capacity (veh/h)	65	529	579			

Major/Minor	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	171	183	281	281	281	484	484	229
Volume Left	0	183	0	0	0	0	0	0
Volume Right	171	0	0	0	0	0	0	229
cSH	529	579	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.32	0.32	0.17	0.17	0.17	0.28	0.28	0.13
Queue Length (ft)	35	34	0	0	0	0	0	0
Control Delay (s)	15.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B						
Approach Delay (s)	15.0	2.5				0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	2.1	LOS A	
Intersection Capacity Utilization	44.0%	ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	168	181	871	1005	230
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	177	191	917	1058	242
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1745	529	1300			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1745	529	1300			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	64	64			
cM capacity (veh/h)	50	494	529			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	177	191	306	306	306	529	529	242
Volume Left	0	191	0	0	0	0	0	0
Volume Right	177	0	0	0	0	0	0	242
cSH	494	529	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.36	0.36	0.18	0.18	0.18	0.31	0.31	0.14
Queue Length (ft)	40	41	0	0	0	0	0	0
Control Delay (s)	16.3	15.6	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	C						
Approach Delay (s)	16.3	2.7				0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	2.3	LOS A	
Intersection Capacity Utilization	46.9%	ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	206	181	893	1043	230
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	217	191	940	1098	242
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1792	549	1340			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1792	549	1340			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	55	63			
cM capacity (veh/h)	45	480	510			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	217	191	313	313	313	549	549	242
Volume Left	0	191	0	0	0	0	0	0
Volume Right	217	0	0	0	0	0	0	242
cSH	480	510	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.45	0.37	0.18	0.18	0.18	0.32	0.32	0.14
Queue Length (ft)	58	43	0	0	0	0	0	0
Control Delay (s)	18.6	16.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	C						
Approach Delay (s)	18.6	2.7				0.0		
Approach LOS	C							

Intersection Summary				
Average Delay	2.6	LOS A		
Intersection Capacity Utilization	50.4%	ICU Level of Service	A	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	136	212	1095	823	231
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	143	223	1153	866	243
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1697	433	1109			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1697	433	1109			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	75	64			
cM capacity (veh/h)	54	571	625			

Volume Total	143	223	384	384	384	433	433	243
Volume Left	0	223	0	0	0	0	0	0
Volume Right	143	0	0	0	0	0	0	243
cSH	571	625	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.25	0.36	0.23	0.23	0.23	0.25	0.25	0.14
Queue Length (ft)	25	40	0	0	0	0	0	0
Control Delay (s)	13.4	13.9	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B						
Approach Delay (s)	13.4	2.3				0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	1.9	LOS A	
Intersection Capacity Utilization	43.0%	ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	141	221	1214	930	245
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	148	233	1278	979	258
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1870	489	1237			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1870	489	1237			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	72	58			
cM capacity (veh/h)	37	524	559			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	148	233	426	426	426	489	489	258
Volume Left	0	233	0	0	0	0	0	0
Volume Right	148	0	0	0	0	0	0	258
cSH	524	559	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.28	0.42	0.25	0.25	0.25	0.29	0.29	0.15
Queue Length (ft)	29	51	0	0	0	0	0	0
Control Delay (s)	14.6	16.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	C						
Approach Delay (s)	14.6	2.5				0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	2.0	LOS A	
Intersection Capacity Utilization	46.6%	ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	160	221	1315	949	245
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	168	233	1384	999	258
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1926	499	1257			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1926	499	1257			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	67	58			
cM capacity (veh/h)	34	517	549			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	168	233	461	461	461	499	499	258
Volume Left	0	233	0	0	0	0	0	0
Volume Right	168	0	0	0	0	0	0	258
cSH	517	549	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.33	0.42	0.27	0.27	0.27	0.29	0.29	0.15
Queue Length (ft)	35	52	0	0	0	0	0	0
Control Delay (s)	15.3	16.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	C						
Approach Delay (s)	15.3	2.3				0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	2.1	LOS A	
Intersection Capacity Utilization	47.2%	ICU Level of Service	A

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Hill Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Hill Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu25.wk4

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	36	1	1600	0.023	1	37	1	1600	0.023	0	37	1	1600	0.023	0	37	1	1600	0.023	0	37	1	1600	0.023
Nb Thru	685	2	3200	0.230 *	27	712	2	3200	0.239 *	35	747	2	3200	0.250 *	38	785	2	3200	0.262 *	0	785	2	3200	0.262 *
Nb Right	51	0	0	-	2	53	0	0	-	0	53	0	0	-	0	53	0	0	-	0	53	0	0	-
Sb Left	75	1	1600	0.047 *	3	78	1	1600	0.049 *	0	78	1	1600	0.049 *	0	78	1	1600	0.049 *	0	78	1	1600	0.049 *
Sb Thru	759	2	3200	0.243	30	789	2	3200	0.253	20	809	2	3200	0.259	10	819	2	3200	0.262	0	819	2	3200	0.262
Sb Right	19	0	0	-	1	20	0	0	-	0	20	0	0	-	0	20	0	0	-	0	20	0	0	-
Eb Left	35	0	0	0.000 *	1	36	0	0	0.000 *	0	36	0	0	0.000 *	0	36	0	0	0.000 *	0	36	0	0	0.000 *
Eb Thru	134	1	1600	0.132	5	139	1	1600	0.137	25	164	1	1600	0.153	0	164	1	1600	0.153	0	164	1	1600	0.153
Eb Right	42	0	0	-	2	44	0	0	-	0	44	0	0	-	0	44	0	0	-	0	44	0	0	-
Wb Left	64	0	0	0.000	3	67	0	0	0.000	0	67	0	0	0.000	0	67	0	0	0.000	0	67	0	0	0.000
Wb Thru	163	1	1600	0.178 *	7	170	1	1600	0.185 *	20	190	1	1600	0.198 *	0	190	1	1600	0.198 *	0	190	1	1600	0.198 *
Wb Right	58	0	0	-	2	60	0	0	-	0	60	0	0	-	0	60	0	0	-	0	60	0	0	-
Yellow Allowance:				**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***
ICU				**0.605**					**0.623**					**0.647**					**0.659**					**0.659**
LOS				**B**					**B**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.012
Significant Impact: NO

Area Traffic Mitigation:

2121 84 2205 100 2305 48 2353

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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: Hill Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu25.wk4

Long Beach Boulevard @ Hill Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	74	1	1600	0.046	3	77	1	1600	0.048	0	77	1	1600	0.048	0	77	1	1600	0.048 *	0	77	1	1600	0.048 *
Nb Thru	834	2	3200	0.274 *	33	867	2	3200	0.285 *	57	924	2	3200	0.303 *	19	943	2	3200	0.309	0	943	2	3200	0.309
Nb Right	43	0	0	-	2	45	0	0	-	0	45	0	0	-	0	45	0	0	-	0	45	0	0	-
Sb Left	113	1	1600	0.071 *	5	118	1	1600	0.073 *	0	118	1	1600	0.073 *	0	118	1	1600	0.073	0	118	1	1600	0.073
Sb Thru	872	2	3200	0.290	35	907	2	3200	0.302	55	962	2	3200	0.319	51	1013	2	3200	0.335 *	0	1013	2	3200	0.335 *
Sb Right	56	0	0	-	2	58	0	0	-	0	58	0	0	-	0	58	0	0	-	0	58	0	0	-
Eb Left	45	0	0	0.000 *	2	47	0	0	0.000 *	0	47	0	0	0.000 *	0	47	0	0	0.000 *	0	47	0	0	0.000 *
Eb Thru	149	1	1600	0.148	6	155	1	1600	0.154	7	162	1	1600	0.158	0	162	1	1600	0.158	0	162	1	1600	0.158
Eb Right	43	0	0	-	2	45	0	0	-	0	45	0	0	-	0	45	0	0	-	0	45	0	0	-
Wb Left	39	0	0	0.000	2	41	0	0	0.000	0	41	0	0	0.000	0	41	0	0	0.000	0	41	0	0	0.000
Wb Thru	194	1	1600	0.181 *	8	202	1	1600	0.189 *	6	208	1	1600	0.192 *	0	208	1	1600	0.192 *	0	208	1	1600	0.192 *
Wb Right	57	0	0	-	2	59	0	0	-	0	59	0	0	-	0	59	0	0	-	0	59	0	0	-
Yellow Allowance:				**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***
ICU				**0.676**					**0.697**					**0.718**					**0.725**					**0.725**
LOS				**B**					**B**					**C**					**C**					**C**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.007
Significant Impact: NO

Area Traffic Mitigation:

2519 102 2621 125 2745 70 2816

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INTERSECTION CAPACITY UTILIZATION

N-S St: Pacific Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu26.wk4

Pacific Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	57	1	1600	0.036	2	59	1	1600	0.037	0	59	1	1600	0.037	0	59	1	1600	0.037	0	59	1	1600	0.037
Nb Thru	425	2	3200	0.183 *	17	442	2	3200	0.190 *	0	442	2	3200	0.194 *	0	442	2	3200	0.194 *	0	442	2	3200	0.194 *
Nb Right	160	0	0	-	6	166	0	0	-	11	177	0	0	-	0	177	0	0	-	0	177	0	0	-
Sb Left	67	1	1600	0.042 *	3	70	1	1600	0.044 *	11	81	1	1600	0.050 *	0	81	1	1600	0.050 *	0	81	1	1600	0.050 *
Sb Thru	325	2	3200	0.107	13	338	2	3200	0.111	0	338	2	3200	0.111	0	338	2	3200	0.111	0	338	2	3200	0.111
Sb Right	16	0	0	-	1	17	0	0	-	0	17	0	0	-	0	17	0	0	-	0	17	0	0	-
Eb Left	49	1	1600	0.031	2	51	1	1600	0.032	0	51	1	1600	0.032	0	51	1	1600	0.032	0	51	1	1600	0.032
Eb Thru	339	1	1600	0.237 *	14	353	1	1600	0.246 *	16	369	1	1600	0.256 *	19	388	1	1600	0.268 *	0	388	1	1600	0.268 *
Eb Right	40	0	0	-	2	42	0	0	-	0	42	0	0	-	0	42	0	0	-	0	42	0	0	-
Wb Left	168	1	1600	0.105 *	7	175	1	1600	0.109 *	9	184	1	1600	0.115 *	0	184	1	1600	0.115 *	0	184	1	1600	0.115 *
Wb Thru	400	1	1600	0.285	16	416	1	1600	0.296	5	421	1	1600	0.305	5	426	1	1600	0.308	0	426	1	1600	0.308
Wb Right	56	0	0	-	2	58	0	0	-	9	67	0	0	-	0	67	0	0	-	0	67	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.667**					**0.689**					**0.715**					**0.727**					**0.727**
LOS				**B**					**B**					**C**					**C**					**C**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.012
Significant Impact: NO

Area Traffic Mitigation:

2102 85 2187 61 2248 24 2272

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INTERSECTION CAPACITY UTILIZATION

N-S St: Pacific Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu26.wk4

Pacific Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	73	1	1600	0.046	3	76	1	1600	0.047	0	76	1	1600	0.047	0	76	1	1600	0.047	0	76	1	1600	0.047
Nb Thru	471	2	3200	0.218 *	19	490	2	3200	0.226 *	0	490	2	3200	0.232 *	0	490	2	3200	0.232 *	0	490	2	3200	0.232 *
Nb Right	225	0	0	-	9	234	0	0	-	17	251	0	0	-	0	251	0	0	-	0	251	0	0	-
Sb Left	66	1	1600	0.041 *	3	69	1	1600	0.043 *	17	86	1	1600	0.054 *	0	86	1	1600	0.054 *	0	86	1	1600	0.054 *
Sb Thru	290	2	3200	0.096	12	302	2	3200	0.100	0	302	2	3200	0.100	0	302	2	3200	0.100	0	302	2	3200	0.100
Sb Right	18	0	0	-	1	19	0	0	-	0	19	0	0	-	0	19	0	0	-	0	19	0	0	-
Eb Left	32	1	1600	0.020	1	33	1	1600	0.021	0	33	1	1600	0.021	0	33	1	1600	0.021	0	33	1	1600	0.021
Eb Thru	401	1	1600	0.278 *	16	417	1	1600	0.289 *	24	441	1	1600	0.304 *	10	451	1	1600	0.311 *	0	451	1	1600	0.311 *
Eb Right	44	0	0	-	2	46	0	0	-	0	46	0	0	-	0	46	0	0	-	0	46	0	0	-
Wb Left	137	1	1600	0.086 *	5	142	1	1600	0.089 *	18	160	1	1600	0.100 *	0	160	1	1600	0.100 *	0	160	1	1600	0.100 *
Wb Thru	360	1	1600	0.266	14	374	1	1600	0.276	26	400	1	1600	0.304	25	425	1	1600	0.319	0	425	1	1600	0.319
Wb Right	65	0	0	-	3	68	0	0	-	18	86	0	0	-	0	86	0	0	-	0	86	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.723**					**0.747**					**0.790**					**0.797**					**0.797**
LOS				**C**					**C**					**C**					**C**					**C**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.007
Significant Impact: NO

Area Traffic Mitigation:

2182 88 2270 120 2389 35 2425

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INTERSECTION CAPACITY UTILIZATION

N-S St: Pacific Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu27.wk4

Pacific Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	146	1	1600	0.091 *	6	152	1	1600	0.095 *	0	152	1	1600	0.095 *	0	152	1	1600	0.095 *	0	152	1	1600	0.095 *
Nb Thru	536	2	3200	0.203	21	557	2	3200	0.211	11	568	2	3200	0.214	0	568	2	3200	0.214	0	568	2	3200	0.214
Nb Right	112	0	0	-	4	116	0	0	-	1	117	0	0	-	0	117	0	0	-	0	117	0	0	-
Sb Left	89	1	1600	0.056	4	93	1	1600	0.058	0	93	1	1600	0.058	0	93	1	1600	0.058	0	93	1	1600	0.058
Sb Thru	464	2	3200	0.176 *	19	483	2	3200	0.183 *	9	492	2	3200	0.186 *	0	492	2	3200	0.186 *	0	492	2	3200	0.186 *
Sb Right	99	0	0	-	4	103	0	0	-	0	103	0	0	-	0	103	0	0	-	0	103	0	0	-
Eb Left	173	1	1600	0.108 *	7	180	1	1600	0.112 *	0	180	1	1600	0.112 *	0	180	1	1600	0.112 *	0	180	1	1600	0.112 *
Eb Thru	988	3	4800	0.223	40	1028	3	4800	0.232	71	1099	3	4800	0.247	19	1118	3	4800	0.251	0	1118	3	4800	0.251
Eb Right	83	0	0	-	3	86	0	0	-	0	86	0	0	-	0	86	0	0	-	0	86	0	0	-
Wb Left	117	1	1600	0.073	5	122	1	1600	0.076	3	125	1	1600	0.078	0	125	1	1600	0.078	0	125	1	1600	0.078
Wb Thru	987	3	4800	0.222 *	39	1026	3	4800	0.231 *	98	1124	3	4800	0.251 *	5	1129	3	4800	0.252 *	0	1129	3	4800	0.252 *
Wb Right	77	0	0	-	3	80	0	0	-	0	80	0	0	-	0	80	0	0	-	0	80	0	0	-
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**0.717**					**0.741**					**0.764**					**0.765**					**0.765**
LOS				**C**					**C**					**C**					**C**					**C**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.001
Significant Impact: NO

Area Traffic Mitigation:

3871 155 4026 193 4219 24 4243

LINSCOTT, LAW & GREENSPAN, ENGINEERS
1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Pacific Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\icu27.wk4

Pacific Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	160	1	1600	0.100	6	166	1	1600	0.104	0	166	1	1600	0.104	0	166	1	1600	0.104	0	166	1	1600	0.104
Nb Thru	482	2	3200	0.198 *	19	501	2	3200	0.206 *	17	518	2	3200	0.213 *	0	518	2	3200	0.213 *	0	518	2	3200	0.213 *
Nb Right	153	0	0	-	6	159	0	0	-	3	162	0	0	-	0	162	0	0	-	0	162	0	0	-
Sb Left	114	1	1600	0.071 *	5	119	1	1600	0.074 *	0	119	1	1600	0.074 *	0	119	1	1600	0.074 *	0	119	1	1600	0.074 *
Sb Thru	391	2	3200	0.164	16	407	2	3200	0.171	18	425	2	3200	0.177	0	425	2	3200	0.177	0	425	2	3200	0.177
Sb Right	135	0	0	-	5	140	0	0	-	0	140	0	0	-	0	140	0	0	-	0	140	0	0	-
Eb Left	147	1	1600	0.092	6	153	1	1600	0.096	0	153	1	1600	0.096	0	153	1	1600	0.096	0	153	1	1600	0.096
Eb Thru	1153	3	4800	0.263 *	46	1199	3	4800	0.273 *	92	1291	3	4800	0.292 *	10	1301	3	4800	0.294 *	0	1301	3	4800	0.294 *
Eb Right	107	0	0	-	4	111	0	0	-	0	111	0	0	-	0	111	0	0	-	0	111	0	0	-
Wb Left	179	1	1600	0.112 *	7	186	1	1600	0.116 *	1	187	1	1600	0.117 *	0	187	1	1600	0.117 *	0	187	1	1600	0.117 *
Wb Thru	870	3	4800	0.198	35	905	3	4800	0.205	46	951	3	4800	0.215	25	976	3	4800	0.220	0	976	3	4800	0.220
Wb Right	78	0	0	-	3	81	0	0	-	0	81	0	0	-	0	81	0	0	-	0	81	0	0	-
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**0.764**					**0.789**					**0.816**					**0.818**					**0.818**
LOS				**C**					**C**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.002
Significant Impact: NO

Area Traffic Mitigation:

3969 158 4127 177 4305 35 4339

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	445	65	119	555	3	24	2	21	4	5	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	7	468	68	125	584	3	25	2	22	4	5	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	587			537			1078	1355	268	1108	1388	294
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	587			537			1078	1355	268	1108	1388	294
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			88			83	98	97	97	96	98
cM capacity (veh/h)	984			1027			148	129	730	142	123	703

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	7	312	225	125	389	198	49	25
Volume Left	7	0	0	125	0	0	25	4
Volume Right	0	0	68	0	0	3	22	16
cSH	984	1700	1700	1027	1700	1700	227	267
Volume to Capacity	0.01	0.18	0.13	0.12	0.23	0.12	0.22	0.09
Queue Length (ft)	1	0	0	10	0	0	20	8
Control Delay (s)	8.7	0.0	0.0	9.0	0.0	0.0	25.2	19.9
Lane LOS	A			A			D	C
Approach Delay (s)	0.1			1.6			25.2	19.9
Approach LOS							D	C

Intersection Summary			
Average Delay	2.2	LOS A	
Intersection Capacity Utilization	35.4%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	535	68	124	625	3	25	2	22	4	5	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	7	563	72	131	658	3	26	2	23	4	5	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	661			635			1223	1536	317	1241	1570	331
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	661			635			1223	1536	317	1241	1570	331
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			86			77	98	97	96	94	97
cM capacity (veh/h)	923			944			112	98	678	111	94	665

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	7	375	259	131	439	222	52	26
Volume Left	7	0	0	131	0	0	26	4
Volume Right	0	0	72	0	0	3	23	17
cSH	923	1700	1700	944	1700	1700	178	220
Volume to Capacity	0.01	0.22	0.15	0.14	0.26	0.13	0.29	0.12
Queue Length (ft)	1	0	0	12	0	0	29	10
Control Delay (s)	8.9	0.0	0.0	9.4	0.0	0.0	33.3	23.5
Lane LOS	A			A			D	C
Approach Delay (s)	0.1			1.6			33.3	23.5
Approach LOS							D	C

Intersection Summary			
Average Delay	2.4	LOS A	
Intersection Capacity Utilization	38.4%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	535	140	168	625	3	42	2	37	4	5	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	7	563	147	177	658	3	44	2	39	4	5	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	661			711			1354	1666	355	1349	1738	331
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	661			711			1354	1666	355	1349	1738	331
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			80			47	97	94	95	92	97
cM capacity (veh/h)	923			885			84	76	641	84	68	665

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	7	375	335	177	439	222	85	26
Volume Left	7	0	0	177	0	0	44	4
Volume Right	0	0	147	0	0	3	39	17
cSH	923	1700	1700	885	1700	1700	138	173
Volume to Capacity	0.01	0.22	0.20	0.20	0.26	0.13	0.62	0.15
Queue Length (ft)	1	0	0	19	0	0	81	13
Control Delay (s)	8.9	0.0	0.0	10.1	0.0	0.0	65.8	29.5
Lane LOS	A			B			F	D
Approach Delay (s)	0.1			2.1			65.8	29.5
Approach LOS							F	D

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	803	15	18	553	11	84	2	174	4	3	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	12	845	16	19	582	12	88	2	183	4	3	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	594			861			1215	1508	431	1256	1510	297
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	594			861			1215	1508	431	1256	1510	297
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			31	98	68	95	97	99
cM capacity (veh/h)	978			776			129	115	573	84	115	699

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	12	564	298	19	388	206	274	16
Volume Left	12	0	0	19	0	0	88	4
Volume Right	0	0	16	0	0	12	183	8
cSH	978	1700	1700	776	1700	1700	267	176
Volume to Capacity	0.01	0.33	0.18	0.02	0.23	0.12	1.02	0.09
Queue Length (ft)	1	0	0	2	0	0	263	7
Control Delay (s)	8.7	0.0	0.0	9.8	0.0	0.0	102.6	27.5
Lane LOS	A			A			F	D
Approach Delay (s)	0.1			0.3			102.6	27.5
Approach LOS							F	D

Intersection Summary			
Average Delay	16.2	LOS C	
Intersection Capacity Utilization	53.5%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	962	16	19	699	11	87	2	181	4	3	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	12	1013	17	20	736	12	92	2	191	4	3	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	747			1029			1462	1832	515	1503	1834	374
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	747			1029			1462	1832	515	1503	1834	374
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			0	97	62	91	96	99
cM capacity (veh/h)	857			670			83	72	505	49	72	624

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	12	675	354	20	491	257	284	16
Volume Left	12	0	0	20	0	0	92	4
Volume Right	0	0	17	0	0	12	191	8
cSH	857	1700	1700	670	1700	1700	188	111
Volume to Capacity	0.01	0.40	0.21	0.03	0.29	0.15	1.51	0.14
Queue Length (ft)	1	0	0	2	0	0	449	12
Control Delay (s)	9.3	0.0	0.0	10.5	0.0	0.0	300.9	42.9
Lane LOS	A			B			F	E
Approach Delay (s)	0.1			0.3			300.9	42.9
Approach LOS							F	E

Intersection Summary			
Average Delay	41.0	LOS E	
Intersection Capacity Utilization	58.8%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	962	53	42	699	11	175	2	255	4	3	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	12	1013	56	44	736	12	184	2	268	4	3	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	747			1068			1530	1899	534	1629	1922	374
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	747			1068			1530	1899	534	1629	1922	374
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			93			0	97	45	85	95	99
cM capacity (veh/h)	857			648			71	63	490	28	61	624

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	12	675	393	44	491	257	455	16
Volume Left	12	0	0	44	0	0	184	4
Volume Right	0	0	56	0	0	12	268	8
cSH	857	1700	1700	648	1700	1700	143	73
Volume to Capacity	0.01	0.40	0.23	0.07	0.29	0.15	3.17	0.22
Queue Length (ft)	1	0	0	5	0	0	Err	19
Control Delay (s)	9.3	0.0	0.0	11.0	0.0	0.0	Err	67.4
Lane LOS	A			B			F	F
Approach Delay (s)	0.1			0.6			Err	67.4
Approach LOS							F	F

Intersection Summary			
Average Delay	1942.1		
Intersection Capacity Utilization	69.9%	ICU Level of Service	B

YEAR 2014 TRAFFIC CONDITIONS

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu1.wk4

Date: 12/17/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	31	1	1600	0.019 *	3	34	1	1600	0.021 *	0	34	1	1600	0.021 *	12	46	1	1600	0.029 *	0	46	1	1600	0.029 *
Nb Thru	585	2	3200	0.198	59	644	2	3200	0.218	81	725	2	3200	0.246	35	760	2	3200	0.259	0	760	2	3200	0.237
Nb Right	48	0	0	-	5	53	0	0	-	9	62	0	0	-	7	69	0	0	-	0	69	1	1600	0.043
Sb Left	72	1	1600	0.045	7	79	1	1600	0.050	30	109	1	1600	0.068	0	109	1	1600	0.068	0	109	1	1600	0.068
Sb Thru	1102	2	3200	0.375 *	110	1212	2	3200	0.413 *	77	1289	2	3200	0.437 *	136	1425	2	3200	0.490 *	0	1425	2	3200	0.490 *
Sb Right	99	0	0	-	10	109	0	0	-	0	109	0	0	-	35	144	0	0	-	0	144	0	0	-
Eb Left	103	1	1600	0.064	10	113	1	1600	0.071	1	114	1	1600	0.071	16	130	1	1600	0.081	0	130	2	2880	0.045 *
Eb Thru	374	2	3200	0.142 *	37	411	2	3200	0.156 *	73	484	2	3200	0.179 *	5	489	2	3200	0.181 *	0	489	2	3200	0.181
Eb Right	80	0	0	-	8	88	0	0	-	1	89	0	0	-	0	89	0	0	-	0	89	0	0	-
Wb Left	200	1	1600	0.125 *	20	220	1	1600	0.138 *	5	225	1	1600	0.141 *	24	249	1	1600	0.156 *	0	249	2	2880	0.086
Wb Thru	625	2	3200	0.195	63	688	2	3200	0.215	50	738	2	3200	0.230	20	758	2	3200	0.237	0	758	2	3200	0.237 *
Wb Right	39	1	1600	0.024	4	43	1	1600	0.027	5	48	1	1600	0.030	0	48	1	1600	0.030	0	48	1	1600	0.030
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.150 ***
ICU				**0.781**					**0.848**					**0.898**					**0.976**					**0.951**
LOS				**C**					**D**					**D**					**E**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.078
Significant Impact: YES

Area Traffic Mitigation: Add NBR
Provide 2nd EBL and WB

3358 336 3694 332 4026 290 4316

B-95

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu1.wk4

Date: 12/17/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	63	1	1600	0.039 *	6	69	1	1600	0.043 *	1	70	1	1600	0.044	6	76	1	1600	0.048	0	76	1	1600	0.048
Nb Thru	798	2	3200	0.275	80	878	2	3200	0.303	102	980	2	3200	0.337 *	141	1121	2	3200	0.390 *	0	1121	2	3200	0.350 *
Nb Right	82	0	0	-	8	90	0	0	-	9	99	0	0	-	28	127	0	0	-	0	127	1	1600	0.080
Sb Left	52	1	1600	0.033	5	57	1	1600	0.036	51	108	1	1600	0.068 *	0	108	1	1600	0.068 *	0	108	1	1600	0.068 *
Sb Thru	800	2	3200	0.274 *	80	880	2	3200	0.302 *	118	998	2	3200	0.339	72	1070	2	3200	0.367	0	1070	2	3200	0.367
Sb Right	78	0	0	-	8	86	0	0	-	0	86	0	0	-	19	105	0	0	-	0	105	0	0	-
Eb Left	150	1	1600	0.094 *	15	165	1	1600	0.103 *	1	166	1	1600	0.104 *	82	248	1	1600	0.155 *	0	248	2	2880	0.086 *
Eb Thru	589	2	3200	0.192	59	648	2	3200	0.211	129	777	2	3200	0.252	27	804	2	3200	0.260	0	804	2	3200	0.260
Eb Right	26	0	0	-	3	29	0	0	-	0	29	0	0	-	0	29	0	0	-	0	29	0	0	-
Wb Left	57	1	1600	0.036	6	63	1	1600	0.039	11	74	1	1600	0.046	12	86	1	1600	0.054	0	86	2	2880	0.030
Wb Thru	513	2	3200	0.160 *	51	564	2	3200	0.176 *	142	706	2	3200	0.221 *	10	716	2	3200	0.224 *	0	716	2	3200	0.224 *
Wb Right	88	1	1600	0.055	9	97	1	1600	0.061	45	142	1	1600	0.089	0	142	1	1600	0.089	0	142	1	1600	0.089
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.150 *
ICU				0.687					0.744					0.850					0.957					0.878
LOS				B					C					D					E					D

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.107
Significant Impact: YES

Area Traffic Mitigation: Add NBR
Provide 2nd EBL and WB

3296 330 3626 609 4235 397 4632

B-96

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	1	25	0	0	1	20	935	11	43	1560	75
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	12	1	26	0	0	1	21	984	12	45	1642	79
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2307	2810	861	1971	2844	498	1721			996		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2307	2810	861	1971	2844	498	1721			996		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	38	93	91	100	100	100	94			93		
cM capacity (veh/h)	19	16	299	29	15	518	364			690		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	39	1	21	656	340	45	1095	626
Volume Left	12	0	21	0	0	45	0	0
Volume Right	26	1	0	0	12	0	0	79
cSH	50	518	364	1700	1700	690	1700	1700
Volume to Capacity	0.78	0.00	0.06	0.39	0.20	0.07	0.64	0.37
Queue Length (ft)	80	0	5	0	0	5	0	0
Control Delay (s)	193.0	12.0	15.5	0.0	0.0	10.6	0.0	0.0
Lane LOS	F	B	C			B		
Approach Delay (s)	193.0	12.0	0.3			0.3		
Approach LOS	F	B						

Intersection Summary			
Average Delay	3.0	LOS A	
Intersection Capacity Utilization	57.9%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	19	1	45	0	0	1	66	982	11	43	1664	129
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	20	1	47	0	0	1	69	1034	12	45	1752	136
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2567	3094	944	2193	3156	523	1887			1045		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2567	3094	944	2193	3156	523	1887			1045		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	87	82	100	100	100	78			93		
cM capacity (veh/h)	10	8	263	15	8	499	313			661		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	68	1	69	689	356	45	1168	720
Volume Left	20	0	69	0	0	45	0	0
Volume Right	47	1	0	0	12	0	0	136
cSH	30	499	313	1700	1700	661	1700	1700
Volume to Capacity	2.27	0.00	0.22	0.41	0.21	0.07	0.69	0.42
Queue Length (ft)	200	0	21	0	0	5	0	0
Control Delay (s)	864.1	12.2	19.7	0.0	0.0	10.8	0.0	0.0
Lane LOS	F	B	C			B		
Approach Delay (s)	864.1	12.2	1.2			0.3		
Approach LOS	F	B						

Intersection Summary			
Average Delay	19.6		
Intersection Capacity Utilization	71.1%	ICU Level of Service	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	33	0	65	10	0	58	8	1560	8	8	1148	18
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	35	0	68	11	0	61	8	1642	8	8	1208	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2134	2902	614	2353	2907	825	1227			1651		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2134	2902	614	2353	2907	825	1227			1651		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	84	32	100	81	99			98		
cM capacity (veh/h)	22	15	435	16	15	316	564			387		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	103	72	8	1095	556	8	806	422
Volume Left	35	11	8	0	0	8	0	0
Volume Right	68	61	0	0	8	0	0	19
cSH	59	82	564	1700	1700	387	1700	1700
Volume to Capacity	1.74	0.87	0.01	0.64	0.33	0.02	0.47	0.25
Queue Length (ft)	239	114	1	0	0	2	0	0
Control Delay (s)	508.6	154.3	11.5	0.0	0.0	14.5	0.0	0.0
Lane LOS	F	F	B			B		
Approach Delay (s)	508.6	154.3	0.1			0.1		
Approach LOS	F	F						

Intersection Summary			
Average Delay	20.8	LOS C	
Intersection Capacity Utilization	62.4%	ICU Level of Service	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	75	0	162	10	0	58	32	1693	8	8	1204	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	79	0	171	11	0	61	34	1782	8	8	1267	51
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2329	3167	659	2675	3188	895	1318			1791		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2329	3167	659	2675	3188	895	1318			1791		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	58	0	100	78	94			98		
cM capacity (veh/h)	14	9	406	6	9	284	520			342		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	249	72	34	1188	602	8	845	473
Volume Left	79	11	34	0	0	8	0	0
Volume Right	171	61	0	0	8	0	0	51
cSH	42	35	520	1700	1700	342	1700	1700
Volume to Capacity	5.88	2.04	0.06	0.70	0.35	0.02	0.50	0.28
Queue Length (ft)	Err	199	5	0	0	2	0	0
Control Delay (s)	Err	728.4	12.4	0.0	0.0	15.8	0.0	0.0
Lane LOS	F	F	B			C		
Approach Delay (s)	Err	728.4	0.2			0.1		
Approach LOS	F	F						

Intersection Summary			
Average Delay	733.7		
Intersection Capacity Utilization	77.7%	ICU Level of Service	C

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Columbia Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Columbia Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu3.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	66	1	1600	0.041 *	7	73	1	1600	0.045 *	0	73	1	1600	0.045 *	0	73	1	1600	0.045 *	0	73	1	1600	0.045 *
Nb Thru	750	2	3200	0.243	75	825	2	3200	0.268	88	913	2	3200	0.295	93	1006	2	3200	0.324	0	1006	2	3200	0.324
Nb Right	29	0	0	-	3	32	0	0	-	0	32	0	0	-	0	32	0	0	-	0	32	0	0	-
Sb Left	65	1	1600	0.041	7	72	1	1600	0.045	0	72	1	1600	0.045	0	72	1	1600	0.045	0	72	1	1600	0.045
Sb Thru	1237	2	3200	0.408 *	124	1361	2	3200	0.448 *	82	1443	2	3200	0.474 *	123	1566	2	3200	0.513 *	0	1566	2	3200	0.513 *
Sb Right	67	0	0	-	7	74	0	0	-	1	75	0	0	-	0	75	0	0	-	0	75	0	0	-
Eb Left	22	0	0	0.000	2	24	0	0	0.000	0	24	0	0	0.000	0	24	0	0	0.000	0	24	0	0	0.000
Eb Thru	4	1	1600	0.033 *	0	4	1	1600	0.036 *	0	4	1	1600	0.036 *	0	4	1	1600	0.036 *	0	4	1	1600	0.036 *
Eb Right	27	0	0	-	3	30	0	0	-	0	30	0	0	-	0	30	0	0	-	0	30	0	0	-
Wb Left	12	0	0	0.000 *	1	13	0	0	0.000 *	0	13	0	0	0.000 *	0	13	0	0	0.000 *	0	13	0	0	0.000 *
Wb Thru	4	1	1600	0.019	0	4	1	1600	0.021	0	4	1	1600	0.021	0	4	1	1600	0.021	0	4	1	1600	0.021
Wb Right	14	0	0	-	1	15	0	0	-	0	15	0	0	-	0	15	0	0	-	0	15	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.582**					**0.629**					**0.655**					**0.694**					**0.694**
LOS				**A**					**B**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.039
Significant Impact: NO

Area Traffic Mitigation:

2297 230 2527 171 2698 216 2914

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LINSCOTT, LAW & GREENSPAN, ENGINEERS
1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Columbia Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Columbia Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu3.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	50	1	1600	0.031 *	5	55	1	1600	0.034 *	0	55	1	1600	0.034 *	0	55	1	1600	0.034 *	0	55	1	1600	0.034 *
Nb Thru	1077	2	3200	0.342	108	1185	2	3200	0.376	111	1296	2	3200	0.410	158	1454	2	3200	0.460	0	1454	2	3200	0.460
Nb Right	16	0	0	-	2	18	0	0	-	0	18	0	0	-	0	18	0	0	-	0	18	0	0	-
Sb Left	21	1	1600	0.013	2	23	1	1600	0.014	0	23	1	1600	0.014	0	23	1	1600	0.014	0	23	1	1600	0.014
Sb Thru	992	2	3200	0.334 *	99	1091	2	3200	0.367 *	128	1219	2	3200	0.407 *	153	1372	2	3200	0.455 *	0	1372	2	3200	0.455 *
Sb Right	76	0	0	-	8	84	0	0	-	1	85	0	0	-	0	85	0	0	-	0	85	0	0	-
Eb Left	96	0	0	0.000	10	106	0	0	0.000	0	106	0	0	0.000	0	106	0	0	0.000	0	106	0	0	0.000
Eb Thru	17	1	1600	0.109 *	2	19	1	1600	0.120 *	0	19	1	1600	0.120 *	0	19	1	1600	0.120 *	0	19	1	1600	0.120 *
Eb Right	62	0	0	-	6	68	0	0	-	0	68	0	0	-	0	68	0	0	-	0	68	0	0	-
Wb Left	42	0	0	0.000 *	4	46	0	0	0.000 *	0	46	0	0	0.000 *	0	46	0	0	0.000 *	0	46	0	0	0.000 *
Wb Thru	11	1	1600	0.101	1	12	1	1600	0.111	0	12	1	1600	0.111	0	12	1	1600	0.111	0	12	1	1600	0.111
Wb Right	108	0	0	-	11	119	0	0	-	0	119	0	0	-	0	119	0	0	-	0	119	0	0	-
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.574					0.621					0.661					0.709					0.709
LOS				A					B					B					C					C

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.048
Significant Impact: NO

Area Traffic Mitigation:

2568 258 2826 240 3065 311 3377

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1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
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N-S St: Atlantic Avenue
E-W St: Memorial Medical Center / 28th Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu4.wk4

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Memorial Medical Center / 28th Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/17/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	101	1	1600	0.063 *	10	111	1	1600	0.069 *	0	111	1	1600	0.069 *	24	135	1	1600	0.084 *	0	135	1	1600	0.084 *
Nb Thru	774	2	3200	0.257	77	851	2	3200	0.283	88	939	2	3200	0.310	91	1030	2	3200	0.339	0	1030	2	3200	0.339
Nb Right	48	0	0	-	5	53	0	0	-	0	53	0	0	-	0	53	0	0	-	0	53	0	0	-
Sb Left	41	1	1600	0.026	4	45	1	1600	0.028	0	45	1	1600	0.028	0	45	1	1600	0.028	0	45	1	1600	0.028
Sb Thru	1101	2	3200	0.344 *	110	1211	2	3200	0.378 *	82	1293	2	3200	0.404 *	61	1354	2	3200	0.423 *	0	1354	2	3200	0.423 *
Sb Right	152	1	1600	0.095	15	167	1	1600	0.105	0	167	1	1600	0.105	46	213	1	1600	0.133	0	213	1	1600	0.133
Eb Left	36	1	1600	0.023 *	4	40	1	1600	0.025 *	0	40	1	1600	0.025 *	16	56	1	1600	0.035 *	0	56	1	1600	0.035 *
Eb Thru	2	1	1600	0.022	0	2	1	1600	0.024	0	2	1	1600	0.024	0	2	1	1600	0.028	0	2	1	1600	0.028
Eb Right	33	0	0	-	3	36	0	0	-	0	36	0	0	-	7	43	0	0	-	0	43	0	0	-
Wb Left	9	0	0	0.000	1	10	0	0	0.000	0	10	0	0	0.000	0	10	0	0	0.000	0	10	0	0	0.000
Wb Thru	4	1	1600	0.015 *	0	4	1	1600	0.017 *	0	4	1	1600	0.017 *	0	4	1	1600	0.017 *	0	4	1	1600	0.017 *
Wb Right	11	0	0	-	1	12	0	0	-	0	12	0	0	-	0	12	0	0	-	0	12	0	0	-
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**0.565**					**0.609**					**0.635**					**0.679**					**0.679**
LOS				**A**					**B**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.044
Significant Impact: NO

Area Traffic Mitigation:

2312 230 2542 170 2712 245 2957

B-103

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	14	12	1072	55	45	1583
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	15	13	1128	58	47	1666
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2085	593			1186	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2085	593			1186	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	65	97			92	
cM capacity (veh/h)	42	449			584	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	27	752	434	47	833	833
Volume Left	15	0	0	47	0	0
Volume Right	13	0	58	0	0	0
cSH	72	1700	1700	584	1700	1700
Volume to Capacity	0.38	0.44	0.26	0.08	0.49	0.49
Queue Length (ft)	36	0	0	7	0	0
Control Delay (s)	82.8	0.0	0.0	11.7	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	82.8	0.0		0.3		
Approach LOS	F					

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	56.1%	ICU Level of Service	A

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Memorial Medical Center / 28th Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Memorial Medical Center / 28th Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu4.wk4

Date: 12/17/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	51	1	1600	0.032 *	5	56	1	1600	0.035 *	0	56	1	1600	0.035 *	12	68	1	1600	0.043 *	0	68	1	1600	0.043 *
Nb Thru	1016	2	3200	0.323	102	1118	2	3200	0.355	111	1229	2	3200	0.389	83	1312	2	3200	0.415	0	1312	2	3200	0.415
Nb Right	16	0	0	-	2	18	0	0	-	0	18	0	0	-	0	18	0	0	-	0	18	0	0	-
Sb Left	9	1	1600	0.006	1	10	1	1600	0.006	0	10	1	1600	0.006	0	10	1	1600	0.006	0	10	1	1600	0.006
Sb Thru	1011	2	3200	0.316 *	101	1112	2	3200	0.348 *	128	1240	2	3200	0.388 *	140	1380	2	3200	0.431 *	0	1380	2	3200	0.431 *
Sb Right	67	1	1600	0.042	7	74	1	1600	0.046	0	74	1	1600	0.046	25	99	1	1600	0.062	0	99	1	1600	0.062
Eb Left	153	1	1600	0.096 *	15	168	1	1600	0.105 *	0	168	1	1600	0.105 *	57	225	1	1600	0.141 *	0	225	1	1600	0.141 *
Eb Thru	2	1	1600	0.059	0	2	1	1600	0.065	0	2	1	1600	0.065	0	2	1	1600	0.082	0	2	1	1600	0.082
Eb Right	92	0	0	-	9	101	0	0	-	0	101	0	0	-	28	129	0	0	-	0	129	0	0	-
Wb Left	18	0	0	0.000	2	20	0	0	0.000	0	20	0	0	0.000	0	20	0	0	0.000	0	20	0	0	0.000
Wb Thru	2	1	1600	0.024 *	0	2	1	1600	0.027 *	0	2	1	1600	0.027 *	0	2	1	1600	0.027 *	0	2	1	1600	0.027 *
Wb Right	19	0	0	-	2	21	0	0	-	0	21	0	0	-	0	21	0	0	-	0	21	0	0	-
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				0.588					0.635					0.675					0.762					0.762
LOS				A					B					B					C					C

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.087
Significant Impact: NO

Area Traffic Mitigation:

2456 246 2702 239 2941 345 3286

B-105

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	22	21	1555	20	10	1467
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	23	22	1637	21	11	1544
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2441	829			1658	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2441	829			1658	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	9	93			97	
cM capacity (veh/h)	25	314			385	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	45	1091	567	11	772	772
Volume Left	23	0	0	11	0	0
Volume Right	22	0	21	0	0	0
cSH	46	1700	1700	385	1700	1700
Volume to Capacity	0.98	0.64	0.33	0.03	0.45	0.45
Queue Length (ft)	102	0	0	2	0	0
Control Delay (s)	266.3	0.0	0.0	14.6	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	266.3	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	55.9%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	3	11	1105	29	56	1298
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	3	12	1163	31	59	1366
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1979	597			1194	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1979	597			1194	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	97			90	
cM capacity (veh/h)	48	446			581	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	15	775	418	59	683	683
Volume Left	3	0	0	59	0	0
Volume Right	12	0	31	0	0	0
cSH	161	1700	1700	581	1700	1700
Volume to Capacity	0.09	0.46	0.25	0.10	0.40	0.40
Queue Length (ft)	7	0	0	8	0	0
Control Delay (s)	29.5	0.0	0.0	11.9	0.0	0.0
Lane LOS	D			B		
Approach Delay (s)	29.5	0.0		0.5		
Approach LOS	D					

Intersection Summary			
Average Delay	0.4	LOS A	
Intersection Capacity Utilization	47.8%	ICU Level of Service	A

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REALIGNMENT SCENARIO (5 PHASE SIGNAL)

N-S St: Atlantic Avenue
E-W St: East Patterson Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\realignment\2014\icu5.wk4

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ East Patterson Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	242	1	1600	0.151 *	24	266	1	1600	0.166 *	0	266	1	1600	0.166 *	31	297	1	1600	0.186 *	0	297	1	1600	0.186 *
Nb Thru	825	2	3200	0.264	83	908	2	3200	0.291	86	994	2	3200	0.320	74	1068	2	3200	0.343	0	1068	2	3200	0.343
Nb Right	21	0	0	-	2	23	0	0	-	6	29	0	0	-	0	29	0	0	-	0	29	0	0	-
Sb Left	44	1	1600	0.028	4	48	1	1600	0.030	8	56	1	1600	0.035	0	56	1	1600	0.035	0	56	1	1600	0.035
Sb Thru	1080	2	3200	0.338 *	108	1188	2	3200	0.371 *	74	1262	2	3200	0.394 *	66	1328	2	3200	0.415 *	0	1328	2	3200	0.415 *
Sb Right	156	1	1600	0.098	16	172	1	1600	0.107	0	172	1	1600	0.107	57	229	1	1600	0.143	0	229	1	1600	0.143
Eb Left	38	1	1600	0.024 *	4	42	1	1600	0.026 *	0	42	1	1600	0.026 *	19	61	1	1600	0.038 *	0	61	1	1600	0.038 *
Eb Thru	0	1	1600	0.021	0	0	1	1600	0.023	0	0	1	1600	0.023	0	0	1	1600	0.030	0	0	1	1600	0.030
Eb Right	33	0	0	-	3	36	0	0	-	0	36	0	0	-	11	47	0	0	-	0	47	0	0	-
Wb Left	1	0	0	0.000	0	1	0	0	0.000	2	3	0	0	0.000	0	3	0	0	0.000	0	3	0	0	0.000
Wb Thru	0	1	1600	0.006 *	0	0	1	1600	0.006 *	0	0	1	1600	0.009 *	0	0	1	1600	0.009 *	0	0	1	1600	0.009 *
Wb Right	8	0	0	-	1	9	0	0	-	2	11	0	0	-	0	11	0	0	-	0	11	0	0	-
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				0.639					0.689					0.715					0.768					0.768
LOS				B					B					C					C					C

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.053
Significant Impact: NO

Area Traffic Mitigation:

2448 245 2693 178 2871 258 3129

B-109

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	18	55	1245	13	17	1349
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	19	58	1311	14	18	1420
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2063	662			1324	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2063	662			1324	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	58	86			97	
cM capacity (veh/h)	46	404			517	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	77	874	451	18	710	710
Volume Left	19	0	0	18	0	0
Volume Right	58	0	14	0	0	0
cSH	137	1700	1700	517	1700	1700
Volume to Capacity	0.56	0.51	0.27	0.03	0.42	0.42
Queue Length (ft)	70	0	0	3	0	0
Control Delay (s)	60.1	0.0	0.0	12.2	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	60.1	0.0		0.2		
Approach LOS	F					

Intersection Summary			
Average Delay	1.7	Los A	
Intersection Capacity Utilization	50.5%	ICU Level of Service	A

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INTERSECTION CAPACITY UTILIZATION

REALIGNMENT SCENARIO (5 PHASE SIGNAL)

N-S St: Atlantic Avenue
E-W St: East Patterson Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\realignment\2014\icu5.wk4

Atlantic Avenue @ East Patterson Street
Peak hr: PM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	84	1	1600	0.053 *	8	92	1	1600	0.058 *	0	92	1	1600	0.058 *	18	110	1	1600	0.069 *	0	110	1	1600	0.069 *
Nb Thru	991	2	3200	0.313	99	1090	2	3200	0.344	99	1189	2	3200	0.376	86	1275	2	3200	0.403	0	1275	2	3200	0.403
Nb Right	9	0	0	-	1	10	0	0	-	3	13	0	0	-	0	13	0	0	-	0	13	0	0	-
Sb Left	12	1	1600	0.008	1	13	1	1600	0.008	4	17	1	1600	0.011	0	17	1	1600	0.011	0	17	1	1600	0.011
Sb Thru	1022	2	3200	0.319 *	102	1124	2	3200	0.351 *	124	1248	2	3200	0.390 *	121	1369	2	3200	0.428 *	0	1369	2	3200	0.428 *
Sb Right	69	1	1600	0.043	7	76	1	1600	0.047	0	76	1	1600	0.047	32	108	1	1600	0.067	0	108	1	1600	0.067
Eb Left	155	1	1600	0.097 *	16	171	1	1600	0.107 *	0	171	1	1600	0.107 *	71	242	1	1600	0.151 *	0	242	1	1600	0.151 *
Eb Thru	0	1	1600	0.058	0	0	1	1600	0.063	0	0	1	1600	0.063	0	0	1	1600	0.088	0	0	1	1600	0.088
Eb Right	92	0	0	-	9	101	0	0	-	0	101	0	0	-	39	140	0	0	-	0	140	0	0	-
Wb Left	9	0	0	0.000	1	10	0	0	0.000	8	18	0	0	0.000	0	18	0	0	0.000	0	18	0	0	0.000
Wb Thru	0	1	1600	0.030 *	0	0	1	1600	0.033 *	0	0	1	1600	0.046 *	0	0	1	1600	0.046 *	0	0	1	1600	0.046 *
Wb Right	39	0	0	-	4	43	0	0	-	12	55	0	0	-	0	55	0	0	-	0	55	0	0	-
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**0.619**					**0.669**					**0.721**					**0.814**					**0.814**
LOS				**B**					**B**					**C**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.093
Significant Impact: NO

Area Traffic Mitigation:

2482 248 2730 250 2980 367 3347

B-110

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	29	2	23	3	6	36	146	1003	20	41	912	343
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	31	2	24	3	6	38	154	1056	21	43	960	361
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1923	2431	480	1965	2781	538	1321			1077		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1923	2431	480	1965	2781	538	1321			1077		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	90	95	87	48	92	70			93		
cM capacity (veh/h)	17	21	532	24	12	487	519			643		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	33	24	47	154	704	373	43	480	480	361
Volume Left	31	0	3	154	0	0	43	0	0	0
Volume Right	0	24	38	0	0	21	0	0	0	361
cSH	17	532	65	519	1700	1700	643	1700	1700	1700
Volume to Capacity	1.93	0.05	0.72	0.30	0.41	0.22	0.07	0.28	0.28	0.21
Queue Length (ft)	115	4	81	31	0	0	5	0	0	0
Control Delay (s)	902.6	12.1	145.5	14.8	0.0	0.0	11.0	0.0	0.0	0.0
Lane LOS	F	B	F	B			B			
Approach Delay (s)	523.3		145.5	1.9			0.3			
Approach LOS	F		F							

Intersection Summary			
Average Delay	14.6	LOS B	
Intersection Capacity Utilization	48.4%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	41	2	27	3	6	36	151	1097	20	41	942	389
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	43	2	28	3	6	38	159	1155	21	43	992	409
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2014	2572	496	2095	2971	588	1401			1176		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2014	2572	496	2095	2971	588	1401			1176		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	87	95	83	27	92	67			93		
cM capacity (veh/h)	10	16	520	18	9	452	483			590		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	45	28	47	159	770	406	43	496	496	409
Volume Left	43	0	3	159	0	0	43	0	0	0
Volume Right	0	28	38	0	0	21	0	0	0	409
cSH	10	520	48	483	1700	1700	590	1700	1700	1700
Volume to Capacity	4.63	0.05	0.99	0.33	0.45	0.24	0.07	0.29	0.29	0.24
Queue Length (ft)	Err	4	104	35	0	0	6	0	0	0
Control Delay (s)	Err	12.3	258.8	16.0	0.0	0.0	11.6	0.0	0.0	0.0
Lane LOS	F	B	F	C			B			
Approach Delay (s)	6147.0		258.8	1.9			0.3			
Approach LOS	F		F							

Intersection Summary			
Average Delay	161.5		
Intersection Capacity Utilization	49.5%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	100	11	103	6	1	35	30	1099	11	39	1189	67
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	105	12	108	6	1	37	32	1157	12	41	1252	71
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2013	2565	626	2048	2630	584	1322			1168		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2013	2565	626	2048	2630	584	1322			1168		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	49	75	52	95	92	94			93		
cM capacity (veh/h)	28	23	427	13	20	455	518			594		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	117	108	44	32	771	397	41	626	626	71
Volume Left	105	0	6	32	0	0	41	0	0	0
Volume Right	0	108	37	0	0	12	0	0	0	71
cSH	27	427	72	518	1700	1700	594	1700	1700	1700
Volume to Capacity	4.33	0.25	0.61	0.06	0.45	0.23	0.07	0.37	0.37	0.04
Queue Length (ft)	Err	25	67	5	0	0	6	0	0	0
Control Delay (s)	Err	16.3	113.9	12.4	0.0	0.0	11.5	0.0	0.0	0.0
Lane LOS	F	C	F	B			B			
Approach Delay (s)	5194.2		113.9	0.3			0.3			
Approach LOS	F		F							

Intersection Summary			
Average Delay	415.2	LOS F	
Intersection Capacity Utilization	54.6%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	142	11	117	6	1	35	34	1160	11	39	1325	92
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	149	12	123	6	1	37	36	1221	12	41	1395	97
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2196	2781	697	2207	2872	616	1492			1233		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2196	2781	697	2207	2872	616	1492			1233		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	27	68	0	92	91	92			93		
cM capacity (veh/h)	19	16	383	6	14	433	446			561		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	161	123	44	36	814	419	41	697	697	97
Volume Left	149	0	6	36	0	0	41	0	0	0
Volume Right	0	123	37	0	0	12	0	0	0	97
cSH	19	383	37	446	1700	1700	561	1700	1700	1700
Volume to Capacity	8.54	0.32	1.20	0.08	0.48	0.25	0.07	0.41	0.41	0.06
Queue Length (ft)	Err	34	114	7	0	0	6	0	0	0
Control Delay (s)	Err	18.8	379.5	13.8	0.0	0.0	11.9	0.0	0.0	0.0
Lane LOS	F	C	F	B			B			
Approach Delay (s)	5674.2		379.5	0.4			0.3			
Approach LOS	F		F							

Intersection Summary			
Average Delay	521.0		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu7.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	118	1	1600	0.074 *	12	130	1	1600	0.081 *	0	130	1	1600	0.081	5	135	1	1600	0.084	0	135	1	1600	0.084
Nb Thru	549	2	3200	0.206	55	604	2	3200	0.227	65	669	2	3200	0.254 *	73	742	2	3200	0.277 *	0	742	2	3200	0.277 *
Nb Right	110	0	0	-	11	121	0	0	-	23	144	0	0	-	0	144	0	0	-	0	144	0	0	-
Sb Left	85	1	1600	0.053	9	94	1	1600	0.058	20	114	1	1600	0.071 *	6	120	1	1600	0.075 *	0	120	1	1600	0.075 *
Sb Thru	550	2	3200	0.196 *	55	605	2	3200	0.216 *	35	640	2	3200	0.233	24	664	2	3200	0.241	0	664	2	3200	0.241
Sb Right	77	0	0	-	8	85	0	0	-	20	105	0	0	-	3	108	0	0	-	0	108	0	0	-
Eb Left	193	2	2880	0.067 *	19	212	2	2880	0.074 *	8	220	2	2880	0.076 *	4	224	2	2880	0.078 *	0	224	2	2880	0.078 *
Eb Thru	921	3	4800	0.207	92	1013	3	4800	0.228	87	1100	3	4800	0.246	2	1102	3	4800	0.246	0	1102	3	4800	0.246
Eb Right	72	0	0	-	7	79	0	0	-	1	80	0	0	-	0	80	0	0	-	0	80	0	0	-
Wb Left	49	1	1600	0.031	5	54	1	1600	0.034	4	58	1	1600	0.036	0	58	1	1600	0.036	0	58	1	1600	0.036
Wb Thru	829	3	4800	0.215 *	83	912	3	4800	0.236 *	72	984	3	4800	0.255 *	5	989	3	4800	0.260 *	0	989	3	4800	0.260 *
Wb Right	201	0	0	-	20	221	0	0	-	18	239	0	0	-	21	260	0	0	-	0	260	0	0	-
Yellow Allowance:				**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***
ICU				**0.732**					**0.787**					**0.836**					**0.870**					**0.870**
LOS				**C**					**C**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.034
Significant Impact: NO

Area Traffic Mitigation:

3754 376 4130 353 4483 143 4626

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INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu7.wk4

Atlantic Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	116	1	1600	0.073	12	128	1	1600	0.080	3	131	1	1600	0.082	4	135	1	1600	0.084	0	135	1	1600	0.084
Nb Thru	555	2	3200	0.197 *	56	611	2	3200	0.216 *	65	676	2	3200	0.239 *	39	715	2	3200	0.252 *	0	715	2	3200	0.252 *
Nb Right	74	0	0	-	7	81	0	0	-	9	90	0	0	-	0	90	0	0	-	0	90	0	0	-
Sb Left	270	1	1600	0.169 *	27	297	1	1600	0.186 *	12	309	1	1600	0.193 *	28	337	1	1600	0.211 *	0	337	1	1600	0.211 *
Sb Thru	642	2	3200	0.247	64	706	2	3200	0.271	91	797	2	3200	0.309	104	901	2	3200	0.347	0	901	2	3200	0.347
Sb Right	147	0	0	-	15	162	0	0	-	29	191	0	0	-	17	208	0	0	-	0	208	0	0	-
Eb Left	141	2	2880	0.049	14	155	2	2880	0.054	23	178	2	2880	0.062	14	192	2	2880	0.067	0	192	2	2880	0.067
Eb Thru	1089	3	4800	0.251 *	109	1198	3	4800	0.276 *	102	1300	3	4800	0.298 *	7	1307	3	4800	0.300 *	0	1307	3	4800	0.300 *
Eb Right	117	0	0	-	12	129	0	0	-	3	132	0	0	-	0	132	0	0	-	0	132	0	0	-
Wb Left	85	1	1600	0.053 *	9	94	1	1600	0.058 *	18	112	1	1600	0.070 *	0	112	1	1600	0.070 *	0	112	1	1600	0.070 *
Wb Thru	818	3	4800	0.195	82	900	3	4800	0.215	80	980	3	4800	0.234	4	984	3	4800	0.237	0	984	3	4800	0.237
Wb Right	118	0	0	-	12	130	0	0	-	14	144	0	0	-	10	154	0	0	-	0	154	0	0	-
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.850					0.916					0.980					1.013					1.013
LOS				D					E					E					F					F

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.033
Significant Impact: YES

Area Traffic Mitigation:

4172 419 4591 449 5038 227 5267

B-116

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	57	1279	0	0	1221	7	0	0	0	4	0	31
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	60	1346	0	0	1285	7	0	0	0	4	0	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1293			1346			1927	2759	449	1858	2755	432
vC1, stage 1 conf vol							1466	1466		1289	1289	
vC2, stage 2 conf vol							461	1293		569	1466	
vCu, unblocked vol	1293			1346			1927	2759	449	1858	2755	432
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			100			100	100	100	85	100	94
cM capacity (veh/h)	532			507			24	12	557	28	12	572

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	60	539	539	269	321	643	329	0	37
Volume Left	60	0	0	0	0	0	0	0	4
Volume Right	0	0	0	0	0	0	7	0	33
cSH	532	1700	1700	1700	507	1700	1700	1700	178
Volume to Capacity	0.11	0.32	0.32	0.16	0.00	0.38	0.19	0.00	0.21
Queue Length (ft)	9	0	0	0	0	0	0	0	19
Control Delay (s)	12.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4
Lane LOS	B							A	D
Approach Delay (s)	0.5				0.0			0.0	30.4
Approach LOS								A	D

Intersection Summary				
Average Delay	0.7	LOS A		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	101	1279	0	0	1224	18	0	0	0	51	0	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	106	1346	0	0	1288	19	0	0	0	54	0	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1307			1346			2031	2866	449	1959	2857	439
vC1, stage 1 conf vol							1559	1559		1298	1298	
vC2, stage 2 conf vol							472	1307		661	1559	
vCu, unblocked vol	1307			1346			2031	2866	449	1959	2857	439
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	80			100			100	100	100	0	100	93
cM capacity (veh/h)	525			507			18	9	557	22	9	566

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	106	539	539	269	322	644	341	0	96
Volume Left	106	0	0	0	0	0	0	0	54
Volume Right	0	0	0	0	0	0	19	0	42
cSH	525	1700	1700	1700	507	1700	1700	1700	38
Volume to Capacity	0.20	0.32	0.32	0.16	0.00	0.38	0.20	0.00	2.54
Queue Length (ft)	19	0	0	0	0	0	0	0	266
Control Delay (s)	13.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	925.3
Lane LOS	B							A	F
Approach Delay (s)	1.0				0.0			0.0	925.3
Approach LOS								A	F

Intersection Summary			
Average Delay	31.5		
Intersection Capacity Utilization	66.9%	ICU Level of Service	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	22	1475	0	0	1344	4	0	0	0	6	0	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	23	1553	0	0	1415	4	0	0	0	6	0	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1419			1553			2084	3018	518	1981	3016	474
vC1, stage 1 conf vol							1599	1599		1417	1417	
vC2, stage 2 conf vol							485	1419		564	1599	
vCu, unblocked vol	1419			1553			2084	3018	518	1981	3016	474
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			100	100	100	74	100	97
cM capacity (veh/h)	476			423			19	8	503	24	8	537

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	23	621	621	311	354	707	358	0	20
Volume Left	23	0	0	0	0	0	0	0	6
Volume Right	0	0	0	0	0	0	4	0	14
cSH	476	1700	1700	1700	423	1700	1700	1700	69
Volume to Capacity	0.05	0.37	0.37	0.18	0.00	0.42	0.21	0.00	0.29
Queue Length (ft)	4	0	0	0	0	0	0	0	26
Control Delay (s)	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.1
Lane LOS	B							A	F
Approach Delay (s)	0.2				0.0			0.0	77.1
Approach LOS								A	F

Intersection Summary			
Average Delay	0.6	LOS A	
Intersection Capacity Utilization	40.0%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	45	1475	0	0	1361	10	0	0	0	170	0	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	47	1553	0	0	1433	11	0	0	0	179	0	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1443			1553			2172	3091	518	2050	3085	483
vC1, stage 1 conf vol							1647	1647		1438	1438	
vC2, stage 2 conf vol							525	1443		612	1647	
vCu, unblocked vol	1443			1553			2172	3091	518	2050	3085	483
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			100			100	100	100	0	100	91
cM capacity (veh/h)	466			423			15	7	503	20	7	530

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	47	621	621	311	358	716	369	0	226
Volume Left	47	0	0	0	0	0	0	0	179
Volume Right	0	0	0	0	0	0	11	0	47
cSH	466	1700	1700	1700	423	1700	1700	1700	25
Volume to Capacity	0.10	0.37	0.37	0.18	0.00	0.42	0.22	0.00	8.91
Queue Length (ft)	8	0	0	0	0	0	0	0	Err
Control Delay (s)	13.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Err
Lane LOS	B							A	F
Approach Delay (s)	0.4				0.0			0.0	Err
Approach LOS								A	F

Intersection Summary			
Average Delay	692.3		
Intersection Capacity Utilization	49.5%	ICU Level of Service	A

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu9.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	237	1	1600	0.148 *	24	261	1	1600	0.163 *	1	262	1	1600	0.164 *	0	262	1	1600	0.164 *	0	262	1	1600	0.164 *
Nb Thru	547	3	4800	0.132	55	602	3	4800	0.145	24	626	3	4800	0.152	40	666	3	4800	0.163	0	666	3	4800	0.163
Nb Right	87	0	0	-	9	96	0	0	-	9	105	0	0	-	11	116	0	0	-	0	116	0	0	-
Sb Left	183	1	1600	0.114	18	201	1	1600	0.126	4	205	1	1600	0.128	26	231	1	1600	0.145	0	231	1	1600	0.145
Sb Thru	736	2	3200	0.230 *	74	810	2	3200	0.253 *	16	826	2	3200	0.258 *	12	838	2	3200	0.262 *	0	838	3	4800	0.213 *
Sb Right	145	1	1600	0.091	15	160	1	1600	0.100	23	183	1	1600	0.114	0	183	1	1600	0.114	0	183	0	0	-
Eb Left	245	1	1600	0.153 *	25	270	1	1600	0.168 *	13	283	1	1600	0.177 *	21	304	1	1600	0.190 *	0	304	1	1600	0.190 *
Eb Thru	975	3	4800	0.203	98	1073	3	4800	0.223	82	1155	3	4800	0.241	5	1160	3	4800	0.242	0	1160	3	4800	0.242
Eb Right	100	1	1600	0.063	10	110	1	1600	0.069	0	110	1	1600	0.069	0	110	1	1600	0.069	0	110	1	1600	0.069
Wb Left	111	1	1600	0.069	11	122	1	1600	0.076	2	124	1	1600	0.078	4	128	1	1600	0.080	0	128	1	1600	0.080
Wb Thru	801	3	4800	0.167 *	80	881	3	4800	0.184 *	86	967	3	4800	0.201 *	8	975	3	4800	0.203 *	0	975	3	4800	0.203 *
Wb Right	95	1	1600	0.059	10	105	1	1600	0.065	4	109	1	1600	0.068	0	109	1	1600	0.068	0	109	1	1600	0.068
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.878					0.948					0.980					0.999					0.950
LOS				D					E					E					E					E

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.019
Significant Impact: NO

Area Traffic Mitigation: Convert SBR to 3rd SBT

4262 429 4691 264 4955 127 5082

B-121

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu9.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	242	1	1600	0.151 *	24	266	1	1600	0.166 *	0	266	1	1600	0.166 *	0	266	1	1600	0.166 *	0	266	1	1600	0.166 *
Nb Thru	693	3	4800	0.158	69	762	3	4800	0.173	32	794	3	4800	0.185	22	816	3	4800	0.191	0	816	3	4800	0.191
Nb Right	63	0	0	-	6	69	0	0	-	25	94	0	0	-	6	100	0	0	-	0	100	0	0	-
Sb Left	181	1	1600	0.113	18	199	1	1600	0.124	5	204	1	1600	0.128	14	218	1	1600	0.136	0	218	1	1600	0.136
Sb Thru	747	2	3200	0.233 *	75	822	2	3200	0.257 *	38	860	2	3200	0.269 *	57	917	2	3200	0.286 *	0	917	3	4800	0.211 *
Sb Right	74	1	1600	0.046	7	81	1	1600	0.051	14	95	1	1600	0.060	0	95	1	1600	0.060	0	95	0	0	-
Eb Left	187	1	1600	0.117	19	206	1	1600	0.129	25	231	1	1600	0.144	10	241	1	1600	0.150	0	241	1	1600	0.150
Eb Thru	1085	3	4800	0.226 *	109	1194	3	4800	0.249 *	97	1291	3	4800	0.269 *	4	1295	3	4800	0.270 *	0	1295	3	4800	0.270 *
Eb Right	111	1	1600	0.069	11	122	1	1600	0.076	1	123	1	1600	0.077	0	123	1	1600	0.077	0	123	1	1600	0.077
Wb Left	161	1	1600	0.101 *	16	177	1	1600	0.111 *	17	194	1	1600	0.121 *	14	208	1	1600	0.130 *	0	208	1	1600	0.130 *
Wb Thru	811	3	4800	0.169	81	892	3	4800	0.186	89	981	3	4800	0.204	35	1016	3	4800	0.212	0	1016	3	4800	0.212
Wb Right	71	1	1600	0.044	7	78	1	1600	0.049	7	85	1	1600	0.053	0	85	1	1600	0.053	0	85	1	1600	0.053
Yellow Allowance:				**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***
ICU				**0.891**					**0.963**					**1.005**					**1.032**					**0.957**
LOS				**D**					**E**					**F**					**F**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.027
Significant Impact: YES

Area Traffic Mitigation: Convert SBR to 3rd SBT

4426 442 4868 350 5219 162 5380

B-122

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: 27th Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu10.wk4

Long Beach Boulevard @ 27th Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	689	2	3200	0.215	69	758	2	3200	0.237	42	800	2	3200	0.250	53	853	2	3200	0.267	0	853	2	3200	0.267
Nb Right	72	1	1600	0.045	7	79	1	1600	0.050	0	79	1	1600	0.050	9	88	1	1600	0.055	0	88	1	1600	0.055
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	933	2	3200	0.292 *	93	1026	2	3200	0.321 *	43	1069	2	3200	0.334 *	38	1107	2	3200	0.346 *	0	1107	2	3200	0.346 *
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	99	1	1600	0.062 *	10	109	1	1600	0.068 *	0	109	1	1600	0.068 *	9	118	1	1600	0.074 *	0	118	1	1600	0.074 *
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.454					0.489					0.502					0.520					0.520
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.018
Significant Impact: NO

Area Traffic Mitigation:

1793 179 1972 85 2057 109 2166

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ 27th Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: 27th Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu10.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	908	2	3200	0.284	91	999	2	3200	0.312	64	1063	2	3200	0.332	29	1092	2	3200	0.341	0	1092	2	3200	0.341
Nb Right	20	1	1600	0.013	2	22	1	1600	0.014	0	22	1	1600	0.014	4	26	1	1600	0.016	0	26	1	1600	0.016
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	954	2	3200	0.298 *	95	1049	2	3200	0.328 *	53	1102	2	3200	0.345 *	70	1172	2	3200	0.366 *	0	1172	2	3200	0.366 *
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	290	1	1600	0.181 *	29	319	1	1600	0.199 *	0	319	1	1600	0.199 *	32	351	1	1600	0.219 *	0	351	1	1600	0.219 *
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.579					0.627					0.644					0.685					0.685
LOS				A					B					B					B					B

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.041
Significant Impact: NO

Area Traffic Mitigation:

2172 217 2389 117 2506 135 2641

B-124

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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: Memorial Medical Center
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu11.wk4

Long Beach Boulevard @ Memorial Medical Center
Peak hr: AM
Annual Growth: 1.00%

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	833	2	3200	0.260	83	916	2	3200	0.286	42	958	2	3200	0.299	46	1004	2	3200	0.314 *	0	1004	2	3200	0.314 *
Nb Right	15	1	1600	0.009	2	17	1	1600	0.010	0	17	1	1600	0.010	16	33	1	1600	0.020	0	33	1	1600	0.020
Sb Left	39	1	1600	0.024	4	43	1	1600	0.027	0	43	1	1600	0.027	36	79	1	1600	0.049 *	0	79	1	1600	0.049 *
Sb Thru	957	2	3200	0.299 *	96	1053	2	3200	0.329 *	44	1097	2	3200	0.343 *	32	1129	2	3200	0.353	0	1129	2	3200	0.353
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	3	1	1600	0.002	0	3	1	1600	0.002	0	3	1	1600	0.002	6	9	1	1600	0.006	0	9	1	1600	0.006
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	13	1	1600	0.008	1	14	1	1600	0.009	0	14	1	1600	0.009	12	26	1	1600	0.016	0	26	1	1600	0.016
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.120 *
ICU				0.421					0.451					0.465					0.489					0.489
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.024
Significant Impact: NO

Area Traffic Mitigation:

1860 186 2046 86 2132 148 2280

B-125

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Memorial Medical Center
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Memorial Medical Center
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu11.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	1233	2	3200	0.385 *	123	1356	2	3200	0.424 *	64	1420	2	3200	0.444 *	51	1471	2	3200	0.460 *	0	1471	2	3200	0.460 *
Nb Right	28	1	1600	0.018	3	31	1	1600	0.019	0	31	1	1600	0.019	10	41	1	1600	0.026	0	41	1	1600	0.026
Sb Left	37	1	1600	0.023 *	4	41	1	1600	0.025 *	0	41	1	1600	0.025 *	20	61	1	1600	0.038 *	0	61	1	1600	0.038 *
Sb Thru	1031	2	3200	0.322	103	1134	2	3200	0.354	57	1191	2	3200	0.372	49	1240	2	3200	0.388	0	1240	2	3200	0.388
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	40	1	1600	0.025	4	44	1	1600	0.028	0	44	1	1600	0.028	22	66	1	1600	0.041	0	66	1	1600	0.041
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	46	1	1600	0.029	5	51	1	1600	0.032	0	51	1	1600	0.032	46	97	1	1600	0.060	0	97	1	1600	0.060
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**0.553**					**0.597**					**0.617**					**0.659**					**0.659**
LOS				**A**					**A**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.042
Significant Impact: NO

Area Traffic Mitigation:

2415 242 2657 121 2778 198 2976

B-126

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Columbia Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Columbia Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu12.wk4
E-W Split Phase

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	4	1	1600	0.003	0	4	1	1600	0.003	0	4	1	1600	0.003	0	4	1	1600	0.003	0	4	1	1600	0.003
Nb Thru	803	2	3200	0.275 *	80	883	2	3200	0.303 *	42	925	2	3200	0.316 *	58	983	2	3200	0.334 *	0	983	2	3200	0.334 *
Nb Right	77	0	0	-	8	85	0	0	-	0	85	0	0	-	0	85	0	0	-	0	85	0	0	-
Sb Left	81	1	1600	0.051 *	8	89	1	1600	0.056 *	0	89	1	1600	0.056 *	0	89	1	1600	0.056 *	0	89	1	1600	0.056 *
Sb Thru	989	2	3200	0.313	99	1088	2	3200	0.344	44	1132	2	3200	0.358	70	1202	2	3200	0.380	0	1202	2	3200	0.380
Sb Right	13	0	0	-	1	14	0	0	-	0	14	0	0	-	0	14	0	0	-	0	14	0	0	-
Eb Left	6	0	0	0.000	1	7	0	0	0.000	0	7	0	0	0.000	0	7	0	0	0.000	0	7	0	0	0.000
Eb Thru	3	1	1600	0.016 *	0	3	1	1600	0.017 *	0	3	1	1600	0.017 *	0	3	1	1600	0.017 *	0	3	1	1600	0.017 *
Eb Right	16	0	0	-	2	18	0	0	-	0	18	0	0	-	0	18	0	0	-	0	18	0	0	-
Wb Left	11	0	0	0.000	1	12	0	0	0.000	0	12	0	0	0.000	0	12	0	0	0.000	0	12	0	0	0.000
Wb Thru	2	1	1600	0.019 *	0	2	1	1600	0.021 *	0	2	1	1600	0.021 *	0	2	1	1600	0.021 *	0	2	1	1600	0.021 *
Wb Right	18	0	0	-	2	20	0	0	-	0	20	0	0	-	0	20	0	0	-	0	20	0	0	-
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.541					0.577					0.590					0.608					0.608
LOS				A					A					A					B					B

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.018
Significant Impact: NO

Area Traffic Mitigation:

2023 202 2225 86 2311 128 2439

B-127

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1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Columbia Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Columbia Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu12.wk4
E-W Split Phase

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	11	1	1600	0.007	1	12	1	1600	0.008	0	12	1	1600	0.008	0	12	1	1600	0.008	0	12	1	1600	0.008
Nb Thru	1341	2	3200	0.432 *	134	1475	2	3200	0.475 *	64	1539	2	3200	0.495 *	97	1636	2	3200	0.526 *	0	1636	2	3200	0.526 *
Nb Right	42	0	0	-	4	46	0	0	-	0	46	0	0	-	0	46	0	0	-	0	46	0	0	-
Sb Left	41	1	1600	0.026 *	4	45	1	1600	0.028 *	0	45	1	1600	0.028 *	0	45	1	1600	0.028 *	0	45	1	1600	0.028 *
Sb Thru	857	2	3200	0.272	86	943	2	3200	0.299	57	1000	2	3200	0.317	69	1069	2	3200	0.339	0	1069	2	3200	0.339
Sb Right	14	0	0	-	1	15	0	0	-	0	15	0	0	-	0	15	0	0	-	0	15	0	0	-
Eb Left	10	0	0	0.000	1	11	0	0	0.000	0	11	0	0	0.000	0	11	0	0	0.000	0	11	0	0	0.000
Eb Thru	5	1	1600	0.028 *	1	6	1	1600	0.030 *	0	6	1	1600	0.030 *	0	6	1	1600	0.030 *	0	6	1	1600	0.030 *
Eb Right	29	0	0	-	3	32	0	0	-	0	32	0	0	-	0	32	0	0	-	0	32	0	0	-
Wb Left	63	0	0	0.000	6	69	0	0	0.000	0	69	0	0	0.000	0	69	0	0	0.000	0	69	0	0	0.000
Wb Thru	6	1	1600	0.123 *	1	7	1	1600	0.135 *	0	7	1	1600	0.135 *	0	7	1	1600	0.135 *	0	7	1	1600	0.135 *
Wb Right	127	0	0	-	13	140	0	0	-	0	140	0	0	-	0	140	0	0	-	0	140	0	0	-
Yellow Allowance:				**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***
ICU				**0.789**					**0.848**					**0.868**					**0.899**					**0.899**
LOS				**C**					**D**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.031
Significant Impact: NO

Area Traffic Mitigation:

2546 255 2801 121 2922 166 3088

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu13.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	25	1	1600	0.016 *	3	28	1	1600	0.017 *	0	28	1	1600	0.017 *	4	32	1	1600	0.020 *	0	32	1	1600	0.020 *
Nb Thru	721	2	3200	0.253	72	793	2	3200	0.278	25	818	2	3200	0.291	18	836	2	3200	0.308	0	836	2	3200	0.261
Nb Right	88	0	0	-	9	97	0	0	-	17	114	0	0	-	37	151	0	0	-	0	151	1	1600	0.094
Sb Left	70	1	1600	0.044	7	77	1	1600	0.048	19	96	1	1600	0.060	55	151	1	1600	0.094	0	151	1	1600	0.094
Sb Thru	976	2	3200	0.351 *	98	1074	2	3200	0.386 *	29	1103	2	3200	0.395 *	51	1154	2	3200	0.411 *	0	1154	2	3200	0.361 *
Sb Right	147	0	0	-	15	162	0	0	-	0	162	0	0	-	0	162	0	0	-	0	162	1	1600	0.101
Eb Left	145	1	1600	0.091 *	15	160	1	1600	0.100 *	0	160	1	1600	0.100	0	160	1	1600	0.100	0	160	1	1600	0.100 *
Eb Thru	374	1	1600	0.279	37	411	1	1600	0.307	38	449	1	1600	0.332 *	16	465	1	1600	0.349 *	0	465	2	3200	0.145
Eb Right	73	0	0	-	7	80	0	0	-	2	82	0	0	-	11	93	0	0	-	0	93	1	1600	0.058
Wb Left	144	1	1600	0.090	14	158	1	1600	0.099	12	170	1	1600	0.107 *	6	176	1	1600	0.110 *	0	176	1	1600	0.110
Wb Thru	449	1	1600	0.281 *	45	494	1	1600	0.309 *	25	519	1	1600	0.324	3	522	1	1600	0.326	0	522	1	1600	0.326 *
Wb Right	80	1	1600	0.050	8	88	1	1600	0.055	13	101	1	1600	0.063	15	116	1	1600	0.073	0	116	1	1600	0.073
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**0.859**					**0.932**					**0.971**					**1.010**					**0.927**
LOS				**D**					**E**					**E**					**F**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.039
Significant Impact: YES

Area Traffic Mitigation: Add 2nd EBT and EBR
Add NBR and SBR

3292 330 3622 180 3802 216 4018

R-179

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu13.wk4

Date: 12/15/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	67	1	1600	0.042	7	74	1	1600	0.046	3	77	1	1600	0.048	14	91	1	1600	0.057	0	91	1	1600	0.057
Nb Thru	1138	2	3200	0.403 *	114	1252	2	3200	0.443 *	38	1290	2	3200	0.463 *	64	1354	2	3200	0.488 *	0	1354	2	3200	0.423 *
Nb Right	152	0	0	-	15	167	0	0	-	23	190	0	0	-	19	209	0	0	-	0	209	1	1600	0.131
Sb Left	64	1	1600	0.040 *	6	70	1	1600	0.044 *	47	117	1	1600	0.073 *	29	146	1	1600	0.092 *	0	146	1	1600	0.092 *
Sb Thru	791	2	3200	0.268	79	870	2	3200	0.295	30	900	2	3200	0.304	28	928	2	3200	0.313	0	928	2	3200	0.290
Sb Right	67	0	0	-	7	74	0	0	-	0	74	0	0	-	0	74	0	0	-	0	74	1	1600	0.046
Eb Left	165	1	1600	0.103	17	182	1	1600	0.113	0	182	1	1600	0.113	0	182	1	1600	0.113	0	182	1	1600	0.113 *
Eb Thru	538	1	1600	0.366 *	54	592	1	1600	0.403 *	61	653	1	1600	0.441 *	7	660	1	1600	0.449 *	0	660	2	3200	0.206
Eb Right	48	0	0	-	5	53	0	0	-	0	53	0	0	-	6	59	0	0	-	0	59	1	1600	0.037
Wb Left	120	1	1600	0.075 *	12	132	1	1600	0.083 *	27	159	1	1600	0.099 *	35	194	1	1600	0.121 *	0	194	1	1600	0.121
Wb Thru	477	1	1600	0.298	48	525	1	1600	0.328	79	604	1	1600	0.377	21	625	1	1600	0.390	0	625	1	1600	0.390 *
Wb Right	83	1	1600	0.052	8	91	1	1600	0.057	37	128	1	1600	0.080	75	203	1	1600	0.127	0	203	1	1600	0.127
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**1.004**					**1.093**					**1.196**					**1.270**					**1.138**
LOS				**F**					**F**					**F**					**F**					**F**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.074
Significant Impact: YES

Area Traffic Mitigation: Add 2nd EBT and EBR
Add NBR and SBR

3710 372 4082 345 4426 298 4725

B-130

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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Wardlow Road
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Wardlow Road
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu14.wk4

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	104	1	1600	0.065 *	10	114	1	1600	0.072 *	6	120	1	1600	0.075 *	0	120	1	1600	0.075 *	0	120	1	1600	0.075 *
Nb Thru	642	2	3200	0.213	64	706	2	3200	0.234	56	762	2	3200	0.258	15	777	2	3200	0.263	0	777	2	3200	0.263
Nb Right	40	0	0	-	4	44	0	0	-	18	62	0	0	-	3	65	0	0	-	0	65	0	0	-
Sb Left	95	1	1600	0.059	10	105	1	1600	0.065	1	106	1	1600	0.066	0	106	1	1600	0.066	0	106	1	1600	0.066
Sb Thru	906	2	3200	0.348 *	91	997	2	3200	0.383 *	79	1076	2	3200	0.410 *	53	1129	2	3200	0.427 *	0	1129	2	3200	0.427 *
Sb Right	208	0	0	-	21	229	0	0	-	9	238	0	0	-	0	238	0	0	-	0	238	0	0	-
Eb Left	175	1	1600	0.109 *	18	193	1	1600	0.120 *	3	196	1	1600	0.122 *	0	196	1	1600	0.122 *	0	196	1	1600	0.122 *
Eb Thru	441	2	3200	0.153	44	485	2	3200	0.168	186	671	2	3200	0.229	0	671	2	3200	0.229	0	671	2	3200	0.229
Eb Right	48	0	0	-	5	53	0	0	-	10	63	0	0	-	0	63	0	0	-	0	63	0	0	-
Wb Left	106	1	1600	0.066	11	117	1	1600	0.073	1	118	1	1600	0.074	10	128	1	1600	0.080	0	128	1	1600	0.080
Wb Thru	501	2	3200	0.172 *	50	551	2	3200	0.189 *	33	584	2	3200	0.199 *	0	584	2	3200	0.199 *	0	584	2	3200	0.199 *
Wb Right	48	0	0	-	5	53	0	0	-	0	53	0	0	-	0	53	0	0	-	0	53	0	0	-
Yellow Allowance:				**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***
ICU				**0.834**					**0.904**					**0.946**					**0.963**					**0.963**
LOS				**D**					**D**					**E**					**E**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.017
Significant Impact: NO

Area Traffic Mitigation:

3314 333 3647 402 4049 81 4130

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INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: Wardlow Road
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu14.wk4

Atlantic Avenue @ Wardlow Road
Peak hr: PM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	152	1	1600	0.095 *	15	167	1	1600	0.105 *	12	179	1	1600	0.112 *	0	179	1	1600	0.112	0	179	1	1600	0.112
Nb Thru	1001	2	3200	0.332	100	1101	2	3200	0.365	107	1208	2	3200	0.399	71	1279	2	3200	0.426 *	0	1279	2	3200	0.426 *
Nb Right	62	0	0	-	6	68	0	0	-	1	69	0	0	-	14	83	0	0	-	0	83	0	0	-
Sb Left	90	1	1600	0.056	9	99	1	1600	0.062	1	100	1	1600	0.063	0	100	1	1600	0.063 *	0	100	1	1600	0.063 *
Sb Thru	756	2	3200	0.303 *	76	832	2	3200	0.333 *	81	913	2	3200	0.362 *	27	940	2	3200	0.371	0	940	2	3200	0.371
Sb Right	212	0	0	-	21	233	0	0	-	13	246	0	0	-	0	246	0	0	-	0	246	0	0	-
Eb Left	186	1	1600	0.116 *	19	205	1	1600	0.128 *	4	209	1	1600	0.130 *	0	209	1	1600	0.130 *	0	209	1	1600	0.130 *
Eb Thru	564	2	3200	0.197	56	620	2	3200	0.216	34	654	2	3200	0.229	0	654	2	3200	0.229	0	654	2	3200	0.229
Eb Right	65	0	0	-	7	72	0	0	-	6	78	0	0	-	0	78	0	0	-	0	78	0	0	-
Wb Left	73	1	1600	0.046	7	80	1	1600	0.050	25	105	1	1600	0.066	7	112	1	1600	0.070	0	112	1	1600	0.070
Wb Thru	366	2	3200	0.141 *	37	403	2	3200	0.155 *	98	501	2	3200	0.186 *	0	501	2	3200	0.186 *	0	501	2	3200	0.186 *
Wb Right	86	0	0	-	9	95	0	0	-	1	96	0	0	-	0	96	0	0	-	0	96	0	0	-
Yellow Allowance:				**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***
ICU				**0.795**					**0.861**					**0.930**					**0.945**					**0.945**
LOS				**C**					**D**					**E**					**E**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.015
Significant Impact: NO

Area Traffic Mitigation:

3613 362 3975 383 4357 119 4477

B-132

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ I-405 SB Ramps
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: I-405 SB Ramps
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu15.wk4

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	631	2	3200	0.262	63	694	2	3200	0.288	99	793	2	3200	0.327	27	820	2	3200	0.342	0	820	2	3200	0.342
Nb Right	207	0	0	-	21	228	0	0	-	24	252	0	0	-	24	276	0	0	-	0	276	0	0	-
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	1056	2	3200	0.330 *	106	1162	2	3200	0.363 *	91	1253	2	3200	0.391 *	143	1396	2	3200	0.436 *	0	1396	2	3200	0.436 *
Sb Right	265	Free	9999999	0.000	27	292	Free	9999999	0.000	1	293	Free	9999999	0.000	0	293	Free	9999999	0.000	0	293	Free	9999999	0.000
Eb Left	156	1	1600	0.098	16	172	1	1600	0.107	1	173	1	1600	0.108	0	173	1	1600	0.108	0	173	1	1600	0.108
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	246	1	1600	0.154 *	25	271	1	1600	0.169 *	38	309	1	1600	0.193 *	27	336	1	1600	0.210 *	0	336	1	1600	0.210 *
Wb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.584**					**0.632**					**0.684**					**0.746**					**0.746**
LOS				**A**					**B**					**B**					**C**					**C**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.062
Significant Impact: NO

Area Traffic Mitigation:

2561 258 2819 254 3073 221 3294

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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: I-405 SB Ramps
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu15.wk4

Atlantic Avenue @ I-405 SB Ramps
Peak hr: PM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	1027	2	3200	0.432 *	103	1130	2	3200	0.475 *	181	1311	2	3200	0.547 *	119	1430	2	3200	0.616 *	0	1430	2	3200	0.616 *
Nb Right	354	0	0	-	35	389	0	0	-	49	438	0	0	-	104	542	0	0	-	0	542	0	0	-
Sb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Sb Thru	859	2	3200	0.268	86	945	2	3200	0.295	78	1023	2	3200	0.320	77	1100	2	3200	0.344	0	1100	2	3200	0.344
Sb Right	250	Free	9999999	0.000	25	275	Free	9999999	0.000	3	278	Free	9999999	0.000	0	278	Free	9999999	0.000	0	278	Free	9999999	0.000
Eb Left	242	1	1600	0.151	24	266	1	1600	0.166	2	268	1	1600	0.168	0	268	1	1600	0.168	0	268	1	1600	0.168
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	117	1	1600	0.073	12	129	1	1600	0.080	84	213	1	1600	0.133	14	227	1	1600	0.142	0	227	1	1600	0.142
Wb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.683**					**0.741**					**0.815**					**0.884**					**0.884**
LOS				**B**					**C**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.069
Significant Impact: NO

Area Traffic Mitigation:

2849 285 3134 397 3531 314 3845

B-134

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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: Hill Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu16.wk4

Atlantic Avenue @ Hill Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	49	1	1600	0.031 *	5	54	1	1600	0.034 *	0	54	1	1600	0.034 *	0	54	1	1600	0.034 *	0	54	1	1600	0.034 *
Nb Thru	548	2	3200	0.179	55	603	2	3200	0.197	76	679	2	3200	0.221	81	760	2	3200	0.246	0	760	2	3200	0.246
Nb Right	26	0	0	-	3	29	0	0	-	0	29	0	0	-	0	29	0	0	-	0	29	0	0	-
Sb Left	37	1	1600	0.023	4	41	1	1600	0.025	0	41	1	1600	0.025	0	41	1	1600	0.025	0	41	1	1600	0.025
Sb Thru	712	2	3200	0.229 *	71	783	2	3200	0.252 *	30	813	2	3200	0.262 *	24	837	2	3200	0.269 *	0	837	2	3200	0.269 *
Sb Right	22	0	0	-	2	24	0	0	-	0	24	0	0	-	0	24	0	0	-	0	24	0	0	-
Eb Left	28	0	0	0.000 *	3	31	0	0	0.000 *	0	31	0	0	0.000 *	0	31	0	0	0.000 *	0	31	0	0	0.000 *
Eb Thru	185	1	1600	0.149	19	204	1	1600	0.164	25	229	1	1600	0.180	0	229	1	1600	0.180	0	229	1	1600	0.180
Eb Right	26	0	0	-	3	29	0	0	-	0	29	0	0	-	0	29	0	0	-	0	29	0	0	-
Wb Left	37	0	0	0.000	4	41	0	0	0.000	0	41	0	0	0.000	0	41	0	0	0.000	0	41	0	0	0.000
Wb Thru	235	1	1600	0.208 *	24	259	1	1600	0.228 *	20	279	1	1600	0.241 *	0	279	1	1600	0.241 *	0	279	1	1600	0.241 *
Wb Right	60	0	0	-	6	66	0	0	-	0	66	0	0	-	0	66	0	0	-	0	66	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.568**					**0.614**					**0.637**					**0.644**					**0.644**
LOS				**A**					**B**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.007
Significant Impact: NO

Area Traffic Mitigation:

1965 199 2164 151 2315 105 2420

B-135

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INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: Hill Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu16.wk4

Atlantic Avenue @ Hill Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	45	1	1600	0.028	5	50	1	1600	0.031	0	50	1	1600	0.031 *	0	50	1	1600	0.031 *	0	50	1	1600	0.031 *
Nb Thru	710	2	3200	0.230 *	71	781	2	3200	0.253 *	57	838	2	3200	0.271	42	880	2	3200	0.284	0	880	2	3200	0.284
Nb Right	26	0	0	-	3	29	0	0	-	0	29	0	0	-	0	29	0	0	-	0	29	0	0	-
Sb Left	81	1	1600	0.051 *	8	89	1	1600	0.056 *	0	89	1	1600	0.056	0	89	1	1600	0.056	0	89	1	1600	0.056
Sb Thru	720	2	3200	0.245	72	792	2	3200	0.270	90	882	2	3200	0.298 *	104	986	2	3200	0.330 *	0	986	2	3200	0.330 *
Sb Right	65	0	0	-	7	72	0	0	-	0	72	0	0	-	0	72	0	0	-	0	72	0	0	-
Eb Left	43	0	0	0.000	4	47	0	0	0.000	0	47	0	0	0.000	0	47	0	0	0.000	0	47	0	0	0.000
Eb Thru	223	1	1600	0.195 *	22	245	1	1600	0.215 *	7	252	1	1600	0.219 *	0	252	1	1600	0.219 *	0	252	1	1600	0.219 *
Eb Right	46	0	0	-	5	51	0	0	-	0	51	0	0	-	0	51	0	0	-	0	51	0	0	-
Wb Left	33	0	0	0.000 *	3	36	0	0	0.000 *	0	36	0	0	0.000 *	0	36	0	0	0.000 *	0	36	0	0	0.000 *
Wb Thru	172	1	1600	0.169	17	189	1	1600	0.186	6	195	1	1600	0.190	0	195	1	1600	0.190	0	195	1	1600	0.190
Wb Right	66	0	0	-	7	73	0	0	-	0	73	0	0	-	0	73	0	0	-	0	73	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.576**					**0.624**					**0.648**					**0.680**					**0.680**
LOS				**A**					**B**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.032
Significant Impact: NO

Area Traffic Mitigation:

2230 224 2454 160 2613 146 2760

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INTERSECTION CAPACITY UTILIZATION

California Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: California Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu17.wk4

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	24	1	1600	0.015	2	26	1	1600	0.017	3	29	1	1600	0.018	0	29	1	1600	0.018	0	29	1	1600	0.018
Nb Thru	249	1	1600	0.173 *	25	274	1	1600	0.190 *	16	290	1	1600	0.201 *	0	290	1	1600	0.201 *	0	290	1	1600	0.201 *
Nb Right	27	0	0	-	3	30	0	0	-	2	32	0	0	-	0	32	0	0	-	0	32	0	0	-
Sb Left	18	1	1600	0.011 *	2	20	1	1600	0.012 *	13	33	1	1600	0.021 *	0	33	1	1600	0.021 *	0	33	1	1600	0.021 *
Sb Thru	118	1	1600	0.084	12	130	1	1600	0.093	12	142	1	1600	0.100	0	142	1	1600	0.100	0	142	1	1600	0.100
Sb Right	17	0	0	-	2	19	0	0	-	0	19	0	0	-	0	19	0	0	-	0	19	0	0	-
Eb Left	41	1	1600	0.026 *	4	45	1	1600	0.028 *	2	47	1	1600	0.029 *	0	47	1	1600	0.029 *	0	47	1	1600	0.029 *
Eb Thru	383	2	3200	0.133	38	421	2	3200	0.147	101	522	2	3200	0.182	12	534	2	3200	0.186	0	534	2	3200	0.186
Eb Right	44	0	0	-	4	48	0	0	-	13	61	0	0	-	0	61	0	0	-	0	61	0	0	-
Wb Left	30	1	1600	0.019	3	33	1	1600	0.021	7	40	1	1600	0.025	0	40	1	1600	0.025	0	40	1	1600	0.025
Wb Thru	763	2	3200	0.238 *	76	839	2	3200	0.262 *	79	918	2	3200	0.287 *	44	962	2	3200	0.301 *	0	962	2	3200	0.301 *
Wb Right	22	1	1600	0.014	2	24	1	1600	0.015	19	43	1	1600	0.027	0	43	1	1600	0.027	0	43	1	1600	0.027
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.548**					**0.592**					**0.638**					**0.652**					**0.652**
LOS				**A**					**A**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.014
Significant Impact: NO

Area Traffic Mitigation:

1736 173 1909 267 2176 56 2232

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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: California Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu17.wk4

California Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	14	1	1600	0.009 *	1	15	1	1600	0.010 *	15	30	1	1600	0.019 *	0	30	1	1600	0.019 *	0	30	1	1600	0.019 *
Nb Thru	171	1	1600	0.118	17	188	1	1600	0.130	26	214	1	1600	0.150	0	214	1	1600	0.150	0	214	1	1600	0.150
Nb Right	18	0	0	-	2	20	0	0	-	6	26	0	0	-	0	26	0	0	-	0	26	0	0	-
Sb Left	33	1	1600	0.021	3	36	1	1600	0.023	47	83	1	1600	0.052	0	83	1	1600	0.052	0	83	1	1600	0.052
Sb Thru	232	1	1600	0.153 *	23	255	1	1600	0.168 *	26	281	1	1600	0.185 *	0	281	1	1600	0.185 *	0	281	1	1600	0.185 *
Sb Right	13	0	0	-	1	14	0	0	-	1	15	0	0	-	0	15	0	0	-	0	15	0	0	-
Eb Left	13	1	1600	0.008	1	14	1	1600	0.009	2	16	1	1600	0.010	0	16	1	1600	0.010	0	16	1	1600	0.010
Eb Thru	760	2	3200	0.247 *	76	836	2	3200	0.272 *	211	1047	2	3200	0.339 *	55	1102	2	3200	0.357 *	0	1102	2	3200	0.357 *
Eb Right	31	0	0	-	3	34	0	0	-	5	39	0	0	-	0	39	0	0	-	0	39	0	0	-
Wb Left	37	1	1600	0.023 *	4	41	1	1600	0.025 *	3	44	1	1600	0.027 *	0	44	1	1600	0.027 *	0	44	1	1600	0.027 *
Wb Thru	545	2	3200	0.170	55	600	2	3200	0.187	197	797	2	3200	0.249	22	819	2	3200	0.256	0	819	2	3200	0.256
Wb Right	9	1	1600	0.006	1	10	1	1600	0.006	39	49	1	1600	0.031	0	49	1	1600	0.031	0	49	1	1600	0.031
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.532**					**0.575**					**0.670**					**0.688**					**0.688**
LOS				**A**					**A**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.018
Significant Impact: NO

Area Traffic Mitigation:

1876 187 2063 578 2642 77 2718

B-138

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INTERSECTION CAPACITY UTILIZATION

California Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: California Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu18.wk4

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	49	0	0	0.000	5	54	0	0	0.000	0	54	0	0	0.000	0	54	0	0	0.000	0	54	0	0	0.000
Nb Thru	182	1	1600	0.176 *	18	200	1	1600	0.194 *	15	215	1	1600	0.204 *	0	215	1	1600	0.204 *	0	215	1	1600	0.204 *
Nb Right	51	0	0	-	5	56	0	0	-	1	57	0	0	-	0	57	0	0	-	0	57	0	0	-
Sb Left	30	0	0	0.000 *	3	33	0	0	0.000 *	2	35	0	0	0.000 *	0	35	0	0	0.000 *	0	35	0	0	0.000 *
Sb Thru	109	1	1600	0.102	11	120	1	1600	0.112	12	132	1	1600	0.122	0	132	1	1600	0.122	0	132	1	1600	0.122
Sb Right	24	0	0	-	2	26	0	0	-	2	28	0	0	-	0	28	0	0	-	0	28	0	0	-
Eb Left	29	1	1600	0.018	3	32	1	1600	0.020	12	44	1	1600	0.027	0	44	1	1600	0.027 *	0	44	1	1600	0.027 *
Eb Thru	981	3	4800	0.209 *	98	1079	3	4800	0.230 *	124	1203	3	4800	0.256 *	8	1211	3	4800	0.258	0	1211	3	4800	0.258
Eb Right	23	0	0	-	2	25	0	0	-	0	25	0	0	-	0	25	0	0	-	0	25	0	0	-
Wb Left	34	1	1600	0.021 *	3	37	1	1600	0.023 *	0	37	1	1600	0.023 *	0	37	1	1600	0.023	0	37	1	1600	0.023
Wb Thru	951	3	4800	0.208	95	1046	3	4800	0.229	90	1136	3	4800	0.250	27	1163	3	4800	0.256 *	0	1163	3	4800	0.256 *
Wb Right	49	0	0	-	5	54	0	0	-	11	65	0	0	-	0	65	0	0	-	0	65	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.506**					**0.547**					**0.583**					**0.587**					**0.587**
LOS				**A**					**A**					**A**					**A**					**A**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.004
Significant Impact: NO

Area Traffic Mitigation:

2512 250 2762 269 3031 35 3066

B-139

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INTERSECTION CAPACITY UTILIZATION

N-S St: California Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu18.wk4

California Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	50	0	0	0.000 *	5	55	0	0	0.000 *	1	56	0	0	0.000 *	0	56	0	0	0.000 *	0	56	0	0	0.000 *
Nb Thru	108	1	1600	0.123	11	119	1	1600	0.135	24	143	1	1600	0.164	0	143	1	1600	0.164	0	143	1	1600	0.164
Nb Right	38	0	0	-	4	42	0	0	-	22	64	0	0	-	0	64	0	0	-	0	64	0	0	-
Sb Left	72	0	0	0.000	7	79	0	0	0.000	14	93	0	0	0.000	0	93	0	0	0.000	0	93	0	0	0.000
Sb Thru	114	1	1600	0.141 *	11	125	1	1600	0.155 *	25	150	1	1600	0.189 *	0	150	1	1600	0.189 *	0	150	1	1600	0.189 *
Sb Right	40	0	0	-	4	44	0	0	-	15	59	0	0	-	0	59	0	0	-	0	59	0	0	-
Eb Left	34	1	1600	0.021	3	37	1	1600	0.023	5	42	1	1600	0.027	0	42	1	1600	0.027	0	42	1	1600	0.027
Eb Thru	1313	3	4800	0.285 *	131	1444	3	4800	0.314 *	118	1562	3	4800	0.339 *	35	1597	3	4800	0.346 *	0	1597	3	4800	0.346 *
Eb Right	57	0	0	-	6	63	0	0	-	1	64	0	0	-	0	64	0	0	-	0	64	0	0	-
Wb Left	56	1	1600	0.035 *	6	62	1	1600	0.039 *	7	69	1	1600	0.043 *	0	69	1	1600	0.043 *	0	69	1	1600	0.043 *
Wb Thru	1002	3	4800	0.217	100	1102	3	4800	0.239	96	1198	3	4800	0.260	14	1212	3	4800	0.263	0	1212	3	4800	0.263
Wb Right	39	0	0	-	4	43	0	0	-	5	48	0	0	-	0	48	0	0	-	0	48	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.561**					**0.608**					**0.671**					**0.678**					**0.678**
LOS				**A**					**B**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.007
Significant Impact: NO

Area Traffic Mitigation:

2923 292 3215 333 3548 49 3597

B-140

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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Orange Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Orange Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu19.wk4

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	23	1	1600	0.014 *	2	25	1	1600	0.016 *	19	44	1	1600	0.028 *	0	44	1	1600	0.028 *	0	44	1	1600	0.028 *
Nb Thru	399	2	3200	0.125	40	439	2	3200	0.137	25	464	2	3200	0.145	0	464	2	3200	0.145	0	464	2	3200	0.145
Nb Right	34	1	1600	0.021	3	37	1	1600	0.023	4	41	1	1600	0.026	0	41	1	1600	0.026	0	41	1	1600	0.026
Sb Left	131	1	1600	0.082	13	144	1	1600	0.090	4	148	1	1600	0.093	0	148	1	1600	0.093	0	148	1	1600	0.093
Sb Thru	517	1	1600	0.323 *	52	569	1	1600	0.355 *	30	599	1	1600	0.374 *	0	599	1	1600	0.374 *	0	599	1	1600	0.374 *
Sb Right	96	1	1600	0.060	10	106	1	1600	0.066	38	144	1	1600	0.090	16	160	1	1600	0.100	0	160	1	1600	0.100
Eb Left	64	1	1600	0.040 *	6	70	1	1600	0.044 *	19	89	1	1600	0.056 *	5	94	1	1600	0.059 *	0	94	1	1600	0.059 *
Eb Thru	387	2	3200	0.129	39	426	2	3200	0.142	83	509	2	3200	0.174	8	517	2	3200	0.176	0	517	2	3200	0.176
Eb Right	27	0	0	-	3	30	0	0	-	18	48	0	0	-	0	48	0	0	-	0	48	0	0	-
Wb Left	37	1	1600	0.023	4	41	1	1600	0.025	5	46	1	1600	0.029	0	46	1	1600	0.029	0	46	1	1600	0.029
Wb Thru	765	2	3200	0.268 *	77	842	2	3200	0.295 *	77	919	2	3200	0.319 *	27	946	2	3200	0.327 *	0	946	2	3200	0.327 *
Wb Right	92	0	0	-	9	101	0	0	-	1	102	0	0	-	0	102	0	0	-	0	102	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.745**					**0.810**					**0.877**					**0.888**					**0.888**
LOS				**C**					**D**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.011
Significant Impact: NO

Area Traffic Mitigation:

2572 258 2830 323 3153 56 3209

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INTERSECTION CAPACITY UTILIZATION

N-S St: Orange Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu19.wk4

Orange Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	32	1	1600	0.020 *	3	35	1	1600	0.022 *	56	91	1	1600	0.057 *	0	91	1	1600	0.057 *	0	91	1	1600	0.057 *
Nb Thru	525	2	3200	0.164	53	578	2	3200	0.180	53	631	2	3200	0.197	0	631	2	3200	0.197	0	631	2	3200	0.197
Nb Right	31	1	1600	0.019	3	34	1	1600	0.021	26	60	1	1600	0.038	0	60	1	1600	0.038	0	60	1	1600	0.038
Sb Left	135	1	1600	0.084	14	149	1	1600	0.093	1	150	1	1600	0.093	0	150	1	1600	0.093	0	150	1	1600	0.093
Sb Thru	542	1	1600	0.339 *	54	596	1	1600	0.373 *	161	757	1	1600	0.473 *	0	757	1	1600	0.473 *	0	757	1	1600	0.473 *
Sb Right	99	1	1600	0.062	10	109	1	1600	0.068	36	145	1	1600	0.091	8	153	1	1600	0.096	0	153	1	1600	0.096
Eb Left	110	1	1600	0.069 *	11	121	1	1600	0.076 *	61	182	1	1600	0.114	21	203	1	1600	0.127	0	203	1	1600	0.127
Eb Thru	660	2	3200	0.212	66	726	2	3200	0.233	123	849	2	3200	0.313 *	35	884	2	3200	0.324 *	0	884	2	3200	0.324 *
Eb Right	18	0	0	-	2	20	0	0	-	133	153	0	0	-	0	153	0	0	-	0	153	0	0	-
Wb Left	25	1	1600	0.016	3	28	1	1600	0.017	78	106	1	1600	0.066 *	0	106	1	1600	0.066 *	0	106	1	1600	0.066 *
Wb Thru	395	2	3200	0.180 *	40	435	2	3200	0.198 *	147	582	2	3200	0.245	14	596	2	3200	0.250	0	596	2	3200	0.250
Wb Right	181	0	0	-	18	199	0	0	-	4	203	0	0	-	0	203	0	0	-	0	203	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.708**					**0.769**					**1.009**					**1.020**					**1.020**
LOS				**C**					**C**					**F**					**F**					**F**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.011
Significant Impact: NO

Area Traffic Mitigation:

2753 277 3030 879 3907 78 3987

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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Orange Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu20.wk4

Orange Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	55	1	1600	0.034 *	6	61	1	1600	0.038 *	5	66	1	1600	0.041 *	0	66	1	1600	0.041 *	0	66	1	1600	0.041 *
Nb Thru	363	1	1600	0.227	36	399	1	1600	0.250	27	426	1	1600	0.266	0	426	1	1600	0.266	0	426	1	1600	0.266
Nb Right	101	1	1600	0.063	10	111	1	1600	0.069	14	125	1	1600	0.078	0	125	1	1600	0.078	0	125	1	1600	0.078
Sb Left	29	1	1600	0.018	3	32	1	1600	0.020	15	47	1	1600	0.029	0	47	1	1600	0.029	0	47	1	1600	0.029
Sb Thru	442	1	1600	0.276 *	44	486	1	1600	0.304 *	17	503	1	1600	0.315 *	0	503	1	1600	0.315 *	0	503	1	1600	0.315 *
Sb Right	77	1	1600	0.048	8	85	1	1600	0.053	0	85	1	1600	0.053	0	85	1	1600	0.053	0	85	1	1600	0.053
Eb Left	86	1	1600	0.054 *	9	95	1	1600	0.059 *	3	98	1	1600	0.061 *	0	98	1	1600	0.061 *	0	98	1	1600	0.061 *
Eb Thru	968	3	4800	0.221	97	1065	3	4800	0.243	121	1186	3	4800	0.268	8	1194	3	4800	0.270	0	1194	3	4800	0.270
Eb Right	91	0	0	-	9	100	0	0	-	2	102	0	0	-	0	102	0	0	-	0	102	0	0	-
Wb Left	74	1	1600	0.046	7	81	1	1600	0.051	7	88	1	1600	0.055	0	88	1	1600	0.055	0	88	1	1600	0.055
Wb Thru	1050	3	4800	0.229 *	105	1155	3	4800	0.251 *	96	1251	3	4800	0.276 *	27	1278	3	4800	0.282 *	0	1278	3	4800	0.282 *
Wb Right	47	0	0	-	5	52	0	0	-	22	74	0	0	-	0	74	0	0	-	0	74	0	0	-
Yellow Allowance:				**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***
ICU				**0.743**					**0.802**					**0.843**					**0.849**					**0.849**
LOS				**C**					**C**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.006
Significant Impact: NO

Area Traffic Mitigation:

3383 339 3722 329 4051 35 4086

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INTERSECTION CAPACITY UTILIZATION

Orange Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Orange Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu20.wk4

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	53	1	1600	0.033 *	5	58	1	1600	0.036 *	4	62	1	1600	0.039 *	0	62	1	1600	0.039 *	0	62	1	1600	0.039 *
Nb Thru	429	1	1600	0.268	43	472	1	1600	0.295	55	527	1	1600	0.329	0	527	1	1600	0.329	0	527	1	1600	0.329
Nb Right	112	1	1600	0.070	11	123	1	1600	0.077	12	135	1	1600	0.085	0	135	1	1600	0.085	0	135	1	1600	0.085
Sb Left	52	1	1600	0.033	5	57	1	1600	0.036	27	84	1	1600	0.053	0	84	1	1600	0.053	0	84	1	1600	0.053
Sb Thru	482	1	1600	0.301 *	48	530	1	1600	0.331 *	49	579	1	1600	0.362 *	0	579	1	1600	0.362 *	0	579	1	1600	0.362 *
Sb Right	67	1	1600	0.042	7	74	1	1600	0.046	16	90	1	1600	0.056	0	90	1	1600	0.056	0	90	1	1600	0.056
Eb Left	86	1	1600	0.054	9	95	1	1600	0.059	53	148	1	1600	0.092	0	148	1	1600	0.092	0	148	1	1600	0.092
Eb Thru	1252	3	4800	0.272 *	125	1377	3	4800	0.300 *	93	1470	3	4800	0.320 *	35	1505	3	4800	0.327 *	0	1505	3	4800	0.327 *
Eb Right	55	0	0	-	6	61	0	0	-	6	67	0	0	-	0	67	0	0	-	0	67	0	0	-
Wb Left	100	1	1600	0.063 *	10	110	1	1600	0.069 *	18	128	1	1600	0.080 *	0	128	1	1600	0.080 *	0	128	1	1600	0.080 *
Wb Thru	989	3	4800	0.212	99	1088	3	4800	0.233	86	1174	3	4800	0.264	14	1188	3	4800	0.267	0	1188	3	4800	0.267
Wb Right	27	0	0	-	3	30	0	0	-	62	92	0	0	-	0	92	0	0	-	0	92	0	0	-
Yellow Allowance:				**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***
ICU				**0.819**					**0.886**					**0.951**					**0.958**					**0.958**
LOS				**D**					**D**					**E**					**E**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.007
Significant Impact: NO

Area Traffic Mitigation:

3704 371 4075 481 4555 49 4605

B-144

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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: Wardlow Road
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu21.wk4

Long Beach Boulevard @ Wardlow Road
Peak hr: AM
Annual Growth: 1.00%

Date: 11/02/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	243	1	1600	0.152 *	24	267	1	1600	0.167 *	7	274	1	1600	0.171 *	15	289	1	1600	0.181 *	0	289	2	2880	0.100 *
Nb Thru	615	3	4800	0.155	62	677	3	4800	0.171	41	718	3	4800	0.179	15	733	3	4800	0.182	0	733	3	4800	0.182
Nb Right	129	0	0	-	13	142	0	0	-	0	142	0	0	-	0	142	0	0	-	0	142	0	0	-
Sb Left	56	1	1600	0.035	6	62	1	1600	0.039	7	69	1	1600	0.043	0	69	1	1600	0.043	0	69	1	1600	0.043
Sb Thru	778	2	3200	0.243 *	78	856	2	3200	0.267 *	48	904	2	3200	0.282 *	53	957	2	3200	0.299 *	0	957	2	3200	0.299 *
Sb Right	427	1	1600	0.267	43	470	1	1600	0.294	9	479	1	1600	0.299	0	479	1	1600	0.299	0	479	1	1600	0.299
Eb Left	275	1	1600	0.172 *	28	303	1	1600	0.189 *	12	315	1	1600	0.197 *	0	315	1	1600	0.197 *	0	315	2	2880	0.109 *
Eb Thru	479	2	3200	0.167	48	527	2	3200	0.184	192	719	2	3200	0.244	0	719	2	3200	0.244	0	719	2	3200	0.244
Eb Right	55	0	0	-	6	61	0	0	-	2	63	0	0	-	0	63	0	0	-	0	63	0	0	-
Wb Left	104	1	1600	0.065	10	114	1	1600	0.072	0	114	1	1600	0.072	0	114	1	1600	0.072	0	114	1	1600	0.072
Wb Thru	694	2	3200	0.227 *	69	763	2	3200	0.249 *	39	802	2	3200	0.264 *	0	802	2	3200	0.264 *	0	802	2	3200	0.264 *
Wb Right	31	0	0	-	3	34	0	0	-	9	43	0	0	-	0	43	0	0	-	0	43	0	0	-
Yellow Allowance:				**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***					**0.180 ***
ICU				**0.934**					**1.012**					**1.054**					**1.081**					**0.952**
LOS				**E**					**F**					**F**					**F**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.027
Significant Impact: YES

Area Traffic Mitigation: Add 2nd NBL and 2nd EBL

3886 390 4276 366 4642 83 4725

R-145

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INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ Wardlow Road
Peak hr: PM
Annual Growth: 1.00%

N-S St: Long Beach Boulevard
E-W St: Wardlow Road
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu21.wk4

Date: 11/02/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	311	1	1600	0.194 *	31	342	1	1600	0.214 *	11	353	1	1600	0.221 *	71	424	1	1600	0.265 *	0	424	2	2880	0.147 *
Nb Thru	866	3	4800	0.215	87	953	3	4800	0.236	73	1026	3	4800	0.251	71	1097	3	4800	0.266	0	1097	3	4800	0.266
Nb Right	164	0	0	-	16	180	0	0	-	0	180	0	0	-	0	180	0	0	-	0	180	0	0	-
Sb Left	99	1	1600	0.062	10	109	1	1600	0.068	9	118	1	1600	0.074	0	118	1	1600	0.074	0	118	1	1600	0.074
Sb Thru	823	2	3200	0.257 *	82	905	2	3200	0.283 *	77	982	2	3200	0.307 *	27	1009	2	3200	0.315 *	0	1009	2	3200	0.315 *
Sb Right	320	1	1600	0.200	32	352	1	1600	0.220	14	366	1	1600	0.229	0	366	1	1600	0.229	0	366	1	1600	0.229
Eb Left	244	1	1600	0.153 *	24	268	1	1600	0.168 *	11	279	1	1600	0.175 *	0	279	1	1600	0.175 *	0	279	2	2880	0.097 *
Eb Thru	595	2	3200	0.201	60	655	2	3200	0.221	37	692	2	3200	0.234	0	692	2	3200	0.234	0	692	2	3200	0.234
Eb Right	49	0	0	-	5	54	0	0	-	3	57	0	0	-	0	57	0	0	-	0	57	0	0	-
Wb Left	74	1	1600	0.046	7	81	1	1600	0.051	0	81	1	1600	0.051	0	81	1	1600	0.051	0	81	1	1600	0.051
Wb Thru	599	2	3200	0.205 *	60	659	2	3200	0.225 *	118	777	2	3200	0.265 *	0	777	2	3200	0.265 *	0	777	2	3200	0.265 *
Wb Right	56	0	0	-	6	62	0	0	-	8	70	0	0	-	0	70	0	0	-	0	70	0	0	-
Yellow Allowance:				**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***					**0.140 ***
ICU				**0.949**					**1.030**					**1.108**					**1.160**					**0.964**
LOS				**E**					**F**					**F**					**F**					**E**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.052
Significant Impact: YES

Area Traffic Mitigation: Add 2nd NBL and 2nd EBL

4200 420 4620 361 4981 169 5150

B-146

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	209	254	878	0	0	1145
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	220	267	924	0	0	1205
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1326	308			924	
vC1, stage 1 conf vol	924					
vC2, stage 2 conf vol	402					
vCu, unblocked vol	1326	308			924	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	61			100	
cM capacity (veh/h)	100	688			735	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	220	267	308	308	308	402	402	402
Volume Left	220	0	0	0	0	0	0	0
Volume Right	0	267	0	0	0	0	0	0
cSH	100	688	1700	1700	1700	1700	1700	1700
Volume to Capacity	2.20	0.39	0.18	0.18	0.18	0.24	0.24	0.24
Queue Length (ft)	482	46	0	0	0	0	0	0
Control Delay (s)	641.3	13.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	B						
Approach Delay (s)	296.9		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	55.3	LOS F	
Intersection Capacity Utilization	42.1%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	209	254	910	0	0	1198
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	220	267	958	0	0	1261
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1378	319			958	
vC1, stage 1 conf vol	958					
vC2, stage 2 conf vol	420					
vCu, unblocked vol	1378	319			958	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	60			100	
cM capacity (veh/h)	92	676			714	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	220	267	319	319	319	420	420	420
Volume Left	220	0	0	0	0	0	0	0
Volume Right	0	267	0	0	0	0	0	0
cSH	92	676	1700	1700	1700	1700	1700	1700
Volume to Capacity	2.38	0.40	0.19	0.19	0.19	0.25	0.25	0.25
Queue Length (ft)	502	47	0	0	0	0	0	0
Control Delay (s)	727.7	13.8	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	B						
Approach Delay (s)	336.0		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	60.5	LOS F	
Intersection Capacity Utilization	43.2%	ICU Level of Service	A

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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: I-405 NB Ramps
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu22.wk4

Long Beach Boulevard @ I-405 NB Ramps
Peak hr: AM
Annual Growth: 1.00%

Date: 11/02/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	764	3	4800	0.159	76	840	3	4800	0.175	38	878	3	4800	0.183	32	910	3	4800	0.190	0	910	3	4800	0.190
Nb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	995	3	4800	0.207 *	100	1095	3	4800	0.228 *	50	1145	3	4800	0.238 *	53	1198	3	4800	0.249 *	0	1198	3	4800	0.249 *
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	188	1	1600	0.118	19	207	1	1600	0.129	2	209	1	1600	0.131	0	209	1	1600	0.131	0	209	1	1600	0.131
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	224	1	1600	0.140 *	22	246	1	1600	0.154 *	8	254	1	1600	0.159 *	0	254	1	1600	0.159 *	0	254	1	1600	0.159 *
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.447					0.482					0.497					0.508					0.508
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.011
Significant Impact: NO

Area Traffic Mitigation: Install Traffic Signal

2171 217 2388 98 2486 85 2571

B-149

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	179	329	1238	0	0	1068
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	188	346	1303	0	0	1124
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1678	434			1303	
vC1, stage 1 conf vol	1303					
vC2, stage 2 conf vol	375					
vCu, unblocked vol	1678	434			1303	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	39			100	
cM capacity (veh/h)	58	570			527	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	188	346	434	434	434	375	375	375
Volume Left	188	0	0	0	0	0	0	0
Volume Right	0	346	0	0	0	0	0	0
cSH	58	570	1700	1700	1700	1700	1700	1700
Volume to Capacity	3.23	0.61	0.26	0.26	0.26	0.22	0.22	0.22
Queue Length (ft)	Err	102	0	0	0	0	0	0
Control Delay (s)	Err	20.6	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	C						
Approach Delay (s)	3536.6		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	638.5	LOS F	
Intersection Capacity Utilization	53.3%	ICU Level of Service	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	179	329	1377	0	0	1095
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	188	346	1449	0	0	1153
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	0					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1834	483			1449	
vC1, stage 1 conf vol	1449					
vC2, stage 2 conf vol	384					
vCu, unblocked vol	1834	483			1449	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	35			100	
cM capacity (veh/h)	46	529			463	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	188	346	483	483	483	384	384	384
Volume Left	188	0	0	0	0	0	0	0
Volume Right	0	346	0	0	0	0	0	0
cSH	46	529	1700	1700	1700	1700	1700	1700
Volume to Capacity	4.10	0.65	0.28	0.28	0.28	0.23	0.23	0.23
Queue Length (ft)	Err	118	0	0	0	0	0	0
Control Delay (s)	Err	23.7	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	C						
Approach Delay (s)	3538.6		0.0			0.0		
Approach LOS	F							

Intersection Summary			
Average Delay	603.2	LOS F	
Intersection Capacity Utilization	56.1%	ICU Level of Service	A

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N-S St: Long Beach Boulevard
E-W St: I-405 NB Ramps
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu22.wk4

INTERSECTION CAPACITY UTILIZATION

Long Beach Boulevard @ I-405 NB Ramps
Peak hr: PM
Annual Growth: 1.00%

Date: 11/02/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Nb Thru	1057	3	4800	0.220 *	106	1163	3	4800	0.242 *	75	1238	3	4800	0.258 *	139	1377	3	4800	0.287 *	0	1377	3	4800	0.287 *
Nb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Sb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Sb Thru	898	3	4800	0.187	90	988	3	4800	0.206	80	1068	3	4800	0.222	27	1095	3	4800	0.228	0	1095	3	4800	0.228
Sb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Eb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Eb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	162	1	1600	0.101	16	178	1	1600	0.111	1	179	1	1600	0.112	0	179	1	1600	0.112	0	179	1	1600	0.112
Wb Thru	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Right	291	1	1600	0.182 *	29	320	1	1600	0.200 *	9	329	1	1600	0.206 *	0	329	1	1600	0.206 *	0	329	1	1600	0.206 *
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.502**					**0.542**					**0.564**					**0.593**					**0.593**
LOS				**A**					**A**					**A**					**A**					**A**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.029
Significant Impact: NO

Area Traffic Mitigation: Install Traffic Signal

2408 241 2649 165 2814 166 2980

B-152

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	432	20	3	467	154	146
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	455	21	3	492	162	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	495				1179	249
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	495				1179	249
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	57				0	81
cM capacity (veh/h)	1069				121	790

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	476	495	162	154
Volume Left	455	0	162	0
Volume Right	0	492	0	154
cSH	1069	1700	121	790
Volume to Capacity	0.43	0.29	1.34	0.19
Queue Length (ft)	54	0	270	18
Control Delay (s)	10.6	0.0	266.0	10.7
Lane LOS	B		F	B
Approach Delay (s)	10.6	0.0	141.7	
Approach LOS			F	

Intersection Summary			
Average Delay	38.7	LOS F	
Intersection Capacity Utilization	75.9%	ICU Level of Service	C

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	432	20	3	467	207	146
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	455	21	3	492	218	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	495				1179	249
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	495				1179	249
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	57				0	81
cM capacity (veh/h)	1069				121	790

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	476	495	218	154
Volume Left	455	0	218	0
Volume Right	0	492	0	154
cSH	1069	1700	121	790
Volume to Capacity	0.43	0.29	1.80	0.19
Queue Length (ft)	54	0	424	18
Control Delay (s)	10.6	0.0	453.6	10.7
Lane LOS	B		F	B
Approach Delay (s)	10.6	0.0	270.4	
Approach LOS			F	

Intersection Summary			
Average Delay	78.6	LOS F	
Intersection Capacity Utilization	79.0%	ICU Level of Service	C

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	432	20	3	467	207	146
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	455	21	3	492	218	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3				934	3
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3				934	3
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	72				0	86
cM capacity (veh/h)	1619				212	1081

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	476	3	492	218	154
Volume Left	455	0	0	218	0
Volume Right	0	0	492	0	154
cSH	1619	1700	1700	212	1081
Volume to Capacity	0.28	0.00	0.29	1.03	0.14
Queue Length (ft)	29	0	0	235	12
Control Delay (s)	7.8	0.0	0.0	116.7	8.9
Lane LOS	A			F	A
Approach Delay (s)	7.8	0.0		72.1	
Approach LOS				F	

Intersection Summary			
Average Delay	22.7	LOS C	
Intersection Capacity Utilization	63.4%	ICU Level of Service	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	282	39	21	467	122	101
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	297	41	22	492	128	106
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	514				903	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	514				903	268
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	72				42	86
cM capacity (veh/h)	1052				221	771

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	338	514	128	106
Volume Left	297	0	128	0
Volume Right	0	492	0	106
cSH	1052	1700	221	771
Volume to Capacity	0.28	0.30	0.58	0.14
Queue Length (ft)	29	0	81	12
Control Delay (s)	8.9	0.0	41.7	10.4
Lane LOS	A		E	B
Approach Delay (s)	8.9	0.0	27.5	
Approach LOS			D	

Intersection Summary			
Average Delay	8.7	LOS A	
Intersection Capacity Utilization	67.3%	ICU Level of Service	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	282	39	21	467	149	101
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	297	41	22	492	157	106
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	514				903	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	514				903	268
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	72				29	86
cM capacity (veh/h)	1052				221	771

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	338	514	157	106
Volume Left	297	0	157	0
Volume Right	0	492	0	106
cSH	1052	1700	221	771
Volume to Capacity	0.28	0.30	0.71	0.14
Queue Length (ft)	29	0	116	12
Control Delay (s)	8.9	0.0	53.3	10.4
Lane LOS	A		F	B
Approach Delay (s)	8.9	0.0	35.9	
Approach LOS			E	

Intersection Summary			
Average Delay	11.2	LOS B	
Intersection Capacity Utilization	68.9%	ICU Level of Service	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	282	39	21	467	149	101
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	297	41	22	492	157	106
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	22				657	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22				657	22
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	81				55	90
cM capacity (veh/h)	1593				350	1055

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	338	22	492	157	106
Volume Left	297	0	0	157	0
Volume Right	0	0	492	0	106
cSH	1593	1700	1700	350	1055
Volume to Capacity	0.19	0.01	0.29	0.45	0.10
Queue Length (ft)	17	0	0	56	8
Control Delay (s)	7.0	0.0	0.0	23.4	8.8
Lane LOS	A			C	A
Approach Delay (s)	7.0	0.0		17.5	
Approach LOS				C	

Intersection Summary			
Average Delay	6.3	LOS A	
Intersection Capacity Utilization	55.7%	ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	178	191	919	1060	243
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	187	201	967	1116	256
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1840	558	1372			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1840	558	1372			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	60	59			
cM capacity (veh/h)	40	473	496			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	187	201	322	322	322	558	558	256
Volume Left	0	201	0	0	0	0	0	0
Volume Right	187	0	0	0	0	0	0	256
cSH	473	496	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.40	0.41	0.19	0.19	0.19	0.33	0.33	0.15
Queue Length (ft)	47	49	0	0	0	0	0	0
Control Delay (s)	17.5	17.1	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	C						
Approach Delay (s)	17.5	2.9				0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	2.5	LOS A	
Intersection Capacity Utilization	49.1%	ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	231	191	951	1113	243
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	243	201	1001	1172	256
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1907	586	1427			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1907	586	1427			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	46	57			
cM capacity (veh/h)	35	454	472			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	243	201	334	334	334	586	586	256
Volume Left	0	201	0	0	0	0	0	0
Volume Right	243	0	0	0	0	0	0	256
cSH	454	472	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.54	0.43	0.20	0.20	0.20	0.34	0.34	0.15
Queue Length (ft)	77	52	0	0	0	0	0	0
Control Delay (s)	21.7	18.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	C						
Approach Delay (s)	21.7	3.0				0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	3.1	LOS A	
Intersection Capacity Utilization	54.1%	ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	150	234	1280	979	259
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	158	246	1347	1031	273
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1972	515	1303			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1972	515	1303			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	69	53			
cM capacity (veh/h)	29	505	527			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	158	246	449	449	449	515	515	273
Volume Left	0	246	0	0	0	0	0	0
Volume Right	158	0	0	0	0	0	0	273
cSH	505	527	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.31	0.47	0.26	0.26	0.26	0.30	0.30	0.16
Queue Length (ft)	33	61	0	0	0	0	0	0
Control Delay (s)	15.4	17.7	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	C						
Approach Delay (s)	15.4	2.7				0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	2.2	LOS A	
Intersection Capacity Utilization	48.8%	ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	177	234	1419	1006	259
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	186	246	1494	1059	273
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2049	529	1332			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2049	529	1332			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	62	52			
cM capacity (veh/h)	25	494	514			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	186	246	498	498	498	529	529	273
Volume Left	0	246	0	0	0	0	0	0
Volume Right	186	0	0	0	0	0	0	273
cSH	494	514	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.38	0.48	0.29	0.29	0.29	0.31	0.31	0.16
Queue Length (ft)	43	64	0	0	0	0	0	0
Control Delay (s)	16.6	18.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	C						
Approach Delay (s)	16.6	2.6				0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	2.3	LOS A	
Intersection Capacity Utilization	49.6%	ICU Level of Service	A

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: Hill Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu25.wk4

Long Beach Boulevard @ Hill Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	36	1	1600	0.023	4	40	1	1600	0.025	0	40	1	1600	0.025	0	40	1	1600	0.025	0	40	1	1600	0.025
Nb Thru	685	2	3200	0.230 *	69	754	2	3200	0.253 *	35	789	2	3200	0.264 *	53	842	2	3200	0.281 *	0	842	2	3200	0.281 *
Nb Right	51	0	0	-	5	56	0	0	-	0	56	0	0	-	0	56	0	0	-	0	56	0	0	-
Sb Left	75	1	1600	0.047 *	8	83	1	1600	0.052 *	0	83	1	1600	0.052 *	0	83	1	1600	0.052 *	0	83	1	1600	0.052 *
Sb Thru	759	2	3200	0.243	76	835	2	3200	0.267	20	855	2	3200	0.274	15	870	2	3200	0.278	0	870	2	3200	0.278
Sb Right	19	0	0	-	2	21	0	0	-	0	21	0	0	-	0	21	0	0	-	0	21	0	0	-
Eb Left	35	0	0	0.000 *	4	39	0	0	0.000 *	0	39	0	0	0.000 *	0	39	0	0	0.000 *	0	39	0	0	0.000 *
Eb Thru	134	1	1600	0.132	13	147	1	1600	0.145	25	172	1	1600	0.161	0	172	1	1600	0.161	0	172	1	1600	0.161
Eb Right	42	0	0	-	4	46	0	0	-	0	46	0	0	-	0	46	0	0	-	0	46	0	0	-
Wb Left	64	0	0	0.000	6	70	0	0	0.000	0	70	0	0	0.000	0	70	0	0	0.000	0	70	0	0	0.000
Wb Thru	163	1	1600	0.178 *	16	179	1	1600	0.196 *	20	199	1	1600	0.208 *	0	199	1	1600	0.208 *	0	199	1	1600	0.208 *
Wb Right	58	0	0	-	6	64	0	0	-	0	64	0	0	-	0	64	0	0	-	0	64	0	0	-
Yellow Allowance:				**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***
ICU				**0.605**					**0.651**					**0.674**					**0.691**					**0.691**
LOS				**B**					**B**					**B**					**B**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.017
Significant Impact: NO

Area Traffic Mitigation:

2121 213 2334 100 2434 68 2502

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INTERSECTION CAPACITY UTILIZATION

N-S St: Long Beach Boulevard
E-W St: Hill Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu25.wk4

Long Beach Boulevard @ Hill Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	74	1	1600	0.046	7	81	1	1600	0.051	0	81	1	1600	0.051	0	81	1	1600	0.051 *	0	81	1	1600	0.051 *
Nb Thru	834	2	3200	0.274 *	83	917	2	3200	0.301 *	57	974	2	3200	0.319 *	27	1001	2	3200	0.328	0	1001	2	3200	0.328
Nb Right	43	0	0	-	4	47	0	0	-	0	47	0	0	-	0	47	0	0	-	0	47	0	0	-
Sb Left	113	1	1600	0.071 *	11	124	1	1600	0.078 *	0	124	1	1600	0.078 *	0	124	1	1600	0.078	0	124	1	1600	0.078
Sb Thru	872	2	3200	0.290	87	959	2	3200	0.319	55	1014	2	3200	0.336	71	1085	2	3200	0.358 *	0	1085	2	3200	0.358 *
Sb Right	56	0	0	-	6	62	0	0	-	0	62	0	0	-	0	62	0	0	-	0	62	0	0	-
Eb Left	45	0	0	0.000 *	5	50	0	0	0.000 *	0	50	0	0	0.000 *	0	50	0	0	0.000 *	0	50	0	0	0.000 *
Eb Thru	149	1	1600	0.148	15	164	1	1600	0.163	7	171	1	1600	0.167	0	171	1	1600	0.167	0	171	1	1600	0.167
Eb Right	43	0	0	-	4	47	0	0	-	0	47	0	0	-	0	47	0	0	-	0	47	0	0	-
Wb Left	39	0	0	0.000	4	43	0	0	0.000	0	43	0	0	0.000	0	43	0	0	0.000	0	43	0	0	0.000
Wb Thru	194	1	1600	0.181 *	19	213	1	1600	0.199 *	6	219	1	1600	0.203 *	0	219	1	1600	0.203 *	0	219	1	1600	0.203 *
Wb Right	57	0	0	-	6	63	0	0	-	0	63	0	0	-	0	63	0	0	-	0	63	0	0	-
Yellow Allowance:				**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***					**0.150 ***
ICU				**0.676**					**0.728**					**0.750**					**0.762**					**0.762**
LOS				**B**					**C**					**C**					**C**					**C**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.012
Significant Impact: NO

Area Traffic Mitigation:

2519 251 2770 125 2896 98 2993

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INTERSECTION CAPACITY UTILIZATION

N-S St: Pacific Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu26.wk4

Pacific Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	57	1	1600	0.036	6	63	1	1600	0.039	0	63	1	1600	0.039	0	63	1	1600	0.039	0	63	1	1600	0.039
Nb Thru	425	2	3200	0.183 *	43	468	2	3200	0.201 *	0	468	2	3200	0.205 *	0	468	2	3200	0.205 *	0	468	2	3200	0.205 *
Nb Right	160	0	0	-	16	176	0	0	-	11	187	0	0	-	0	187	0	0	-	0	187	0	0	-
Sb Left	67	1	1600	0.042 *	7	74	1	1600	0.046 *	11	85	1	1600	0.053 *	0	85	1	1600	0.053 *	0	85	1	1600	0.053 *
Sb Thru	325	2	3200	0.107	33	358	2	3200	0.117	0	358	2	3200	0.117	0	358	2	3200	0.117	0	358	2	3200	0.117
Sb Right	16	0	0	-	2	18	0	0	-	0	18	0	0	-	0	18	0	0	-	0	18	0	0	-
Eb Left	49	1	1600	0.031	5	54	1	1600	0.034	0	54	1	1600	0.034	0	54	1	1600	0.034	0	54	1	1600	0.034
Eb Thru	339	1	1600	0.237 *	34	373	1	1600	0.261 *	19	392	1	1600	0.272 *	27	419	1	1600	0.289 *	0	419	1	1600	0.289 *
Eb Right	40	0	0	-	4	44	0	0	-	0	44	0	0	-	0	44	0	0	-	0	44	0	0	-
Wb Left	168	1	1600	0.105 *	17	185	1	1600	0.116 *	9	194	1	1600	0.121 *	0	194	1	1600	0.121 *	0	194	1	1600	0.121 *
Wb Thru	400	1	1600	0.285	40	440	1	1600	0.314	7	447	1	1600	0.324	8	455	1	1600	0.329	0	455	1	1600	0.329
Wb Right	56	0	0	-	6	62	0	0	-	9	71	0	0	-	0	71	0	0	-	0	71	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.667**					**0.724**					**0.751**					**0.768**					**0.768**
LOS				**B**					**C**					**C**					**C**					**C**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.017
Significant Impact: NO

Area Traffic Mitigation:

2102 213 2315 66 2381 35 2416

B-165

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INTERSECTION CAPACITY UTILIZATION

N-S St: Pacific Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu26.wk4

Pacific Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	73	1	1600	0.046	7	80	1	1600	0.050	0	80	1	1600	0.050	0	80	1	1600	0.050	0	80	1	1600	0.050
Nb Thru	471	2	3200	0.218 *	47	518	2	3200	0.239 *	0	518	2	3200	0.245 *	0	518	2	3200	0.245 *	0	518	2	3200	0.245 *
Nb Right	225	0	0	-	23	248	0	0	-	17	265	0	0	-	0	265	0	0	-	0	265	0	0	-
Sb Left	66	1	1600	0.041 *	7	73	1	1600	0.045 *	17	90	1	1600	0.056 *	0	90	1	1600	0.056 *	0	90	1	1600	0.056 *
Sb Thru	290	2	3200	0.096	29	319	2	3200	0.106	0	319	2	3200	0.106	0	319	2	3200	0.106	0	319	2	3200	0.106
Sb Right	18	0	0	-	2	20	0	0	-	0	20	0	0	-	0	20	0	0	-	0	20	0	0	-
Eb Left	32	1	1600	0.020	3	35	1	1600	0.022	0	35	1	1600	0.022	0	35	1	1600	0.022	0	35	1	1600	0.022
Eb Thru	401	1	1600	0.278 *	40	441	1	1600	0.306 *	27	468	1	1600	0.323 *	14	482	1	1600	0.332 *	0	482	1	1600	0.332 *
Eb Right	44	0	0	-	4	48	0	0	-	0	48	0	0	-	0	48	0	0	-	0	48	0	0	-
Wb Left	137	1	1600	0.086 *	14	151	1	1600	0.094 *	18	169	1	1600	0.105 *	0	169	1	1600	0.105 *	0	169	1	1600	0.105 *
Wb Thru	360	1	1600	0.266	36	396	1	1600	0.292	45	441	1	1600	0.332	35	476	1	1600	0.353	0	476	1	1600	0.353
Wb Right	65	0	0	-	7	72	0	0	-	18	90	0	0	-	0	90	0	0	-	0	90	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.723**					**0.784**					**0.829**					**0.838**					**0.838**
LOS				**C**					**C**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.009
Significant Impact: NO

Area Traffic Mitigation:

2182 219 2401 142 2542 49 2592

B-106

LINSCOTT, LAW & GREENSPAN, ENGINEERS
1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Pacific Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu27.wk4

Pacific Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

Date: 11/04/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	146	1	1600	0.091 *	15	161	1	1600	0.100 *	0	161	1	1600	0.100 *	0	161	1	1600	0.100 *	0	161	1	1600	0.100 *
Nb Thru	536	2	3200	0.203	54	590	2	3200	0.223	11	601	2	3200	0.227	0	601	2	3200	0.227	0	601	2	3200	0.227
Nb Right	112	0	0	-	11	123	0	0	-	1	124	0	0	-	0	124	0	0	-	0	124	0	0	-
Sb Left	89	1	1600	0.056	9	98	1	1600	0.061	0	98	1	1600	0.061	0	98	1	1600	0.061	0	98	1	1600	0.061
Sb Thru	464	2	3200	0.176 *	46	510	2	3200	0.194 *	9	519	2	3200	0.196 *	0	519	2	3200	0.196 *	0	519	2	3200	0.196 *
Sb Right	99	0	0	-	10	109	0	0	-	0	109	0	0	-	0	109	0	0	-	0	109	0	0	-
Eb Left	173	1	1600	0.108 *	17	190	1	1600	0.119 *	0	190	1	1600	0.119 *	0	190	1	1600	0.119 *	0	190	1	1600	0.119 *
Eb Thru	988	3	4800	0.223	99	1087	3	4800	0.245	103	1190	3	4800	0.267	27	1217	3	4800	0.273	0	1217	3	4800	0.273
Eb Right	83	0	0	-	8	91	0	0	-	0	91	0	0	-	0	91	0	0	-	0	91	0	0	-
Wb Left	117	1	1600	0.073	12	129	1	1600	0.080	3	132	1	1600	0.082	0	132	1	1600	0.082	0	132	1	1600	0.082
Wb Thru	987	3	4800	0.222 *	99	1086	3	4800	0.244 *	112	1198	3	4800	0.267 *	8	1206	3	4800	0.269 *	0	1206	3	4800	0.269 *
Wb Right	77	0	0	-	8	85	0	0	-	0	85	0	0	-	0	85	0	0	-	0	85	0	0	-
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**0.717**					**0.777**					**0.802**					**0.804**					**0.804**
LOS				**C**					**C**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.002
Significant Impact: NO

Area Traffic Mitigation:

3871 388 4259 239 4498 35 4533

B-167

LINSCOTT, LAW & GREENSPAN, ENGINEERS
1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Pacific Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\icu27.wk4

Pacific Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

Date: 11/01/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	160	1	1600	0.100	16	176	1	1600	0.110	0	176	1	1600	0.110	0	176	1	1600	0.110	0	176	1	1600	0.110
Nb Thru	482	2	3200	0.198 *	48	530	2	3200	0.218 *	17	547	2	3200	0.225 *	0	547	2	3200	0.225 *	0	547	2	3200	0.225 *
Nb Right	153	0	0	-	15	168	0	0	-	3	171	0	0	-	0	171	0	0	-	0	171	0	0	-
Sb Left	114	1	1600	0.071 *	11	125	1	1600	0.078 *	0	125	1	1600	0.078 *	0	125	1	1600	0.078 *	0	125	1	1600	0.078 *
Sb Thru	391	2	3200	0.164	39	430	2	3200	0.181	18	448	2	3200	0.186	0	448	2	3200	0.186	0	448	2	3200	0.186
Sb Right	135	0	0	-	14	149	0	0	-	0	149	0	0	-	0	149	0	0	-	0	149	0	0	-
Eb Left	147	1	1600	0.092	15	162	1	1600	0.101	0	162	1	1600	0.101	0	162	1	1600	0.101	0	162	1	1600	0.101
Eb Thru	1153	3	4800	0.263 *	115	1268	3	4800	0.289 *	112	1380	3	4800	0.312 *	14	1394	3	4800	0.315 *	0	1394	3	4800	0.315 *
Eb Right	107	0	0	-	11	118	0	0	-	0	118	0	0	-	0	118	0	0	-	0	118	0	0	-
Wb Left	179	1	1600	0.112 *	18	197	1	1600	0.123 *	1	198	1	1600	0.124 *	0	198	1	1600	0.124 *	0	198	1	1600	0.124 *
Wb Thru	870	3	4800	0.198	87	957	3	4800	0.217	92	1049	3	4800	0.236	35	1084	3	4800	0.244	0	1084	3	4800	0.244
Wb Right	78	0	0	-	8	86	0	0	-	0	86	0	0	-	0	86	0	0	-	0	86	0	0	-
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***
ICU				**0.764**					**0.828**					**0.859**					**0.862**					**0.862**
LOS				**C**					**D**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.003
Significant Impact: NO

Area Traffic Mitigation:

3969 397 4366 243 4609 49 4658

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	565	72	131	661	3	26	2	23	4	6	17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	8	595	76	138	696	3	27	2	24	4	6	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	699			671			1294	1624	335	1313	1661	349
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	699			671			1294	1624	335	1313	1661	349
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			85			72	98	96	96	92	97
cM capacity (veh/h)	894			916			96	85	661	96	81	647

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	8	396	274	138	464	235	54	28
Volume Left	8	0	0	138	0	0	27	4
Volume Right	0	0	76	0	0	3	24	18
cSH	894	1700	1700	916	1700	1700	156	191
Volume to Capacity	0.01	0.23	0.16	0.15	0.27	0.14	0.35	0.15
Queue Length (ft)	1	0	0	13	0	0	36	13
Control Delay (s)	9.1	0.0	0.0	9.6	0.0	0.0	39.9	27.2
Lane LOS	A			A			E	D
Approach Delay (s)	0.1			1.6			39.9	27.2
Approach LOS							E	D

Intersection Summary			
Average Delay	2.7	LOS A	
Intersection Capacity Utilization	39.8%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	565	179	198	661	3	52	2	45	4	6	17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	8	595	188	208	696	3	55	2	47	4	6	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	699			783			1492	1822	392	1477	1914	349
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	699			783			1492	1822	392	1477	1914	349
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			75			9	96	92	93	87	97
cM capacity (veh/h)	894			831			60	57	607	63	50	647

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	8	396	387	208	464	235	104	28
Volume Left	8	0	0	208	0	0	55	4
Volume Right	0	0	188	0	0	3	47	18
cSH	894	1700	1700	831	1700	1700	102	128
Volume to Capacity	0.01	0.23	0.23	0.25	0.27	0.14	1.02	0.22
Queue Length (ft)	1	0	0	25	0	0	160	20
Control Delay (s)	9.1	0.0	0.0	10.8	0.0	0.0	172.6	40.9
Lane LOS	A			B			F	E
Approach Delay (s)	0.1			2.5			172.6	40.9
Approach LOS							F	E

Intersection Summary			
Average Delay	11.7		
Intersection Capacity Utilization	56.7%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	12	1013	17	20	751	12	92	2	191	4	3	9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	13	1066	18	21	791	13	97	2	201	4	3	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	803			1084			1549	1946	542	1599	1948	402
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	803			1084			1549	1946	542	1599	1948	402
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			97			0	97	59	89	95	98
cM capacity (veh/h)	816			639			71	61	485	39	61	598

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	13	711	373	21	527	276	300	17
Volume Left	13	0	0	21	0	0	97	4
Volume Right	0	0	18	0	0	13	201	9
cSH	816	1700	1700	639	1700	1700	165	96
Volume to Capacity	0.02	0.42	0.22	0.03	0.31	0.16	1.82	0.18
Queue Length (ft)	1	0	0	3	0	0	551	15
Control Delay (s)	9.5	0.0	0.0	10.8	0.0	0.0	440.4	50.5
Lane LOS	A			B			F	F
Approach Delay (s)	0.1			0.3			440.4	50.5
Approach LOS							F	F

Intersection Summary			
Average Delay	59.6	LOS F	
Intersection Capacity Utilization	61.2%	ICU Level of Service	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	12	1013	72	56	751	12	222	2	300	4	3	9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	13	1066	76	59	791	13	234	2	316	4	3	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	803			1142			1654	2051	571	1790	2082	402
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	803			1142			1654	2051	571	1790	2082	402
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			90			0	96	32	71	93	98
cM capacity (veh/h)	816			607			55	49	464	14	47	598

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	13	711	431	59	527	276	552	17
Volume Left	13	0	0	59	0	0	234	4
Volume Right	0	0	76	0	0	13	316	9
cSH	816	1700	1700	607	1700	1700	111	45
Volume to Capacity	0.02	0.42	0.25	0.10	0.31	0.16	4.95	0.38
Queue Length (ft)	1	0	0	8	0	0	Err	33
Control Delay (s)	9.5	0.0	0.0	11.6	0.0	0.0	Err	127.3
Lane LOS	A			B			F	F
Approach Delay (s)	0.1			0.8			Err	127.3
Approach LOS							F	F

Intersection Summary			
Average Delay	2134.5		
Intersection Capacity Utilization	77.7%	ICU Level of Service	C

RESTRICTED ACCESS (RE-ROUTED TRAFFIC) LOS CALCULATION Worksheets

YEAR 2008 TRAFFIC CONDITIONS

LINSCOTT, LAW & GREENSPAN, ENGINEERS
1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\restricted access\icu1.wk4

Atlantic Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	31	1	1600	0.019 *	1	32	1	1600	0.020 *	0	32	1	1600	0.020 *	8	40	1	1600	0.025 *	0	40	1	1600	0.025 *
Nb Thru	585	2	3200	0.198	23	608	2	3200	0.206	62	661	2	3200	0.225	20	681	2	3200	0.232	0	681	2	3200	0.232
Nb Right	48	0	0	-	2	50	0	0	-	9	58	0	0	-	4	62	0	0	-	0	62	0	0	-
Sb Left	72	1	1600	0.045	3	75	1	1600	0.047	30	105	1	1600	0.066	0	105	1	1600	0.066	0	105	1	1600	0.066
Sb Thru	1102	2	3200	0.375 *	44	1146	2	3200	0.390 *	74	1220	2	3200	0.413 *	97	1317	2	3200	0.451 *	0	1317	2	3200	0.451 *
Sb Right	99	0	0	-	4	103	0	0	-	0	103	0	0	-	24	127	0	0	-	0	127	0	0	-
Eb Left	103	1	1600	0.064	4	107	1	1600	0.067	0	116	1	1600	0.073	15	131	1	1600	0.082	0	131	2	2880	0.045 *
Eb Thru	374	2	3200	0.142 *	15	389	2	3200	0.148 *	71	461	2	3200	0.170 *	4	465	2	3200	0.172 *	0	465	2	3200	0.172
Eb Right	80	0	0	-	3	83	0	0	-	1	84	0	0	-	0	84	0	0	-	0	84	0	0	-
Wb Left	200	1	1600	0.125 *	8	208	1	1600	0.130 *	2	210	1	1600	0.131 *	18	228	1	1600	0.143 *	0	228	2	2880	0.079
Wb Thru	625	2	3200	0.195	25	650	2	3200	0.203	48	698	2	3200	0.218	13	711	2	3200	0.222	0	711	2	3200	0.222 *
Wb Right	39	1	1600	0.024	2	41	1	1600	0.025	5	46	1	1600	0.028	0	46	1	1600	0.028	0	46	1	1600	0.028
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.150 *
ICU				0.781					0.808					0.854					0.911					0.893
LOS				C					D					D					E					D

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.057
Significant Impact: YES

Area Traffic Mitigation: Add 2nd EBL and WBL

3358 134 3492 302 3794 203 3997

B-173

LINSCOTT, LAW & GREENSPAN, ENGINEERS
1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\restricted access\icu1.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	63	1	1600	0.039 *	3	66	1	1600	0.041 *	1	67	1	1600	0.042	4	71	1	1600	0.044	0	71	1	1600	0.044
Nb Thru	798	2	3200	0.275	32	830	2	3200	0.286	100	902	2	3200	0.309 *	83	985	2	3200	0.340 *	0	985	2	3200	0.340 *
Nb Right	82	0	0	-	3	85	0	0	-	4	86	0	0	-	17	103	0	0	-	0	103	0	0	-
Sb Left	52	1	1600	0.033	2	54	1	1600	0.034	51	105	1	1600	0.066 *	0	105	1	1600	0.066 *	0	105	1	1600	0.066 *
Sb Thru	800	2	3200	0.274 *	32	832	2	3200	0.285 *	79	911	2	3200	0.310	51	962	2	3200	0.330	0	962	2	3200	0.330
Sb Right	78	0	0	-	3	81	0	0	-	0	81	0	0	-	13	94	0	0	-	0	94	0	0	-
Eb Left	150	1	1600	0.094 *	6	156	1	1600	0.098 *	0	184	1	1600	0.115 *	78	262	1	1600	0.164 *	0	262	2	2880	0.091 *
Eb Thru	589	2	3200	0.192	24	613	2	3200	0.200	127	743	2	3200	0.241	23	766	2	3200	0.248	0	766	2	3200	0.248
Eb Right	26	0	0	-	1	27	0	0	-	0	27	0	0	-	0	27	0	0	-	0	27	0	0	-
Wb Left	57	1	1600	0.036	2	59	1	1600	0.037	11	70	1	1600	0.044	9	79	1	1600	0.050	0	79	2	2880	0.028
Wb Thru	513	2	3200	0.160 *	21	534	2	3200	0.167 *	123	657	2	3200	0.205 *	7	664	2	3200	0.207 *	0	664	2	3200	0.207 *
Wb Right	88	1	1600	0.055	4	92	1	1600	0.057	45	137	1	1600	0.085	0	137	1	1600	0.085	0	137	1	1600	0.085
Yellow Allowance:				**0.120 ***					**0.120 ***					**0.120 ***					**0.120 ***					**0.150 ***
ICU				**0.687**					**0.711**					**0.815**					**0.897**					**0.854**
LOS				**B**					**C**					**D**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.082
Significant Impact: NO

Area Traffic Mitigation: Add 2nd EBL and WBL

3296 133 3429 541 3969 285 4255

8-194

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	37	0	0	1	51	904	10	41	1553	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	0	39	0	0	1	54	952	11	43	1635	113
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2362	2847	874	2007	2898	481	1747			962		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2362	2847	874	2007	2898	481	1747			962		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	87	100	100	100	85			94		
cM capacity (veh/h)	16	13	293	26	12	531	355			711		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	39	1	54	634	328	43	1090	658
Volume Left	0	0	54	0	0	43	0	0
Volume Right	39	1	0	0	11	0	0	113
cSH	293	531	355	1700	1700	711	1700	1700
Volume to Capacity	0.13	0.00	0.15	0.37	0.19	0.06	0.64	0.39
Queue Length (ft)	11	0	13	0	0	5	0	0
Control Delay (s)	19.2	11.8	16.9	0.0	0.0	10.4	0.0	0.0
Lane LOS	C	B	C			B		
Approach Delay (s)	19.2	11.8	0.9			0.3		
Approach LOS	C	B						

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	65.4%	ICU Level of Service	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	127	9	0	55	24	1579	7	7	1095	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	0	134	9	0	58	25	1662	7	7	1153	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2127	2907	596	2441	2924	835	1193			1669		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2127	2907	596	2441	2924	835	1193			1669		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	70	12	100	81	96			98		
cM capacity (veh/h)	22	14	447	11	14	311	581			381		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	134	67	25	1108	561	7	768	424
Volume Left	0	9	25	0	0	7	0	0
Volume Right	134	58	0	0	7	0	0	40
cSH	447	63	581	1700	1700	381	1700	1700
Volume to Capacity	0.30	1.06	0.04	0.65	0.33	0.02	0.45	0.25
Queue Length (ft)	31	132	3	0	0	1	0	0
Control Delay (s)	16.5	241.5	11.5	0.0	0.0	14.6	0.0	0.0
Lane LOS	C	F	B			B		
Approach Delay (s)	16.5	241.5	0.2			0.1		
Approach LOS	C	F						

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	56.9%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	27	3	5	34	142	1037	21	38	881	358
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	0	28	3	5	36	149	1092	22	40	927	377
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1891	2420	464	1974	2786	557	1304			1114		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1891	2420	464	1974	2786	557	1304			1114		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	95	88	58	92	72			94		
cM capacity (veh/h)	20	21	545	26	12	474	527			623		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	28	44	149	728	386	40	464	464	377
Volume Left	0	3	149	0	0	40	0	0	0
Volume Right	28	36	0	0	22	0	0	0	377
cSH	545	71	527	1700	1700	623	1700	1700	1700
Volume to Capacity	0.05	0.62	0.28	0.43	0.23	0.06	0.27	0.27	0.22
Queue Length (ft)	4	68	29	0	0	5	0	0	0
Control Delay (s)	12.0	116.7	14.5	0.0	0.0	11.2	0.0	0.0	0.0
Lane LOS	B	F	B			B			
Approach Delay (s)	12.0	116.7	1.7			0.3			
Approach LOS	B	F							

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	119	5	1	33	31	1210	20	36	1189	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	0	125	5	1	35	33	1274	21	38	1252	84
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2065	2687	626	2176	2761	647	1336			1295		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2065	2687	626	2176	2761	647	1336			1295		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	71	68	94	92	94			93		
cM capacity (veh/h)	25	19	427	16	17	413	512			531		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	125	41	33	849	446	38	626	626	84
Volume Left	0	5	33	0	0	38	0	0	0
Volume Right	125	35	0	0	21	0	0	0	84
cSH	427	88	512	1700	1700	531	1700	1700	1700
Volume to Capacity	0.29	0.47	0.06	0.50	0.26	0.07	0.37	0.37	0.05
Queue Length (ft)	30	49	5	0	0	6	0	0	0
Control Delay (s)	16.9	77.6	12.5	0.0	0.0	12.3	0.0	0.0	0.0
Lane LOS	C	F	B			B			
Approach Delay (s)	16.9	77.6	0.3			0.3			
Approach LOS	C	F							

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	55.7%	ICU Level of Service	A

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1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\restricted access\icu7.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	118	1	1600	0.074 *	5	123	1	1600	0.077 *	0	123	1	1600	0.077	4	127	1	1600	0.079	0	127	1	1600	0.079
Nb Thru	549	2	3200	0.206	22	571	2	3200	0.214	48	619	2	3200	0.232 *	52	671	2	3200	0.248 *	0	671	2	3200	0.248 *
Nb Right	110	0	0	-	4	114	0	0	-	9	123	0	0	-	0	123	0	0	-	0	123	0	0	-
Sb Left	85	1	1600	0.053	3	88	1	1600	0.055	20	110	1	1600	0.069 *	4	114	1	1600	0.071 *	0	114	1	1600	0.071 *
Sb Thru	550	2	3200	0.196 *	22	572	2	3200	0.204 *	30	602	2	3200	0.219	16	618	2	3200	0.225	0	618	2	3200	0.225
Sb Right	77	0	0	-	3	80	0	0	-	20	100	0	0	-	2	102	0	0	-	0	102	0	0	-
Eb Left	193	2	2880	0.067 *	8	201	2	2880	0.070 *	8	236	2	2880	0.082 *	11	247	2	2880	0.086 *	0	247	2	2880	0.086 *
Eb Thru	921	3	4800	0.207	37	958	3	4800	0.215	55	1013	3	4800	0.227	1	1014	3	4800	0.227	0	1014	3	4800	0.227
Eb Right	72	0	0	-	3	75	0	0	-	1	76	0	0	-	0	76	0	0	-	0	76	0	0	-
Wb Left	49	1	1600	0.031	2	51	1	1600	0.032	3	54	1	1600	0.034	0	54	1	1600	0.034	0	54	1	1600	0.034
Wb Thru	829	3	4800	0.215 *	33	862	3	4800	0.223 *	58	920	3	4800	0.239 *	4	924	3	4800	0.243 *	0	924	3	4800	0.243 *
Wb Right	201	0	0	-	8	209	0	0	-	18	227	0	0	-	15	242	0	0	-	0	242	0	0	-
Yellow Allowance:				**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***					**0.180 ***
ICU				**0.732**					**0.754**					**0.802**					**0.828**					**0.828**
LOS				**C**					**C**					**C**					**D**					**D**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.026
Significant Impact: NO

Area Traffic Mitigation:

3754 150 3904 270 4203 109 4312

8-199

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1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\restricted access\icu7.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	116	1	1600	0.073	5	121	1	1600	0.075	3	124	1	1600	0.077	3	127	1	1600	0.079	0	127	1	1600	0.079
Nb Thru	555	2	3200	0.197 *	22	577	2	3200	0.204 *	60	637	2	3200	0.224 *	27	664	2	3200	0.233 *	0	664	2	3200	0.233 *
Nb Right	74	0	0	-	3	77	0	0	-	4	81	0	0	-	0	81	0	0	-	0	81	0	0	-
Sb Left	270	1	1600	0.169 *	11	281	1	1600	0.176 *	12	303	1	1600	0.189 *	20	323	1	1600	0.202 *	0	323	1	1600	0.202 *
Sb Thru	642	2	3200	0.247	26	668	2	3200	0.256	73	741	2	3200	0.282	76	817	2	3200	0.309	0	817	2	3200	0.309
Sb Right	147	0	0	-	6	153	0	0	-	9	162	0	0	-	11	173	0	0	-	0	173	0	0	-
Eb Left	141	2	2880	0.049	6	147	2	2880	0.051	22	264	2	2880	0.092	45	309	2	2880	0.107	0	309	2	2880	0.107
Eb Thru	1089	3	4800	0.251 *	44	1133	3	4800	0.261 *	83	1216	3	4800	0.279 *	5	1221	3	4800	0.280 *	0	1221	3	4800	0.280 *
Eb Right	117	0	0	-	5	122	0	0	-	3	125	0	0	-	0	125	0	0	-	0	125	0	0	-
Wb Left	85	1	1600	0.053 *	3	88	1	1600	0.055 *	12	100	1	1600	0.063 *	0	100	1	1600	0.063 *	0	100	1	1600	0.063 *
Wb Thru	818	3	4800	0.195	33	851	3	4800	0.203	54	905	3	4800	0.217	3	908	3	4800	0.219	0	908	3	4800	0.219
Wb Right	118	0	0	-	5	123	0	0	-	14	137	0	0	-	7	144	0	0	-	0	144	0	0	-
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.850					0.876					0.935					0.958					0.958
LOS				D					D					E					E					E

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.023
Significant Impact: YES

Area Traffic Mitigation:

4172 169 4341 349 4793 197 4992

B-180

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INTERSECTION CAPACITY UTILIZATION

N-S St: Pasadena Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\restricted access\icu8.wk4

Pasadena Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000
Nb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Sb Left	4	0	0	0.000	0	4	0	0	0.000	0	31	0	0	0.000	12	43	0	0	0.000	0	43	0	0	0.000
Sb Thru	0	1	1600	0.020 *	0	0	1	1600	0.021 *	0	0	1	1600	0.038 *	0	0	1	1600	0.049 *	0	0	1	1600	0.049 *
Sb Right	28	0	0	-	1	29	0	0	-	0	29	0	0	-	6	35	0	0	-	0	35	0	0	-
Eb Left	52	1	1600	0.033 *	2	54	1	1600	0.034 *	0	54	1	1600	0.034 *	33	87	1	1600	0.054 *	0	87	1	1600	0.054 *
Eb Thru	1077	3	4800	0.224	43	1120	3	4800	0.233	62	1182	3	4800	0.246	0	1182	3	4800	0.246	0	1182	3	4800	0.246
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Thru	1020	3	4800	0.214 *	41	1061	3	4800	0.222 *	85	1146	3	4800	0.240 *	2	1148	3	4800	0.242 *	0	1148	3	4800	0.242 *
Wb Right	6	0	0	-	0	6	0	0	-	0	6	0	0	-	8	14	0	0	-	0	14	0	0	-
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.367					0.377					0.412					0.445					0.445
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.033
Significant Impact: NO

Area Traffic Mitigation:

2187 87 2274 147 2448 61 2509

R-181

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INTERSECTION CAPACITY UTILIZATION

Pasadena Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Pasadena Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\restricted access\icu8.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000
Nb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Sb Left	5	0	0	0.000	0	5	0	0	0.000	0	100	0	0	0.000	50	150	0	0	0.000	0	150	0	0	0.000
Sb Thru	0	1	1600	0.011 *	0	0	1	1600	0.011 *	0	0	1	1600	0.070 *	0	0	1	1600	0.117 *	0	0	1	1600	0.117 *
Sb Right	12	0	0	-	0	12	0	0	-	0	12	0	0	-	25	37	0	0	-	0	37	0	0	-
Eb Left	20	1	1600	0.013	1	21	1	1600	0.013	0	21	1	1600	0.013	17	38	1	1600	0.024	0	38	1	1600	0.024
Eb Thru	1217	3	4800	0.254 *	49	1266	3	4800	0.264 *	116	1382	3	4800	0.288 *	0	1382	3	4800	0.288 *	0	1382	3	4800	0.288 *
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Wb Thru	1122	3	4800	0.235	45	1167	3	4800	0.244	64	1231	3	4800	0.257	11	1242	3	4800	0.260	0	1242	3	4800	0.260
Wb Right	4	0	0	-	0	4	0	0	-	0	4	0	0	-	4	8	0	0	-	0	8	0	0	-
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.365					0.375					0.458					0.505					0.505
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.047
Significant Impact: NO

Area Traffic Mitigation:

2380 95 2475 180 2750 107 2857

B-192

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Pasadena Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\restricted access\icu28.wk4

Pasadena Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	24	0	0	0.000	1	25	0	0	0.000	0	25	0	0	0.000	17	42	0	0	0.000	0	42	1	1600	0.026 *
Nb Thru	2	1	1600	0.029 *	0	2	1	1600	0.031 *	0	2	1	1600	0.037 *	0	2	1	1600	0.061 *	0	2	1	1600	0.034
Nb Right	21	0	0	-	1	22	0	0	-	0	32	0	0	-	21	53	0	0	-	0	53	0	0	-
Sb Left	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000
Sb Thru	5	1	1600	0.015	0	5	1	1600	0.016	0	5	1	1600	0.016	0	5	1	1600	0.016	0	5	1	1600	0.016 *
Sb Right	15	0	0	-	1	16	0	0	-	0	16	0	0	-	0	16	0	0	-	0	16	0	0	-
Eb Left	7	1	1600	0.004	0	7	1	1600	0.005	0	7	1	1600	0.005	0	7	1	1600	0.005	0	7	1	1600	0.005
Eb Thru	445	2	3200	0.159 *	18	463	2	3200	0.166 *	72	535	2	3200	0.188 *	0	535	2	3200	0.211 *	0	535	2	3200	0.167 *
Eb Right	65	0	0	-	3	68	0	0	-	0	68	0	0	-	72	140	0	0	-	0	140	1	1600	0.087
Wb Left	119	1	1600	0.074 *	5	124	1	1600	0.077 *	0	124	1	1600	0.077 *	44	168	1	1600	0.105 *	0	168	1	1600	0.105 *
Wb Thru	555	2	3200	0.174	22	577	2	3200	0.181	48	625	2	3200	0.196	0	625	2	3200	0.196	0	625	2	3200	0.196
Wb Right	3	0	0	-	0	3	0	0	-	0	3	0	0	-	0	3	0	0	-	0	3	0	0	-
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.362					0.374					0.402					0.477					0.414
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Southland Car Counters
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.075
Significant Impact: NO

Area Traffic Mitigation: Install traffic signal
Add NBL and EBR

1265 51 1316 120 1446 154 1600

R-193

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INTERSECTION CAPACITY UTILIZATION

Pasadena Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Pasadena Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2008\restricted access\icu28.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2008

	2004 EXISTING TRAFFIC				2008 WITH AMBIENT GROWTH					2008 WITH CUMULATIVE PROJECTS					2008 WITH PROJECT TRAFFIC					2008 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	84	0	0	0.000	3	87	0	0	0.000	0	87	0	0	0.000	88	175	0	0	0.000	0	175	1	1600	0.110
Nb Thru	2	1	1600	0.163 *	0	2	1	1600	0.169 *	0	2	1	1600	0.188 *	0	2	1	1600	0.308 *	0	2	1	1600	0.198 *
Nb Right	174	0	0	-	7	181	0	0	-	0	212	0	0	-	103	315	0	0	-	0	315	0	0	-
Sb Left	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *
Sb Thru	3	1	1600	0.009	0	3	1	1600	0.010	0	3	1	1600	0.010	0	3	1	1600	0.010	0	3	1	1600	0.010
Sb Right	8	0	0	-	0	8	0	0	-	0	8	0	0	-	0	8	0	0	-	0	8	0	0	-
Eb Left	11	1	1600	0.007	0	11	1	1600	0.007	0	11	1	1600	0.007	0	11	1	1600	0.007	0	11	1	1600	0.007
Eb Thru	803	2	3200	0.256 *	32	835	2	3200	0.266 *	127	962	2	3200	0.306 *	0	962	2	3200	0.317 *	0	962	2	3200	0.301 *
Eb Right	15	0	0	-	1	16	0	0	-	0	16	0	0	-	37	53	0	0	-	0	53	1	1600	0.033
Wb Left	18	1	1600	0.011 *	1	19	1	1600	0.012 *	0	19	1	1600	0.012 *	23	42	1	1600	0.026 *	0	42	1	1600	0.026 *
Wb Thru	553	2	3200	0.176	22	575	2	3200	0.183	124	699	2	3200	0.222	0	699	2	3200	0.222	0	699	2	3200	0.222
Wb Right	11	0	0	-	0	11	0	0	-	0	11	0	0	-	0	11	0	0	-	0	11	0	0	-
Yellow Allowance*				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.530					0.547					0.606					0.751					0.625
LOS				A					A					B					C					B

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Southland Car Counters
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.145
Significant Impact: NO

Area Traffic Mitigation: Install traffic signal
Add NBL and EBR

1686 66 1752 251 2035 251 2285

B-184

YEAR 2014 TRAFFIC CONDITIONS

LINSCOTT, LAW & GREENSPAN, ENGINEERS
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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\restricted access\icu1.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	31	1	1600	0.019 *	3	34	1	1600	0.021 *	0	34	1	1600	0.021 *	12	46	1	1600	0.029 *	0	46	1	1600	0.029 *
Nb Thru	585	2	3200	0.198	59	644	2	3200	0.218	81	715	2	3200	0.243	29	744	2	3200	0.253	0	744	2	3200	0.233
Nb Right	48	0	0	-	5	53	0	0	-	9	61	0	0	-	6	67	0	0	-	0	67	1	1600	0.042
Sb Left	72	1	1600	0.045	7	79	1	1600	0.050	30	109	1	1600	0.068	0	109	1	1600	0.068	0	109	1	1600	0.068
Sb Thru	1102	2	3200	0.375 *	110	1212	2	3200	0.413 *	77	1289	2	3200	0.437 *	136	1425	2	3200	0.490 *	0	1425	2	3200	0.490 *
Sb Right	99	0	0	-	10	109	0	0	-	0	109	0	0	-	35	144	0	0	-	0	144	0	0	-
Eb Left	103	1	1600	0.064	10	113	1	1600	0.071	1	124	1	1600	0.078	23	147	1	1600	0.092	0	147	2	2880	0.051 *
Eb Thru	374	2	3200	0.142 *	37	411	2	3200	0.156 *	73	485	2	3200	0.179 *	7	492	2	3200	0.182 *	0	492	2	3200	0.182
Eb Right	80	0	0	-	8	88	0	0	-	1	89	0	0	-	0	89	0	0	-	0	89	0	0	-
Wb Left	200	1	1600	0.125 *	20	220	1	1600	0.138 *	5	225	1	1600	0.141 *	24	249	1	1600	0.156 *	0	249	2	2880	0.086
Wb Thru	625	2	3200	0.195	63	688	2	3200	0.215	50	738	2	3200	0.230	20	758	2	3200	0.237	0	758	2	3200	0.237 *
Wb Right	39	1	1600	0.024	4	43	1	1600	0.027	5	48	1	1600	0.030	0	48	1	1600	0.030	0	48	1	1600	0.030
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.150 *
ICU				0.781					0.848					0.898					0.977					0.957
LOS				C					D					E					E					E

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.079
Significant Impact: YES

Area Traffic Mitigation: Add NBR
Provide 2nd EBL and WB

3358 336 3694 332 4026 292 4318

B-185

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\restricted access\icu1.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	63	1	1600	0.039 *	6	69	1	1600	0.043 *	1	70	1	1600	0.044	6	76	1	1600	0.048	0	76	1	1600	0.048 *
Nb Thru	798	2	3200	0.275	80	878	2	3200	0.303	102	950	2	3200	0.327 *	106	1056	2	3200	0.367 *	0	1056	2	3200	0.330
Nb Right	82	0	0	-	8	90	0	0	-	9	96	0	0	-	22	118	0	0	-	0	118	1	1600	0.074
Sb Left	52	1	1600	0.033	5	57	1	1600	0.036	51	108	1	1600	0.068 *	0	108	1	1600	0.068 *	0	108	1	1600	0.068
Sb Thru	800	2	3200	0.274 *	80	880	2	3200	0.302 *	118	998	2	3200	0.339	72	1070	2	3200	0.367	0	1070	2	3200	0.367 *
Sb Right	78	0	0	-	8	86	0	0	-	0	86	0	0	-	19	105	0	0	-	0	105	0	0	-
Eb Left	150	1	1600	0.094 *	15	165	1	1600	0.103 *	1	196	1	1600	0.123 *	117	313	1	1600	0.196 *	0	313	2	2880	0.109 *
Eb Thru	589	2	3200	0.192	59	648	2	3200	0.211	129	780	2	3200	0.253	34	814	2	3200	0.263	0	814	2	3200	0.263
Eb Right	26	0	0	-	3	29	0	0	-	0	29	0	0	-	0	29	0	0	-	0	29	0	0	-
Wb Left	57	1	1600	0.036	6	63	1	1600	0.039	11	74	1	1600	0.046	12	86	1	1600	0.054	0	86	2	2880	0.030
Wb Thru	513	2	3200	0.160 *	51	564	2	3200	0.176 *	142	706	2	3200	0.221 *	10	716	2	3200	0.224 *	0	716	2	3200	0.224 *
Wb Right	88	1	1600	0.055	9	97	1	1600	0.061	45	142	1	1600	0.089	0	142	1	1600	0.089	0	142	1	1600	0.089
Yellow Allowance:				0.120 *					0.120 *					0.120 *					0.120 *					0.150 *
ICU				0.687					0.744					0.859					0.975					0.898
LOS				B					C					D					E					D

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.116
Significant Impact: YES

Area Traffic Mitigation: Add NBR
Provide 2nd EBL and WB

3296 330 3626 609 4235 398 4633

B-190

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	45	0	0	1	66	982	11	43	1664	129
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	0	47	0	0	1	69	1034	12	45	1752	136
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2567	3094	944	2192	3156	523	1887			1045		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2567	3094	944	2192	3156	523	1887			1045		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	82	100	100	100	78			93		
cM capacity (veh/h)	10	8	263	16	8	499	313			661		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	1	69	689	356	45	1168	720
Volume Left	0	0	69	0	0	45	0	0
Volume Right	47	1	0	0	12	0	0	136
cSH	263	499	313	1700	1700	661	1700	1700
Volume to Capacity	0.18	0.00	0.22	0.41	0.21	0.07	0.69	0.42
Queue Length (ft)	16	0	21	0	0	5	0	0
Control Delay (s)	21.6	12.2	19.7	0.0	0.0	10.8	0.0	0.0
Lane LOS	C	B	C			B		
Approach Delay (s)	21.6	12.2	1.2			0.3		
Approach LOS	C	B						

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	69.9%	ICU Level of Service	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	162	10	0	58	32	1693	8	8	1204	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	0	171	11	0	61	34	1782	8	8	1267	51
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2329	3167	659	2675	3188	895	1318			1791		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2329	3167	659	2675	3188	895	1318			1791		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	58	0	100	78	94			98		
cM capacity (veh/h)	14	9	406	6	9	284	520			342		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	171	72	34	1188	602	8	845	473
Volume Left	0	11	34	0	0	8	0	0
Volume Right	171	61	0	0	8	0	0	51
cSH	406	35	520	1700	1700	342	1700	1700
Volume to Capacity	0.42	2.04	0.06	0.70	0.35	0.02	0.50	0.28
Queue Length (ft)	51	199	5	0	0	2	0	0
Control Delay (s)	20.1	728.4	12.4	0.0	0.0	15.8	0.0	0.0
Lane LOS	C	F	B			C		
Approach Delay (s)	20.1	728.4	0.2			0.1		
Approach LOS	C	F						

Intersection Summary			
Average Delay	16.5		
Intersection Capacity Utilization	61.6%	ICU Level of Service	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	29	3	6	36	151	1138	22	41	942	389
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	0	31	3	6	38	159	1198	23	43	992	409
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2036	2617	496	2140	3015	611	1401			1221		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2036	2617	496	2140	3015	611	1401			1221		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	83	22	91	67			92		
cM capacity (veh/h)	8	15	520	18	8	437	483			567		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	31	47	159	799	422	43	496	496	409
Volume Left	0	3	159	0	0	43	0	0	0
Volume Right	31	38	0	0	23	0	0	0	409
cSH	520	46	483	1700	1700	567	1700	1700	1700
Volume to Capacity	0.06	1.04	0.33	0.47	0.25	0.08	0.29	0.29	0.24
Queue Length (ft)	5	108	35	0	0	6	0	0	0
Control Delay (s)	12.4	285.1	16.0	0.0	0.0	11.9	0.0	0.0	0.0
Lane LOS	B	F	C			B			
Approach Delay (s)	12.4	285.1	1.8			0.4			
Approach LOS	B	F							

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	128	6	1	35	34	1302	22	39	1325	92
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh/h)	0	0	135	6	1	37	36	1371	23	41	1395	97
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2271	2942	697	2368	3027	697	1492			1394		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2271	2942	697	2368	3027	697	1492			1394		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	65	40	90	90	92			92		
cM capacity (veh/h)	16	12	383	11	11	384	446			487		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	135	44	36	914	480	41	697	697	97
Volume Left	0	6	36	0	0	41	0	0	0
Volume Right	135	37	0	0	23	0	0	0	97
cSH	383	56	446	1700	1700	487	1700	1700	1700
Volume to Capacity	0.35	0.79	0.08	0.54	0.28	0.08	0.41	0.41	0.06
Queue Length (ft)	39	86	7	0	0	7	0	0	0
Control Delay (s)	19.4	182.5	13.8	0.0	0.0	13.1	0.0	0.0	0.0
Lane LOS	C	F	B			B			
Approach Delay (s)	19.4	182.5	0.3			0.4			
Approach LOS	C	F							

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	60.2%	ICU Level of Service	B

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(714) 641-1587

INTERSECTION CAPACITY UTILIZATION

N-S St: Atlantic Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\restricted access\icu7.wk4

Atlantic Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	118	1	1600	0.074 *	12	130	1	1600	0.081 *	0	130	1	1600	0.081	5	135	1	1600	0.084	0	135	1	1600	0.084
Nb Thru	549	2	3200	0.206	55	604	2	3200	0.227	65	669	2	3200	0.254 *	73	742	2	3200	0.277 *	0	742	2	3200	0.277 *
Nb Right	110	0	0	-	11	121	0	0	-	23	144	0	0	-	0	144	0	0	-	0	144	0	0	-
Sb Left	85	1	1600	0.053	9	94	1	1600	0.058	20	116	1	1600	0.073 *	6	122	1	1600	0.076 *	0	122	1	1600	0.076 *
Sb Thru	550	2	3200	0.196 *	55	605	2	3200	0.216 *	35	640	2	3200	0.233	24	664	2	3200	0.241	0	664	2	3200	0.241
Sb Right	77	0	0	-	8	85	0	0	-	20	105	0	0	-	3	108	0	0	-	0	108	0	0	-
Eb Left	193	2	2880	0.067 *	19	212	2	2880	0.074 *	8	249	2	2880	0.086 *	16	265	2	2880	0.092 *	0	265	2	2880	0.092 *
Eb Thru	921	3	4800	0.207	92	1013	3	4800	0.228	87	1100	3	4800	0.246	2	1102	3	4800	0.246	0	1102	3	4800	0.246
Eb Right	72	0	0	-	7	79	0	0	-	1	80	0	0	-	0	80	0	0	-	0	80	0	0	-
Wb Left	49	1	1600	0.031	5	54	1	1600	0.034	4	58	1	1600	0.036	0	58	1	1600	0.036	0	58	1	1600	0.036
Wb Thru	829	3	4800	0.215 *	83	912	3	4800	0.236 *	72	984	3	4800	0.255 *	5	989	3	4800	0.260 *	0	989	3	4800	0.260 *
Wb Right	201	0	0	-	20	221	0	0	-	18	239	0	0	-	21	260	0	0	-	0	260	0	0	-
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.732					0.787					0.848					0.885					0.885
LOS				C					C					D					D					D

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.037
Significant Impact: NO

Area Traffic Mitigation:

3754 376 4130 353 4514 155 4669

B-191

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INTERSECTION CAPACITY UTILIZATION

Atlantic Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Atlantic Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\restricted access\icu7.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	116	1	1600	0.073	12	128	1	1600	0.080	3	131	1	1600	0.082	4	135	1	1600	0.084	0	135	1	1600	0.084
Nb Thru	555	2	3200	0.197 *	56	611	2	3200	0.216 *	65	676	2	3200	0.239 *	39	715	2	3200	0.252 *	0	715	2	3200	0.252 *
Nb Right	74	0	0	-	7	81	0	0	-	9	90	0	0	-	0	90	0	0	-	0	90	0	0	-
Sb Left	270	1	1600	0.169 *	27	297	1	1600	0.186 *	12	320	1	1600	0.200 *	28	348	1	1600	0.218 *	0	348	1	1600	0.218 *
Sb Thru	642	2	3200	0.247	64	706	2	3200	0.271	91	797	2	3200	0.309	104	901	2	3200	0.347	0	901	2	3200	0.347
Sb Right	147	0	0	-	15	162	0	0	-	29	191	0	0	-	17	208	0	0	-	0	208	0	0	-
Eb Left	141	2	2880	0.049	14	155	2	2880	0.054	23	278	2	2880	0.097	57	335	2	2880	0.116	0	335	2	2880	0.116
Eb Thru	1089	3	4800	0.251 *	109	1198	3	4800	0.276 *	102	1300	3	4800	0.298 *	7	1307	3	4800	0.300 *	0	1307	3	4800	0.300 *
Eb Right	117	0	0	-	12	129	0	0	-	3	132	0	0	-	0	132	0	0	-	0	132	0	0	-
Wb Left	85	1	1600	0.053 *	9	94	1	1600	0.058 *	18	112	1	1600	0.070 *	0	112	1	1600	0.070 *	0	112	1	1600	0.070 *
Wb Thru	818	3	4800	0.195	82	900	3	4800	0.215	80	980	3	4800	0.234	4	984	3	4800	0.237	0	984	3	4800	0.237
Wb Right	118	0	0	-	12	130	0	0	-	14	144	0	0	-	10	154	0	0	-	0	154	0	0	-
Yellow Allowance:				0.180 *					0.180 *					0.180 *					0.180 *					0.180 *
ICU				0.850					0.916					0.987					1.020					1.020
LOS				D					E					E					F					F

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.033
Significant Impact: YES

Area Traffic Mitigation:

4172 419 4591 449 5149 270 5421

B-192

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1580 Corporate Drive, Suite 122, Costa Mesa CA 92626
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INTERSECTION CAPACITY UTILIZATION

N-S St: Pasadena Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\restricted access\icu8.wk4

Pasadena Avenue @ Willow Street
Peak hr: AM
Annual Growth: 1.00%

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000
Nb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Sb Left	4	0	0	0.000	0	4	0	0	0.000	0	33	0	0	0.000	18	51	0	0	0.000	0	51	0	0	0.000
Sb Thru	0	1	1600	0.020 *	0	0	1	1600	0.022 *	0	0	1	1600	0.040 *	0	0	1	1600	0.057 *	0	0	1	1600	0.057 *
Sb Right	28	0	0	-	3	31	0	0	-	0	31	0	0	-	9	40	0	0	-	0	40	0	0	-
Eb Left	52	1	1600	0.033 *	5	57	1	1600	0.036 *	0	57	1	1600	0.036 *	44	101	1	1600	0.063 *	0	101	1	1600	0.063 *
Eb Thru	1077	3	4800	0.224	108	1185	3	4800	0.247	94	1279	3	4800	0.266	0	1279	3	4800	0.266	0	1279	3	4800	0.266
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0	0.000
Wb Thru	1020	3	4800	0.214 *	102	1122	3	4800	0.235 *	99	1221	3	4800	0.256 *	3	1224	3	4800	0.259 *	0	1224	3	4800	0.259 *
Wb Right	6	0	0	-	1	7	0	0	-	0	7	0	0	-	11	18	0	0	-	0	18	0	0	-
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.367					0.393					0.432					0.479					0.479
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.047
Significant Impact: NO

Area Traffic Mitigation:

2187 219 2406 193 2628 85 2713

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INTERSECTION CAPACITY UTILIZATION

Pasadena Avenue @ Willow Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Pasadena Avenue
E-W St: Willow Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\restricted access\icu8.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *
Nb Thru	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000	0	0	1	1600	0.000
Nb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Sb Left	5	0	0	0.000	1	6	0	0	0.000	0	106	0	0	0.000	64	170	0	0	0.000	0	170	0	0	0.000
Sb Thru	0	1	1600	0.011 *	0	0	1	1600	0.012 *	0	0	1	1600	0.075 *	0	0	1	1600	0.135 *	0	0	1	1600	0.135 *
Sb Right	12	0	0	-	1	13	0	0	-	0	13	0	0	-	32	45	0	0	-	0	45	0	0	-
Eb Left	20	1	1600	0.013	2	22	1	1600	0.014	0	22	1	1600	0.014	23	45	1	1600	0.028 *	0	45	1	1600	0.028 *
Eb Thru	1217	3	4800	0.254 *	122	1339	3	4800	0.279 *	136	1475	3	4800	0.307 *	0	1475	3	4800	0.307	0	1475	3	4800	0.307
Eb Right	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-
Wb Left	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0	0.000	0	0	0	0	0.000
Wb Thru	1122	3	4800	0.235	112	1234	3	4800	0.258	110	1344	3	4800	0.281	17	1361	3	4800	0.286 *	0	1361	3	4800	0.286 *
Wb Right	4	0	0	-	0	4	0	0	-	0	4	0	0	-	6	10	0	0	-	0	10	0	0	-
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.365					0.391					0.482					0.549					0.549
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Transportation Studies, Inc.
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.067
Significant Impact: NO

Area Traffic Mitigation:

2380 238 2618 246 2965 142 3106

R-194

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INTERSECTION CAPACITY UTILIZATION

Pasadena Avenue @ Spring Street
Peak hr: AM
Annual Growth: 1.00%

N-S St: Pasadena Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\restricted access\icu28.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	24	0	0	0.000	2	26	0	0	0.000	0	26	0	0	0.000	26	52	0	0	0.000	0	52	1	1600	0.033 *
Nb Thru	2	1	1600	0.029 *	0	2	1	1600	0.032 *	0	2	1	1600	0.039 *	0	2	1	1600	0.074 *	0	2	1	1600	0.041
Nb Right	21	0	0	-	2	23	0	0	-	0	34	0	0	-	30	64	0	0	-	0	64	0	0	-
Sb Left	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000
Sb Thru	5	1	1600	0.015	1	6	1	1600	0.017	0	6	1	1600	0.017	0	6	1	1600	0.017	0	6	1	1600	0.017 *
Sb Right	15	0	0	-	2	17	0	0	-	0	17	0	0	-	0	17	0	0	-	0	17	0	0	-
Eb Left	7	1	1600	0.004	1	8	1	1600	0.005	0	8	1	1600	0.005	0	8	1	1600	0.005	0	8	1	1600	0.005
Eb Thru	445	2	3200	0.159 *	45	490	2	3200	0.175 *	75	565	2	3200	0.199 *	0	565	2	3200	0.232 *	0	565	2	3200	0.176 *
Eb Right	65	0	0	-	7	72	0	0	-	0	72	0	0	-	107	179	0	0	-	0	179	1	1600	0.112
Wb Left	119	1	1600	0.074 *	12	131	1	1600	0.082 *	0	131	1	1600	0.082 *	67	198	1	1600	0.124 *	0	198	1	1600	0.124 *
Wb Thru	555	2	3200	0.174	56	611	2	3200	0.192	50	661	2	3200	0.207	0	661	2	3200	0.207	0	661	2	3200	0.207
Wb Right	3	0	0	-	0	3	0	0	-	0	3	0	0	-	0	3	0	0	-	0	3	0	0	-
Yellow Allowance:				0.100 *					0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.362					0.389					0.420					0.530					0.450
LOS				A					A					A					A					A

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Southland Car Counters
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.110
Significant Impact: NO

Area Traffic Mitigation: Install traffic signal
Add NBL and EBR

1265 128 1393 125 1529 230 1759

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INTERSECTION CAPACITY UTILIZATION

Pasadena Avenue @ Spring Street
Peak hr: PM
Annual Growth: 1.00%

N-S St: Pasadena Avenue
E-W St: Spring Street
Project: Long Beach Memorial Medical Center
File: N:\2500\2042573\icu\2014\restricted access\icu28.wk4

Date: 12/16/2004
Date of Count: 2004
Projection Year: 2014

	2004 EXISTING TRAFFIC				2014 WITH AMBIENT GROWTH					2014 WITH CUMULATIVE PROJECTS					2014 WITH PROJECT TRAFFIC					2014 WITH MITIGATION				
Movement	Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio	Added Volume	Total Volume	Lanes	Capacity	V/C Ratio
Nb Left	84	0	0	0.000	8	92	0	0	0.000	0	92	0	0	0.000	130	222	0	0	0.000	0	222	1	1600	0.139
Nb Thru	2	1	1600	0.163 *	0	2	1	1600	0.179 *	0	2	1	1600	0.199 *	0	2	1	1600	0.374 *	0	2	1	1600	0.235 *
Nb Right	174	0	0	-	17	191	0	0	-	0	224	0	0	-	150	374	0	0	-	0	374	0	0	-
Sb Left	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *	0	4	0	0	0.000 *
Sb Thru	3	1	1600	0.009	0	3	1	1600	0.010	0	3	1	1600	0.010	0	3	1	1600	0.010	0	3	1	1600	0.010
Sb Right	8	0	0	-	1	9	0	0	-	0	9	0	0	-	0	9	0	0	-	0	9	0	0	-
Eb Left	11	1	1600	0.007	1	12	1	1600	0.008	0	12	1	1600	0.008	0	12	1	1600	0.008	0	12	1	1600	0.008
Eb Thru	803	2	3200	0.256 *	80	883	2	3200	0.281 *	130	1013	2	3200	0.322 *	0	1013	2	3200	0.339 *	0	1013	2	3200	0.317 *
Eb Right	15	0	0	-	2	17	0	0	-	0	17	0	0	-	55	72	0	0	-	0	72	1	1600	0.045
Wb Left	18	1	1600	0.011 *	2	20	1	1600	0.012 *	0	20	1	1600	0.012 *	36	56	1	1600	0.035 *	0	56	1	1600	0.035 *
Wb Thru	553	2	3200	0.176	55	608	2	3200	0.194	143	751	2	3200	0.239	0	751	2	3200	0.239	0	751	2	3200	0.239
Wb Right	11	0	0	-	1	12	0	0	-	0	12	0	0	-	0	12	0	0	-	0	12	0	0	-
Yellow Allowance:				**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***					**0.100 ***
ICU				**0.530**					**0.572**					**0.633**					**0.848**					**0.687**
LOS				**A**					**A**					**B**					**D**					**B**

* Key conflicting movement as a part of ICU.
** Functions as a separate turn lane, however, is not striped as such.
Counts conducted by: Southland Car Counters
Capacity expressed in vehicles per hour of green.

Project ICU Impact: 0.215
Significant Impact: NO

Area Traffic Mitigation: Install traffic signal
Add NBL and EBR

1686 167 1853 273 2160 371 2530

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