Appendix G

Traffic Report
Long Beach Airport Terminal Improvement Project Traffic Impact Analysis

Prepared for

City of Long Beach

Prepared by

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November 2005

16-J03-1614
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1.0 TRANSPORTATION AND CIRCULATION

The purpose of this traffic impact analysis report is to identify and analyze the potential impacts of the Long Beach Airport Terminal Improvements Project on the local and regional transportation system in the vicinity of the project. The project would be implemented at Long Beach Airport in the City of Long Beach, Los Angeles County. The Airport is located on approximately 1,166 acres in central Long Beach, on Donald Douglas Drive and is located just north of Interstate-405 ("I-405") and generally bound by Cherry Avenue to the west, City of Lakewood and the future Douglas Park project to the north, and Lakewood Boulevard to the east. The project study area is shown in Exhibit 1.

The proposed project includes construction of, or alteration to, the 13 areas listed and described below:

- Holdrooms
- Concession Area
- Passenger Security Screening
- Baggage Security Screening
- Baggage Claim Devices
- Baggage Service Office
- Restrooms
- Office Space
- Ticketing Facilities
- Airline Gates
- Aircraft Parking Positions
- Vehicular Parking Structure
- Traffic and Pedestrian Circulation

Vehicular access to the Airport will continue to be provided at Lakewood Boulevard at Donald Douglas Drive/East Wardlow Road. The project would also include the extension of the south side of the Donald Douglas Drive loop to exit onto Lakewood Boulevard, with southbound Lakewood Boulevard access only (right turn only). Parking is currently available on-site, and in a leased airport-operated satellite parking lot located on Conant Street between Lakewood Boulevard and Clark Avenue.

The study analyzed the following 20 signalized and unsignalized intersections (intersection numbers correlate to the intersection numbers on Exhibit 2)

1  Carson St. & Cherry Ave.
2  Carson St. & Paramount Blvd.
3  Carson St. & Lakewood Blvd.
4  Carson St. & Clark Ave.
5  Bixby Rd. & Cherry Ave.
6  Conant St. & Lakewood Blvd.
7  Conant St. & Clark Ave.
8  36th St. & Cherry Ave.
9 Wardlow Rd. & Cherry Ave.
10 Wardlow Rd / Douglas Dr. & Lakewood Blvd.
11 Wardlow Rd. & Clark Ave.
12 Spring St. & Cherry Ave.
13 Spring St. & Temple Ave.
14 Spring St. & Redondo Ave.
15 Spring St. & Lakewood Blvd.
16 Spring St. & Clark Ave.
17 Willow St. & Redondo Ave.
18 Willow St. & Lakewood Blvd.
19 Willow St. & Clark Ave.
20 New Exit & Lakewood Blvd. (only assumed in plus project conditions)

The study focused on the potential project impacts for the weekday AM and PM peak hours (the busiest morning hour between 7 and 9 AM and afternoon hour between 4 and 6 PM). The analysis contained in this report has been completed according to the guidelines set forth by the City of Long Beach, the County of Los Angeles Congestion Management Program, as well as standard practices of the traffic engineering profession.

In order to ensure consistency with the nearby Douglas Park project, data from the Douglas Park traffic study was used in this report. For existing conditions, some existing traffic volumes from the Douglas Park study were used and adjusted for 2005 conditions; while new traffic counts were taken in 2004 at two locations. For future project conditions, traffic volumes from the Douglas Park EIR traffic study are considered future baseline volumes for the airport terminal improvements project.
2.0 EXISTING CONDITIONS

This section discusses existing conditions and describes the analytical approach to the traffic analysis.

2.1 Field Inventory

A field inventory was conducted for the 20 intersection locations that were identified by the City of Long Beach staff for inclusion in the traffic study. Existing lane configurations are shown in Exhibit 3.

The field inventory included review of the following existing conditions:

- Intersection geometric layout
- Lane configuration
- Posted speed limits
- Signal phasing
- Land uses
- Curbside parking
- Bus stop locations

As previously noted, the existing roadway network within the study area is illustrated in Exhibit 1. All passenger access to the airport is via Donald Douglas Drive and Lakewood Boulevard. The characteristics of key streets adjacent to the site were also observed in the field and are described below.

Lakewood Boulevard is a north-south facility, classified as a regional roadway in the City of Long Beach’s General Plan. It is currently four-lanes in each direction within the study area, with a raised median and a 40 MPH speed limit. 2001 daily traffic volumes were approximately 47,000 vehicles per day.

Donald Douglas Drive is the entrance road to the Long Beach Airport, but also supplies access to a limited amount of office space, and Million Air, a franchised general aviation services company. As can be seen in Exhibit 1, Donald Douglas Drive forms a loop through the airport, and only allows one-way traffic as it passes by the terminal. The roadway is two lanes in each direction. 2004 daily traffic volumes were approximately 16,000 vehicles per day.

Wardlow Road, opposite Donald Douglas Drive at Lakewood Boulevard, is a four lane roadway with a 35 MPH speed limit. This roadway is classified as a Minor Roadway in the City’s General Plan. 2001 traffic volumes were approximately 8,400 vehicles per day.

The City of Long Beach is currently updating the Mobility Element of the General Plan, and any changes to the functional classifications of any of the project roadways is unknown at this time.
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Carson St / Cherry Ave</td>
<td>2</td>
<td>Carson St / Paramount Blvd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Carson St / Lakewood Blvd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Carson St / Clark Ave</td>
</tr>
<tr>
<td>5</td>
<td>Bisby Rd / Cherry Ave</td>
<td>6</td>
<td>Conant St / Lakewood Blvd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>Conant St / Clark Ave</td>
</tr>
<tr>
<td>8</td>
<td>E 36th St / Cherry Ave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>E Wardlow Rd / Cherry Ave</td>
<td>10</td>
<td>E Wardlow Rd / Douglas Rd / Lakewood Blvd</td>
</tr>
<tr>
<td>11</td>
<td>E Wardlow Rd / Clark Ave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>E Spring St / Cherry Ave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>E Spring St / Temple Ave</td>
<td>14</td>
<td>E Spring St / Redondo Ave</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>E Spring St / Lakewood Blvd</td>
</tr>
<tr>
<td>16</td>
<td>E Spring St / Clark Ave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>E Willow St / Redondo Ave</td>
<td>18</td>
<td>E Willow St / Lakewood Blvd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19</td>
<td>E Willow St / Clark Ave</td>
</tr>
</tbody>
</table>

Key:
- Left turn lane
- Through lane
- Right turn lane
- Shared through/right turn lane
- Shared through/left turn lane

**Existing Lane Configuration**

Long Beach Airport

**Exhibit #3**

Meyer, Mohaddes Associates

Bonterra Consulting

November 2005
2.2 Existing Traffic Volumes

Intersection traffic counts for the weekday morning and evening peak traffic periods (7-9 AM and 4-6 PM) were obtained through two means. To ensure consistency with Douglas Park, existing traffic volumes for 17 study intersections were taken from the Douglas Park traffic study, and adjusted using a City supplied growth factor, in order to adjust them to 2005 conditions. At Lakewood Boulevard/Donald Douglas Drive, new AM and PM peak period turning movement traffic counts were taken in May 2004 and adjusted to 2005 conditions. The intersection of Cherry Avenue and E. 36th Street was not analyzed in the Douglas Park traffic study, and new counts were taken April 2005. The analysis considered the busiest hour of airport related traffic within each of the two peak periods. Exhibit 4 illustrates the existing traffic volumes at each of the study intersections for peak hours. Summary tables of the count data are included in the Appendix.

2.3 Traffic Operations Analysis Methodology for Signalized Intersections

The Intersection Capacity Utilization (ICU) method of intersection analysis, per the City of Long Beach guidelines, was used to determine the intersection volume-to-capacity ratio (V/C) and corresponding level of service (LOS) based on the turning movements and intersection characteristics at the signalized intersections. A capacity value of 1,600 vehicles per hour per lane was used with a loss time factor of that varied from 0.10 to 0.18 (loss factor accounts for the yellow and all red phases of a traffic signal when no traffic moves through the intersection) depending on the number of critical phases in the traffic signal. The V/C for the intersection corresponds to a LOS value, which describes the intersection operations.

Levels of Service vary from A through F, with A representing the best possible conditions, free flow, and F representing forced flow or failing/congested conditions. Generally, LOS D or better is considered acceptable in urban areas such as the study area for the proposed project. However, some locations in the study area are currently operating with levels of service in the E and F range. For this analysis, the ranges of volume-to-capacity ratios summarized in Table 1 were used to determine LOS for signalized study intersections.

2.4 Traffic Operations Analysis Methodology for Unsignalized Intersections

The only unsignalized intersection in this traffic study is at the new proposed exit from the Airport. This new exit would be a one-way eastbound exit (located south of the Lakewood/Donald Douglas intersection), and would allow only eastbound right turns onto southbound Lakewood Boulevard. This intersection is analyzed only under the plus project conditions, and was evaluated using the Highway Capacity Methodology (HCM 2000) for unsignalized intersections. This methodology estimates the average total delay for each of the traffic movements and determines the level of service for each movement. The overall average delay is measured in seconds per vehicle, and level of service is then calculated for the entire intersection.

The HCM delay value is translated 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 delay value range, as shown in Table 2.
<table>
<thead>
<tr>
<th>#</th>
<th>Intersection</th>
<th>Traffic Volume (AM/PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Carson St / Cherry Ave</td>
<td>63(236) / 714(176)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76(107) / 564(975)</td>
</tr>
<tr>
<td>2</td>
<td>Carson St / Paramount Blvd</td>
<td>329(38) / 318(82)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>99(220) / 940(564)</td>
</tr>
<tr>
<td>3</td>
<td>Carson St / Lakewood Blvd</td>
<td>118(87) / 1118(25)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10(182) / 823(1354)</td>
</tr>
<tr>
<td>4</td>
<td>Carson St / Clark Ave</td>
<td>10(182) / 102(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1020(1000) / 344(337)</td>
</tr>
<tr>
<td>5</td>
<td>Bixby Rd / Cherry Ave</td>
<td>68(102) / 26(84)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26(105) / 21(30)</td>
</tr>
<tr>
<td>6</td>
<td>Convent St / Lakewood Blvd</td>
<td>264(112) / 264(12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32(139) / 32(139)</td>
</tr>
<tr>
<td>7</td>
<td>Convent St / Clark Ave</td>
<td>276(20) / 276(20)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24(38) / 24(38)</td>
</tr>
<tr>
<td>8</td>
<td>36th St / Cherry Ave</td>
<td>26(105) / 26(105)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26(105) / 26(105)</td>
</tr>
<tr>
<td>9</td>
<td>E Wardlow Rd / Cherry Ave</td>
<td>26(105) / 26(105)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26(105) / 26(105)</td>
</tr>
<tr>
<td>10</td>
<td>E Wardlow Rd / Dr. Douglas Rd / Lakewood Blvd</td>
<td>264(112) / 264(12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32(139) / 32(139)</td>
</tr>
<tr>
<td>11</td>
<td>E Wardlow Rd / Clark Ave</td>
<td>276(20) / 276(20)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24(38) / 24(38)</td>
</tr>
<tr>
<td>12</td>
<td>E Spring St / Cherry Ave</td>
<td>26(105) / 26(105)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26(105) / 26(105)</td>
</tr>
<tr>
<td>13</td>
<td>E Spring St / Temple Ave</td>
<td>0(0) / 1706(1300)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1106(35) / 1106(35)</td>
</tr>
<tr>
<td>14</td>
<td>E Spring St / Redondo Ave</td>
<td>4(20) / 4(20)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>710(437) / 332(339)</td>
</tr>
<tr>
<td>15</td>
<td>E Spring St / Lakewood Blvd</td>
<td>216(214) / 159(605)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>315(286) / 315(286)</td>
</tr>
<tr>
<td>16</td>
<td>E Spring St / Clark Ave</td>
<td>159(213) / 159(213)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>109(81) / 109(81)</td>
</tr>
<tr>
<td>17</td>
<td>E Willow St / Redondo Ave</td>
<td>109(109) / 109(109)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>677(157) / 677(157)</td>
</tr>
<tr>
<td>18</td>
<td>E Willow St / Lakewood Blvd</td>
<td>145(368) / 145(368)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1545(707) / 304(97)</td>
</tr>
<tr>
<td>19</td>
<td>E Willow St / Clark Ave</td>
<td>145(368) / 145(368)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1545(707) / 304(97)</td>
</tr>
</tbody>
</table>

Existing Peak Hour Volume - AM(PM)

Exhibit # 4

Long Beach Airport

Key:
180 (208) → AM (PM) Volume
Table 1
Level of Service Criteria for Signalized Intersections

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>Volume to Capacity Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.</td>
<td>0-60</td>
</tr>
<tr>
<td>B</td>
<td>Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.</td>
<td>.61-.70</td>
</tr>
<tr>
<td>C</td>
<td>Good operation. Occasionally drivers may have to wait more than 60 seconds, and back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.</td>
<td>.71-.80</td>
</tr>
<tr>
<td>D</td>
<td>Fair operation. Cars are sometimes required to wait more than 60 seconds during short peaks. There are no long-standing traffic queues. This level is typically associated with design practice for peak periods.</td>
<td>.81-.90</td>
</tr>
<tr>
<td>E</td>
<td>Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.</td>
<td>.91-1.00</td>
</tr>
<tr>
<td>F</td>
<td>Forced flow. Represents jammed conditions. Backups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop and go type traffic flow.</td>
<td>Over 1.00</td>
</tr>
</tbody>
</table>

Table 2
Level of Service Criteria for Unsignalized Intersections

<table>
<thead>
<tr>
<th>Level of Service (LOS)</th>
<th>Highway Capacity Manual Average Control Delay (sec/veh)</th>
<th>Level of Service Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt; 10</td>
<td>Little or no delay</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 10 and &lt; 15</td>
<td>Short traffic delays</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 15 and &lt; 25</td>
<td>Average traffic delays</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 25 and &lt; 35</td>
<td>Long traffic delays</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 35 and &lt; 50</td>
<td>Very long traffic delays</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 50</td>
<td>Severe congestion</td>
</tr>
</tbody>
</table>

2.5 Existing Transit System

Long Beach Airport is currently served by one Long Beach Transit route, which provides easy connection and transfers to major locations in the Los Angeles and Orange Counties.

Long Beach Transit Route # 111 runs between downtown Long Beach and Lakewood Center Mall. Starting its service from the downtown Long Beach transit mall, this route travels through Long Beach along Broadway, crossing Cherry Avenue, Redondo Avenue; then along Ximeno Avenue to Lakewood Boulevard. It then proceeds northerly along Lakewood Boulevard, proceeds through the Long Beach Airport, then continues north towards the Lakewood Mall and South Street where it then continues southerly back to downtown Long Beach.

During weekdays this route starts operation at about 5 AM in the morning and runs until 12:30 AM, with headways of about 30 minutes until 6:30 PM and a 60-minute headway thereafter. During weekends and holidays the route operates from about 5:40 AM to 12:30 AM, with headways of about 60 minutes. This route is illustrated in Exhibit 5.

2.6 Existing Traffic Operations Analysis

Previous sections of this report have summarized existing physical conditions within the study area, and the existing traffic volumes within the study area. The next step of the study is to determine the existing traffic operating conditions of the study intersections.

Based on the peak one-hour traffic volumes in the study area during the peak analysis periods and the analytical methodology described in Section 2.4, the weekday AM and PM peak-hour intersection levels of service were analyzed at the study intersections. All existing conditions intersection capacity analyses were performed using the TRAFFIX software program.

2.8 Existing Intersection Analysis

Table 3 summarizes the existing weekday peak-hour level of service. Currently, the following three intersections operate at LOS E or F:
Existing Conditions LOS E/F

- Carson Street and Clark Avenue (LOS E, PM)
- Wardlow Road and Cherry Avenue (LOS E, PM)
- Willow Street and Lakewood Boulevard (LOS E, AM; LOS F, PM)

All of the remaining study area intersections operate at acceptable levels of service (LOS D or better) during the peak periods.

Table 3
Existing Weekday Peak-Hour Intersection Levels of Service

<table>
<thead>
<tr>
<th>No</th>
<th>Intersection</th>
<th>Existing Weekday Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AM V/C or Delay</td>
</tr>
<tr>
<td>1</td>
<td>Carson St. &amp; Cherry Ave.</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>Carson St. &amp; Paramount Blvd.</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>Carson St. &amp; Lakewood Blvd.</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td>Carson St. &amp; Clark Ave.</td>
<td>D</td>
</tr>
<tr>
<td>5</td>
<td>Bixby Rd. &amp; Cherry Ave.</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>Conant St. &amp; Lakewood Blvd.</td>
<td>A</td>
</tr>
<tr>
<td>7</td>
<td>Conant St. &amp; Clark Ave.</td>
<td>A</td>
</tr>
<tr>
<td>8</td>
<td>36th St. &amp; Cherry Ave.</td>
<td>B</td>
</tr>
<tr>
<td>9</td>
<td>Wardlow Rd. &amp; Cherry Ave.</td>
<td>D</td>
</tr>
<tr>
<td>10</td>
<td>Wardlow Rd / Douglas Dr. &amp; Lakewood Blvd</td>
<td>C</td>
</tr>
<tr>
<td>11</td>
<td>Wardlow Rd. &amp; Clark Ave.</td>
<td>B</td>
</tr>
<tr>
<td>12</td>
<td>Spring St. &amp; Cherry Ave.</td>
<td>C</td>
</tr>
<tr>
<td>13</td>
<td>Spring St. &amp; Temple Ave.</td>
<td>B</td>
</tr>
<tr>
<td>14</td>
<td>Spring St. &amp; Redondo Ave.</td>
<td>A</td>
</tr>
<tr>
<td>15</td>
<td>Spring St. &amp; Lakewood Blvd.</td>
<td>D</td>
</tr>
<tr>
<td>16</td>
<td>Spring St. &amp; Clark Ave.</td>
<td>B</td>
</tr>
<tr>
<td>17</td>
<td>Willow St. &amp; Redondo Ave.</td>
<td>C</td>
</tr>
<tr>
<td>18</td>
<td>Willow St. &amp; Lakewood Blvd.</td>
<td>E</td>
</tr>
<tr>
<td>19</td>
<td>Willow St. &amp; Clark Ave.</td>
<td>D</td>
</tr>
</tbody>
</table>

Note: V/C = volume to capacity ratio for signalized intersections

* - Delay is in seconds per vehicles for unsignalized intersections
3.0 TRIP GENERATION AND TRIP DISTRIBUTION METHODOLOGIES

This section discusses methodologies used for the trip generation calculations and trip distribution assumptions; these apply to the CEQA Existing with Optimized Flights project analysis, as well as the year 2020 Optimized Flights analyses.

3.1 Generalized Project Assumptions

In all project scenarios except the existing conditions analysis, assumptions have been made in regards to the trip generation potential of the project. Use of the facilities provided by the Proposed Project would not cause an increase in traffic. Additional trips would be associated with the Optimized Flights scenario.

The Optimized Flights scenario could result in up to 52 commercial flights and 25 commuter flights at the Airport. This is the maximum reasonable flight level that could potentially occur with optimized operational procedures and aircraft, and still be within the noise limits (“noise bucket”) permitted by the Airport Noise Compatibility Ordinance. Neither the full utilization of 25 commuter flights at the Airport (which are the minimum number of commuter flights allowed by the Airport Noise Compatibility Ordinance), nor the potential increase of up to 11 commercial flights over current operational levels at the Airport, are causally related to the Proposed Project facilities improvements. Any impacts would be applicable to all alternatives, including the future no-project alternative, because they could occur without any project-proposed improvements. If they occur, they will result from carrier decisions to optimize flight operations under the Airport Noise Compatibility Ordinance, rather than the availability of specific terminal facilities.

For the CEQA Existing with Optimized Flights analysis, and the year 2020 Optimized Flights analyses, it has been assumed that the 11 additional commercial carrier flights under optimized conditions will occur in addition to the 25 commuter flights. Analyses provided by HNTB (May 2004) estimated the flight arrival and departure times of the optimized flights, which in turn affects the times of passenger arrivals to, and departures from, the airport. Alternatives to the project that contain differing amounts of square footage of terminal improvements will not affect the traffic study, since the traffic study is based on the number of passengers, flight distributions and parking; and is not based on the size of the terminal improvements.

The Existing with Optimized Flights analysis also assumes that the off-site satellite parking facility on Conant Street is still available for use. The 2020 Optimized Flights analyses assume that this parking area will not be available for use.

3.2 Trip Generation Methodology

The project trip generation is based on the increased number of flights due to the flight optimization. Typically, the Institute of Transportation Engineers (ITE) Trip Generation report¹ is used to obtain trip generation rates. For both Commercial and General Aviation Airports, ITE trip generation rates assume a minimum of 150 to 200 flights per day, with a percentage of the passengers having

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connecting flights (and do not enter or leave the airport in a vehicle). Since the Long Beach Airport is unique in its flight types and differs from the ITE case studies (non-connecting flights in Long Beach), number of flights (much lower than 150 to 200), and airport operating hours, it was determined that the use of ITE trip rates would not be appropriate. Instead, a set of specialized trip generation rates were calculated.

The trip generation rates that were developed for the John Wayne and the Ontario International Airports were reviewed to see if their specialized trip generation rates would be comparable to the Long Beach Airport. The John Wayne Airport study conducted in 2001 showed the daily trip generation rate for the Average Day-Peak Month (ADPM) was 1.84 Trips/Daily Passenger, with the AM peak hour trips as 5% of daily trips, and the PM peak hour trips as 8% of the daily trips. The full traffic impact analysis study is available for review, and is part of the John Wayne Airport Environmental Impact Report.

Similarly, a study has been conducted for the Ontario International Airport. The airport terminal trip generation rates were estimated for the ADPM non-connecting passengers. In that study, the terminal trip generation rate was found to be based on the following formula:

\[
\text{Terminal ADT} = 7.395 \times (\text{ADPM Terminal Passengers})^{0.8526}
\]

For the Ontario International Airport, this was the equivalent of 1.73 trips per non-connecting daily passenger in 2002, and their research further showed an 8% peak hour factor. Thus, the two comparable studies in Southern California yield ADPM trip rates varying from 1.73 trips/passenger to 1.84 trips/passenger and from 5% to 8% of daily trips in the peak hour.

For this Long Beach Airport study, a similar estimate of daily and peak trips per passenger was made. Daily traffic volumes were taken over two days on Donald Douglas Drive west of Lakewood Boulevard. Concurrently, passenger volumes for arriving and departing flights were estimated for the same two days, using flight arrival and departure times. Using this data, the ratio of vehicle trips ends (in and out of the airport) per passenger was calculated for both days, and an estimate of the 7-9 AM and 4-6 PM peak periods traffic volumes were made.

The analysis of the existing conditions data at the Long Beach Airport showed the following:

**Table 4 Existing Conditions Trip Generation Analysis at Long Beach Airport**

<table>
<thead>
<tr>
<th>2004 Data Analysis</th>
<th>Day 1</th>
<th>Day 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Traffic Volumes</td>
<td>16,397</td>
<td>15,655</td>
</tr>
<tr>
<td>Daily Passengers</td>
<td>9,281</td>
<td>8,861</td>
</tr>
<tr>
<td>Daily Trips/Passenger</td>
<td>1.77</td>
<td>1.77</td>
</tr>
<tr>
<td>AM Peak Hour Trips</td>
<td>918</td>
<td>937</td>
</tr>
<tr>
<td>AM Peak Hour %</td>
<td>5.6%</td>
<td>6.0%</td>
</tr>
<tr>
<td>PM Peak Hour Trips</td>
<td>904</td>
<td>861</td>
</tr>
<tr>
<td>PM Peak Hour %</td>
<td>5.5%</td>
<td>5.5%</td>
</tr>
</tbody>
</table>
For the Long Beach Airport trip generation, the Daily Trip Rate of 1.77 was selected, along with a 6% AM and PM traffic peak hour factor. In order to validate this estimate of the number of trips, comparisons of traffic volumes were then made for the optimized flight conditions using the assumption of 16,520 passengers in the ADPM to both the John Wayne and Ontario International Airports trip generation methodologies. The results are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Long Beach Airport Trip Generation Methodology</th>
<th>John Wayne Airport Trip Generation Methodology</th>
<th>Ontario Airport Trip Generation Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Traffic Volumes</td>
<td>29,240</td>
<td>30,397</td>
<td>29,188</td>
</tr>
<tr>
<td>AM Peak Hour Volume</td>
<td>1,754</td>
<td>1,520</td>
<td>2,335</td>
</tr>
<tr>
<td>PM Peak Hour Volume</td>
<td>1,754</td>
<td>2,431</td>
<td>2,335</td>
</tr>
</tbody>
</table>

It can be seen that the proposed methodology of trip generation estimation for the optimized flight conditions produce very similar results on the Daily basis (within 4 percent). Some variation can be seen in the Peak Hour analysis, however since the peak hour percentage of daily trips was based on actual traffic counts at the airport; the 6% peak hour factor appears to be a reasonable assumption.

Therefore, the estimated trip generation for the Existing with Optimized Flights analysis is as follows:

- Existing with Optimized Flights Vehicle Trips – AM Peak Hour (total trips): 1,754
- Existing with Optimized Flights Vehicle Trips – PM Peak Hour (total trips): 1,754

As compared to the 2005 traffic volumes, this is an increase of approximately 830 trips in the AM peak hour and 880 trips in the PM peak hour.

As part of the trip generation study, the effects of parking availability have been considered. The parking demand for the project was obtained from a Parking Adequacy Analysis study that was conducted for the airport in 2001. In this report, it stated that 2.75 parking spaces would be needed for each 1,000 annual enplanements. For the CEQA Existing with Optimized Flights scenario, parking will be available in the new on-site parking structure that will be built as part of the project, as well as the existing off-site satellite parking lot located on Conant Street. It has been assumed that all airport parking demand will be fulfilled.

In the 2020 scenarios (No-Project with Optimized Flights and Proposed Project with Optimized Flights), the existing off-site satellite parking facility is not assumed to be available for those who desire airport parking. For the 2020 No-Project with Optimized Flights scenario, the on-site parking structure will not be built, and there may be a parking deficiency. In this case, additional drop-off trips have been assumed. For the 2020 Proposed Project with Optimized Flights scenario, the new on-site parking structure will be in place, however when parking demand begins to approach parking capacity, there could be a slight increase in drop-off trips. Both 2020 Optimized Flights scenarios
also assumed that as the need for additional airport parking occurs, small privately operated off-site parking facilities with shuttle service to the airport could be provided by others.

Overall, an increase in the 2020 trips have been assumed as follows:

- **2020 No-Project with Optimized Flights scenario** – approximately 25-30% increase in trips; 2,162 AM, 2,272 PM
  This is higher than the Existing with Optimized Flights number of trips due to an approximate 4,400 parking space deficit, causing additional drop-off and off-site parking trips.

- **2020 Proposed Project with Optimized Flights scenario** – approximately 5-6% increase in trips; 1,843 AM, 1,868 PM
  This is higher than the Existing with Optimized Flights number of trips due to an approximate 950 parking space deficit, causing additional drop-off and off-site parking trips.

In summary, the following trips are estimated to be generated by the project:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>AM Peak Trips</th>
<th>PM Peak Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>921</td>
<td>877</td>
</tr>
<tr>
<td>Existing with Optimized Flights</td>
<td>1,754</td>
<td>1,754</td>
</tr>
<tr>
<td>2020 No-Project with Optimized Flights</td>
<td>2,162</td>
<td>2,272</td>
</tr>
<tr>
<td>2020 Proposed Project with Optimized Flights</td>
<td>1,843</td>
<td>1,868</td>
</tr>
</tbody>
</table>

### 3.2 Trip Distribution Methodology

Trip distribution for the Optimized Flights scenarios were obtained by using the travel demand model that is currently being used for the City’s Mobility Element update. A “select zone” run was made of the traffic analysis zone that contains the airport; the results show the generalized trip distributions for the zone. The trip distribution was then refined along the roadways in the area, and the resultant trip distribution is shown in Exhibit 6.
4.0 CEQA EXISTING WITH OPTIMIZED FLIGHTS ANALYSIS

This section discusses CEQA Existing with Optimized Flights conditions and compares these conditions to the existing traffic in order to evaluate possible traffic impacts.

4.1 Project Assumptions

In the CEQA Existing with Optimized Flights scenario, the analysis considers impacts associated with up to 52 commercial flights (optimized conditions) and 25 commuter flights, as described earlier in the report. The Existing with Optimized Flights scenario also considers that all terminal improvements are complete and in place including the on-site parking structure, a new exit from Donald Douglas Drive to Lakewood Boulevard for southbound traffic, and the existing off-site parking facility is still in place and available for airport use.

4.2 Existing with Optimized Flights Analysis and Impacts

The traffic analysis used the trip generation and distribution assumptions as described in Section 3. The CEQA Existing with Optimized Flights traffic volumes for the AM and PM peak hour conditions are shown in Exhibit 7. The traffic model was used to assess the impacts of the estimated optimized flight conditions. Table 7 below shows the Existing Conditions and the CEQA Existing with Optimized Flights conditions for each of the study intersections for the weekday AM and PM peak hours.

As can be seen in Table 7, there are five intersections that are expected to operate at LOS E or F in the AM or PM peak hours in the CEQA Existing with Optimized Flights conditions. These intersections are:

- Carson Street and Clark Avenue (LOS E, PM)
- Wardlow Road and Cherry Avenue (LOS E, PM)
- Spring Street and Lakewood Boulevard (LOS E, AM)
- Willow Street and Lakewood Boulevard (LOS E, AM; LOS F, PM)
- Willow Street and Clark Avenue (LOS E, AM)

All of the remaining study area intersections are expected to operate at acceptable levels of service (LOS D or better) during the peak periods of the Existing with Optimized Flights conditions.
## Existing with Optimized Flights Volumes - AM(PM)

**Long Beach Airport**

### Exhibit # 7

![Diagram of flight volumes at Long Beach Airport](image)
<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing Weekday Peak Hour</th>
<th>AM</th>
<th>Existing with Optimized Flights</th>
<th>Diff. due to Project</th>
<th>PM</th>
<th>Existing with Optimized Flights</th>
<th>Diff. due to Optimized Flights</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOS</td>
<td>V/C or Delay</td>
<td>LOS</td>
<td>V/C or Delay</td>
<td>LOS</td>
<td>V/C or Delay</td>
<td>LOS</td>
</tr>
<tr>
<td>1 Carson St. &amp; Cherry Ave.</td>
<td>C</td>
<td>0.736</td>
<td>C</td>
<td>0.753</td>
<td>0.017</td>
<td>D</td>
<td>0.856</td>
</tr>
<tr>
<td>2 Carson St. &amp; Paramount Blvd.</td>
<td>B</td>
<td>0.623</td>
<td>B</td>
<td>0.639</td>
<td>0.016</td>
<td>D</td>
<td>0.877</td>
</tr>
<tr>
<td>3 Carson St. &amp; Lakewood Blvd.</td>
<td>C</td>
<td>0.730</td>
<td>D</td>
<td>0.828</td>
<td>0.098</td>
<td>D</td>
<td>0.811</td>
</tr>
<tr>
<td>4 Carson St. &amp; Clark Ave.</td>
<td>D</td>
<td>0.804</td>
<td>D</td>
<td>0.807</td>
<td>0.003</td>
<td>E</td>
<td>0.967</td>
</tr>
<tr>
<td>5 Bixby Rd. &amp; Cherry Ave.</td>
<td>A</td>
<td>0.586</td>
<td>A</td>
<td>0.596</td>
<td>0.010</td>
<td>B</td>
<td>0.613</td>
</tr>
<tr>
<td>6 Conant St. &amp; Lakewood Blvd.</td>
<td>A</td>
<td>0.478</td>
<td>A</td>
<td>0.524</td>
<td>0.046</td>
<td>A</td>
<td>0.539</td>
</tr>
<tr>
<td>7 Conant St. &amp; Clark Ave.</td>
<td>A</td>
<td>0.416</td>
<td>A</td>
<td>0.422</td>
<td>0.006</td>
<td>A</td>
<td>0.417</td>
</tr>
<tr>
<td>8 86th St. &amp; Cherry Ave.</td>
<td>B</td>
<td>0.630</td>
<td>B</td>
<td>0.636</td>
<td>0.006</td>
<td>B</td>
<td>0.697</td>
</tr>
<tr>
<td>9 Wardlow Rc. &amp; Cherry Ave.</td>
<td>D</td>
<td>0.868</td>
<td>D</td>
<td>0.890</td>
<td>0.022</td>
<td>E</td>
<td>0.966</td>
</tr>
<tr>
<td>10 Wardlow Rc / Douglas Dr. &amp; Lakewood Blvd.</td>
<td>C</td>
<td>0.724</td>
<td>D</td>
<td>0.852</td>
<td>0.128</td>
<td>C</td>
<td>0.739</td>
</tr>
<tr>
<td>11 Wardlow Rc. &amp; Clark Ave.</td>
<td>B</td>
<td>0.643</td>
<td>B</td>
<td>0.647</td>
<td>0.004</td>
<td>A</td>
<td>0.576</td>
</tr>
<tr>
<td>12 Spring St. &amp; Cherry Ave.</td>
<td>C</td>
<td>0.728</td>
<td>C</td>
<td>0.731</td>
<td>0.003</td>
<td>D</td>
<td>0.834</td>
</tr>
<tr>
<td>13 Spring St. &amp; Temple Ave.</td>
<td>B</td>
<td>0.665</td>
<td>B</td>
<td>0.673</td>
<td>0.008</td>
<td>B</td>
<td>0.646</td>
</tr>
<tr>
<td>14 Spring St. &amp; Redondo Ave.</td>
<td>A</td>
<td>0.571</td>
<td>A</td>
<td>0.582</td>
<td>0.011</td>
<td>C</td>
<td>0.741</td>
</tr>
<tr>
<td>15 Spring St. &amp; Lakewood Blvd.</td>
<td>D</td>
<td>0.889</td>
<td>E</td>
<td>0.928</td>
<td>0.039</td>
<td>D</td>
<td>0.864</td>
</tr>
<tr>
<td>16 Spring St. &amp; Clark Ave.</td>
<td>B</td>
<td>0.665</td>
<td>B</td>
<td>0.673</td>
<td>0.008</td>
<td>C</td>
<td>0.791</td>
</tr>
<tr>
<td>17 Willow St. &amp; Redondo Ave.</td>
<td>C</td>
<td>0.764</td>
<td>C</td>
<td>0.772</td>
<td>0.008</td>
<td>D</td>
<td>0.879</td>
</tr>
<tr>
<td>18 Willow St. &amp; Lakewood Blvd.</td>
<td>E</td>
<td>0.943</td>
<td>E</td>
<td>0.967</td>
<td>0.024</td>
<td>F</td>
<td>1.043</td>
</tr>
<tr>
<td>19 Willow St. &amp; Clark Ave.</td>
<td>D</td>
<td>0.900</td>
<td>E</td>
<td>0.904</td>
<td>0.004</td>
<td>D</td>
<td>0.804</td>
</tr>
<tr>
<td>20 New Exit &amp; Lakewood Blvd.</td>
<td>NA</td>
<td>NA</td>
<td>A</td>
<td>0.8*</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Note:  
V/C = volume to capacity ratio for signalized intersections  
* Delay is in seconds per vehicle for unsignalized intersections  
** Bold indicates significant project impact according to City of Long Beach guidelines
The City of Long Beach defines a significant traffic impact due to a project as follows:

- An intersection impact is significant when the resulting level of service is E or F, and the project related traffic causes a volume to capacity (V/C) increase of 0.02 or higher to the critical movements.

Given these criteria, the Existing with Optimized Flights conditions are expected to result in significant impacts at two locations during the weekday AM peak hour. Table 7 shows which locations would be significantly impacted, and the magnitude of the project-related impact on the V/C ratio or delay. Significant impacts are indicated in bold. The impacted intersections are:

**Impacted Intersections in the Existing with Optimized Flights Conditions**
- Spring Street and Lakewood Boulevard
- Willow Street and Lakewood Boulevard

### 4.3 Mitigation Measures

As described in Section 4.2, the project is expected to result in a significant traffic impact at the two intersection locations that are listed above. This section discusses a program of circulation system improvements to mitigate the impacted intersections. Potential mitigation measures include physical intersection and roadway improvements.

The two impacted intersections along Lakewood Boulevard at Spring and Willow Streets are currently built out to the maximum feasible configuration. Additional improvements would cause the need for extensive right of way purchases that would impact several local businesses. Discussions with City staff indicate that no further lane additions are feasible at these two intersections, therefore there are no improvements would fully mitigate the project impacts to a level below significance.

However, it must be noted that the optimized flight conditions consider that all 52 commercial and 25 commuter flights are in operation. The increase in the number of flights will occur over a period of time. Trip and passenger “thresholds” were calculated to determine at what point impacts may occur.

At the Willow Street and Lakewood Boulevard intersection, the intersection currently operates at LOS E, and will exceed the 0.02 V/C impact threshold when approximately 675 additional AM peak hour trips occur. Again using the 6% peak hour factor and 1.77 daily trips per passenger, this intersection will reach the impact threshold when approximately 6,340 additional ADPM passengers (81% of the total added) use the airport.

For the Spring Street at Lakewood Boulevard intersection, the intersection will reach LOS E when approximately 375 additional AM peak hour trips occur. Using the 6% peak hour factor, and 1.77 daily trips per passenger, this equates into an approximate increase of 3,500 ADPM passengers (45% of the total added) over 2005 conditions. Currently, the ADPM is 9,246 passengers. Therefore, impacts would be expected if the ADPM level reached 12,746 passengers.
If the Adaptive Traffic Control System (ATMS) improvements associated with the Douglas Park project were implemented, the impacts associated with the Existing Plus Optimized Flights scenario would be mitigated to a level of less than significant. The ATMS measures are expected to increase the saturation flow rate by 10 percent to 1,760 vehicles per hour. While these improvements are expected, they are not currently programmed in any capital improvement program; therefore, their implementation cannot be relied upon to mitigate the impacts of the Existing with Optimized Flights scenario. Though the Optimized Flights are not a component of the Proposed Project, it is recommended that the following mitigation measure be adopted should the air carriers make the necessary adjustments to qualify for additional flight.

**Mitigation Measure 1**

In conjunction with the allocation of additional flights in accordance with the Airport Noise Compatibility Ordinance (Optimized Flights) the City shall develop a traffic monitoring program when the ADPM passenger levels reach 12,700. The traffic monitoring program shall evaluate the LOS at the Spring Street and Lakewood Boulevard and the Willow Street and Lakewood Boulevard intersections. If deficient LOS is identified, the City of Long Beach shall develop and implement a mitigation program that includes transportation management control measures to enhance the efficiency of traffic movement. Post implementation monitoring shall be required to ensure that sufficient capacity enhancement have been provided to accommodate the traffic associated with the increased passenger levels. If no deficiency in LOS is identified, the traffic monitoring of the key intersections shall be conducted on an annual basis or until such time as the improvements provided for as part of the Douglas Park project are implemented.
5.0 2020 WITH OPTIMIZED FLIGHTS PROJECT ANALYSIS

5.1 Background Growth and Cumulative Projects

For consistency purposes, all baseline 2020 conditions have been obtained from the Douglas Park (formerly called PacifiCenter @ Long Beach) Environmental Impact Report (EIR). This EIR has determined future background traffic volumes on the study area roadways and intersections, which include two primary variables: 1) ambient traffic growth rate, and 2) traffic due to known related development projects. The background traffic forecasts include a determination of the annual ambient traffic growth rate combined with specific cumulative development projects in the area, which may affect increases in local traffic. For the Long Beach Airport Terminal Improvement Project, the implementation of the Douglas Park project is also considered a cumulative project. Therefore, the Douglas Park plus project and with mitigations condition is considered as future baseline conditions for this report. The 2020 lane configurations used in this report are shown in Exhibit 8. For a full description of the Douglas Park buildout conditions as used in this report, the State Clearinghouse or the City of Long Beach have copies available for review. An online version is also available at: http://www.longbeach.gov/apps/cd/projects/boeingeir/issues/home.htm

The Douglas Park EIR considered an increase in the number of trips for the airport as a related development project. These have been taken into consideration in the 2020 with Optimized Flights analyses. Only the difference between the additional trips due to optimized flight conditions and the Douglas Park assumptions have been added in the traffic model.

5.2 2020 ‘No-Project’ with Optimized Flights Traffic Analysis

The intersection analysis methodology used for the future conditions is the same as that used to analyze the existing conditions. Section 3 of this report explains the trip generation methodology used in this analysis. In the no-project scenario, the new on-site parking structure has not been built, the existing off-site satellite parking facility is not available for use, and there is an increase in the number of drop off trips. A drop off trip increases the number of trips per passenger, since one trip to and from the airport is required to drop off a departing passenger, and another trip to and from the airport is required to pick up the same passenger once they arrive back at the airport. 2020 No-Project with Optimized Flights volumes are shown in Exhibit 9.

The 2020 No-Project with Optimized Flights analysis considers all Douglas Park traffic and mitigations to be in place, including physical roadway and intersection improvements, as well as the ATCS and ITS improvements proposed for mitigation. The ACTS and ITS improvements are assumed to increase the saturation flow rate by 10% to 1,760 vehicles per hour, reflecting the increased traffic flow rates with the improved signal systems.

The results of the analysis of the 2020 No-Project with Optimized Flights traffic conditions for the study intersections are summarized in Table 8. The following intersections are forecast to operate at LOS ‘E’ or ‘F’ during at least one of the analysis peak hours:
<table>
<thead>
<tr>
<th></th>
<th>Carson St / Cherry Ave</th>
<th></th>
<th>Carson St / Paramount Blvd</th>
<th></th>
<th>Carson St / Lakewood Blvd</th>
<th></th>
<th>Carson St / Clark Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
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<td>9</td>
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<td>10</td>
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<tr>
<td>11</td>
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<tr>
<td>12</td>
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<td></td>
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<tr>
<td>13</td>
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</tr>
<tr>
<td>14</td>
<td></td>
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<td></td>
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<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>16</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>18</td>
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<td></td>
<td></td>
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<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2020 Lane Configurations
Long Beach Airport

Exhibit # 8
### Long Beach Airport Terminal Improvements Traffic Impact Analysis

<table>
<thead>
<tr>
<th>Location</th>
<th>Traffic Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carson St / Cherry Ave</td>
<td>130(143)</td>
</tr>
<tr>
<td></td>
<td>775(140)</td>
</tr>
<tr>
<td></td>
<td>103(100)</td>
</tr>
<tr>
<td></td>
<td>103(100)</td>
</tr>
<tr>
<td></td>
<td>103(100)</td>
</tr>
<tr>
<td>Carson St / Paramount Blvd</td>
<td>105(169)</td>
</tr>
<tr>
<td></td>
<td>351(128)</td>
</tr>
<tr>
<td></td>
<td>27(94)</td>
</tr>
<tr>
<td></td>
<td>101(120)</td>
</tr>
<tr>
<td>Carson St / Lakewood Blvd</td>
<td>116(193)</td>
</tr>
<tr>
<td></td>
<td>116(193)</td>
</tr>
<tr>
<td></td>
<td>116(193)</td>
</tr>
<tr>
<td>Carson St / Clark Ave</td>
<td>103(100)</td>
</tr>
<tr>
<td></td>
<td>103(100)</td>
</tr>
<tr>
<td></td>
<td>103(100)</td>
</tr>
<tr>
<td></td>
<td>103(100)</td>
</tr>
</tbody>
</table>

### Exhibits

**Exhibit #9**

2020 No-Project with Optimized Flights Volumes - AM (PM)

**Long Beach Airport**

---

* Meyer, Mohades Associates
  * A Transportation Consulting Firm

November 2005
Table 8
2020 No-Project with Optimized Flights Peak-Hour Intersection Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>2020 Weekday Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AM</td>
</tr>
<tr>
<td></td>
<td>2020 No Project with</td>
</tr>
<tr>
<td></td>
<td>Optimized Flights</td>
</tr>
<tr>
<td></td>
<td>LOS</td>
</tr>
<tr>
<td>Carson St. &amp; Cherry Ave.</td>
<td>E</td>
</tr>
<tr>
<td>Carson St. &amp; Paramount Blvd.</td>
<td>C</td>
</tr>
<tr>
<td>Carson St. &amp; Lakewood Blvd.</td>
<td>E</td>
</tr>
<tr>
<td>Carson St. &amp; Clark Ave.</td>
<td>D</td>
</tr>
<tr>
<td>Bixby Rd. &amp; Cherry Ave.</td>
<td>C</td>
</tr>
<tr>
<td>Conant St. &amp; Lakewood Blvd.</td>
<td>E</td>
</tr>
<tr>
<td>Conant St. &amp; Clark Ave.</td>
<td>C</td>
</tr>
<tr>
<td>36th St. &amp; Cherry Ave.</td>
<td>D</td>
</tr>
<tr>
<td>Wardlow Rd. &amp; Cherry Ave.</td>
<td>D</td>
</tr>
<tr>
<td>Wardlow Rd / Douglas Dr. &amp; Lakewood Blvd.</td>
<td>F</td>
</tr>
<tr>
<td>Wardlow Rd. &amp; Clark Ave.</td>
<td>B</td>
</tr>
<tr>
<td>Spring St. &amp; Cherry Ave.</td>
<td>D</td>
</tr>
<tr>
<td>Spring St. &amp; Temple Ave.</td>
<td>C</td>
</tr>
<tr>
<td>Spring St. &amp; Redondo Ave.</td>
<td>B</td>
</tr>
<tr>
<td>Spring St. &amp; Lakewood Blvd.</td>
<td>F</td>
</tr>
<tr>
<td>Spring St. &amp; Clark Ave.</td>
<td>C</td>
</tr>
<tr>
<td>Willow St. &amp; Redondo Ave.</td>
<td>C</td>
</tr>
<tr>
<td>Willow St. &amp; Lakewood Blvd.</td>
<td>E</td>
</tr>
<tr>
<td>Willow St. &amp; Clark Ave.</td>
<td>E</td>
</tr>
<tr>
<td>New Exit / Lakewood Blvd</td>
<td>NA</td>
</tr>
</tbody>
</table>

2020 No Project with Optimized Flights Conditions LOS E/F
- Carson Street and Cherry Avenue (LOS E, AM; LOS F, PM)
- Carson Street and Paramount Boulevard (LOS F, PM)
- Carson Street and Lakewood Boulevard (LOS E, AM; LOS F, PM)
- Carson Street and Clark Avenue (LOS F, PM)
- Conant Street and Lakewood Boulevard (LOS E, AM; LOS F, PM)
- Wardlow Road and Cherry Avenue (LOS E, PM)
- Wardlow Road / Douglas Dr. and Lakewood Boulevard (LOS F, AM; LOS F, PM)
- Spring Street and Cherry Avenue (LOS E, PM)
- Spring Street and Temple Avenue (LOS F, PM)
- Spring Street and Redondo Avenue (LOS E, PM)
- Spring Street and Lakewood Boulevard (LOS F, AM; LOS F, PM)
- Spring Street and Clark Avenue (LOS E, PM)
- Willow Street and Redondo Avenue (LOS E, PM)
- Willow Street and Lakewood Boulevard (LOS E, AM; LOS F, PM)
- Willow Street and Clark Avenue (LOS E, AM)
5.3 2020 Proposed Project with Optimized Flights Traffic Analysis

The intersection analysis methodology used for the future conditions is the same as that used to analyze the existing conditions. Section 3 of this report explains the trip generation methodology used in this analysis. In the 2020 Proposed Project with Optimized Flights scenario, the new on-site parking structure is available for use and the number of drop off trips decrease as compared to the 2020 No-Project with Optimized Flights analysis due to the availability of parking. As noted in Section 3, the actual number of trips in the Proposed Project with Optimized Flights conditions is lower than the 2020 No-Project with Optimized Flights conditions. The 2020 Proposed Project with Optimized Flights volumes are shown in Exhibit 10.

The 2020 Proposed Project with Optimized Flights analysis again considers all Douglas Park traffic and mitigations to be in place, including the ATCS and ITS improvements (see Section 4.3) that increase the saturation flow rate by 10% to 1,760 vehicles per hour.

The results of the analysis of the 2020 Proposed Project with Optimized Flights traffic conditions for the study intersections are summarized in Table 9, which includes a comparison to the 2020 No-Project with Optimized Flights conditions. It can be seen that in the 2020 Proposed Project with Optimized Flights scenario, the lower traffic volumes result in an improvement in the volume/capacity ratio and no project impacts would occur.

5.4 2020 Parking Impact and Mitigation

In 2020, it is assumed that the off-site parking Lot D is not available for use. With the Optimized Flights scenario the parking structure for the Airport would be insufficient to accommodate the additional passenger levels of 52 commercial and 25 commuter flights, based on a parking demand study that was conducted for the Airport. Though the Optimized Flights scenario is not a component of the Proposed Project, the following mitigation measure is proposed to address this potential impact.

Mitigation Measure 2
In conjunction with the allocation of additional flights in accordance with the Airport Noise Compatibility Ordinance (Optimized Flights) when the annual passenger levels reach 4.2 MAP the Airport Manager shall identify and develop additional on-site parking opportunities. This may include development of an additional parking structure within the Airport Entrance area. Implementation of the identified improvements would require separate documentation pursuant to CEQA.
<table>
<thead>
<tr>
<th><strong>1</strong> Carson St / Cherry Ave</th>
<th><strong>2</strong> Carson St / Paramount Blvd</th>
<th><strong>3</strong> Carson St / Lakewood Blvd</th>
<th><strong>4</strong> Carson St / Clark Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>126(406)</td>
<td>102(321)</td>
<td>27(94)</td>
<td>101(412)</td>
</tr>
<tr>
<td>768(116)</td>
<td>1040(167)</td>
<td>527(127)</td>
<td>1259(116)</td>
</tr>
<tr>
<td>423(339)</td>
<td>209(158)</td>
<td>1342(267)</td>
<td>594(205)</td>
</tr>
<tr>
<td>72(104)</td>
<td>1292(178)</td>
<td>1156(198)</td>
<td>888(183)</td>
</tr>
<tr>
<td>1006(114)</td>
<td>225(103)</td>
<td>1195(82)</td>
<td>331(273)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>5</strong> Bixby Rd / Cherry Ave</th>
<th><strong>6</strong> Conant St / Lakewood Blvd</th>
<th><strong>7</strong> Conant St / Clark Ave</th>
<th><strong>8</strong> E 38th St / Cherry Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>13(38)</td>
<td>160(19)</td>
<td>130(22)</td>
<td>37(10)</td>
</tr>
<tr>
<td>3(147)</td>
<td>106(25)</td>
<td>138(127)</td>
<td>29(37)</td>
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<td>6(105)</td>
<td>5(47)</td>
<td>7(31)</td>
<td>563(361)</td>
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<tr>
<td>96(83)</td>
<td></td>
<td>96(27)</td>
<td>140(38)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th><strong>9</strong> E Wardlaw Rd / Cherry Ave</th>
<th><strong>10</strong> E Wardlaw Rd / Dr. Douglas Rd / Lakewood Blvd</th>
<th><strong>11</strong> E Wardlaw Rd / Clark Ave</th>
<th><strong>12</strong> E Spring St / Cherry Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>126(125)</td>
<td>287(123)</td>
<td>163(101)</td>
<td>737(589)</td>
</tr>
<tr>
<td>3(40)</td>
<td>209(65)</td>
<td>714(267)</td>
<td>89(642)</td>
</tr>
<tr>
<td>134(371)</td>
<td>129(127)</td>
<td>103(28)</td>
<td>57(155)</td>
</tr>
<tr>
<td>37(76)</td>
<td>97(41)</td>
<td></td>
<td>116(151)</td>
</tr>
<tr>
<td>37(36)</td>
<td>178(317)</td>
<td>109(153)</td>
<td>842(1084)</td>
</tr>
<tr>
<td>277(276)</td>
<td>50(187)</td>
<td>11(37)</td>
<td>52(111)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>13</strong> E Spring St / Temple Ave</th>
<th><strong>14</strong> E Spring St / Redondo Ave</th>
<th><strong>15</strong> E Spring St / Lakewood Blvd</th>
<th><strong>16</strong> E Spring St / Clark Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>0(0)*</td>
<td>139(102)</td>
<td>906(679)</td>
<td>1658(131)</td>
</tr>
<tr>
<td>133(1502)</td>
<td>338(56)</td>
<td>1505(57)</td>
<td>1548(788)</td>
</tr>
<tr>
<td>365(56)</td>
<td>390(97)</td>
<td>303(307)</td>
<td>278(162)</td>
</tr>
<tr>
<td>269(182)</td>
<td>322(349)</td>
<td>286(254)</td>
<td>172(218)</td>
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<td>214(244)</td>
<td>21(195)</td>
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<td>402(111)</td>
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</table>

<table>
<thead>
<tr>
<th><strong>17</strong> E Willow St / Redondo Ave</th>
<th><strong>18</strong> E Willow St / Lakewood Blvd</th>
<th><strong>19</strong> E Willow St / Clark Ave</th>
<th><strong>20</strong> New Drive / Lakewood</th>
</tr>
</thead>
<tbody>
<tr>
<td>28(0)</td>
<td>663(456)</td>
<td>189(80)</td>
<td>357(480)</td>
</tr>
<tr>
<td>1180(1021)</td>
<td>1500(591)</td>
<td>1323(879)</td>
<td>238(141)</td>
</tr>
<tr>
<td>29(377)</td>
<td>54(98)</td>
<td>65(117)</td>
<td>126(126)</td>
</tr>
<tr>
<td>208(415)</td>
<td>1340(216)</td>
<td>81(103)</td>
<td>238(141)</td>
</tr>
</tbody>
</table>

**2020 Proposed Project with Optimized Flights Volume - AM(PM)**

*Nominal Taps*

**Exhibit # 10**

*Long Beach Airport*

---

*November 2005*
## Table 9
### 2020 No-Project with Optimized Flights and 2020 Proposed Project with Optimized Flights Peak-Hour Intersection Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>2020 Weekday Peak Hour with Optimized Flights</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2020 No Project</td>
<td>2020 Plus Project</td>
<td>Diff. due to Project</td>
</tr>
<tr>
<td></td>
<td>LOS</td>
<td>V/C or Delay</td>
<td>LOS</td>
</tr>
<tr>
<td>1 Carson St. &amp; Cherry Ave.</td>
<td>E</td>
<td>0.918</td>
<td>E</td>
</tr>
<tr>
<td>2 Carson St. &amp; Paramount Blvd.</td>
<td>C</td>
<td>0.761</td>
<td>C</td>
</tr>
<tr>
<td>3 Carson St. &amp; Lakewood Blvd.</td>
<td>E</td>
<td>0.993</td>
<td>E</td>
</tr>
<tr>
<td>4 Carson St. &amp; Clark Ave.</td>
<td>D</td>
<td>0.804</td>
<td>D</td>
</tr>
<tr>
<td>5 Bixby Rd. &amp; Cherry Ave.</td>
<td>C</td>
<td>0.705</td>
<td>C</td>
</tr>
<tr>
<td>6 Conant St. &amp; Lakewood Blvd.</td>
<td>E</td>
<td>0.958</td>
<td>E</td>
</tr>
<tr>
<td>7 Conant St. &amp; Clark Ave.</td>
<td>C</td>
<td>0.724</td>
<td>C</td>
</tr>
<tr>
<td>8 36th St. &amp; Cherry Ave.</td>
<td>D</td>
<td>0.894</td>
<td>D</td>
</tr>
<tr>
<td>9 Wardlow Rd. &amp; Cherry Ave.</td>
<td>D</td>
<td>0.884</td>
<td>D</td>
</tr>
<tr>
<td>10 Wardlow Rd / Douglas Dr. &amp; Lakewood Blvd.</td>
<td>F</td>
<td>1.227</td>
<td>E</td>
</tr>
<tr>
<td>11 Wardlow Rd. &amp; Clark Ave.</td>
<td>B</td>
<td>0.688</td>
<td>B</td>
</tr>
<tr>
<td>12 Spring St. &amp; Cherry Ave.</td>
<td>D</td>
<td>0.836</td>
<td>D</td>
</tr>
<tr>
<td>13 Spring St. &amp; Temple Ave.</td>
<td>C</td>
<td>0.738</td>
<td>C</td>
</tr>
<tr>
<td>14 Spring St. &amp; Redondo Ave.</td>
<td>B</td>
<td>0.617</td>
<td>B</td>
</tr>
<tr>
<td>15 Spring St. &amp; Lakewood Blvd.</td>
<td>F</td>
<td>1.112</td>
<td>F</td>
</tr>
<tr>
<td>16 Spring St. &amp; Clark Ave.</td>
<td>C</td>
<td>0.733</td>
<td>C</td>
</tr>
<tr>
<td>17 Willow St. &amp; Redondo Ave.</td>
<td>C</td>
<td>0.745</td>
<td>C</td>
</tr>
<tr>
<td>18 Willow St. &amp; Lakewood Blvd.</td>
<td>E</td>
<td>0.977</td>
<td>E</td>
</tr>
<tr>
<td>19 Willow St. &amp; Clark Ave.</td>
<td>E</td>
<td>0.951</td>
<td>E</td>
</tr>
<tr>
<td>20 New Exit / Lakewood Blvd</td>
<td>NA</td>
<td>NA</td>
<td>A</td>
</tr>
</tbody>
</table>

Note: V/C = volume to capacity ratio for signalized intersections
* - delay is in seconds per vehicle for unsignalized intersections
Bold indicates significant project impact according to City of Long Beach guidelines
6.0 CONGESTION MANAGEMENT PROGRAM ANALYSIS

The Congestion Management Program (CMP) is a statewide program that requires the system wide evaluation of arterial and freeway facilities. In Los Angeles County, the CMP is the responsibility of the Metropolitan Transportation Authority. CMP guidelines require the assessment of development project impacts on the freeway system and at selected arterial intersections that are on the designated CMP system. According to the CMP Traffic Impact Analysis (TIA) Guidelines developed by MTA, a traffic impact analysis is required given the following conditions:

- CMP arterial monitoring intersections, including freeway on- or off-ramps, where the proposed project would add 50 or more trips during either the AM or PM weekday peak hours.
- CMP freeway monitoring locations where the proposed project would add 150 or more trips during either the AM or PM weekday peak hours.

The closest CMP arterial monitoring stations to the project with 50 or more added trips in the AM or PM peak hours are at the intersections of Lakewood Boulevard and Carson Street, and Lakewood Boulevard and Willow Street. These intersections have been analyzed as part of the traffic impact study and the results of those analyses are presented in this traffic study report. The CMP criteria for determining a significant impact state that a significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity (V/C ≥ 0.02), causing LOS F (V/C > 1.00). If the facility is already at LOS F, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity (V/C ≥ 0.02). Although the intersections of Lakewood Boulevard at Spring Street and Lakewood Boulevard at Willow Streets have impacts under the City of Long Beach standards, they do not have impacts under CMP standards.

For the freeway CMP analysis, the closest freeway monitoring stations include I-405 north of SR 22 and also I-405 at Santa Fe Avenue. In accordance with CMP guidelines, an increase of 0.02 or more in the Demand/Capacity ratio (D/C) with a resulting LOS F, or an increase of 0.02 or more in an existing LOS F is considered a significant impact. The methodology for estimating future traffic volumes is a multi-step process. First, existing traffic conditions at CMP freeway monitoring stations were obtained in the Congestion Management Program documentation published by MTA in 2004. Included are AM and PM peak hour traffic demands, capacity, and level of service (LOS) designations. The analysis is conducted for the 2012 probable project buildout. Next, traffic growth estimates, without the proposed development, were extrapolated from the 2003 CMP data set using a 0.007 yearly rate of growth, to determine the D/C ratio and LOS. Volume added as a result of the project was calculated using the trip distribution data from the traffic model used to assess project impacts. The CMP monitoring stations are located several miles from the airport, and the SCAG Destination 2030 report showed that a large percentage of Long Beach airport passengers are from the immediate area. Therefore it was assumed that only 75% of the traffic that left/arrived at the airport via the freeways are still on I-405 at the monitoring stations that are west of I-710 (Santa Fe Avenue) and east of I-605 (just n/o SR 22). Using this data, added traffic demand at the two CMP stations on I-405 at Santa Fe Avenue and just north of SR 22 were assessed. The added volume as a result of the project was then added to the projected growth for 2013 without the project, and divided
by capacity to determine the projected 2013 D/C ratio for AM and PM peak periods with the Optimized Flights conditions.

As noted, according to the guidelines for CMP Transportation Impact Analysis, if the proposed project fails to add 150 or more trips, in either direction during either the AM or PM weekday peak periods, no further traffic analysis is required. For this analysis, there are no locations where 150 or more trips would be added, however the analysis was completed for informational purposes only and is summarized in Table 10 below. As indicated by the data in the table, the project is expected to have no significant CMP system impact on I-405.

Table 10
CMP Freeway Analysis

<table>
<thead>
<tr>
<th></th>
<th>I-405 at Santa Fe Ave</th>
<th>I-405 w/o SR 22</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AM</td>
<td>PM</td>
</tr>
<tr>
<td>2003 Volumes</td>
<td>NB</td>
<td>SB</td>
</tr>
<tr>
<td>Growth per Year</td>
<td>0.007</td>
<td>0.007</td>
</tr>
<tr>
<td>Added Growth (2003 to 2013)</td>
<td>576</td>
<td>544</td>
</tr>
<tr>
<td>Background Volume for Year 2013</td>
<td>8799</td>
<td>8317</td>
</tr>
<tr>
<td>Added Volume from Optimized Flights</td>
<td>64</td>
<td>121</td>
</tr>
<tr>
<td>Total Volume w/Optimized Flights (2013)</td>
<td>8862</td>
<td>8438</td>
</tr>
<tr>
<td>Capacity</td>
<td>8000</td>
<td>8000</td>
</tr>
<tr>
<td>D/C w/Optimized Flights (2013)</td>
<td>1.108</td>
<td>1.055</td>
</tr>
<tr>
<td>LOS</td>
<td>F(0)</td>
<td>F(0)</td>
</tr>
<tr>
<td>Projected D/C w/Optimized Flights</td>
<td>1.100</td>
<td>1.040</td>
</tr>
<tr>
<td>Projected D/C w/project</td>
<td>1.108</td>
<td>1.055</td>
</tr>
<tr>
<td>Optimized Flights</td>
<td>0.008</td>
<td>0.015</td>
</tr>
<tr>
<td>Significant Impact</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
7.0 CONSTRUCTION IMPACT ANALYSIS

There would be temporary increases in traffic volumes on project area roadways during site preparation and construction of the Proposed Project due to traffic generated by construction workers’ vehicles and trucks transporting materials and equipment to and from the site.

Construction workers would generate approximately 50 peak hour trips during the most active construction period. The workers would generate approximately 50 trips during the morning peak-hour (50 in and 0 out) and 50 trips during the afternoon peak-hour (0 in and 50 out), with all workers parking on-site. The construction related truck trips that occur while the peak numbers of employees are present would be minimal, with construction materials being delivered in the off-peak hours. Peak truck trips would occur during the pouring of concrete for the parking structure, with one truck approximately every 15 minutes, from 7:00 AM to 4:00 PM, or four trips during the AM peak hour. However, when the concrete pours are being made, the number of employees required on site would be lower than 50. Traffic generated during site construction/preparation would result in a short-term minimal impact on the roadways in the immediate project vicinity. No significant impacts are anticipated and no mitigation measures are required.

During construction of the new parking structure, approximately 1,000 surface vehicular parking at the airport would be temporarily displaced. This may result in inadequate parking at the Airport during construction. However, an element of the Proposed Project is to provide temporary vehicular spaces in Parcel O, located on Clark Avenue near Willow Street, if necessary. The need for temporary vehicular parking in Parcel O would be determined prior to construction of the parking structure. Currently, there is some excess capacity in Lot D and the roof of the parking structure is not fully utilized. The proposed phasing identifies the construction of the parking structure in an early phase of improvements. If deemed to be necessary, Parcel O could be used for employee, rental cars, and public use parking with shuttle service provided. By moving employee parking to Parcel O, an additional 591 on-site spaces would be available for the public. It is estimated that a total of 5.5 acres of Parcel O would be available for temporary parking on a short-term basis. Parcel O would provide approximately 740 additional parking spaces. Shuttle bus service would transport passengers and employees to and from the terminal area. With this project design feature, there would be no significant impacts associated with insufficient parking during construction.
APPENDIX

A. EXISTING WEEKDAY PEAK HOUR LEVEL OF SERVICE CALCULATION WORKSHEETS

B. EXISTING WITH OPTIMIZED FLIGHTS PEAK HOUR LEVEL OF SERVICE CALCULATION WORKSHEETS

C. 2020 NO-PROJECT WITH OPTIMIZED FLIGHTS PEAK HOUR LEVEL OF SERVICE CALCULATION WORKSHEETS

D. 2020 PROPOSED PROJECT WITH OPTIMIZED FLIGHTS PEAK HOUR LEVEL OF SERVICE CALCULATION WORKSHEETS
A.

EXISTING WEEKDAY PEAK HOUR LEVEL OF SERVICE CALCULATION WORKSHEETS
**Scenario Report**

**Existing AM**

- **Demand:** Existing AM
- **Volume:** Existing AM
- **Geometry:** Existing lane configuration
- **Impact Type:** None
- **Trip Generation:** Existing AM
- **Path:** None
- **Routes:** None
- **Configuration:** Existing AM

**Impact Analysis Report**

**Level Of Service**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Base Del/ V/ LOS Veh</th>
<th>Future Del/ V/ LOS Veh</th>
<th>Change in Del/ V/ LOS Veh</th>
</tr>
</thead>
<tbody>
<tr>
<td># 1 Spring St. &amp; Cherry Ave.</td>
<td>C 0.728</td>
<td>C 0.728</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 2 Spring St. &amp; Temple Ave.</td>
<td>D 0.668</td>
<td>B 0.668</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 3 Spring St. &amp; Redondo Ave.</td>
<td>A 0.571</td>
<td>A 0.571</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 4 Spring St. &amp; Lakeshore Blvd.</td>
<td>D 0.605</td>
<td>B 0.605</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 5 Spring St. &amp; Clark Ave.</td>
<td>B 0.565</td>
<td>B 0.565</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 6 Willow St. &amp; Redondo Ave.</td>
<td>C 0.734</td>
<td>C 0.734</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 7 Willow St. &amp; Lakeshore Blvd.</td>
<td>E 0.868</td>
<td>E 0.868</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 8 Willow St. &amp; Clark Ave.</td>
<td>D 0.903</td>
<td>D 0.903</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 9 Warwick Rd. &amp; Cherry Ave.</td>
<td>D 0.889</td>
<td>D 0.889</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 10 Warwick Rd. &amp; Douglas Rd</td>
<td>C 0.724</td>
<td>C 0.724</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 11 Warwick Rd. &amp; Clark Ave.</td>
<td>B 0.643</td>
<td>B 0.643</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 12 36th St. &amp; Cherry Ave.</td>
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<td>B 0.630</td>
<td>+ 0.000 V/C</td>
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<tr>
<td># 13 Bisby Rd. &amp; Cherry Ave.</td>
<td>A 0.505</td>
<td>A 0.505</td>
<td>+ 0.000 V/C</td>
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<tr>
<td># 14 Conant St. &amp; Lakeshore Blvd.</td>
<td>A 0.470</td>
<td>A 0.470</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 15 Conant St. &amp; Clark Ave.</td>
<td>A 0.416</td>
<td>A 0.416</td>
<td>+ 0.000 V/C</td>
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<tr>
<td># 16 Carson St. &amp; Cherry Ave.</td>
<td>C 0.700</td>
<td>C 0.700</td>
<td>+ 0.000 V/C</td>
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<td># 17 Carson St. &amp; Paramount Blvd.</td>
<td>B 0.823</td>
<td>B 0.823</td>
<td>+ 0.000 V/C</td>
</tr>
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</tr>
<tr>
<td># 19 Carson St. &amp; Clark Ave.</td>
<td>D 0.604</td>
<td>D 0.604</td>
<td>+ 0.000 V/C</td>
</tr>
</tbody>
</table>
Existing AM  |  Oct Sep 31, 2005 08:47:57  |  Page 3-1
--- | --- | ---

**Level of Service Computation Report**

TCI #1 (Loss as Cycle Length 1 Method (Base Flow Volume Alternative))

**Condition:**

**AM Peak Hour**

**Intersection #1 Spring St. & Cherry Ave.**

**Cycle (sec):** 120

**Critical Vol./Cap. (AI):** 0.722

**Loss Time (sec):** 38  

**Optimal Cycle:** 69

**Level Of Service:** C

**Approach:**

North Bound  |  South Bound  |  East Bound  |  West Bound
--- | --- | --- | ---

**Control:**

Protected  |  Protected  |  Prot-Permit  |  Permitted
--- | --- | --- | ---

**Min. Green:** 0 0 0 0 0 0 0 0

**Volume Module:**

**Base Vol:** 252 1177 4: 154 960 59 59 372 52 57 478 242

**Growth Adj:** 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03

**Initial Bob:** 252 1177 4: 159 988 61 122 383 54 59 402 249

**User Adj:** 1.00 1.00 0.98 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PFI Volume:** 252 1177 4: 158 962 61 122 383 54 59 402 249

**Reduct Vol:** 0 0 0 0 0 0 0 0 0 0

**Reduced Vol:** 252 1177 4: 159 986 61 122 383 54 59 402 249

**PEC Adj:** 1.00 1.00 0.98 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PEF Volume:** 547 1177 4: 159 986 61 122 383 54 59 402 249

**Final Vol:** 252 1177 4: 159 986 61 122 383 54 59 402 249

**Saturation Flow Module:**

**Sat./Lanes:** 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800

**Adjustment:** 1.00 1.00 0.98 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**Lanes:** 1.00 2.00 0.98 2.00 2.00 2.00 1.00 2.00 0.98 2.00

**Final Vol:** 3500 3500 3500 3500 3500 3500 3500 3500 3500 3500

**Capacity Analysis Module:**

**Vol./Lanes:** 0.10 0.05 0.22 0.05 0.09 0.09 0.04 0.12 0.12

**Critic Links:** **** **** **** **** ****

Traffic 7.7.0515 (c) 2005 Boiling Assn. Licensed to NYU, LONG BEACH, CA

Existing AM  |  Oct Sep 31, 2005 08:47:57  |  Page 4-1
--- | --- | ---

**Level of Service Computation Report**

TCI #1 (Loss as Cycle Length 1 Method (Base Flow Volume Alternative))

**Condition:**

**AM Peak Hour**

**Intersection #2 Spring St. & Temple Ave.**

**Cycle (sec):** 120

**Critical Vol./Cap. (AI):** 0.599

**Loss Time (sec):** 13  

**Optimal Cycle:** 50

**Level Of Service:** B

**Approach:**

North Bound  |  South Bound  |  East Bound  |  West Bound
--- | --- | --- | ---

**Control:**

Protected  |  Protected  |  Prot-Permit  |  Permitted
--- | --- | --- | ---

**Min. Green:** 0 0 0 0 0 0 0 0 0 0

**Volume Module:**

**Base Vol:** 547 1177 4: 31 100 0 0 0 0 0 0 998 617 1740 0

**Growth Adj:** 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03

**Initial Bob:** 547 1177 4: 100 100 0 0 0 0 0 0 352 352 110 1795 0

**User Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PFI Volume:** 547 1177 4: 100 100 0 0 0 0 0 0 352 352 110 1795 0

**PEF Volume:** 547 1177 4: 100 100 0 0 0 0 0 0 352 352 110 1795 0

**Reduced Vol:** 547 1177 4: 100 100 0 0 0 0 0 0 352 352 110 1795 0

**Reduced Vol:** 547 1177 4: 100 100 0 0 0 0 0 0 352 352 110 1795 0

**PEC Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PEF Volume:** 547 1177 4: 100 100 0 0 0 0 0 0 352 352 110 1795 0

**Final Vol:** 547 1177 4: 100 100 0 0 0 0 0 0 352 352 110 1795 0

**Saturation Flow Module:**

**Sat./Lanes:** 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800

**Adjustment:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**Lanes:** 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00

**Final Vol:** 3500 3500 3500 3500 3500 3500 3500 3500 3500 3500

**Capacity Analysis Module:**

**Vol./Lanes:** 0.17 0.00 0.07 0.00 0.00 0.00 0.00 0.00 0.29 0.29 0.37 0.00

**Critic Links:** **** **** **** **** ****

Traffic 7.7.0515 (c) 2005 Boiling Assn. Licensed to NYU, LONG BEACH, CA
### Existing AM

**Date:** Sep 21, 2005 08:47:57

**Location:** Long Beach Airport Terminal Expansion

**Conditions:** AM Peak Hour

**Level of Service Computation Report**

#### Cycle [sec]:
- **100**
- **Critical Vol/Cap. (X):** 0.571

#### Optimal Cycle:
- 42

#### Level of Service:
- A

**Intersection #3 Spring St. & Redondo Ave.**

**Approach:**
- North Bound
- South Bound
- East Bound
- West Bound

**Movement:**
- L
- T
- F
- L
- T
- F

**Control:**
- Permitted
- L

**Permitted:**
- 0
- 0
- 0
- 0
- 0
- 0
- 0

**Volume Module:**
- Base Vol: 454
- Growth Adj: 1.03
- Initial Sat: 454
- User Adj: 1.00
- PHF Adj: 1.00
- PHF Volume: 454
- Reduced Sat: 454
- Vol: 454

**Saturation Flow Module:**
- 1,080
- Adjustment: 1.00
- Lanes: 2.00

**Capacity Analysis Module:**
- Vol/Sat: 0.15
- Critical Flow:
  - ****

---

### Existing AM

**Date:** Sep 21, 2005 08:47:57

**Location:** Long Beach Airport Terminal Expansion

**Conditions:** AM Peak Hour

**Level of Service Computation Report**

#### Cycle [sec]:
- **100**
- **Critical Vol/Cap. (X):** 0.619

#### Optimal Cycle:
- 107

#### Level of Service:
- B

**Intersection #4 Spring St. & Lakewood Blvd.**

**Approach:**
- North Bound
- South Bound
- East Bound
- West Bound

**Movement:**
- L
- T
- F
- L
- T
- F

**Control:**
- Permitted
- L

**Permitted:**
- 0
- 0
- 0
- 0
- 0
- 0
- 0

**Volume Module:**
- Base Vol: 224
- Growth Adj: 1.03
- Initial Sat: 224
- User Adj: 1.00
- PHF Adj: 1.00
- PHF Volume: 224
- Reduced Sat: 224
- Vol: 224

**Saturation Flow Module:**
- 1,080
- Adjustment: 1.00
- Lanes: 2.00

**Capacity Analysis Module:**
- Vol/Sat: 0.07
- Critical Flow:
  - ****
## Existing AM  
Oct 31, 2005 08:47:57  
Page 7-1

### Long Beach Airport Terminal Expansion

### Existing Condition

#### AM Peak Hour

<table>
<thead>
<tr>
<th>Intersection #5 Spring St. &amp; Clark Ave.</th>
</tr>
</thead>
</table>

**Level of Service Computation Report**

**ICF I (Loss as Cycle Length) Method (Base Volume Alternative)**

<table>
<thead>
<tr>
<th>Approach: North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
<th>Movement: L - T - E L - T - W L - T - E L - T - W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rights: Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green:</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lanes:</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>47,982</td>
<td>1.03</td>
<td>50,804</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.00</td>
<td>1.00</td>
<td>50,804</td>
</tr>
</tbody>
</table>

|                        | Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|                        | Lanes:      | 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 |
|                        | Final Vol:  | 50,804      |             | 50,804    | 50,804   | 50,804      |             | 50,804     | 50,804   | 50,804  | 50,804   |

| Capacity Analysis Module: | Voids/Sec: | 0.06 0.12 0.24 0.43 0.06 0.02 0.07 0.10 0.11 0.07 0.25 0.15 0.06 0.12 0.24 0.43 0.06 0.02 0.07 0.10 0.11 0.07 0.25 0.15 0.06 0.12 0.24 0.43 0.06 0.02 0.07 0.10 0.11 0.07 0.25 0.15 |
|                          | Crit. Move: | ****        |             |           |           |             |             |           |           |           |           |

---

## Existing AM  
Oct 31, 2005 08:47:57  
Page 8-1

### Long Beach Airport Terminal Expansion

### Existing Condition

#### AM Peak Hour

<table>
<thead>
<tr>
<th>Intersection #5 Willow St. &amp; Redondo Ave.</th>
</tr>
</thead>
</table>

**Level of Service Computation Report**

**ICF I (Loss as Cycle Length) Method (Base Volume Alternative)**

<table>
<thead>
<tr>
<th>Approach: North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
<th>Movement: L - T - E L - T - W L - T - E L - T - W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rights: Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green:</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lanes:</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>254,102</td>
<td>1.03</td>
<td>303,105</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.00</td>
<td>1.00</td>
<td>303,105</td>
</tr>
</tbody>
</table>

| Saturation Flow Module: | Setup/Lane: | 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 1800 1600 |
|                        | Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|                        | Lanes:      | 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 |
|                        | Final Vol:  | 303,105     |             | 303,105   | 303,105  | 303,105     |             | 303,105    | 303,105  | 303,105 | 303,105  |

<p>| Capacity Analysis Module: | Voids/Sec: | 0.06 0.12 0.24 0.43 0.06 0.02 0.07 0.10 0.11 0.07 0.25 0.15 0.06 0.12 0.24 0.43 0.06 0.02 0.07 0.10 0.11 0.07 0.25 0.15 0.06 0.12 0.24 0.43 0.06 0.02 0.07 0.10 0.11 0.07 0.25 0.15 |
|                          | Crit. Move: | ****        |             |           |           |             |             |           |           |           |           |</p>
<table>
<thead>
<tr>
<th>Volume Module</th>
<th>Existing AM</th>
<th>Wed Sep 21, 2005 08:47:57</th>
<th>Long Beach Airport Terminal Expansion</th>
<th>Existing Condition</th>
<th>AM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Vol.</td>
<td>244 1295</td>
<td>174</td>
<td>92 970</td>
<td>456</td>
<td>169 1062</td>
</tr>
<tr>
<td>Growth Adj.</td>
<td>1.03 1.03</td>
<td>1.03</td>
<td>1.03 1.03</td>
<td>1.03 1.03</td>
<td>1.03 1.03</td>
</tr>
<tr>
<td>Initial Err.</td>
<td>256 1334</td>
<td>174</td>
<td>92 3002</td>
<td>472</td>
<td>174 1094</td>
</tr>
<tr>
<td>User Adj.</td>
<td>1.00 1.00</td>
<td>1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
<tr>
<td>PHF Adj.</td>
<td>1.00 1.00</td>
<td>1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
<tr>
<td>PHF Volume</td>
<td>256 1334</td>
<td>174</td>
<td>92 3002</td>
<td>472</td>
<td>174 1094</td>
</tr>
<tr>
<td>Reduct Vol.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Reduced Vol.</td>
<td>256 1334</td>
<td>174</td>
<td>92 3002</td>
<td>472</td>
<td>174 1094</td>
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<tr>
<td>PCF Adj.</td>
<td>1.00 1.00</td>
<td>1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
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<tr>
<td>PCF Volume</td>
<td>256 1334</td>
<td>174</td>
<td>92 3002</td>
<td>472</td>
<td>174 1094</td>
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<tr>
<td>MFL Adj.</td>
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<td>1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
<tr>
<td>Final Vol.</td>
<td>256 1334</td>
<td>174</td>
<td>92 3002</td>
<td>472</td>
<td>174 1094</td>
</tr>
</tbody>
</table>

**Saturation Flow Module:**

<table>
<thead>
<tr>
<th>Set/Lane:</th>
<th>1800 1800</th>
<th>1800 1800</th>
<th>1800 1800</th>
<th>1800 1800</th>
<th>1800 1800</th>
<th>1800 1800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment:</td>
<td>1.00 1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Lanes:</td>
<td>2.00 2.00</td>
<td>0.05</td>
<td>2.00</td>
<td>2.00</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Final Vol.</td>
<td>256 1334</td>
<td>174</td>
<td>92 3002</td>
<td>472</td>
<td>174 1094</td>
<td>80</td>
</tr>
</tbody>
</table>

**Capacity Analysis Module:**

<table>
<thead>
<tr>
<th>Vol/Sat.</th>
<th>0.08 0.24</th>
<th>0.03 0.31</th>
<th>0.01 0.05</th>
<th>0.23 0.05</th>
<th>0.03 0.32</th>
<th>0.31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crit Flow:</td>
<td>****</td>
<td>****</td>
<td>****</td>
<td>****</td>
<td>****</td>
<td>****</td>
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</tbody>
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**Traffic 7.7.0515 (C) 2003 Dialling Assay. Licensed to MMA, LONG BEACH, CA**
### Traffic Flow Analysis

#### Existing AM

<table>
<thead>
<tr>
<th>Existing AM</th>
<th>Oct Sep 31, 2005 08:47:57</th>
<th>Page 11-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Beach Airport Terminal Expansion</td>
<td>Existing Condition</td>
<td>AM Peak Hour</td>
</tr>
</tbody>
</table>

#### Level Of Service Computation Report

**ICF 1 (Loss as Cycle Length = Method) (Base Volume Alternative)**

<table>
<thead>
<tr>
<th>Intersection #9 Wardrow Rd. &amp; Cherry Ave.</th>
</tr>
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<tbody>
<tr>
<td>Cycle (sec): 120</td>
</tr>
<tr>
<td>Loss Time (sec): 14</td>
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<td>Optimal Cycle: 60</td>
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<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
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<tr>
<td>Movements</td>
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<td>L-T-E</td>
<td>L-T-E</td>
<td>L-T-E</td>
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<td>Rights:</td>
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<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green:</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lanes:</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Volume Module:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Vol:</td>
<td>121 132</td>
<td>46</td>
<td>62 1628</td>
<td>122 219</td>
</tr>
<tr>
<td>Growth Adj:</td>
<td>1.03</td>
<td>1.03</td>
<td>1.03</td>
<td>1.03</td>
</tr>
<tr>
<td>Initial Bem:</td>
<td>372 118</td>
<td>72</td>
<td>22 2228</td>
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<td>User Adj:</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>PHF Adj:</td>
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<td>1.00</td>
<td>1.00</td>
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<tr>
<td>PHF Volume:</td>
<td>121 132</td>
<td>46</td>
<td>62 1628</td>
<td>122 219</td>
</tr>
<tr>
<td>Reduced Vol:</td>
<td>0</td>
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<td>PCE Adj:</td>
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<td>1.00</td>
</tr>
<tr>
<td>PCE Volume:</td>
<td>121 132</td>
<td>46</td>
<td>62 1628</td>
<td>122 219</td>
</tr>
<tr>
<td>Final Vol:</td>
<td>121 132</td>
<td>46</td>
<td>62 1628</td>
<td>122 219</td>
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</table>

#### Saturation Flow Module

<table>
<thead>
<tr>
<th>Set/Lane</th>
<th>1800 1800 1800 1800 1800 1800 1800 1800 1800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment:</td>
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<tr>
<td>Lanes:</td>
<td>2.00</td>
</tr>
<tr>
<td>Final Sat.:</td>
<td>1800 1800 1800 1800 1800 1800 1800 1800</td>
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</table>

#### Capacity Analysis Module

<table>
<thead>
<tr>
<th>Vol/Sat:</th>
<th>0.08 0.43 0.23 0.04 0.52 0.12 0.08 0.08 0.09 0.03 0.03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crit Moves:</td>
<td>**** **** **** ****</td>
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</tbody>
</table>
Existing AM | Oct Sep 31, 2005 08:47:57 | Page 13-1
---

Long Beach Airport Terminal Expansion
Existing Condition
AM Peak Hour
---

<table>
<thead>
<tr>
<th>Intersection 911: Wardlaw Rd. &amp; Clark Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle (sec): 100</td>
</tr>
<tr>
<td>Critical V/Cap, (X): 0.49</td>
</tr>
<tr>
<td>Loss Time (sec): 10 [Y4 = 0 sec] Average Delay (sec/veh): x</td>
</tr>
<tr>
<td>Level of Service: C</td>
</tr>
<tr>
<td>Approach: North Bound</td>
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<tr>
<td>Control: Permitted</td>
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<tr>
<td>Rights: Include</td>
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<tr>
<td>Lanes: 0</td>
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<tr>
<td>Volume Module:</td>
</tr>
<tr>
<td>Base Vol.: 78 856 46</td>
</tr>
<tr>
<td>Growth Adj.: 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03</td>
</tr>
<tr>
<td>Initial Rare: 80 894 46</td>
</tr>
<tr>
<td>User Adj.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>PMF Adj.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<td>PMF Volume: 80 894 46</td>
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<td>Reduce Vol.: 0 0 0 0 0 0 0 0 0</td>
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<tr>
<td>Final Vol.: 80 894 46</td>
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<table>
<thead>
<tr>
<th>Intersection 912: 36th St. &amp; Cherry Ave.</th>
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</thead>
<tbody>
<tr>
<td>Cycle (sec): 100</td>
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<tr>
<td>Critical V/Cap, (X): 0.319</td>
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<tr>
<td>Loss Time (sec): 13 [Y4 = 0 sec] Average Delay (sec/veh): x</td>
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<tr>
<td>Level of Service: C</td>
</tr>
<tr>
<td>Approach: North Bound</td>
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<td>Rights: Include</td>
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<tr>
<td>Lanes: 0</td>
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<tr>
<td>Volume Module:</td>
</tr>
<tr>
<td>Base Vol.: 15 1100 249 16 146 41 24 12 31 314 52 16</td>
</tr>
<tr>
<td>Growth Adj.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>Initial Rare: 15 1100 249 16 146 41 24 12 31 314 52 16</td>
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<td>User Adj.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<td>Reduced Vol.: 15 1100 249 16 146 41 24 12 31 314 52 16</td>
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<td>Final Vol.: 15 1100 249 16 146 41 24 12 31 314 52 16</td>
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Traffic 7.7.0515 (c) 2005 DNV Assc. Licensed to MMA, LONG BEACH, CA
<table>
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<th>L</th>
<th>T</th>
<th>E</th>
<th>L</th>
<th>T</th>
<th>E</th>
<th>L</th>
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<th>E</th>
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<tbody>
<tr>
<td>Northbound</td>
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<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
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</table>

**Volume Module:**
- Base Vol: 69,128,400
- Growth Adj: 1.03
- Initial Free Flow Speed: 71.125
- Saturation Flow: 1.00
- Reduction Vol: 0.00
- Restraint Vol: 1.00
- MLP Adj: 1.00
- Final Vol: 44,1128,400

**Saturation Flow Module:**
- Sat/Lane: 1600
- Adjustment: 1.00
- Lanes: 2.00
- Final Sat: 1600

**Capacity Analysis Module:**
- Vol/Sat: 0.04
- Crit Hours: ****

**Level of Service Computation Report:**
- Level of Service: X
- Cycle (sec): 100
- Critical Vol/Cap, %: 0.005
- Loss Time (sec): 10 (Yield: 0 sec) Average Delay (sec/veh): XXXXX

**Approach:** Northbound, Southbound, Eastbound, Westbound
<table>
<thead>
<tr>
<th></th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
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<tbody>
<tr>
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<tr>
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**Volume Module:**

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<tbody>
<tr>
<td>Base Vol:</td>
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</tr>
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<td>1.00</td>
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<td>PTV Volume:</td>
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<td>39</td>
<td>193</td>
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<tr>
<td>Reduct Vol:</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reduced Vol:</td>
<td>29</td>
<td>119</td>
<td>8f</td>
<td>229</td>
</tr>
<tr>
<td>PCE Adj:</td>
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<td>1.00</td>
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<tr>
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<td>752</td>
<td>39</td>
<td>193</td>
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**Saturation Flow Module:**

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**Capacity Analysis Module:**

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<tbody>
<tr>
<td>Vol/Sat:</td>
<td>0.02</td>
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<td>Crit Move:</td>
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### Traffic Analysis

#### Existing AM

<table>
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<tr>
<th>Date: Sep 21, 2005</th>
<th>Time: 08:47</th>
<th>Page: 21-1</th>
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</table>

**Long Beach Airport Terminal Expansion**

**Existing Condition**

**AM Peak Hour**

---

#### Level of Service Computation Report

<table>
<thead>
<tr>
<th>Intersection #10 Carson St. &amp; Clark Ave.</th>
</tr>
</thead>
</table>

**Cycle (sec):** 100

**Critical Vol./Cap. (A/V):** 0.90

**Loss Time (sec):** 18  

**Yield = 0 sec**  

**Average Delay (s/veh):**  

**Optimal Cycle:** 83

**Approach:** North Bound  

**South Bound**  

**East Bound**  

**West Bound**

---

<table>
<thead>
<tr>
<th>Movement</th>
<th>L</th>
<th>T</th>
<th>E</th>
<th>L</th>
<th>T</th>
<th>E</th>
<th>L</th>
<th>T</th>
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<th>Rights</th>
<th>Include</th>
<th>Include</th>
<th>Include</th>
<th>Include</th>
</tr>
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</table>

| Min. Green | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Lanes | 2 | 0 | 1 | 0 | 2 | 0 | 1 | 0 |

---

#### Volume Module

<table>
<thead>
<tr>
<th>Base Vol:</th>
<th>193</th>
<th>449</th>
<th>12</th>
<th>67</th>
<th>595</th>
<th>53</th>
<th>108</th>
<th>529</th>
<th>328</th>
<th>327</th>
<th>971</th>
<th>97</th>
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</thead>
</table>

| Growth Adj: | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Vol: | 193 | 462 | 14 | 69 | 613 | 55 | 111 | 545 | 333 | 337 | 1000 | 100 |
| Oversp. Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Vol: | 193 | 462 | 14 | 69 | 613 | 55 | 111 | 545 | 333 | 337 | 1000 | 100 |
| PHF Volume: | 193 | 462 | 14 | 69 | 613 | 55 | 111 | 545 | 333 | 337 | 1000 | 100 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Reduced Vol: | 193 | 462 | 14 | 69 | 613 | 55 | 111 | 545 | 333 | 337 | 1000 | 100 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Vol: | 193 | 462 | 14 | 69 | 613 | 55 | 111 | 545 | 333 | 337 | 1000 | 100 |

---

#### Saturation Flow Module

<table>
<thead>
<tr>
<th>Set/Lane</th>
<th>1400</th>
<th>1800</th>
<th>2200</th>
<th>1800</th>
<th>2200</th>
<th>1800</th>
<th>2200</th>
<th>1800</th>
<th>2200</th>
<th>1800</th>
<th>2200</th>
<th>1800</th>
</tr>
</thead>
</table>

| Adjustment | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |

| Final Vol: | 3500 | 4000 | 4500 | 3500 | 4000 | 3500 | 4000 | 3500 | 4000 | 3500 | 4000 | 3500 |

---

#### Capacity Analysis Module

| Vol/Sat: | 0.06 | 0.32 | 0.02 | 0.21 | 0.20 | 0.07 | 0.11 | 0.21 | 0.11 | 0.23 | 0.23 | 0.23 |
| Crit Mov: | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** |

---

Traffic 7.7.0515 (c) 2005 Dooring Assoc. Licensed to MLA, LONG BEACH, CA
### Existing PM

**Command:** Existing PM

**Volume:** Existing PM

**Geometry:** Existing Lane configuration

**Impact Fee:** None

**Trip Generation:** Existing PM

**Paths:** None

**Routes:** None

**Configuration:** Existing PM

---

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Base Del/ V/ LOS Un</th>
<th>Future Del/ V/ LOS Un</th>
<th>Change in LOS Un</th>
</tr>
</thead>
<tbody>
<tr>
<td># 1 Spring St. &amp; Cherry Ave.</td>
<td>D XXXXX 0.834</td>
<td>D XXXXX 0.834</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 2 Spring St. &amp; Temple Ave.</td>
<td>D XXXXX 0.449</td>
<td>D XXXXX 0.449</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 3 Spring St. &amp; Redondo Ave.</td>
<td>C XXXXX 0.741</td>
<td>C XXXXX 0.741</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 4 Spring St. &amp; Lakewood Blvd.</td>
<td>D XXXXX 0.654</td>
<td>D XXXXX 0.654</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 5 Spring St. &amp; Clark Ave.</td>
<td>C XXXXX 0.791</td>
<td>C XXXXX 0.791</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 6 Willow St. &amp; Redondo Ave.</td>
<td>D XXXXX 0.679</td>
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<td>+ 0.000 V/C</td>
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<tr>
<td># 7 Willow St. &amp; Lakewood Blvd.</td>
<td>F XXXXX 1.063</td>
<td>F XXXXX 1.063</td>
<td>+ 0.000 V/C</td>
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<td># 8 Willow St. &amp; Clark Ave.</td>
<td>D XXXXX 0.604</td>
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<td>+ 0.000 V/C</td>
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<tr>
<td># 9 Harlow Rd. &amp; Cherry Ave.</td>
<td>E XXXXX 0.998</td>
<td>E XXXXX 0.998</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td># 10 Harlow Rd. &amp; Dr. Douglas Rd.</td>
<td>C XXXXX 0.739</td>
<td>C XXXXX 0.739</td>
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<td># 11 Harlow Rd. &amp; Clark Ave.</td>
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Existing PM | Wed Sep 21, 2005 08:18:10 | Page 4-1
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### Long Beach Airport Terminal Expansion

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#### Level Of Service Computation Report

**Method:** (Base Volume Alternative)  
**Cycle (sec):** 100  
**Critical V/Cap. (X):** 0.74L  
**Loss Time (sec):** 32  
**Optimal Cycle:** 60  
**Level Of Service:** C

**Approach:** North Bound, South Bound, East Bound, West Bound

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| Saturated Flow Module | Sat/Lane | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Right Lanes | 0.20 | 0.00 | 0.40 | 0.00 | 0.40 | 0.00 | 0.20 | 0.00 | 0.20 | 0.00 | 0.20 | 0.00 |
| Final Sat. | 593 | 53 | 134 | 79 | 180 | 200 | 700 | 180 | 200 | 700 | 180 | 200 |

| Capacity Analysis Module | Vol/Sat | 0.17 | 0.10 | 0.10 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.37 | 0.37 | 0.07 | 0.16 | 0.16 |
| Right Lanes | 4 | 7 | 11 | 14 | 17 | 20 | 23 | 26 | 29 | 32 | 35 | 38 | 41 | 44 |

Traffic 7.7.0512 (c) 2005 Bowling Assoc. Licensed to MNA, Long Beach, CA
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### Existing FM

**Page 0-1**

**Long Beach Airport Terminal Expansion**

**Existing Condition**

**FM Peak Hour**

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**Intersection #7 Wilton St. & Lakewood #112**

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**Approach:**

- North Bound
- South Bound
- East Bound
- West Bound

**Movement:**

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<th>L</th>
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**Control:**

- Protected
- Protected
- Protected
- Protected

**Rights:**

- Include
- Exclude
- Include
- Exclude

**Min. Green:**

- 0
- 0
- 0
- 0
- 0
- 0
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- 0
- 0
- 0
- 0

**Volume Module:**

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**Growth Adj:**

- 1.03 1.03 1.01 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03

**Initial Bed:**

- 118 991 | L | 142 258 | 355 | 315 115 | 407 | 77 707 | 368 |

**User Adj:**

- 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PHF Adj:**

- 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PHF Volume:**

- 198 383 | L | 142 258 | 355 | 315 115 | 407 | 77 707 | 368 |

**Reduce Vo/C:**

- 0 0 0 0 0 0 0 0 0 0 0 0

**Reduced Vol:**

- 198 991 | L | 142 258 | 355 | 315 115 | 407 | 77 707 | 368 |

**PCE Adj:**

- 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**MLP Adj:**

- 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**Final Vol:**

- 198 991 | L | 142 258 | 355 | 315 115 | 407 | 77 707 | 368 |

### Saturation Flow Module:

**Sat/Lane:**


**Adjustment:**

- 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**Lanes:**

- 2.00 2.44 2.00 2.44 2.00 2.44 2.00 2.44 2.00 2.44 2.00 2.44

**Final Sat:**

- 3250 3250 | 860 860 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600

### Capacity Analysis Module:

**Vol/Sat:**

- 0.06 0.18 0.18 0.04 0.35 0.35 0.13 0.42 0.25 0.03 0.17 0.17

**Critic Nox:**

- **** **** **** **** ****

---

**Traffic 5.7.0.515 (c) 2005 Boeing Assc. Licensed to MTD, LGBCEACH, CA**
### Level of Service Computation Report

**Method (Base Volume Alternative):**

**Intersection:**
- Intersection #9 Warrington Rd & Cherry Ave.

---

### Cycle Time (sec):
- Cycle: 60
- Critical V/Cap. (C): 0.800

### Approach:
- North Bound: 18
- South Bound: 18
- East Bound: 18
- West Bound: 18

### Movement:
- **L-T-L-T**
- **L-T-L-T**
- **L-T-L-T**
- **L-T-L-T**

### Volume Module:
- Base Vol: 149
- Growth Adj: 1.03
- Initial Est: 153
- User Adj: 1.00
- PHI Adj: 1.00
- PHI Volume: 153
- Reduction Vol: 153
- Reduced Vol: 153
- PCE Adj: 1.00
- MLP Adj: 1.00
- Final Vol: 153

---

### Saturation Flow Module:
- Sat./Lane: 150
- Adjustment: 1.00
- Lanes: 150
- **150**

---

### Capacity Analysis Module:
- Vol./Sat: 0.10
- CR Index: 0.50
- 0.02
- 0.46
- 0.12
- 0.17
- 0.15
- 0.11
- 0.08
- 0.06

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### Traffic 7.7.0515 (c) 2005 Bowling Assoc. Licensed to TML, LONG BEACH, CA
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<th>Vol./Sat:</th>
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<th>0.23</th>
<th>0.2</th>
<th>0.08</th>
<th>0.17</th>
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</table>

**Volume Module:**

|----------|--------------|-------------|-------------|-----------|------------|---------|------------|------------|---------|---------|---------|------------|---------|---------| Set/Reset |
| L-T-L    | 431743       | 1.03        | 54          | 262310    | 42         | 1.00    | 0.00       | 0.00       | 0.00    | 0.00    | 0.00    | 0.00       | 0.00    | 0.00    | Set/Reset: |
| L-T-E    | 3126        | 1.03        | 54          | 262310    | 42         | 1.00    | 0.00       | 0.00       | 0.00    | 0.00    | 0.00    | 0.00       | 0.00    | 0.00    | Set/Reset: |
| L-T-S    | 3126        | 1.03        | 54          | 262310    | 42         | 1.00    | 0.00       | 0.00       | 0.00    | 0.00    | 0.00    | 0.00       | 0.00    | 0.00    | Set/Reset: |
| L-E-L    | 23150       | 1.03        | 54          | 262310    | 42         | 1.00    | 0.00       | 0.00       | 0.00    | 0.00    | 0.00    | 0.00       | 0.00    | 0.00    | Set/Reset: |
| L-E-S    | 23150       | 1.03        | 54          | 262310    | 42         | 1.00    | 0.00       | 0.00       | 0.00    | 0.00    | 0.00    | 0.00       | 0.00    | 0.00    | Set/Reset: |
| L-E-T    | 23150       | 1.03        | 54          | 262310    | 42         | 1.00    | 0.00       | 0.00       | 0.00    | 0.00    | 0.00    | 0.00       | 0.00    | 0.00    | Set/Reset: |
| E-L-T    | 23150       | 1.03        | 54          | 262310    | 42         | 1.00    | 0.00       | 0.00       | 0.00    | 0.00    | 0.00    | 0.00       | 0.00    | 0.00    | Set/Reset: |
| E-L-S    | 23150       | 1.03        | 54          | 262310    | 42         | 1.00    | 0.00       | 0.00       | 0.00    | 0.00    | 0.00    | 0.00       | 0.00    | 0.00    | Set/Reset: |
| E-L-E    | 23150       | 1.03        | 54          | 262310    | 42         | 1.00    | 0.00       | 0.00       | 0.00    | 0.00    | 0.00    | 0.00       | 0.00    | 0.00    | Set/Reset: |

**Capacity Analysis Module:**

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<th>0.02</th>
<th>0.02</th>
<th>0.03</th>
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<th>0.06</th>
<th>0.06</th>
<th>0.03</th>
<th>0.05</th>
<th>0.05</th>
</tr>
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</table>

**Critical Hours:**

**** **** **** **** ****
**Traffic 7.7.0515 (c) 2005 Dowling Assoc. Licensed to TMA, LONG BEACH, CA**

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|-----------------|------------------------|-----------|

**Long Beach Airport Terminal Expansion**

**Existing Condition**

**Level Of Service Computation Report**

**ICF I (Loss as Cycle Length v) Method (Base Volume Alternative)**

**Intersection #17 Carson St. & Paramount Blvd.**

<table>
<thead>
<tr>
<th>Cycle (sec): 100</th>
<th>Critical V/Cap. (X): 0.577</th>
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<tbody>
<tr>
<td>Loss Time (sec): 32</td>
<td>Yr = 0 sec Average Delay (sec veh): XXXXX</td>
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</table>

**Optimal Cycle:** 64

**Level Of Service:** D

**Approach:** North Bound South Bound East Bound West Bound

<table>
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<tr>
<th>Movement</th>
<th>L</th>
<th>T</th>
<th>E</th>
<th>F</th>
<th>L</th>
<th>T</th>
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<tr>
<td>Min. Green</td>
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</tbody>
</table>

**Volume Module:**

| Base Vol | 46 400 27 | 157 201 176 323 | 372 22 | 98 7 214 |
| Growth Adj: 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 |
| Initial Bas: 47 412 27 | 162 207 153 334 | 143 23 | 101 999 220 |
| User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PTV Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PTV Vol: 47 412 27 | 162 207 153 334 | 143 23 | 101 999 220 |
| Reduct Vol: 0 0 0 0 0 0 0 0 0 |
| Reduced Vol: 47 412 27 | 162 207 153 334 | 143 23 | 101 999 220 |
| PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Final Vol: 47 412 27 | 162 207 153 334 | 143 23 | 101 999 220 |

**Saturation Flow Module:**

| Sat./Lane | 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 |
| Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes: 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 |
| Final Sat: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 |

**Capacity Analysis Module:**

| Vol/Sat: 0.03 0.22 0.2 | 0.10 0.06 0.11 0.21 0.30 0.30 0.06 0.23 0.23 |
| Crit. Movie: ***** ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |

---

<table>
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<tr>
<th>Existing Flows</th>
<th>Wed Sep 21, 2005 08:48:10</th>
<th>Page 20-1</th>
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</table>

**Long Beach Airport Terminal Expansion**

**Existing Condition**

**Level Of Service Computation Report**

**ICF I (Loss as Cycle Length v) Method (Base Volume Alternative)**

**Intersection #18 Carson St. & Lakewood Blvd.**

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<th>Critical V/Cap. (X): 0.611</th>
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<tr>
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</table>

**Optimal Cycle:** 64

**Level Of Service:** D

**Approach:** North Bound South Bound East Bound West Bound

<table>
<thead>
<tr>
<th>Movement</th>
<th>L</th>
<th>T</th>
<th>E</th>
<th>F</th>
<th>L</th>
<th>T</th>
<th>E</th>
<th>F</th>
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<tr>
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</table>

**Volume Module:**

| Base Vol | 374 1250 169 | 337 801 84 | 250 3335 261 | 119 725 68 |
| Growth Adj: 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 |
| Initial Bas: 385 1298 195 | 141 825 87 | 258 3334 373 | 123 723 71 |
| User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PTV Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PTV Vol: 385 1298 195 | 141 825 87 | 258 3334 373 | 123 723 71 |
| Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 |
| Reduced Vol: 385 1298 195 | 141 825 87 | 258 3334 373 | 123 723 71 |
| PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Final Vol: 385 1298 195 | 141 825 87 | 258 3334 373 | 123 723 71 |

**Saturation Flow Module:**

| Sat./Lane | 1600 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 |
| Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes: 2.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 |
| Final Sat: 3500 4800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 |

**Capacity Analysis Module:**

| Vol/Sat: 0.12 0.27 0.12 0.04 0.19 0.19 0.06 0.28 0.23 0.04 0.17 0.17 |
| Crit. Movie: **** **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** |
## Time of Service Computation Report

**TCU 1 (loss as Cycle Length) / Method (Queue Volume Alternative)**

**Intersection #10 Carson St. & Clark Ave.**

**Cycle (sec):** 160  
**Optimal Cycle:** 146  
**Critical Vol./Cap. (X):** 0.967  
**Loss Line (sec):** 18 [Y+ = 0 sec]  
**Average Delay (sec):** Maximum

<table>
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<th>L</th>
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<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
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<th>R</th>
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</table>

### Volume Module:

- **Base Vol:** 248 666 396 78 575 164 175 1250 267 198 728 142
- **Growth Adj:** 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03
- **Initial N.H:** 248 666 396 80 592 169 180 1290 275 204 740 146
- **PSH Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PSH Volume:** 248 666 396 80 592 169 180 1290 275 204 740 146
- **Reduct Vol:** 0 0 0 0 0 0 0 0 0 0 0 0
- **Reduced Vol:** 248 666 396 80 592 169 180 1290 275 204 740 146
- **PCE Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PCE Vol:** 248 666 396 80 592 169 180 1290 275 204 740 146

### Saturation Flow Module:

- **Sat./Lane:** 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
- **Adjustment:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Lanes:** 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00
- **Final Sat.:** 3600 3600 3600 3600 3600 3600 3600 3600 3600 3600 3600 3600

### Capacity Analysis Module:

- **Vol/Sat:** 0.03 0.04 0.11 0.03 0.12 0.34 0.12 0.27 0.27 0.27 0.27 0.27
- **Crit. Hr/0:** **** **** **** **** **** **** **** **** **** **** ****

Traffic 7.7.0515 (c) 2005 Daniel Anson. Licensed to MTA, LONG BEACH, CA
B. EXISTING WITH OPTIMIZED FLIGHTS PEAK HOUR LEVEL OF SERVICE CALCULATION WORKSHEETS
### Scenario Report

**Command:** Existing with project AM  
**Volume:** Existing AM  
**Geometry:** Existing lane configuration  
**Impact Fee:** None  
**Trip Generation:** Existing project (41425+11+ parking) AM  
**Trip Distribution:** AM / PM Peak  
**Paths:** None  
**Routes:** None  
**Configuration:** Existing AM

### Trip Generation Report

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<th>Subzone</th>
<th>Amount (Units)</th>
<th>In</th>
<th>Out</th>
<th>Trips In</th>
<th>Trips Out</th>
<th>Total Trips</th>
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<tbody>
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<td>1.00 Airport</td>
<td>513.00</td>
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**Note:** The table above shows the forecasted number of trips for different zones and subzones for the existing project AM at Long Beach Airport Terminal Expansion.
### Trip Distribution Report

#### Percent Of Trips AM / PM Peak

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<td>2</td>
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<td>4.0</td>
<td>7.0</td>
<td>4.0</td>
<td>25.0</td>
<td>2.0</td>
<td>6.0</td>
<td>5.0</td>
<td>1.0</td>
<td>12.0</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.0</td>
<td>4.0</td>
<td>7.0</td>
<td>4.0</td>
<td>25.0</td>
<td>2.0</td>
<td>6.0</td>
<td>5.0</td>
<td>1.0</td>
<td>12.0</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Impact Analysis Report

#### Level Of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Base Del/ V/ LOS Veh</th>
<th>Future Del/ V/ LOS Veh</th>
<th>Change in</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Spring St. &amp; Cherry Ave.</td>
<td>C XXXX 0.728</td>
<td>C XXXX 0.731</td>
<td>+ 0.003 V/C</td>
</tr>
<tr>
<td>2 Spring St. &amp; Temple Ave.</td>
<td>D XXXX 0.668</td>
<td>D XXXX 0.973</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td>3 Spring St. &amp; Redondo Ave.</td>
<td>A XXXX 0.571</td>
<td>A XXXX 0.582</td>
<td>+ 0.012 V/C</td>
</tr>
<tr>
<td>4 Spring St. &amp; Lakewood Blvd.</td>
<td>D XXXX 0.698</td>
<td>E XXXX 0.923</td>
<td>+ 0.059 V/C</td>
</tr>
<tr>
<td>5 Spring St. &amp; Clark Ave.</td>
<td>B XXXX 0.682</td>
<td>B XXXX 0.973</td>
<td>+ 0.005 V/C</td>
</tr>
<tr>
<td>6 Willow St. &amp; Redondo Ave.</td>
<td>C XXXX 0.754</td>
<td>C XXXX 0.772</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td>7 Willow St. &amp; Lakewood Blvd.</td>
<td>E XXXX 0.840</td>
<td>E XXXX 0.987</td>
<td>+ 0.022 V/C</td>
</tr>
<tr>
<td>8 Willow St. &amp; Clark Ave.</td>
<td>D XXXX 0.908</td>
<td>D XXXX 0.904</td>
<td>+ 0.005 V/C</td>
</tr>
<tr>
<td>9 Hawthorne Rd. &amp; Cherry Ave.</td>
<td>D XXXX 0.858</td>
<td>D XXXX 0.900</td>
<td>+ 0.022 V/C</td>
</tr>
<tr>
<td>10 Hawthorne Rd / Dr. Douglas Rd &amp;</td>
<td>B XXXX 0.699</td>
<td>B XXXX 0.552</td>
<td>+ 0.115 V/C</td>
</tr>
<tr>
<td>11 Hawthorne Rd &amp; Clark Ave.</td>
<td>B XXXX 0.640</td>
<td>B XXXX 0.647</td>
<td>+ 0.004 V/C</td>
</tr>
<tr>
<td>12 13th St. &amp; Cherry Ave.</td>
<td>B XXXX 0.650</td>
<td>B XXXX 0.636</td>
<td>+ 0.004 V/C</td>
</tr>
<tr>
<td>13 13th St. &amp; Cherry Ave.</td>
<td>A XXXX 0.598</td>
<td>A XXXX 0.596</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td>14 Comstock St. &amp; Lakewood Blvd.</td>
<td>A XXXX 0.578</td>
<td>A XXXX 0.524</td>
<td>+ 0.044 V/C</td>
</tr>
<tr>
<td>15 Comstock St. &amp; Clark Ave.</td>
<td>A XXXX 0.416</td>
<td>A XXXX 0.422</td>
<td>+ 0.006 V/C</td>
</tr>
<tr>
<td>16 Carson St. &amp; Cherry Ave.</td>
<td>C XXXX 0.728</td>
<td>C XXXX 0.753</td>
<td>+ 0.027 V/C</td>
</tr>
<tr>
<td>17 Carson St. &amp; Paramount Blvd.</td>
<td>B XXXX 0.623</td>
<td>B XXXX 0.619</td>
<td>+ 0.008 V/C</td>
</tr>
<tr>
<td>18 Carson St. &amp; Lakewood Blvd.</td>
<td>C XXXX 0.700</td>
<td>D XXXX 0.828</td>
<td>+ 0.028 V/C</td>
</tr>
<tr>
<td>19 Carson St. &amp; Clark Ave.</td>
<td>D XXXX 0.694</td>
<td>D XXXX 0.697</td>
<td>+ 0.003 V/C</td>
</tr>
</tbody>
</table>
## Traffic Flow Analysis

### Existing with project AN

**Date:** Wed Sep 21, 2005 14:18:54

**Location:** Long Beach Airport Terminal Expansion

**Project:** Existing Plus Project

**Analysis:** Level of Service Computation Report

### TL 1 (Loss as Cycle Length b) Method (Future Volume Alternative)

### Intersection #3 Spring St. & Redondo Ave.

<table>
<thead>
<tr>
<th>Cycle (sec)</th>
<th>Critical Vol/Cap. (%)</th>
<th>Level of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0.322</td>
<td>A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement</td>
<td>L - T - 5</td>
<td>L - T - 5</td>
<td>L - T - 5</td>
<td>L - T - 5</td>
</tr>
<tr>
<td>Control</td>
<td>Permit</td>
<td>Permit</td>
<td>Protect</td>
<td>Protect</td>
</tr>
<tr>
<td>Rights</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
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<tr>
<td>Min. Green</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Label</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Volume Module

| Base Vol     | 454        | 236         | 0          | 4          | 0           | 0           | 4           | 699         | 552         | 258         | 1296         | 8           |
| Growth Adj.  | 1.03       | 1.03        | 1.03       | 1.03       | 1.03       | 1.03        | 1.03        | 1.03        | 1.03        | 1.03        | 1.03         | 1.03        |
| Initial Vol. | 448        | 239         | 0          | 4          | 0           | 0           | 4           | 713         | 332         | 266         | 1335         | 8           |
| Added Vol.   | 0           | 0           | 1          | 0          | 0           | 0           | 4           | 46          | 0           | 6           | 46           | 0           |
| PasseryVol.  | 0           | 0           | 0          | 0          | 0           | 0           | 0           | 0           | 0           | 0           | 0            | 0           |
| Initial Ftr. | 0           | 0           | 0          | 0          | 0           | 0           | 0           | 0           | 0           | 0           | 0            | 0           |
| Way Adj.     | 1.00       | 1.00        | 1.00       | 1.00       | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00         | 1.00        |
| PSH Adj.     | 1.00       | 1.00        | 1.00       | 1.00       | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00         | 1.00        |
| PSS Vol.     | 448        | 239         | 0          | 4          | 0           | 0           | 4           | 713         | 332         | 266         | 1335         | 8           |
| Reduced Vol. | 448        | 239         | 0          | 4          | 0           | 0           | 4           | 713         | 332         | 266         | 1335         | 8           |
| PCE Adj.     | 1.00       | 1.00        | 1.00       | 1.00       | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00         | 1.00        |
| MLF Adj.     | 1.00       | 1.00        | 1.00       | 1.00       | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00         | 1.00        |

### Saturation Flow Module

| Sec/Lane     | 1600 1600 | 1600 1600 | 1600 1600 | 1600 1600 | 1600 1600 | 1600 1600 | 1600 1600 | 1600 1600 | 1600 1600 | 1600 1600 | 1600 1600 | 1600 1600 |
| Adjustment   | 1.00       | 1.00       | 1.00       | 1.00       | 1.00       | 1.00       | 1.00       | 1.00       | 1.00       | 1.00       | 1.00       | 1.00       |
| Lane Adj.    | 0.02       | 0.02       | 0.02       | 0.02       | 0.02       | 0.02       | 0.02       | 0.02       | 0.02       | 0.02       | 0.02       | 0.02       |
| Final Sat.   | 3200 3200 | 3200 3200 | 3200 3200 | 3200 3200 | 3200 3200 | 3200 3200 | 3200 3200 | 3200 3200 | 3200 3200 | 3200 3200 | 3200 3200 | 3200 3200 |

### Capacity Analysis Module

<table>
<thead>
<tr>
<th>Vol/Bay</th>
<th>0.15 0.10 0.11</th>
<th>0.00 0.00 0.00</th>
<th>0.00 0.00 0.00</th>
<th>0.23 0.23 0.23</th>
<th>0.08 0.08 0.08</th>
<th>0.29 0.29 0.29</th>
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</thead>
<tbody>
<tr>
<td>Ctrl Poses</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
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</tbody>
</table>

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Traffic 7.7.0515  (c) 2005 Data Management, Licensed to IHA, LONG BEACH, CA
### Existing with Project

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Page</th>
<th>Page 0-1</th>
</tr>
</thead>
</table>
| Wed Sep 21, 2005 | 14:18:54 |      | Existing with project

#### Long Beach Airport Terminal Expansion

**Existing Blue Project**

**AM Peak Hour**

---

#### Level Of Service Computation Report

**CTR 1 (Loss as Cycle Length) Method (Future Volume Alternative)**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Spring St. + Clark Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Vol/Cap (X)</td>
<td>0.672</td>
</tr>
</tbody>
</table>

**Loss Time (sec):** 18 [YR = 0 sec] **Average Delay (sec/veh):** xxxxx

**Optimal Cycle:** 62 **Level Of Service:** D

---

**Approach:**

<table>
<thead>
<tr>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
</table>

**Control:**

<table>
<thead>
<tr>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Protect</th>
<th>Protect</th>
<th>Protect</th>
<th>Protect</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 0 2 1</td>
<td>0 2 0 2 1</td>
<td>2 0 1 1 0</td>
<td>2 0 1 1 0</td>
</tr>
</tbody>
</table>

**Min. Green:** 0 0 0 0 0 0 0 0 0 0

---

#### Volume Module

<table>
<thead>
<tr>
<th>Base Vol:</th>
<th>49 781</th>
<th>5: 35 598</th>
<th>155 154 284</th>
<th>44 239 1425</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth Adj:</td>
<td>1.03 1.03</td>
<td>1.03 1.03</td>
<td>1.03 1.03</td>
<td>1.03 1.03</td>
</tr>
<tr>
<td>Initial Rae:</td>
<td>50 504</td>
<td>5: 36 594</td>
<td>163 159 293</td>
<td>44 249 1488</td>
</tr>
<tr>
<td>Added Vol:</td>
<td>0.0</td>
<td>0.0</td>
<td>15 5</td>
<td>0 16 17</td>
</tr>
<tr>
<td>Darrow/YrVol:</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>Initial Flow:</td>
<td>58 813</td>
<td>5: 36 595</td>
<td>163 159 308</td>
<td>50 249 1488</td>
</tr>
<tr>
<td>Pct Adj:</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
<tr>
<td>Pct Vol:</td>
<td>58 813</td>
<td>5: 36 595</td>
<td>163 159 308</td>
<td>50 249 1488</td>
</tr>
<tr>
<td>Reduced Vol:</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>Final Flow:</td>
<td>58 813</td>
<td>5: 36 595</td>
<td>163 159 308</td>
<td>50 249 1488</td>
</tr>
</tbody>
</table>

---

#### Capacitive Analysis Module

<table>
<thead>
<tr>
<th>Vol/Spd:</th>
<th>0.02 0.18 0.15</th>
<th>0.01 0.17 0.10</th>
<th>0.05 0.07 0.07</th>
<th>0.08 0.28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crit Flow:</td>
<td>0.02 0.18 0.15</td>
<td>0.01 0.17 0.10</td>
<td>0.05 0.07 0.07</td>
<td></td>
</tr>
</tbody>
</table>

---

### Traffic 7.7.0515 (c) 2005 Dowling Assoc. Licensed to MNA, LONG BEACH, CA
Level of Service Computation Report

Intersection #7 Wilton St. & Lakewood Blvd.

Critical Val./Cap. (X): 0.987

Loss Time (sec): 18

Optimal Cycle: 46

Approach:

North Bound  South Bound  East Bound  West Bound

Volume:

Base Vol: 246,195
Growth Adj: 1.03
Initial Base: 256,138
Added Vol: 0
Perpendicular Vol: 0

Reduction:

PCG Adj: 1.00
MLP Adj: 1.00

Sec. Adjust: 1.00

Final Vol: 256,138

Traffic Flow Model:

Vol/Sat: 0.08 0.24 0.32 0.31 0.06 0.23 0.05 0.03 0.38 0.33

Capacity Analysis Model:

Vol/Sat: 0.12 0.19 0.19 0.03 0.31 0.23 0.08 0.18 0.02 0.32

Level of Service Computation Report

Intersection #8 Wilton St. & Clark Ave.

Critical Val./Cap. (X): 0.904

Loss Time (sec): 18

Optimal Cycle: 113

Approach:

North Bound  South Bound  East Bound  West Bound

Volume:

Base Vol: 177,780
Growth Adj: 1.03
Initial Base: 182,803
Added Vol: 0
Perpendicular Vol: 0

Reduction:

PCG Adj: 1.00
MLP Adj: 1.00

Sec. Adjust: 1.00

Final Vol: 182,803

Traffic Flow Model:

Vol/Sat: 0.18 0.34 0.36 0.33 0.08 0.33 0.06 0.04 0.37 0.33

Capacity Analysis Model:

Vol/Sat: 0.12 0.19 0.19 0.03 0.31 0.23 0.08 0.18 0.02 0.32

Traffic 7.7.0515 (c) 2005 Balancing Assoc. Licensed to MTA, LONG BEACH, CA
### Level of Service Computation Report

**Existing with project AN**  Wed Sep 21, 2005 14:18:54  Page 13-1

---

**Long Beach Airport Terminal Expansion**  
**Existing plans Project**  
**AN Peak Hour**

---

**Intersection #9 Wardlow Rd. & Cherry Ave.**

---

**Cycle (sec):**

| Critical Veh/Cap. (X): | 0.80 |

---

**Loss Time (sec):**

| YIELD = 0 sec | Average Delay (sec/veh): | XXXXX |

---

**Optimal Cycle:**

| 62 |

---

**Level Of Service:**

| D |

---

**Approach:**

| Northbound | Southbound | Eastbound | Westbound |

---

**Volume Module:**

| L | T | E | L | T | E | L | T | E | L | T | E |

---

**Control:**

| Protected | Protected | Split Phase | Split Phase |

---

**Rights:**

| Include | Include | Include | Include |

---

**Min. Green:**

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

---

**Volume Module:**

| Base Vol: | 121,135 | 46% | 62,165 | 42 | 219 | 36 | 147 | 99 | 20 | 35 |

---

**Growth Adj:**

| 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |

---

**Initial Est:**

| 125,137 | 46% | 64,177 | 48 | 225 | 37 | 151 | 102 | 21 | 26 |

---

**Added Vol:**

| 11 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

---

**PasserByVol:**

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

---

**Initial Flx:**

| 116,136 | 44% | 64,168 | 42 | 222 | 37 | 171 | 102 | 21 | 26 |

---

**User Adj:**

| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

---

**PWF Adj:**

| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

---

**PWF Volume:**

| 116,136 | 44% | 64,168 | 42 | 222 | 37 | 171 | 102 | 21 | 26 |

---

**Radius Vol:**

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

---

**Reduct Vol:**

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

---

**Reduced Vol:**

| 116,136 | 44% | 64,168 | 42 | 222 | 37 | 171 | 102 | 21 | 26 |

---

**PCF Adj:**

| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

---

**MLF Adj:**

| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

---

**Secuktion Flow Module:**

| Set/Line | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |

---

**Capacity Analysis Module:**

| Vol/Sig: | 0.08 | 0.02 | 0.01 | 0.00 | 0.08 | 0.08 | 0.11 | 0.03 | 0.03 | 0.03 | 0.03 |

---

**Traffic 7.7.0515 (c) 2005 Balancing Assn. Licensed to NMA, LONG BEACH, CA**

---

**Existing with project AN**  Wed Sep 21, 2005 14:18:54  Page 14-1

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**Long Beach Airport Terminal Expansion**  
**Existing plans Project**  
**AN Peak Hour**

---

**Intersection #10 Wardlow Rd. & Douglas Rd. & Lakewood Blvd.**

---

**Cycle (sec):**

| 100 |

---

**Loss Time (sec):**

| 18 | YIELD = 0 sec | Average Delay (sec/veh): | XXXXX |

---

**Optimal Cycle:**

| 95 |

---

**Level Of Service:**

| D |

---

**Approach:**

| Northbound | Southbound | Eastbound | Westbound |

---

**Volume Module:**

| Base Vol: | 368,117 | 71 | 91,129 | 77 | 79 | 32 | 40 | 294 | 110 | 261 |

---

**Growth Adj:**

| 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |

---

**Initial Est:**

| 372,118 | 72 | 92,128 | 78 | 80 | 32 | 40 | 297 | 111 | 268 |

---

**Added Vol:**

| 269 | 19 | 0 | 0 | 9 | 190 | 0 | 30 | 0 | 34 | 0 |

---

**PasserByVol:**

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

---

**Initial Flx:**

| 461,127 | 72 | 92,128 | 78 | 80 | 32 | 40 | 297 | 111 | 268 |

---

**User Adj:**

| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

---

**PWF Adj:**

| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

---

**PWF Volume:**

| 461,127 | 72 | 92,128 | 78 | 80 | 32 | 40 | 297 | 111 | 268 |

---

**Radius Vol:**

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

---

**Reduced Vol:**

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

---

**Reduced Vol:**

| 461,127 | 72 | 92,128 | 78 | 80 | 32 | 40 | 297 | 111 | 268 |

---

**PCF Adj:**

| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

---

**MLF Adj:**

| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

---

**Secuktion Flow Module:**

| Set/Line | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |

---

**Capacity Analysis Module:**

| Vol/Sig: | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |

---

**Traffic 7.7.0515 (c) 2005 Balancing Assn. Licensed to NMA, LONG BEACH, CA**
<table>
<thead>
<tr>
<th>Volume Mod: Bd Bos Vol</th>
<th>72 85</th>
<th>63 858</th>
<th>73 37</th>
<th>12 493</th>
<th>139 129</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth Adj: 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Bd: 35 88</td>
<td>65 859</td>
<td>75 38</td>
<td>12 493</td>
<td>143 129</td>
<td></td>
</tr>
<tr>
<td>Added Vol: 74 6</td>
<td>1 15</td>
<td>2 3 3 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perimeter Adj: 0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>Initial Per: 106 88</td>
<td>85 858</td>
<td>80 41</td>
<td>12 493</td>
<td>143 129</td>
<td></td>
</tr>
<tr>
<td>User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<td>85 858</td>
<td>80 41</td>
<td>12 493</td>
<td>143 129</td>
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<td>0 0</td>
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<td>80 41</td>
<td>12 493</td>
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Traffic 7.7.0515 (c) 2005 Bowling Assoc. Licensed to UMA, LONG BEACH, CA
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<td>51</td>
<td>27 1384</td>
<td>43</td>
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**Sat/Crash Module:***

- Val/Sec: 0.02 0.08 0.04 0.01 0.09 0.01 0.09 0.01
- Crs/Sec: 0.02 0.08 0.04 0.01 0.09 0.01 0.09 0.01

**Capaity Analysis Module:***

- Val/Sec: 0.05 0.37 0.04 0.08 0.07 0.01 0.03 0.03
- Crs/Sec: 0.02 0.08 0.04 0.01 0.09 0.01 0.09 0.01

Traffic 7.7.0515 (c) 2005 Bowling Assoc. Licensed to NMA, LONG BEACH, CA
Existing with project AN  Wed Sep 21, 2005 14:18:55  Page 10-1

Long Beach Airport Terminal Expansion
Existing Plane Project

Level Of Service Computation Report
TCL (Loss as Cycle Length) b) Method (Future Volume Alternative)

Intersection #18 Coment Rd. & Clark Ave.

Cycle (sec): 100
Critical Vol./Cap. (Ax): 0.442
Optimal Cycle: 12
Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Ref.: Include Include Include Include

Control: Permitted Permitted Permitted Permitted

Min. Green: 0 0 0 0

Volume Module:
Base Vol: 56,594 2 11,725 28 0 1 12 40 16 46
Growth Adj: 1.01 1.01 1.01 1.01 1.01 1.03 1.03 1.03 1.03 1.03
Initial Fee: 56,612 2 11,745 29 0 1 12 41 16 47
Add Vol: 2 3 (0 0 0 0 0 0 0 0 0 0
Passerby Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Purr: 56,612 2 11,745 29 0 1 12 41 16 47
Purr Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Purr Vol: 58,612 2 11,745 33 2 1 13 41 16 47

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
SLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Securition Flow Module:
Set/Lane: 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Set: 1600 3200 1600 1600 3200 1600 413 1167

Capacity Analysis Module:
Vol/Spc: 0.04 0.19 0.01 0.24 0.24 0.24 0.00 0.00 0.05 0.08 0.04

Existing with project AN  Wed Sep 21, 2005 14:18:55  Page 20-1

Long Beach Airport Terminal Expansion
Existing Plane Project

Level Of Service Computation Report
TCL (Loss as Cycle Length) b) Method (Future Volume Alternative)

Intersection #18 Coment Rd. & Clark Ave.

Cycle (sec): 100
Critical Vol./Cap. (Ax): 0.723
Optimal Cycle: 12
Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Ref.: Include Include Include Include

Control: Permitted Permitted Permitted Permitted

Min. Green: 0 0 0 0

Volume Module:
Base Vol: 105,683 16 194,116 98 73 538 63 365,690 61
Growth Adj: 1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01
Initial Fee: 105,703 11 220,141 101 75 554 65 376,714 63
Add Vol: 0 0 17 16 0 0 66 0 9 35 2
Passerby Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Purr: 105,703 11 220,141 101 75 554 65 376,714 63
Purr Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Purr Vol: 108,703 11 224,141 101 75 554 65 376,714 63

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
SLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Securition Flow Module:
Set/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Set: 1800 3600 1800 1800 3600 1800 4218 552 3200 4860 450

Capacity Analysis Module:
Vol/Spc: 0.07 0.15 0.01 0.07 0.34 0.06 0.32 0.15 0.12 0.17 0.17

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Traffic 7.7.0515 (c) 2005 Building Assoc. Licensed to MLA, LONG BEACH, CA
### Level Of Service Computation Report

**Existing Project**

**Peak Hour**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Carson St. &amp; Paramount Blvd.</th>
</tr>
</thead>
</table>

**Cycle (sec):** 120

**Critical Vol./Cap. (A):** 0.30

**Optimal Cycle:** 47

**Level Of Service:** B

### Volume Module:

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<td>116</td>
<td>86</td>
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<td>Initial Est</td>
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<tr>
<td>Lane</td>
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<th>0.12</th>
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<tr>
<td>Voud</td>
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<td>0.12</td>
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### Level of Service Computation Report

**Intersection:** #10 Carson St. & Clark Ave.

**Cycle (sec):** 100  
**Critical Vol./Cap. (X):** 0.987

**Loss Time (sec):** 18 [Y4 = 0 sec]  
**Average Delay (sec/veh):**, **xxxxxx**

**Optimal Cycle:** 84  
**Level Of Service:** D

**Approach:** North Bound, South Bound, East Bound, West Bound

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<th>L - T</th>
<th>E - T</th>
<th>L - T</th>
<th>E - T</th>
<th>L - T</th>
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**Control:**
- Protected: 0 0 0 0 0 0 0 0 0 0 0 0
- Include: 1 1 1 1 1 1 1 1 1 1 1 1

**Min. Green:** 0 0 0 0 0 0 0 0 0 0 0 0

**Labels:** 2 0 1 1 1 1 1 1 1 3 0 0 2 0 3 1 0

**Volume Module:**
- Base Vol: 193 448 34 67 695 53 108 529 333 327 971 97
- Growth Adj: 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03
- Initial Ave: 199 446 34 69 618 55 111 545 333 337 1000 100
- Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
- Present Vol: 199 446 34 69 618 55 111 545 333 337 1000 100

**Traffic Flow Module:**
- Vol/Lane: 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
- Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Lane: 2.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 3.00 4.00
- Final Set: 3200 1600 3200 2915 2301 1600 4800 1600 3200 4000 4130

**Capacity Analysis Module:**
- Vol/Lane: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
- Crit Lanes: **** **** **** ****
### Long Beach Airport Terminal Improvements

#### Existing Plus Project AM

#### 3: New Exit & Lakewood Blvd

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<td></td>
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<tr>
<td>Approach Delay (s)</td>
<td>11.0</td>
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<tr>
<td>Approach LOS</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Intersection Summary

- **Average Delay:** 0.8
- **Intersection Capacity Utilization:** 47.7%
- **IGU Level of Service:** A
- **Analysis Period (min):** 15
### Scenario Report

**Command:** Existing with project PR

**Volume:** Existing PR

**Geometry:** Existing lane configuration

**Impacts Fee:** None

**Trip Generation:** Existing project (41435+11+parking) PM

**Trip Distribution:** All / In-Peak

**Path:** None

**Routes:** None

**Configuration:** Existing PR

### Trip Generation Report

**Forecast for Existing PR project (41435+11+parking):**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Subzone</th>
<th>Amount</th>
<th>Units</th>
<th>Date</th>
<th>Date</th>
<th>In</th>
<th>Out</th>
<th>In</th>
<th>Out</th>
<th>Trips</th>
<th>Trips Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Long Beach A 1.00 Airport</td>
<td>362.00</td>
<td>468.00</td>
<td>382</td>
<td>463</td>
<td>625</td>
<td>94.0</td>
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<td></td>
<td>Zone 3 Subtotal</td>
<td></td>
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<td></td>
<td>825</td>
<td>94.0</td>
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<tr>
<td>3</td>
<td>Boeing Park 1.00 Parking Lot</td>
<td>23.00</td>
<td>30.00</td>
<td>23</td>
<td>30</td>
<td>53</td>
<td>6.0</td>
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<td></td>
<td>Zone 3 Subtotal</td>
<td></td>
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<td>53</td>
<td>6.0</td>
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**TOTAL**

385 493 678 100.0
### Trip Distribution Report

**Percent Of Trips AE / PM Peak**

<table>
<thead>
<tr>
<th>Zone</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
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<td></td>
<td></td>
<td>1.0</td>
<td>12.0</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4.0</td>
<td>4.0</td>
<td>7.0</td>
<td>4.0</td>
<td>28.0</td>
<td>2.0</td>
<td>6.0</td>
<td>5.0</td>
<td>1.0</td>
<td>12.0</td>
<td>3.0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.0</td>
<td>4.0</td>
<td>7.0</td>
<td>4.0</td>
<td>28.0</td>
<td>2.0</td>
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<td>3.0</td>
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</table>

### Impact Analysis Report

**Level Of Service**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Base Del/ V/ LOS Veh C</th>
<th>Future Del/ V/ LOS Veh C</th>
<th>Change in</th>
</tr>
</thead>
<tbody>
<tr>
<td># 1 Spring St &amp; Cherry Ave.</td>
<td>D xxxxx 0.838</td>
<td>D xxxxx 0.835</td>
<td>+ 0.002 V/C</td>
</tr>
<tr>
<td># 2 Spring St &amp; Temple Ave.</td>
<td>B xxxxx 0.448</td>
<td>B xxxxx 0.459</td>
<td>+ 0.012 V/C</td>
</tr>
<tr>
<td># 3 Spring St &amp; Redondo Ave.</td>
<td>C xxxxx 0.741</td>
<td>C xxxxx 0.752</td>
<td>+ 0.010 V/C</td>
</tr>
<tr>
<td># 4 Spring St &amp; Lakewood Blvd.</td>
<td>D xxxxx 0.864</td>
<td>D xxxxx 0.899</td>
<td>+ 0.035 V/C</td>
</tr>
<tr>
<td># 5 Spring St &amp; Clark Ave.</td>
<td>C xxxxx 0.791</td>
<td>D xxxxx 0.801</td>
<td>+ 0.010 V/C</td>
</tr>
<tr>
<td># 6 Willow St &amp; Redondo Ave.</td>
<td>D xxxxx 0.879</td>
<td>D xxxxx 0.889</td>
<td>+ 0.010 V/C</td>
</tr>
<tr>
<td># 7 Willow St &amp; Lakewood Blvd.</td>
<td>F xxxxx 1.043</td>
<td>F xxxxx 1.055</td>
<td>+ 0.011 V/C</td>
</tr>
<tr>
<td># 8 Willow St &amp; Clark Ave.</td>
<td>D xxxxx 0.604</td>
<td>D xxxxx 0.611</td>
<td>+ 0.007 V/C</td>
</tr>
<tr>
<td># 9 Gardlow Rd &amp; Cherry Ave.</td>
<td>E xxxxx 0.596</td>
<td>E xxxxx 0.980</td>
<td>+ 0.414 V/C</td>
</tr>
<tr>
<td># 10 Gardlow Rd / Dr. Douglas Rd</td>
<td>D xxxxx 0.611</td>
<td>C xxxxx 0.711</td>
<td>+ 0.099 V/C</td>
</tr>
<tr>
<td># 11 Gardlow Rd &amp; Clark Ave.</td>
<td>A xxxxx 0.674</td>
<td>A xxxxx 0.580</td>
<td>- 0.094 V/C</td>
</tr>
<tr>
<td># 12 36th St &amp; Cherry Ave.</td>
<td>B xxxxx 0.697</td>
<td>C xxxxx 0.702</td>
<td>+ 0.004 V/C</td>
</tr>
<tr>
<td># 13 Bisby Rd &amp; Cherry Ave.</td>
<td>B xxxxx 0.610</td>
<td>B xxxxx 0.916</td>
<td>+ 0.006 V/C</td>
</tr>
<tr>
<td># 14 Connct St &amp; Lakewood Blvd.</td>
<td>A xxxxx 0.539</td>
<td>A xxxxx 0.589</td>
<td>+ 0.050 V/C</td>
</tr>
<tr>
<td># 15 Connct St &amp; Clark Ave.</td>
<td>A xxxxx 0.417</td>
<td>A xxxxx 0.421</td>
<td>+ 0.004 V/C</td>
</tr>
<tr>
<td># 16 Carson St &amp; Cherry Ave.</td>
<td>D xxxxx 0.868</td>
<td>D xxxxx 0.877</td>
<td>+ 0.009 V/C</td>
</tr>
<tr>
<td># 17 Carson St &amp; Paramount Blvd.</td>
<td>D xxxxx 0.877</td>
<td>D xxxxx 0.895</td>
<td>+ 0.018 V/C</td>
</tr>
<tr>
<td># 18 Carson St &amp; Lakewood Blvd.</td>
<td>D xxxxx 0.811</td>
<td>D xxxxx 0.853</td>
<td>+ 0.042 V/C</td>
</tr>
<tr>
<td># 19 Carson St &amp; Clark Ave.</td>
<td>E xxxxx 0.997</td>
<td>E xxxxx 0.972</td>
<td>- 0.025 V/C</td>
</tr>
</tbody>
</table>
### Level of Service Computation Report

**Existing Project PM Sept 21, 2005 14:19:05**

**Long Beach Airport Terminal Expansion**

**Existing Blue Project PM Peak Hour**

---

**Intersection #1 Spring St. + Cherry Ave.**

---

**Cycle (sec):** 100

**Critical Vol./Cap. (%)** 0.230

**Loss Time (sec):** 38 (Yr= 0 sec) Average Delay (sec/veh): xxxxx

**Optimal Cycle:** 48

**Level Of Service:** D

---

**Approach:**

<table>
<thead>
<tr>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protect</td>
<td>Protect</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Volume Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Vol: 2661209 S: 3213229 T: 709 111 104 123 138 170</td>
</tr>
<tr>
<td>Growth Adj: 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03</td>
</tr>
<tr>
<td>Initial Int: 2121245 S: 3113168 T: 75 129 725 114 107 485 391</td>
</tr>
<tr>
<td>Added Vol: 0 0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>PassengerVol: 0 0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Initial Fru: 2121245 S: 3113168 T: 75 129 725 114 107 485 391</td>
</tr>
<tr>
<td>User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>PTE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>Final Vol: 2121245 S: 3113168 T: 75 129 725 114 107 485 391</td>
</tr>
</tbody>
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---

**Ecater Flow Module**

<table>
<thead>
<tr>
<th>Sec/Lane</th>
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<tbody>
<tr>
<td>1600 1600 1600 1600 1600 1600 1600 1600 1600 1600</td>
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<tr>
<td>Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>Losses: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<td>Final Sat. 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600</td>
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**Capacity Analysis Module**

<table>
<thead>
<tr>
<th>Vol/Sec</th>
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</thead>
<tbody>
<tr>
<td>0.15 0.08 0.15 0.08 0.15 0.08 0.15 0.08 0.15 0.08</td>
</tr>
<tr>
<td>Cost Notes: xxxxx</td>
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</table>
### Existing with project

#### PM 082 Sep 21, 2005 14:19:05

**Long Beach Airport Terminal Expansion**

**Existing Blue Project**

**PM Peak Hour**

---

#### Level Of Service Computation Report

CTU 1 (Loss as Volume Capacity) Method (Future Volume Alternative)

---

**Intersection #3 Spring St. & Sepulveda Blvd.**

---

**Cycle (sec):** 100  
**Critical Vol/Cap, (X):** 0.722

**Optimal Cycle:** 62  
**Level Of Service:** C

---

**Approach:** North Bound  
South Bound  
East Bound  
West Bound

---

**Movement:** L-T-B  
L-T-B  
L-T-B  
L-T-B

---

**Control:**  
Permitted  
Permitted  
Protected  
Protected

---

**Right:** Include  
Include  
Include  
Include

---

**Min. Green:** 0  
1  
3  
0

---

**Volume Module:**

- **Base Vol:** 537 31 9 2 9 19 1395 349 211 750 17
- **Growth Adj:** 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03
- **Initial Vol:** 533 33 9 2 9 20 1471 359 217 780 18
- **Added Vol:** 0 0 0 0 0 0 34 0 10 78 0
- **Passer@Vol:** 0 0 0 0 0 0 0 0 0 0 0
- **Initial Fru:** 533 33 9 2 9 20 1471 359 217 780 18
- **User Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PSP Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PSP Volume:** 533 33 9 2 9 20 1471 359 217 780 18
- **Reduce Vol:** 0 0 0 0 0 0 0 0 0 0 0
- **Reduced Vol:** 533 33 9 2 9 20 1471 359 217 780 18
- **PCE Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **MLP Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

---

#### Saturation Flow Module:

- **Sat./Lanes:** 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
- **Adjustment:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Lanes:** 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00
- **Final Sat.:** 3200 493 320 720 782 1600 1389 843 3200 4702 98

---

#### Capacity Analysis Module:

- **Vol/Sat.:** 0.17 0.10 0.10 0.01 0.01 0.01 0.01 0.01 0.01 0.01
- **Crit. Flow:**

---

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---

#### Existing with project

#### PM 082 Sep 21, 2005 14:19:05

**Long Beach Airport Terminal Expansion**

**Existing Blue Project**

**PM Peak Hour**

---

#### Level Of Service Computation Report

CTU 1 (Loss as Volume Capacity) Method (Future Volume Alternative)

---

**Intersection #4 Spring St. & Lakewood Blvd.**

---

**Cycle (sec):** 100  
**Critical Vol/Cap, (X):** 0.099

**Optimal Cycle:** 111  
**Level Of Service:** B

---

**Approach:** North Bound  
South Bound  
East Bound  
West Bound

---

**Movement:** L-T-B  
L-T-B  
L-T-B  
L-T-B

---

**Control:**  
Protected  
Protected  
Protected  
Protected

---

**Right:** Include  
Ovl  
Include  
Include

---

**Min. Green:** 0  
0  
0  
0

---

**Volume Module:**

- **Base Vol:** 94135 160 213 118 311 529 1398 254 287 587 208
- **Growth Adj:** 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03
- **Initial Vol:** 971169 165 219 1198 329 545 2324 262 296 405 218
- **Added Vol:** 0 159 0 34 171 06 42 0 0 0 0 0
- **Passer@Vol:** 0 0 0 0 0 0 0 0 0 0 0
- **Initial Fru:** 971169 165 219 1198 329 545 2324 262 296 405 218
- **User Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PSP Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PSP Volume:** 971169 165 219 1198 329 545 2324 262 296 405 218
- **Reduce Vol:** 0 0 0 0 0 0 0 0 0 0 0
- **Reduced Vol:** 971169 165 219 1198 329 545 2324 262 296 405 218
- **PCE Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **MLP Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

---

#### Saturation Flow Module:

- **Sat./Lanes:** 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
- **Adjustment:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Lanes:** 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00
- **Final Sat.:** 3200 640 1600 3200 4600 1600 3200 5860 840 1200 4800 1600

---

#### Capacity Analysis Module:

- **Vol/Sat.:** 0.03 0.31 0.13 0.08 0.29 0.13 0.18 0.31 0.31 0.29 0.18 0.18
- **Crit. Flow:**

---

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Level Of Service Computation Report

TCU 1 (Loss as Cycle Length b) Method (Future Volume Alternative)

Intersection #5 Spring St. & Clark Ave.

Cycle (sec): 102
Critical V/Cap. (%) : 0.001
Optimal Cycle: 82
Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
Movement: L T E L T E L T E L T

Control: Protected Include Include Protect Include

Green: 0 0 0 0 0 0 0 0 0
Label: 2 0 2 1 0 2 0 2 0 1 3 2 1 0 2 0 3 1 0

Volume Module:
Base Voi: 44 841 21 111 690 80 213 3135 88 137 549 93
Growth Adj: 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03
Initial Fee: 45 897 21 111 690 82 219 3135 91 141 565 96
Added Voi: 6 7 ( 5 0 0 0 0 0 0 0 0 11 12
Passeng/Res: 0 0 ( 0 0 0 0 0 0 0 0 0 0 0
Initial Fun: 51 894 21 111 692 82 219 3135 100 141 576 108
Protection: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
RMS Volume: 51 894 21 111 692 82 219 3135 100 141 576 108
Reduct Voi: 0 0 ( 0 0 0 0 0 0 0 0 0 0 0
Deduced Fun: 51 894 21 111 692 82 219 3135 100 141 576 108
PEL Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Securacry Flow Module:
Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjucation: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Leads: 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00
Final Sat.: 3200 3865 93 3200 3200 1600 3200 4477 332 3200 592 1008

Capacity Analysis Module:
Vol/Rel: 0.02 0.03 0.3 0.04 0.20 0.05 0.07 0.31 0.13 0.04 0.11 0.11
Crit. Mode: **

Traffic 7.7.0515 (c) 2005 Ballwin Assoc. Licensed to NHA, LONG BEACH, CA
### Level Of Service Computation Report

**TTC 1 (Loss as Cycle Length b) Method (Future Volume Alternative)**

**Intersection #7 Wilton St. & Lakewood Blvd:**

- **Critical Vol./Cap. (%)**: 1.000
- **Loss Time (sec)**: 18 [Yr = 0 sec] Average Delay (sec/veh): xxxxx
- **Optimal Cycle**: 180
- **Level Of Service**: F

---

<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
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</thead>
<tbody>
<tr>
<td>Control</td>
<td>Protected</td>
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<tr>
<td>Rights</td>
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</tr>
<tr>
<td>Min. Green</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Label</td>
<td>20310102031002031012031011</td>
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<table>
<thead>
<tr>
<th>Volume Module:</th>
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</thead>
<tbody>
<tr>
<td>Base Vol: 192462 15' 13833555 2093513293 305 94 868 357</td>
</tr>
<tr>
<td>Growth Adj: 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03</td>
</tr>
<tr>
<td>Initial Veh: 198991 161 142256 308 4033997 407 97 707 368</td>
</tr>
<tr>
<td>Added Vol: 0 27 9 35 20 15 0 0 0 0 0</td>
</tr>
<tr>
<td>Parcel#Vol: 0 0 0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Initial Int.: 1810183 14 1813331 328 4183977 407 97 707 426</td>
</tr>
<tr>
<td>User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>PWF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>PWF Volume: 1810183 14 1813331 328 4183977 407 97 707 426</td>
</tr>
<tr>
<td>Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Deduced Vol: 1810183 14 1813331 328 4183977 407 97 707 426</td>
</tr>
<tr>
<td>PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
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<table>
<thead>
<tr>
<th>Traffic Flow Module:</th>
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<tbody>
<tr>
<td>Start Lane: 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600</td>
</tr>
<tr>
<td>Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>Lane: 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00</td>
</tr>
<tr>
<td>Final Sett.: 3200 5523 87 3200 3805 625 3200 4800 1600 3200 3997 1403</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Capacity Analysis Module:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vol/Sfl: 0.08 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18</td>
</tr>
<tr>
<td>Critical Flow: 0.08 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18</td>
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</tbody>
</table>

---

Traffic 7.7.0515 (c) 2005 Bowlmor Assoc. Licensed to MMA, LONG BEACH, CA.
### Level of Service Computation Report

**Type:** Loss as Cycle Length

**Method:** Future Volume Alternative

---

**Intersection:** #9 Wardlow Rd, & Cherry Ave.

---

**Cycle (sec):** 100

**Critical V/Cap. (%)** or 0.992

**Optimal Cycle:** 60

**Level of Service:** C

---

**Approach:**
- North Bound
- South Bound
- East Bound
- West Bound

---

**Control:**
- Protected
- Non-Protected

**Right Turn:**
- Include
- Exclude

**Left Turn:**
- Include
- Exclude

---

**Volume Module:**

<table>
<thead>
<tr>
<th>Base Vol.</th>
<th>149 1647</th>
<th>12</th>
<th>28 3415</th>
<th>187</th>
<th>514</th>
<th>36</th>
<th>202</th>
<th>339</th>
<th>23 102</th>
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<tbody>
<tr>
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<td>1.03</td>
<td>1.03</td>
<td>1.03</td>
<td>1.03</td>
<td>1.03</td>
<td>1.03</td>
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<tr>
<td>Initial Max.</td>
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<td>12</td>
<td>29 3475</td>
<td>193</td>
<td>529</td>
<td>37</td>
<td>208</td>
<td>348</td>
<td>30 105</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Initial Fru.</td>
<td>171 1723</td>
<td>12</td>
<td>29 3482</td>
<td>200</td>
<td>534</td>
<td>37</td>
<td>222</td>
<td>342</td>
<td>30 105</td>
</tr>
<tr>
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<td>1.00</td>
<td>1.00</td>
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<td>29 3482</td>
<td>200</td>
<td>534</td>
<td>37</td>
<td>222</td>
<td>342</td>
<td>30 105</td>
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<td>200</td>
<td>534</td>
<td>37</td>
<td>222</td>
<td>342</td>
<td>30 105</td>
</tr>
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**Saturation Flow Module:**

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<td>3200</td>
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**Capacity Analysis Module:**

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<th>0.84</th>
<th>0.07</th>
<th>0.08</th>
<th>0.48</th>
<th>0.13</th>
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<th>0.18</th>
<th>0.18</th>
<th>0.11</th>
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<th>0.08</th>
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<tr>
<td>Crs. Flow</td>
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**Traffic Flow:**

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<tr>
<th>Vol./Seg.</th>
<th>0.14</th>
<th>0.30</th>
<th>0.80</th>
<th>0.06</th>
<th>0.24</th>
<th>0.24</th>
<th>0.08</th>
<th>0.03</th>
<th>0.09</th>
<th>0.08</th>
<th>0.02</th>
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<tr>
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<tr>
<td>Level Of Service Computation Report</td>
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**TCU (Loss as Cycle Length) Method [Future Volume Alternative]**

**Intersection:** 61 Warrillos Rd. & Clark Ave.

**Cycle (sec):** 120

**Optimal Cycle:** 15

**Level Of Service:** D

**Approach:** Northbound | Southbound | Eastbound | Westbound
--- | --- | --- | ---
Permitted | Permitted | Permitted | Permitted

**Control:**
- **Min. Green:** 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0
- **Max. Green:** 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

**Volume Module:**
- **Base Vol:** 34771 | 32 | 27666 | 17 | 06249 | 26 | 28180 | 64
- **Growth Adj:** 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03
- **Initial Est:** 351000 | 12 | 274799 | 18 | 07484 | 27 | 29185 | 66
- **Added Vol:** 35 | 0 | 5 | 6 | 5 | 0 | 0 | 0
- **Passer Vol:** 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
- **Initial Flow:** 52125 | 32 | 274799 | 22 | 069497 | 32 | 29180 | 66
- **User Adj:** 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00
- **Peak Adj:** 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00
- **Peak Volume:** 511500 | 32 | 274799 | 22 | 069497 | 32 | 29180 | 66
- **Reduce Vol:** 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
- **Reduced Flow:** 511500 | 32 | 274799 | 22 | 069497 | 32 | 29180 | 66
- **PCE Adj:** 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00
- **MLP Adj:** 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00

**Security Flow Module:**
- **Set/Seq:** 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600
- **Adjustment:** 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00
- **Final Set:** 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600

**Capacity Module:**
- **Vol/Bay:** 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03
- **Critt Time:** ****

---

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### Level of Service Computation Report

**Existing Project PM**

**Long Beach Airport Terminal Expansion**

**Existing Flow Project PM Peak Hour**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Risky Rd. + Cherry Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle (sec)</td>
<td>100</td>
</tr>
<tr>
<td>Cycle (sec)</td>
<td>100</td>
</tr>
<tr>
<td>Critical Vol./Cap. (%)</td>
<td>0.416</td>
</tr>
<tr>
<td>Critical Vol./Cap. (%)</td>
<td>0.390</td>
</tr>
</tbody>
</table>

**Optimal Cycle:** 42 sec

**Level Of Service:** D

<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Permitted</td>
<td>Permitted</td>
<td>Permitted</td>
<td>Permitted</td>
</tr>
<tr>
<td>Rights</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Labels</td>
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<td>1 0 2 1 0</td>
<td>1 0 0 1 0</td>
<td>1 0 0 1 0</td>
</tr>
</tbody>
</table>

**Volume Module:**

| Base Vol. | 47141 | 55 | 251125 | 41 | 59 | 52 | 44 | 51 | 40 | 34 |
| Growth Adj. | 1.03 | 1.03 | 1.01 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Vol. | 47199 | 55 | 262210 | 42 | 102 | 54 | 45 | 53 | 41 | 35 |
| Added Vol. | 1 | 8 | 0 | 12 | 4 | 3 | 0 | 1 | 0 | 0 |
| Proportion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Flow | 45780 | 16 | 262222 | 46 | 125 | 54 | 46 | 53 | 41 | 35 |
| Peak Flow | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Peak Vol. | 451802 | 55 | 262222 | 46 | 125 | 54 | 46 | 53 | 41 | 35 |
| Reduced Vol. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Flow | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PCE Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLP Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Saturation Flow Module:**

| Sat. Flow | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |
| Adjustment | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Sat. | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |

**Capacity Analysis Module:**

| Vol/Sat. | 0.03 | 0.03 | 0.31 | 0.02 | 0.28 | 0.26 | 0.07 | 0.08 | 0.08 | 0.03 | 0.08 | 0.05 |
| Critical Flow | **** |

**Existing with project PM**

**Peak Hour**

<table>
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<tr>
<th>Intersection</th>
<th>18th St. + Lakewood Blvd.</th>
</tr>
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<td>Cycle (sec)</td>
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<tr>
<td>Cycle (sec)</td>
<td>100</td>
</tr>
<tr>
<td>Critical Vol./Cap. (%)</td>
<td>0.390</td>
</tr>
<tr>
<td>Critical Vol./Cap. (%)</td>
<td>0.416</td>
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</tbody>
</table>

**Optimal Cycle:** 46 sec

**Level Of Service:** A

<table>
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<th>East Bound</th>
<th>West Bound</th>
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</thead>
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<td>Permitted</td>
<td>Permitted</td>
<td>Permitted</td>
</tr>
<tr>
<td>Rights</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
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<tr>
<td>Min. Green</td>
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<td>0</td>
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<td>0</td>
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<td>2 0 3 1 0</td>
<td>1 0 1 0 1</td>
<td>1 0 1 0 1</td>
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</tbody>
</table>

**Volume Module:**

| Base Vol. | 41695 | 11 | 131265 | 2 | 14 | 3 | 2 | 45 | 4 | 16 |
| Growth Adj. | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| Initial Vol. | 41744 | 11 | 131265 | 2 | 14 | 3 | 2 | 45 | 4 | 16 |
| Added Vol. | 0 | 109 | 10 | 132 | 0 | 0 | 0 | 0 | 18 | 0 |
| Proportion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Flow | 441802 | 55 | 262222 | 46 | 125 | 54 | 46 | 53 | 41 | 35 |
| Peak Flow | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Peak Vol. | 441802 | 55 | 262222 | 46 | 125 | 54 | 46 | 53 | 41 | 35 |
| Reduced Vol. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Flow | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PCE Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLP Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Saturation Flow Module:**

| Sat. Flow | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |
| Adjustment | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Sat. | 3200 | 4800 | 1600 | 1600 | 4790 | 7 | 1600 | 1600 | 1600 | 1600 |

**Capacity Analysis Module:**

| Vol/Sat. | 0.00 | 0.40 | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| Critical Flow | **** |
# Level of Service Computations Report

**Existing with project**

**PM** | **Date** | **Time** | **Page**
--- | --- | --- | ---
Peek Hour | | | 1-10

## TCU 1 (Loss as Cycle Length b) Method (Future Volume Alternative)

**Intersection #16** Carson St. & Clark Ave.

- **Cycle (sec):** 100
- **Critical Vol./Cap. (X):** 0.921
- **Loss Time (sec):** 10 (Y = 0 sec)
- **Average Delay (sec/veh):** XXXXX
- **Optimal Cycle:** 10
- **Level Of Service:** A

<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
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<tbody>
<tr>
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<td>Ovl. Include</td>
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<td>Lanes</td>
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</table>

**Volume Module**

| Base Vol. | 18 810 | 64 | 33 85S | 1 | 27 18 | 73 | 12 | 7 | 17 |
| Growth Adj. | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Est. | 19 942 | 62 | 34 608 | 1 | 28 19 | 75 | 12 | 7 | 18 |
| Added Vol. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PaseerVol | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Per Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Per Volume | 21 840 | 64 | 34 600 | 4 | 28 19 | 77 | 12 | 7 | 18 |
| West Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLP Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PCE Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Vol. | 21 840 | 64 | 34 600 | 4 | 28 19 | 77 | 12 | 7 | 18 |

## Securrence Flow Module

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<th>1600 1500</th>
<th>1600 1500</th>
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<th>1600 1500</th>
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<td>1.00</td>
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## Capacity Analysis Module

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<th>0.02 0.02</th>
<th>0.02 0.02</th>
<th>0.02 0.02</th>
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<th>0.02 0.02</th>
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<tbody>
<tr>
<td>Traffic 7.7.0515 (c) 2005 Dowling Assoc. Licensed to NMA, LONG BEACH, CA</td>
<td></td>
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### Level of Service Computation Report

**Intersection #17 Carson St. & Paramount Blvd.**

<table>
<thead>
<tr>
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<th>Critical Vol/Cap. (%)</th>
<th>Level Of Service</th>
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<tbody>
<tr>
<td>100</td>
<td>0.925</td>
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</tr>
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</table>

**Approach:** North Bound, South Bound, East Bound, West Bound

<table>
<thead>
<tr>
<th>Movement:</th>
<th>L - T - E</th>
<th>L - T - E</th>
<th>L - T - E</th>
<th>L - T - E</th>
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<tbody>
<tr>
<td>Volume:</td>
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<td>103</td>
<td>102</td>
<td>101</td>
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<tr>
<td>Growth Adj:</td>
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### Traffic Flow Model

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### Capacity Analysis Module

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### Traffic Flow Model

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Long Beach Airport Terminal Expansion
Existing Plan Project
PM Peak Hour

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<th>Level Of Service Computation Report</th>
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<tr>
<td>Method: (Future Volume Alternative)</td>
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<th>Intersection</th>
<th>#10 Carson St. &amp; Clark Ave.</th>
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<tr>
<td>Cycle [sec]</td>
<td>150</td>
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<tr>
<td>Critical Vol./Cap. [K]:</td>
<td>0.92</td>
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<tr>
<td>Loss Time [sec]:</td>
<td>18</td>
</tr>
<tr>
<td>Average Delay [sec/veh]:</td>
<td>xxkxx</td>
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<tr>
<td>Optimal Cycle:</td>
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<td>Level Of Service:</td>
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<th>North Bound</th>
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<tr>
<td>Added Vol: 0 5</td>
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<tr>
<td>Passer/to: 0 0</td>
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<td>Initial Vol: 246, 692, 42, 80, 592, 170, 185, 1300, 275, 204, 765, 146</td>
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<td>Final Set: 3200 1600 3200 3200 2461 715 1600 4800 1600 3200 4030 770</td>
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<td>Crit Blocks: ****</td>
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Traffic 7.7.0515 (c) 2005 DOE/NOAA. Licensed to NTL, LONG BEACH, CA
### Long Beach Airport Terminal Improvements

#### Existing Plus Project PM

#### 3. New Exit & Lakewood Blvd

**HCM Unsignalized Intersection Capacity Analysis**

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<td>0%</td>
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<tr>
<td><strong>Volume (veh/h)</strong></td>
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<tr>
<td><strong>Hourly flow rate (veh)</strong></td>
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<td>447</td>
<td>6,263</td>
<td>1685</td>
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**Pedestrian Data**

- **Lane Width (ft)**
- **Walking Speed (fps)**
- **Pedestrian Volume**
- **Regulated Turning Pattern**

**Median Configuration**

- **Median Type**: None
- **Median Storage Vol**

**Upstream Signal**

- **pX, platoon unblocked**: 0.79, 0.79, 0.79
- **vC, conflicting volume**: 2319, 425, 1685
- **vC1, stage 1 control**
- **vC2, stage 2 control**
- **vC3, unblocked vol**: 1800, 3, 1383

**vC1, vC2, vC3**

- **vC1 stage 1 control**: 0.8, 0.9, 0.8
- **vC2 stage 2 control**: 3.5, 3.3, 2.3
- **vC3 unblocked vol**: 1800, 3, 1383

**Intersection Data**

- **Intersection Width**: EBL, EBt, NBL, NBr, SBt, SBR

**Volume Total**

- **Volume Total**: 447, 634, 634, 634, 421, 421

**Volume Left**

- **Volume Left**: 0, 0, 0, 0, 0, 0

**Volume Right**

- **Volume Right**: 447, 0, 0, 0, 0, 0

**bSR**

- **bSR**: 852, 1790, 1790, 1790, 1790, 1790

**Volume to Capacity**

- **Volume to Capacity**: 0.62, 0.37, 0.37, 0.37, 0.25, 0.25

**Queue Length (ft)**

- **Queue Length**: 78, 0, 0, 0, 0, 0

**Control Delay (s)**

- **Control Delay**: 11.8, 0.2, 0.6, 0.0, 0.6, 0.0

**Lanes LOS**

- **B

**Approach Delay (s)**

- **Approach Delay**: 13.8, 0

**Approach LOS**

- **B

**Intersection Summary**

- **Average Delay**: 1.3
- **Intersection Capacity Utilization**: 58.8%
- **IGU Level of Service**: B

**Analysis Period (min)**: 16
C.
2020 NO-PROJECT WITH OPTIMIZED FLIGHTS
PEAK HOUR LEVEL OF SERVICE
CALCULATION WORKSHEETS
### Scenario Report

- **Scenario:** Future No project AM
- **Command:** Future No project AM
- **Volume:** 2020 AM Peak
- **Geometry:** Future lane configuration
- **Impact Fee:** None

### Trip Generation Report

#### Forecast for Future AM no project (41-25+11 lane change)

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<tr>
<th>Zone</th>
<th>Subzone</th>
<th>Amount</th>
<th>Units</th>
<th>Date In</th>
<th>Date Out</th>
<th>Trips In</th>
<th>Trips Out</th>
<th>Total Trips</th>
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**TOTAL:** 1075
### Trip Distribution Report

#### Percent of Trips AM / PM Peak

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To Gates

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### Impact Analysis Report

#### Level of Service

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<th>Intersection</th>
<th>Base Del/ Veh Per LOS Class</th>
<th>Future Del/ Veh Per LOS Class</th>
<th>Change in LOS</th>
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<tbody>
<tr>
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<td>D XXXX 0.800</td>
<td>D XXXX 0.808</td>
<td>+ 0.008 V/C</td>
</tr>
<tr>
<td># 2 Spring St. &amp; Temple Ave.</td>
<td>C XXXX 0.774</td>
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(Traxx 7.7.0515 (c) 2005 Dooling Assoc. Licensed to NAA, LONG BEACH, CA)
### Future No Project

**AM Peak Hour**

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#### Approach
- North Bound
- South Bound
- East Bound
- West Bound

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#### Securitization Flow Module
- Set/Max: 1760, 2760, 1760, 2760, 2760, 1760, 2760, 1760, 2760
- Adjustment: 0.80, 1.00, 0.80, 1.00, 1.00, 1.00, 1.00, 0.80
- Lanes: 2.00, 0.00, 0.17, 0.17, 0.34, 0.34, 0.34, 0.34
- Final Set: 1760, 2760, 2760, 1760, 2760, 1760, 2760, 2760

#### Capacity Analysis Module
- Vol/Spd: 0.13, 0.29, 0.31, 0.28, 0.28, 0.07, 0.17, 0.17, 0.03, 0.18, 0.23

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**Future No Pet.**

**AM Peak Hour**

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#### Approach
- North Bound
- South Bound
- East Bound
- West Bound

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#### Securitization Flow Module
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- Adjustment: 0.80, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00
- Lanes: 2.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00
- Final Set: 3168, 0, 1760, 1760, 3168, 1760, 1760, 1760, 1760

#### Capacity Analysis Module
- Vol/Spd: 0.18, 0.20, 0.24, 0.00, 0.00, 0.00, 0.00, 0.33, 0.37, 0.38, 0.00

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Traffic 7.7.0515 (c) 2005 Bowling Assoc. Licensed to RMA, LONG BEACH, CA
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| Added Vol: 0 50 0 3 25 14 29 0 0 0 0 107 |
| Passer/Walk: 0 0 0 0 0 0 0 0 0 0 0 0 |
| Initial Fru: 244 1557 180 155 3049 551 215 1340 112 94 1500 584 |
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| Adjustment: 0.90 1.00 1.00 0.90 1.00 0.90 1.00 0.90 1.00 0.90 1.00 0.90 |
| Lanes: 2.00 3.58 0.41 2.00 1.00 1.00 2.00 1.00 1.00 2.00 1.00 1.00 |
| Final Set.: 3168 6202 73 3168 3250 1760 3168 5280 1760 3168 4855 2205 |

| Capacity Analysis Module: |
| Vol/Phase: | 0.08 0.24 0.24 0.08 0.24 0.24 0.08 0.24 0.24 0.08 0.24 0.24 |
| Ctrl Value: | 0.08 0.24 0.24 0.08 0.24 0.24 0.08 0.24 0.24 0.08 0.24 0.24 |

Traffic 7.7.05S (c) 2005 Bowling Assoc. Licensed to MNA, LONG BEACH, CA
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**Volume Module:**

| Base Vol | 121 237 | 46 | 94 2224 | 235 | 331 | 37 | 257 | 134 | 24 | 36 |
| Growth Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Rev | 121 237 | 46 | 94 2224 | 235 | 331 | 37 | 257 | 134 | 24 | 36 |
| Added Vol | 13 | 4 | 0 | 9 | 4 | 0 | 27 | 0 | 0 | 0 |
| Passenger Vol | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Flow | 154 2140 | 44 | 94 2224 | 235 | 331 | 37 | 257 | 134 | 24 | 36 |
| PSI Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PSI Volume | 154 2140 | 44 | 94 2224 | 235 | 331 | 37 | 257 | 134 | 24 | 36 |
| PSI Reduction | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Flow | 154 2140 | 44 | 94 2224 | 235 | 331 | 37 | 257 | 134 | 24 | 36 |
| PCE Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLP Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Securization Flow Module:**

| Sec/Rev | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 |
| Adj ustment | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Vol | 1760 2580 | 1760 | 1760 | 4710 | 510 | 3175 | 345 | 1760 | 530 | 204 | 1056 |

**Capacity Analysis Module:**

| Vol/Rev | 0.08 | 0.41 | 0.2 | 0.05 | 0.47 | 0.47 | 0.11 | 0.11 | 0.18 | 0.04 | 0.08 | 0.03 |
| Critical Revs | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
### Level of Service Computation Report

**TCU (Loss as Cycle Length b) Method (Future Volume Alternative)**

<table>
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<tr>
<th>Intersection</th>
<th>Warrilo Rd. &amp; Clark Ave.</th>
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**Cycle (sec):** 150  
**Critical V/Cap. (A):** 0.059

**Optimal Cycle:** 101  
**Level of Service:** B

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<td>Added Vol:</td>
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<td>Passenger Vol:</td>
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<td>Initial Freq:</td>
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<td>West Adj:</td>
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<tr>
<td>PFC Adj:</td>
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<td>Set/Sea:</td>
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<td>Adjustment:</td>
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<td>Final Set:</td>
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<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Vol/Seg: 0.09 0.09 0.09 0.04 0.17 0.17 0.08 0.31 0.31</td>
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</table>
### Level Of Service Computation Report

**Peak Hour**

**Intersection #18: Carson St. & Cherry Ave.**

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<tr>
<th>Cycle [sec]</th>
<th>180</th>
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<td>Critical V/Cap. (%)</td>
<td>71.1</td>
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<tr>
<td>Loss Time [sec]</td>
<td>18</td>
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<tr>
<td>Average Delay [sec/veh]</td>
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</tbody>
</table>

**Approach:**
- North Bound: 100
- South Bound: 100
- East Bound: 100
- West Bound: 100

**Volume Modules:**
- Base: 234 629
- Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Initial Sat: 234 629
- Added Vol: 0 4
- Passerby Vol: 0 0
- Initial Sat: 234 629
- User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Phf Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Ppf Volume: 234 629
- Reduct Vol: 0 0
- Deduct Vol: 0 0
- Pce Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Msf Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**Security Flow Module:**
- Sat./Lanes: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760
- Adjustment: 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
- Final Sat.: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760

**Capacity Analysis Module:**
- Vol/Sat.: 0.05 0.02 0.00 0.00 0.01 0.02 0.02 0.02 0.02 0.02 0.02 0.02
- Ctr. Lines: ****

---

**Future No Project**

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**Traffic 7.7.0515 (c) 2005 Bowling Assoc. Licensed to TML, LONG BEACH, CA**
### Level Of Service Computation Report

**Method (Future Volume Alternative)**

**Intersection #19 Carson St. & Paramount Blvd.**

**Cycle (sec):** 160  
**Critical Vol./Cap. (X):** 0.701

**Optimal Cycle:** 64  
**Level Of Service:** C

<table>
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<tr>
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<tr>
<td>Label</td>
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</table>

**Volume Module:**

- **Base Vol:** 51 145 121 243 577 552 167 1200 225 207 996 102
- **Growth Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Initial Inc:** 51 145 121 243 577 552 167 1200 225 207 996 102
- **Added Vol:** 0 0 0 0 0 0 0 0 0 0 0 0
- **Passer @ Vol:** 0 0 0 0 0 0 0 0 0 0 0 0
- **User Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PHF:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PHF Volume:** 51 145 121 243 577 552 167 1200 225 207 996 102
- **Reduct Vol:** 0 0 0 0 0 0 0 0 0 0 0 0
- **Reduced Vol:** 51 145 121 243 577 552 167 1200 225 207 996 102
- **PCE Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **MLF Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**Saturation Flow Module:**

- **Sat/Link:** 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760
- **Adjustment:** 0.98 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Lanes:** 2.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00
- **Final Sat:** 3168 5280 1760 1760 6529 531 5188 5280 1760 1768 5149 137

**Capacity Analysis Module:**

- **Vol/Req:** 0.03 0.04 0.04 0.14 0.18 0.20 0.20 0.29 0.29 0.29 0.22 0.22
- **Critt Rates:** ***

---

**Trafix 7.7.0515 (c) 2005 Bowling Assoc. Licensed to MMA, LONG BEACH, CA**
Level of Service Computation Report

Long Beach Airport Terminal Expansion

Future No Project

AM Peak Hour

Cycle (sec): 100
Critical Vol./Cap. (x10): 0.004
Lost Time (sec): 38
Yield = 0 sec
Average Delay (sec/veh): 6000
Optimal Cycle: 63
Level of Service: D

Approach: North Bound South Bound East Bound West Bound

Movement: L T R L T F L T R L T F

Control: Protect Protect Protect Protect

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0

Label: 2 0 1 2 0 1 0 1 0 1 0 1 2 0 2 0 1 0

Volume Module:

Base Vol: 212 469 134 84 680 96 129 882 331 391 1242 101
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bae: 212 469 134 84 680 96 129 882 331 391 1242 101
Added Vol: 0 4 1 0 0 0 0 0 0 0 0 0
Passerby Vol: 0 0 ( 0 0 0 0 0 0 0 0 0
Initial Flt: 212 473 134 84 687 105 133 867 331 391 1250 101
West Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
NSF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
NSR Volume: 212 473 134 84 687 105 133 867 331 391 1250 101
Reduct Vol: 0 0 ( 0 0 0 0 0 0 0 0 0
Reduced Vol: 212 473 134 84 687 105 133 867 331 391 1250 101
PCI Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol: 212 473 134 84 687 105 133 867 331 391 1250 101

Evacuation Flow Module:

Set/Lane: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760
Adjustment: 0.80 1.00 0.80 1.00 1.00 1.00 1.00 0.80 1.00 1.00
Lanes: 2.00 1.00 1.00 2.00 1.00 2.00 2.00 1.00 2.00 1.00 2.00 1.00
Final Set: 3168 1760 3168 1760 3168 1760 3168 1760 3168 1760 3168 1760

Capacity Analysis Module:

Vol/Spd: 0.07 0.27 0.04 0.04 0.06 0.23 0.08 0.16 0.19 0.12 0.28 0.28

Traffic 7.7.0515 (c) 2005 Doeling Assoc. Licensed to NTL, Long Beach, CA
### Trip Generation Report

**Forecast for Future No project (41-25-11-600 Lane)**

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<th>Subzone</th>
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<th>Units</th>
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<th>Date Out</th>
<th>Trips In</th>
<th>Trips Out</th>
<th>Trips Total</th>
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<td>508</td>
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<td>508</td>
<td>709</td>
<td>205</td>
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**TOTAL**

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## Traffic Distribution Report

### Percent of Trips AM / PM Peak

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## Impact Analysis Report

### Level Of Service

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<th>Future Del/ LOS</th>
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<th>Change in Veh</th>
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<td>#1 Spring St. &amp; Cherry Ave.</td>
<td>D XXXXX 0.893</td>
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<td>F XXXXX 0.902</td>
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<td>+ 0.010 V/C</td>
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<td>#2 Spring St. &amp; Temple Ave.</td>
<td>F XXXXX 1.091</td>
<td>F XXXXX 1.097</td>
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<td>+ 0.000 V/C</td>
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<td>D XXXXX 0.818</td>
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<td>F XXXXX 1.171</td>
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<td>+ 0.078 V/C</td>
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<td>E XXXXX 0.908</td>
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<td>E XXXXX 0.903</td>
<td>E XXXXX 0.917</td>
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<td>F XXXXX 1.082</td>
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<td>C XXXXX 0.799</td>
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<td>E XXXXX 0.953</td>
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<td>E XXXXX 0.953</td>
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<td>C XXXXX 0.773</td>
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<td>C XXXXX 0.758</td>
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<td>+ 0.003 V/C</td>
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<tr>
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<td>F XXXXX 1.022</td>
<td>E XXXXX 0.972</td>
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<td>+ 0.051 V/C</td>
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<td>A XXXXX 0.460</td>
<td>A XXXXX 0.458</td>
<td>A XXXXX 0.460</td>
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<td>F XXXXX 1.127</td>
<td>F XXXXX 1.094</td>
<td>F XXXXX 1.127</td>
<td>+ 0.033 V/C</td>
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<td>F XXXXX 1.033</td>
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### Level of Service Computation Report

#### E1 (Future Volume Alternative)

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**Approach:**
- North Bound
- South Bound
- East Bound
- West Bound

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<th>T</th>
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#### Volume Module

| Base Vol: 208 | 1495 6% | 595 1978 | 189 | 151 1077 | 111 | 135 662 | 575 |
| Growth Adj: 1.00  | | | | | | | |
| Initial Ln: 208  | 1495 6% | 595 1978 | 189 | 151 1077 | 111 | 135 662 | 575 |
| Added Vol: 0  | | | | | | | |
| Passenger Vol: 0  | | | | | | | |
| Initial Fc: 208  | 1495 6% | 595 1978 | 189 | 151 1077 | 111 | 135 662 | 575 |
| User Adj: 1.00  | | | | | | | |
| Pcf Vol: 208  | 1495 6% | 595 1978 | 189 | 151 1077 | 111 | 135 662 | 575 |
| Reduced Vol: 0  | | | | | | | |
| Pce Adj: 1.00  | | | | | | | |
| Mlf Adj: 1.00  | | | | | | | |
| Secur Flow Module |
| Set/Change: 1760  | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 |
| Adjustment: 1.00  | | | | | | | |
| Lanes: 1.00  | | | | | | | |
| Final Set: 1760  | 5706 | 204 | 3168 | 4681 | 559 | 1760 | 4791 | 499 | 1760 | 5261 | 3429 |

#### Capacity Analysis Module

| Vol/Sig: 0.12  | 0.28 | 0.31 | 0.18 | 0.82 | 0.33 | 0.09 | 0.23 | 0.23 | 0.08 | 0.18 | 0.18 |
|(** Critical Notes:**

---

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### Future No Project

#### PM Peak Hour

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#### Cycle (sec) 18 Yr = 0 sec

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#### Volume Module

| Base Vol      | 517 0 73 0 0 0 0 0 0 0 1629 349 512 770 0 |
| Growth Adj    | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Initial Vol   | 517 0 73 0 0 0 0 0 0 0 1629 349 512 770 0 |
| Initial Adj   | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Free Vol      | 517 0 73 0 0 0 0 0 0 0 1629 349 512 770 0 |
| Free Adj      | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Reduced Vol   | 517 0 73 0 0 0 0 0 0 0 1629 349 512 770 0 |
| Reduced Adj   | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |

#### Securization Flow Module

| Sat/Lane     | 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 |
| Adjustment   | 0.90 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.90 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Sum Vol       | 3168 0 350 0 0 0 0 0 0 3168 349 512 0 0 0 0 |

| Vol/Seq  | 0.16 0.00 0.34 0.00 0.00 0.00 0.00 0.38 0.38 0.38 0.17 0.17 0.00 0.00 0.00 0.00 |
| Crit Notes | | | | | | | | | | | | | | | |
### Level Of Service Computation Report

#### Volume Module

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<th>Added Vol</th>
<th>PEP Volume</th>
<th>Reduced Vol</th>
<th>Reduced Adj</th>
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#### Capacity Analysis Module

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### Level Of Service Computation Report

#### Volume Module

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<th>Added Vol</th>
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#### Securization Flow Module

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#### Capacity Analysis Module

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### Level of Service Computation Report

**Method (Future Volume Alternative)**

- Intersection: #2 Wardlow Rd, & Cherry Ave.
- Cycle (sec): 120
- Critical Vol./Cap. (%): 0.92%

**Optimal Cycle:** 127

**Level of Service:** F

<table>
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<tr>
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<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
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#### Summary

- Volume: 239 2447
- User Adj: 1.00
- PWF Adj: 1.00
- Reduce Vol: 0
- PCE Adj: 1.00
- MLF Adj: 1.00
- Sec/Unsat: 1.00

#### Notes

- Vol/Sec: 0.13 0.46 0.06 0.02 0.41 0.41 0.17 0.17 0.11 0.09 0.09
- Capacity: 38
- Level: F
- Method: Future Volume Alternative
- Intersection: #2 Wardlow Rd, & Cherry Ave.
- Cycle: 120 sec
- Critical Vol./Cap.: 0.92%
- Optimal Cycle: 127
- Level of Service: F

---

**Level of Service Computation Report**

**Method (Future Volume Alternative)**

- Intersection: #10 Wardlow Rd / Dr. Douglas Rd & Lakewood Blvd.
- Cycle (sec): 180
- Critical Vol./Cap. (%): 1.24%

**Optimal Cycle:** 180

**Level of Service:** F

<table>
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#### Summary

- Volume: 337 3391
- User Adj: 1.00
- PWF Adj: 1.00
- Reduce Vol: 0
- PCE Adj: 1.00
- MLF Adj: 1.00
- Sec/Unsat: 1.00

#### Notes

- Vol/Sec: 0.19 0.38 0.38 0.20 0.41 0.41 0.13 0.06 0.08 0.04 0.08 0.07
- Capacity: 843
- Level: F
- Method: Future Volume Alternative
- Intersection: #10 Wardlow Rd / Dr. Douglas Rd & Lakewood Blvd.
- Cycle: 180 sec
- Critical Vol./Cap.: 1.24%
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**Future No Project**

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<td>120 600</td>
<td>120 600</td>
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**Future No Project**

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Future No project | FV | Wed Sep 21 2005 14:26:57
---|---|---
Future No Project | FV | Wed Sep 21 2005 14:26:57
---|---|---

### Level Of Service Computation Report

<table>
<thead>
<tr>
<th>Intersection:</th>
<th>#13</th>
<th>Carson St. &amp; Paramount Blvd.</th>
</tr>
</thead>
</table>
**Cycle (sec):** | 100 | Critical Vol./Cap. (Av): 1.033 |
**Loss Time (sec):** | 12 | Yr = 0 sec, Average Delay (sec veh): XXXXX |
**Optimal Cycle:** | 100 | Level Of Service: F |
**Approach:** | North Bound | South Bound | East Bound | West Bound |
**Movement:** | L - T - E | L - T - E | L - T - E | L - T - E |
**Control:** | Protected | Protected | Protected | Protected |
| Min. Green | 0 | 0 | 0 | 0 |
| Labels | 1 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 1 | 0 |
**Volume Module:**
| Base Vol: | 131 729 33 | 199 429 178 373 1658 103 168 1551 321 |
| Growth Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Ex: | 131 729 33 | 199 429 178 373 1658 103 168 1551 321 |
| Added Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 128 | 0 |
| PassengerVol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Vol: | 151 729 33 | 229 429 178 373 1789 103 188 1679 321 |
| Peak Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Peak Vol: | 151 729 33 | 229 429 178 373 1789 103 188 1679 321 |
| Reduced Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduction Vol: | 151 729 33 | 229 429 178 373 1789 103 188 1679 321 |
| PCS Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PCS Vol: | 151 729 33 | 229 429 178 373 1789 103 188 1679 321 |
| MLP Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLP Vol: | 151 729 33 | 229 429 178 373 1789 103 188 1679 321 |

### Flow Computation Module

| Sector/Phase: | 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lane: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Vol: | 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 |

### Capacity Analysis Module

| Vol/Safety: | 0.07 0.22 0.11 0.12 0.10 0.22 0.38 0.38 0.10 0.38 |
| Critical Flow: | **** |
Level of Service Computation Report

**Intersection #10 Carson St. & Clark Ave.**

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<th>Critical Vol./Cap. (A/F)</th>
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<td>Optimal Cycle</td>
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<td>Level Of Service:</td>
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<td>South Bound</td>
<td>East Bound</td>
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<td>Movement:</td>
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<tr>
<td>Control:</td>
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<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green:</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Label:</td>
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<td>2 0 1 0 1</td>
<td>1 3 0 1</td>
</tr>
</tbody>
</table>

**Volume Module:**

| Base Vol. | 277 756 | 39% | 82 656 | 107 | 251 1625 | 273 | 203 1159 | 142 |
| Growth Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bee | 277 756 | 39% | 82 656 | 107 | 251 1625 | 273 | 203 1159 | 142 |
| Added Vol. | 0    | 7    | 4    | 0    | 5    | 7    | 11    | 0    | 9    | 0     | 0     |
| Passer@Vol | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     |

**Location Flow Module:**

| Set/Lane | 1760 1760 | 1760 1760 | 1760 1760 | 1760 1760 | 1760 1760 | 1760 1760 | 1760 1760 | 1760 1760 | 1760 1760 | 1760 1760 | 1760 1760 | 1760 1760 |
| Adj.      | 0.80 | 1.00 | 0.80 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lens:     | 2.00 | 1.00 | 2.00 | 1.00 | 2.00 | 1.00 | 2.00 | 1.00 | 2.00 | 1.00 | 2.00 | 1.00 |
| Final Set. | 3168 1760 | 3168 1760 | 3168 1760 | 3168 1760 | 3168 1760 | 3168 1760 | 3168 1760 | 3168 1760 | 3168 1760 | 3168 1760 | 3168 1760 | 3168 1760 |

**Capacity Analysis Module:**

| Vol/Sld. | 0.09 | 0.43 | 0.11 | 0.03 | 0.24 | 0.24 | 0.15 | 0.31 | 0.18 | 0.07 | 0.28 | 0.18 |
| Crit Flow: | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** |

Traffic 7.7.0515 (c) 2005 GeoTech Assoc. Licensed to TMA, Long Beach, CA
D.
2020 PROPOSED PROJECT WITH OPTIMIZED FLIGHTS
PEAK HOUR LEVEL OF SERVICE CALCULATION WORKSHEETS
**Future with project AM**

---

### Scenario Report

**Scenario:** Future with project AM

**Command:** Future with project AM

**Volume:** 2020 AM Peak

**Geometry:** Future lane configuration

**Impact Fee:** None

**Trip Generation:** Future project (91423+11 parking) AM

**Trip Distribution:** AM / M Peak

**Paths:** None

**Routes:** None

**Configuration:** Future 2020 AM

---

### Trip Generation Report

Forecast for future AM project (+1=15+11+parking)

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<th>Out</th>
<th>In</th>
<th>Out</th>
<th>Trips</th>
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<td>244</td>
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<td>Zone 2 Subtotal</td>
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TOTAL: 512 | 244 | 756 | 100.0

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Traffic 7.7.0515 (c) 2005 Dualling Assoc. Licensed to MLA, LONG BEACH, CA
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To Gates

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Future with project AM Wed Sep 21, 2005 14:09:44
Future With Project AM Peak Hour

Level Of Service Computation Report

Interception #3 Spring St. & Eucalyptus Ave.

Cycle (sec): 100
Critical Vol/Cap. (K): 0.631
Loss Time (sec): 32 (YR = 0 sec) Average Delay (sec/veh): XXXXX
Optimal Cycle: 45
Level Of Service: F

Approach: N - S L - T S - T F - T L - T E - T

Control: Protect Include Protect Include Protect Include
Min. Green: 0 0 0 0 0 0 0 0
Label: 1 1 0 0 0 0 0 0

Volume Module:

Base Vol: 455 33 0 0 0 0 813 322 393 3399 0
Growth Adj: 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50
Initial Inv: 455 33 0 0 0 0 813 322 393 3399 0
Add Vol: 0 0 0 0 0 0 0 0 0 0 0
Passerby Vol: 0 0 0 0 0 0 0 0 0 0 0
Initial Freq: 455 33 0 0 0 0 813 322 393 3399 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 455 33 0 0 0 0 813 322 393 3399 0
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0
Dedicated Adj: 455 33 0 0 0 0 813 322 393 3399 0
PCF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Saturation Flow Module:

Sat/ Lane: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760
Adjustment: 0.50 1.00 1.00 1.00 1.00 1.00 1.00 0.95 1.00 1.00 1.00

Final Sat.: 3168 0 352 0 2760 0 1760 3340 1440 3168 3200

Capacity Analysis Module:

Vol/Sat: 0.14 0.00 0.11 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Cost Notes: ***

Level Of Service Computation Report

Interception #4 Spring St. & Lakewood Blvd.

Cycle (sec): 100
Critical Vol/.Cap. (K): 0.631
Loss Time (sec): 18 (YR = 0 sec) Average Delay (sec/veh): XXXXX
Optimal Cycle: 100
Level Of Service: F

Approach: N - S L - T S - T F - T L - T E - T

Control: Protect Include Protect Include Protect Include
Min. Green: 0 0 0 0 0 0 0 0
Label: 2 0 4 1 2 0 3 0 2 0 3 0 1

Volume Module:

Base Vol: 224 1534 227 761 1400 861 283 520 28 305 1652 28
Growth Adj: 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50
Initial Inv: 224 1534 227 761 1400 861 283 520 28 305 1652 28
Add Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Passerby Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Freq: 224 1534 227 761 1400 861 283 520 28 305 1652 28
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 224 1743 217 778 1400 861 319 520 28 305 1652 28
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Dedicated Adj: 224 1743 217 778 1400 861 319 520 28 305 1652 28
PCF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Saturation Flow Module:

Sat/ Lane: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760
Adjustment: 0.50 1.00 1.00 0.50 1.00 1.00 0.50 1.00 1.00 0.50 1.00 1.00

Final Sat.: 3168 7040 1760 3368 5200 1160 5168 5010 270 5168 5260 1760

Capacity Analysis Module:

Vol/Sat: 0.07 0.25 0.13 0.25 0.28 0.29 0.11 0.10 0.10 0.10 0.31 0.18
Cost Notes: ***
### Level Of Service Computation Report

**T&I (Loss as Cycle Length b) Method (Future Volume Alternative)**

**Intersection #5 Spring St. & Clark Ave.**

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<th>Critical Vol./Cap. (A)</th>
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<td>Average Delay (sec/veh)</td>
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<td>Optimal Cycle</td>
<td>68</td>
<td>Level Of Service</td>
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</table>

**Approach:** North Bound, South Bound, East Bound, West Bound

<table>
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<th>L</th>
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<th>E</th>
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</table>

**Volume Module:**

- **Base Vol:** 69,924 ft³ 140,794 155 172,599 308 279,959 149
- **Growth Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Initial Env:** 69,924 ft³ 140,794 155 172,599 308 279,959 149
- **Added Vol:** 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
- **Passerby Vol:** 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

**Reduction:**

- **Initial Vol:** 77,932 ft³ 142,576 155 172,412 402 279,155 144
- **User Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Peak Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Peak Volume:** 77,932 ft³ 142,576 155 172,412 402 279,155 144
- **Reduce Vol:** 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
- **Reduced Vol:** 77,932 ft³ 142,576 155 172,412 402 279,155 144
- **CSS Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **CSS Vol:** 77,932 ft³ 142,576 155 172,412 402 279,155 144

**Security Flow Module:**

- **Net Flow:** 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760
- **Adjusted:** 0.80 1.00 1.00 0.80 1.00 1.00 0.80 1.00 1.00 0.80 1.00 1.00 0.80 1.00 1.00 0.80 1.00 1.00
- **Lanes:** 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00
- **Final Set:** 3168 4931 295 3168 3520 1760 3168 4931 1760 3168 3520 1760 3168 3520 1760 3168 3520 1760

**Capacity Analysis Module:**

- **Vol/Seg:** 0.02 0.18 0.18 0.04 0.18 0.09 0.05 0.17 0.23 0.09 0.28 0.24
- **Cost Notes:** ****
### Future with project

<table>
<thead>
<tr>
<th>AM</th>
<th>Wed Sep 21, 2005 14:09:44</th>
<th>Page 11-1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Long Beach Airport Terminal Expansion</strong></td>
<td><strong>Future With Project</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Level of Service Computational Report

TCU 1 (Loss as Cycle Length * Method (Future Volume Alternative)

<table>
<thead>
<tr>
<th>Intersection #7 Wilco St. &amp; Clark Ave.</th>
</tr>
</thead>
</table>

**Cycle (sec):** 120  
**Critical Vol/Cap. (%) :** 0.921  
**Loss Time (sec):** 18  
**Yield = 0 sec**  
**Average Delay (sec/veh):** xxxxx  
**Optimal Cycle:**  
**Level Of Service:** E

<table>
<thead>
<tr>
<th>Approach: North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement: L-T-E</td>
<td>L-T-E</td>
<td>L-T-E</td>
<td>L-T-E</td>
</tr>
<tr>
<td>Rights:</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Green:</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Label:</td>
<td>2 3 1 0</td>
<td>2 0 2 1 0</td>
<td>2 0 3 0 1</td>
</tr>
</tbody>
</table>

### Volume Module:

<table>
<thead>
<tr>
<th>Base Vol: 244 1837</th>
<th>180 155 3044</th>
<th>577 105 1340</th>
<th>112 94 1500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth Adj: 1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Initial Flow: 244 1837</td>
<td>180 155 3044</td>
<td>577 105 1340</td>
<td>112 94 1500</td>
</tr>
<tr>
<td>Added Vol: 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Vol: 244 1533</td>
<td>38</td>
<td>192 3061</td>
<td>57 204 1340</td>
</tr>
<tr>
<td>User Adj: 1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>PFI Adj: 1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>PFI Volume: 244 1533</td>
<td>38</td>
<td>192 3061</td>
<td>57 204 1340</td>
</tr>
</tbody>
</table>

### Securitization Flow Module:

<table>
<thead>
<tr>
<th>Set/Max: 1760</th>
<th>1760</th>
<th>1760</th>
<th>1760</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment: 0.80</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>Length:</td>
<td>2.00</td>
<td>2.58</td>
<td>0.41</td>
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<tr>
<td>Final Set:</td>
<td>3168 6296</td>
<td>74</td>
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### Capacity Analysis Module:

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<tr>
<th>Vol/Sat: 0.00</th>
<th>0.24</th>
<th>0.32</th>
<th>0.30</th>
<th>0.33</th>
<th>0.07</th>
<th>0.25</th>
<th>0.08</th>
<th>0.03</th>
<th>0.31</th>
</tr>
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<tbody>
<tr>
<td>Cris Mvmt:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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### Future with project

<table>
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<tr>
<th>AM</th>
<th>Wed Sep 21, 2005 14:09:44</th>
<th>Page 12-1</th>
</tr>
</thead>
<tbody>
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<td><strong>Long Beach Airport Terminal Expansion</strong></td>
<td><strong>Future With Project</strong></td>
<td></td>
</tr>
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</table>

#### Level of Service Computational Report

TCU 1 (Loss as Cycle Length * Method (Future Volume Alternative)

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<tr>
<th>Intersection #7 Wilco St. &amp; Clark Ave.</th>
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**Cycle (sec):** 120  
**Critical Vol/Cap. (%) :** 0.921  
**Loss Time (sec):** 18  
**Yield = 0 sec**  
**Average Delay (sec/veh):** xxxxx  
**Optimal Cycle:**  
**Level Of Service:** E

<table>
<thead>
<tr>
<th>Approach: North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement: L-T-E</td>
<td>L-T-E</td>
<td>L-T-E</td>
<td>L-T-E</td>
</tr>
<tr>
<td>Rights:</td>
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<td>Include</td>
</tr>
<tr>
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<tr>
<td>Min. Green:</td>
<td>0</td>
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</tr>
<tr>
<td>Label:</td>
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<td>2 0 3 1</td>
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### Volume Module:

<table>
<thead>
<tr>
<th>Base Vol: 244 892</th>
<th>111 146 869</th>
<th>248</th>
<th>101 873</th>
<th>77</th>
<th>65 1223</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth Adj: 1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Initial Flow: 244 892</td>
<td>111 146 869</td>
<td>248</td>
<td>101 873</td>
<td>77</td>
<td>65 1223</td>
</tr>
<tr>
<td>Added Vol: 4 16</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Passenger Vol: 244 892</td>
<td>111 146 869</td>
<td>248</td>
<td>101 873</td>
<td>77</td>
<td>65 1223</td>
</tr>
<tr>
<td>User Adj: 1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>PFI Adj: 1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>PFI Volume: 244 892</td>
<td>111 146 869</td>
<td>248</td>
<td>101 873</td>
<td>77</td>
<td>65 1223</td>
</tr>
</tbody>
</table>

### Securitization Flow Module:

<table>
<thead>
<tr>
<th>Set/Max: 1760</th>
<th>1760</th>
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<th>1760</th>
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<tr>
<td>Adjustment: 1.00</td>
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<td>0.80</td>
<td>1.00</td>
</tr>
<tr>
<td>Length:</td>
<td>1.00</td>
<td>2.67</td>
<td>0.39</td>
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<tr>
<td>Final Set:</td>
<td>192 908</td>
<td>111 46 874</td>
<td>248</td>
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</table>

### Capacity Analysis Module:

| Vol/Sat: 0.11 | 0.19 | 0.17 | 0.00 | 0.13 | 0.32 | 0.08 | 0.16 | 0.18 | 0.02 | 0.25 | 0.29 | 0.31 | 0.33 | 0.07 | 0.25 | 0.08 | 0.03 | 0.31 | 0.32 |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
### Level Of Service Computation Report

**Version:** 1

**Type:** (Loss as Cycle Length b) Method (Future Volume Alternative)

---

### Intersection #9 Wardlow Dr. & Cherry Ave.

---

**Cycle (sec):** 100

**Critical Vol./Cap. (%):** 0.950

**Optimal Cycle:** 107

**Level Of Service:** D

---

### Approach

<table>
<thead>
<tr>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
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</thead>
<tbody>
<tr>
<td>Protected</td>
<td>Protected</td>
<td>Protected</td>
<td>Protected</td>
</tr>
<tr>
<td>Min. Green</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Label</td>
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### Volume Module:

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<tbody>
<tr>
<td>121 2137 46</td>
<td>1.00 1.00 1.00</td>
<td>1.00 10.00 1.00</td>
<td>1.00 10.00 1.00</td>
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<td>1.00 10.00 1.00</td>
<td>1.00 10.00 1.00</td>
<td>1.00 10.00 1.00</td>
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### Securitization Flow Module:

<table>
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<tr>
<th>Set/Scene</th>
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<th>1760 1760</th>
<th>1760 1760</th>
<th>1760 1760</th>
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<tbody>
<tr>
<td>Adjustment</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
</tr>
<tr>
<td>Final Set</td>
<td>1760 5280</td>
<td>1760 4771</td>
<td>505 3172</td>
<td>348 1970</td>
</tr>
</tbody>
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### Capacity Analysis Module:

<table>
<thead>
<tr>
<th>Vol/Sq6</th>
<th>0.07 0.41 0.31</th>
<th>0.05 0.47 0.47</th>
<th>0.11 0.31 0.18</th>
<th>0.08 0.08 0.03</th>
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</thead>
<tbody>
<tr>
<td>Crit流出</td>
<td>0.07 0.41 0.31</td>
<td>0.05 0.47 0.47</td>
<td>0.11 0.31 0.18</td>
<td>0.08 0.08 0.03</td>
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</tbody>
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Traffic 7.7.0515 (c) 2005 Bowling Assoc. Licensed to NMA, LONG BEACH, CA
### Level Of Service Computation Report

**Future With Project**

**Peak Hour**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Critical V/Cap. (X)</th>
<th>Level Of Service</th>
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</table>

<table>
<thead>
<tr>
<th>Cycle (sec)</th>
<th>100</th>
<th>Critical V/Cap. (X)</th>
<th>0.744</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss Time (sec)</td>
<td>10 (Yield = 0 sec)</td>
<td>Average Delay (sec/veh)</td>
<td>xxxxxx</td>
</tr>
<tr>
<td>Approach</td>
<td>North Bound</td>
<td>South Bound</td>
<td>East Bound</td>
</tr>
<tr>
<td>Control</td>
<td>Protected</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Rightmost</td>
<td>1 0 2 1 0</td>
<td>1 0 2 1 0</td>
<td>1 0 0 0 1</td>
</tr>
</tbody>
</table>

| Volume Module: | Base Vol: 85 2273 4' 87 2150 29 77 38 97 83 43 13 |
|               | Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|               | Initial Rev: 85 2273 4' 87 2150 29 77 38 97 83 43 13 |
|               | Added Vol: 1 12 | 0 5 2 4 0 1 0 0 0 0 |
|               | Passenger Vol: 0 0 | 0 0 0 0 0 0 0 0 0 0 0 |
|               | Initial Fat: 85 2273 4' 87 2150 29 77 38 97 83 43 13 |
|               | User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|               | PPP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|               | PPP Volume: 85 2273 4' 87 2150 29 77 38 97 83 43 13 |
|               | Reduce Adj: 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 |
|               | Reduced Vol: 85 2273 4' 87 2150 29 77 38 97 83 43 13 |
|               | PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|               | MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |

### Securization Flow Module:

| Sec/Line: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 |
| Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lesser: 1.00 0.99 0.04 | 1.00 1.05 0.54 | 1.00 0.48 0.41 2.23 0.48 1.00 |
| Final Seat: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 |

| Capacity Analysis Module: | Vol/Sat: 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
|                          | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |

---

**Future with project**

**Peak Hour**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Critical V/Cap. (X)</th>
<th>Level Of Service</th>
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<tbody>
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<td>C</td>
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</table>

<table>
<thead>
<tr>
<th>Cycle (sec)</th>
<th>100</th>
<th>Critical V/Cap. (X)</th>
<th>0.744</th>
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<tbody>
<tr>
<td>Loss Time (sec)</td>
<td>14 (Yield = 0 sec)</td>
<td>Average Delay (sec/veh)</td>
<td>xxxxxx</td>
</tr>
<tr>
<td>Approach</td>
<td>North Bound</td>
<td>South Bound</td>
<td>East Bound</td>
</tr>
<tr>
<td>Control</td>
<td>Protected</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Rightmost</td>
<td>2 0 3 1 0</td>
<td>2 0 3 1 0</td>
<td>1 0 1 0 3</td>
</tr>
</tbody>
</table>

| Volume Module: | Base Vol: 284 1468 92 | 18 1320 315 34 32 265 48 616 16 |
|               | Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|               | Initial Rev: 284 1468 92 | 18 1320 315 34 32 265 48 616 16 |
|               | Added Vol: 0 0 | 1 0 107 0 0 0 0 0 0 3 0 0 |
|               | Passenger Vol: 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 |
|               | Initial Fat: 284 1468 92 | 18 1320 315 34 32 265 48 616 16 |
|               | User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|               | PPP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|               | PPP Volume: 284 1587 50 | 18 2407 315 34 32 265 51 616 16 |
|               | Reduce Adj: 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 |
|               | Reduced Vol: 284 1587 50 | 18 2407 315 34 32 265 51 616 16 |
|               | PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
|               | MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |

### Securization Flow Module:

| Sec/Line: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 |
| Adjustment: 0.95 1.00 0.95 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lesser: 2.00 3.00 1.00 2.00 2.00 1.00 1.00 2.00 1.00 1.00 1.00 0.05 |
| Final Seat: 3168 5260 1760 3168 4569 611 1760 2760 3168 5260 85 |

| Capacity Analysis Module: | Vol/Sat: 0.09 0.29 0.03 0.07 0.52 0.52 0.02 0.02 0.08 0.08 0.08 0.18 0.18 |
|                          | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
### Level Of Service Computation Report

**Future With Project**

<table>
<thead>
<tr>
<th>Intersection #1: Carson St. &amp; Clark Ave.</th>
</tr>
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<tbody>
<tr>
<td>Cycle (sec): 100</td>
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<tr>
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<td>Optimal Cycle: 53</td>
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<thead>
<tr>
<th>Approach: North Bound</th>
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<th>West Bound</th>
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</thead>
<tbody>
<tr>
<td>Control: Protected</td>
<td>Include</td>
<td>Protected</td>
<td>Include</td>
</tr>
<tr>
<td>Rights: Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green: 0</td>
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<td>0</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Volume Module:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Vol: 234 629</td>
</tr>
<tr>
<td>Growth Adj: 1.00</td>
</tr>
<tr>
<td>Initial Jae: 234 629</td>
</tr>
<tr>
<td>Added Vol: 0</td>
</tr>
<tr>
<td>PassengerVol: 0</td>
</tr>
<tr>
<td>Initial Jae: 234 629</td>
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<tr>
<td>PWM: 1.00</td>
</tr>
<tr>
<td>PWM: 234 629</td>
</tr>
<tr>
<td>Reduce Vol: 0</td>
</tr>
<tr>
<td>Reduced Jae: 234 629</td>
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<tr>
<td>PCEA Adj: 1.00</td>
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<tr>
<td>MLF Adj: 1.00</td>
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### Securization Flow Module

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<td>Lane:</td>
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<td>Crit. Notes: ***</td>
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</tbody>
</table>

Traffic 7.7.0515 (c) 2005 Dowling Assoc. Licensed to YMA, LONG BEACH, CA
<table>
<thead>
<tr>
<th>Level Of Service Computation Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersection #1: Carson St. &amp; Paramount Blvd.</td>
</tr>
<tr>
<td>Cycle (sec): 160</td>
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<tr>
<td>Critical Vol./Cap. (x): 0.70</td>
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<tr>
<td>Loss Time (sec): 32</td>
</tr>
<tr>
<td>Average Delay (sec/veh):</td>
</tr>
<tr>
<td>Optimal Cycle: 62</td>
</tr>
<tr>
<td>Level Of Service: C</td>
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<table>
<thead>
<tr>
<th>Approach: North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movements: L - T - E</td>
<td>L - T - E</td>
<td>L - T - E</td>
<td></td>
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<tr>
<td>Control: Protect</td>
<td>Protect</td>
<td>Protect</td>
<td>Protect</td>
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<tr>
<td>Right/Left: Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green: 0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lanes:</td>
<td>2</td>
<td>0</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Volume Module:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Vol: 51 145 121 243.577 352 167 300 225 207 996 102</td>
</tr>
<tr>
<td>Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>Initial Est: 51 145 121 243.577 352 167 300 225 207 996 102</td>
</tr>
<tr>
<td>Added Vol: 0</td>
</tr>
<tr>
<td>PassengerVol: 0</td>
</tr>
<tr>
<td>Initial Fst: 51 145 121 243.577 352 167 300 225 207 996 102</td>
</tr>
<tr>
<td>Vest Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>PMF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>PMF Volume: 51 145 121 243.577 352 167 300 225 207 996 102</td>
</tr>
<tr>
<td>Reduce Vol: 0</td>
</tr>
<tr>
<td>Reduced Vol: 51 145 121 243.577 352 167 300 225 207 996 102</td>
</tr>
<tr>
<td>PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>MFL Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<table>
<thead>
<tr>
<th>Secarion Flow Module:</th>
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</thead>
<tbody>
<tr>
<td>Adjust: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>Est.: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760</td>
</tr>
<tr>
<td>Loading: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>Flow = 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760</td>
</tr>
<tr>
<td>Final Sat.: 1760 3550 1760 3550 1760 4447 703 1760 4808 472</td>
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<table>
<thead>
<tr>
<th>Capacity Module:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vol/Sec: 0.03 0.04 0.00 0.14 0.18 0.20 0.09 0.19 0.29 0.12 0.22 0.23</td>
</tr>
<tr>
<td>Capacity: 0.03 0.04 0.00 0.14 0.18 0.20 0.09 0.19 0.29 0.12 0.22 0.23</td>
</tr>
</tbody>
</table>

Traffic 7.7.0515 (c) 2005 sitting Assoc. Licensed to MMA, LONG BEACH, CA
Level of Service Computation Report

ICT 1 (Loss as Cycle Length 2) Method (Future Volume Alternative)

Intersection 610 Carson St. & Clark Ave.

Cycle [sec]: 120
Critical Vol./Cap. [X]: 0.80
Loss Time [sec]: 38 [Y+ = 0 sec] Average Delay [sec/veh]: 0
Optimal Cycle: 63
Level of Service: D

Approach: North Bound South Bound East Bound West Bound

Control: Protect Include Protect Include Protect Include

Min. Green: 0 0 0 0 0 0 0 0

Vol. Module:
Base Vol: 212 469 13f 84 680 98 129 862 331 391 1242 101
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Use: 212 469 13f 84 680 98 129 862 331 391 1242 101
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Pass/Step Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fat: 212 473 13f 84 665 103 131 846 511 584 1520 101
West Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PMF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PMF Volume: 212 473 13f 84 665 103 131 846 511 584 1520 101
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 212 473 13f 84 665 103 131 846 511 584 1520 101
PCL Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol: 212 473 13f 84 665 103 131 846 511 584 1520 101

Secu. Flow Module:
Sat./Lanes: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760
Adjustment: 0.90 1.00 0.95 0.90 1.00 1.00 1.00 1.00 0.90 1.00 1.00 1.00
Lanes: 2.00 1.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00
Final Sat.: 3168 3168 3168 3168 3168 3168 3168 3168 3168 3168 3168 3168

Capacity Analysis Module:
Vol/Sat: 0.07 0.08 0.07 0.08 0.08 0.07 0.08 0.07 0.08 0.08 0.07 0.08
Crisp Wees: **** ****
### Long Beach Airport Terminal Improvements

#### Future Plus Project AM
3. New Exit & Lakewood Blvd

<table>
<thead>
<tr>
<th>Movement</th>
<th>EBL</th>
<th>EBT</th>
<th>NBL</th>
<th>NBT</th>
<th>SBT</th>
<th>SBR</th>
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<tbody>
<tr>
<td>Lane Configurations</td>
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<tr>
<td>Sign Control</td>
<td>Yeld</td>
<td>Free</td>
<td>Free</td>
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<tr>
<td>Grade</td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
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<tr>
<td>Volume (veh/h)</td>
<td>0</td>
<td>2309</td>
<td>2694</td>
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<tr>
<td>Peak Hour Factor</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>Hourly flow rate (veh)</td>
<td>0</td>
<td>2309</td>
<td>2694</td>
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<table>
<thead>
<tr>
<th>Pedestrian</th>
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<tbody>
<tr>
<td>Lane Width (ft)</td>
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<tr>
<td>Walking Speed (ft/s)</td>
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<tr>
<td>Pedestrian Queue</td>
</tr>
<tr>
<td>Road turn lane (veh)</td>
</tr>
<tr>
<td>Median type</td>
</tr>
<tr>
<td>Median storage veh</td>
</tr>
<tr>
<td>Upstream signal (ft)</td>
</tr>
<tr>
<td>pX, platoon unblocked</td>
</tr>
<tr>
<td>vC, conflicting volume</td>
</tr>
<tr>
<td>vC1, stage 1 control</td>
</tr>
<tr>
<td>vC2, stage 2 control</td>
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<tr>
<td>vC3, unlocked veh</td>
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<tr>
<td>vC4, stage 3</td>
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<tr>
<td>vC5, stage 4</td>
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<tr>
<td>Traffic Flow</td>
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<tr>
<td>vC6, stage 5</td>
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<tr>
<td>Traffic Flow %</td>
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<tr>
<td>vC7, stage 6</td>
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<td>Traffic Flow %</td>
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<tr>
<th>Intersection</th>
<th>E1</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>N4</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
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<tbody>
<tr>
<td>Volume Total</td>
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<td>803</td>
<td>803</td>
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<td>Volume Left</td>
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<td>vC8, stage 7</td>
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<td>vC9, stage 8</td>
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<td>Volume to Capacity</td>
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<td>0.36</td>
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<td>Queue Length 50th</td>
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<tr>
<td>Control Delay (s)</td>
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<td>0.6</td>
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<tr>
<td>Lane LOS</td>
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<td>Approach Delay (s)</td>
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### Intersection Summary

**Average Delay:** 1.6

**Intersection Capacity Utilization:** 69.5%

**IGU Level of Service:** C

**Analysis Period (min):** 15
Scenario Report

Scenario: Future with project PM
Command: Future with project PM
Volume: 2020 PM Peak
Geometry: Future lane configuration
Impact Fee: None
Trip Generation: Future project (51428+11+ parking) PM
Trip Distribution: All / PM Peak
Path: None
Routes: None
Configuration: Future 2025 PM

Trip Generation Report

Forecast for Future PM project (41+25+11+ parking)

<table>
<thead>
<tr>
<th>Zone</th>
<th>Subzone</th>
<th>Amount Units</th>
<th>In</th>
<th>Out</th>
<th>In</th>
<th>Out</th>
<th>Trips Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Long Beach A Hotel</td>
<td>1.00 Airport</td>
<td>333.00</td>
<td>479.00</td>
<td>553</td>
<td>479</td>
<td>612 100.0</td>
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<tr>
<td>Zone 3 Subtotal</td>
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<tr>
<td>TOTAL</td>
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<td></td>
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333 479 612 100.0
### Trip Distribution Report

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<th>Zone</th>
<th>To Gates</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>4.0</td>
<td>4.0</td>
<td>7.0</td>
<td>4.0</td>
<td>18.0</td>
<td>2.0</td>
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<td>5.0</td>
<td>1.0</td>
<td>12.0</td>
<td>5.0</td>
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</tr>
<tr>
<td>2</td>
<td></td>
<td>4.0</td>
<td>4.0</td>
<td>7.0</td>
<td>4.0</td>
<td>18.0</td>
<td>2.0</td>
<td>6.0</td>
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<td>1.0</td>
<td>12.0</td>
<td>5.0</td>
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</table>

### Impact Analysis Report

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Base Del/ LOS Veh C</th>
<th>Future Del/ LOS Veh C</th>
<th>Change in LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Spring St. &amp; Cherry Ave.</td>
<td>D xxxxx 0.893</td>
<td>D xxxxx 0.899</td>
<td>+ 0.007 V/C</td>
</tr>
<tr>
<td>#2 Spring St. &amp; Temple Ave.</td>
<td>F xxxxx 1.099</td>
<td>F xxxxx 1.095</td>
<td>+ 0.004 V/C</td>
</tr>
<tr>
<td>#3 Spring St. &amp; Redondo Ave.</td>
<td>D xxxxx 0.818</td>
<td>D xxxxx 0.827</td>
<td>+ 0.009 V/C</td>
</tr>
<tr>
<td>#4 Spring St. &amp; Lakewood Blvd.</td>
<td>F xxxxx 1.171</td>
<td>F xxxxx 1.123</td>
<td>+ 0.048 V/C</td>
</tr>
<tr>
<td>#5 Spring St. &amp; Clark Ave.</td>
<td>E xxxxx 0.908</td>
<td>E xxxxx 0.917</td>
<td>+ 0.009 V/C</td>
</tr>
<tr>
<td>#6 Willow St. &amp; Redondo Ave.</td>
<td>E xxxxx 0.905</td>
<td>E xxxxx 0.914</td>
<td>+ 0.009 V/C</td>
</tr>
<tr>
<td>#7 Willow St. &amp; Lakewood Blvd.</td>
<td>F xxxxx 1.082</td>
<td>F xxxxx 1.092</td>
<td>+ 0.010 V/C</td>
</tr>
<tr>
<td>#8 Willow St. &amp; Clark Ave.</td>
<td>C xxxxx 0.789</td>
<td>C xxxxx 0.805</td>
<td>+ 0.016 V/C</td>
</tr>
<tr>
<td>#9 Vardlow Rd. &amp; Cherry Ave.</td>
<td>E xxxxx 0.980</td>
<td>E xxxxx 0.945</td>
<td>- 0.035 V/C</td>
</tr>
<tr>
<td>#10 Vardlow Rd / Dr. Douglas Rd &amp;</td>
<td>D xxxxx 0.673</td>
<td>E xxxxx 0.972</td>
<td>+ 0.300 V/C</td>
</tr>
<tr>
<td>#11 Vardlow Rd &amp; Clark Ave.</td>
<td>C xxxxx 0.744</td>
<td>C xxxxx 0.740</td>
<td>- 0.004 V/C</td>
</tr>
<tr>
<td>#12 14th St. &amp; Cherry Ave.</td>
<td>C xxxxx 0.773</td>
<td>C xxxxx 0.777</td>
<td>+ 0.004 V/C</td>
</tr>
<tr>
<td>#13 Bixby Rd. &amp; Cherry Ave.</td>
<td>C xxxxx 0.758</td>
<td>C xxxxx 0.760</td>
<td>+ 0.002 V/C</td>
</tr>
<tr>
<td>#14 Connct St. &amp; Lakewood Blvd.</td>
<td>E xxxxx 1.064</td>
<td>F xxxxx 1.056</td>
<td>- 0.008 V/C</td>
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<tr>
<td>#15 Connct St. &amp; Clark Ave.</td>
<td>A xxxxx 0.658</td>
<td>E xxxxx 0.658</td>
<td>+ 0.000 V/C</td>
</tr>
<tr>
<td>#16 Carson St. &amp; Cherry Ave.</td>
<td>F xxxxx 1.024</td>
<td>F xxxxx 1.112</td>
<td>+ 0.088 V/C</td>
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<tr>
<td>#17 Carson St. &amp; Paramount Blvd.</td>
<td>F xxxxx 1.109</td>
<td>F xxxxx 1.125</td>
<td>+ 0.016 V/C</td>
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<td>#18 Carson St. &amp; Lakewood Blvd.</td>
<td>F xxxxx 1.014</td>
<td>F xxxxx 1.030</td>
<td>+ 0.016 V/C</td>
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<tr>
<td>#19 Carson St. &amp; Clark Ave.</td>
<td>F xxxxx 1.023</td>
<td>F xxxxx 1.030</td>
<td>+ 0.007 V/C</td>
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</tbody>
</table>
### Level of Service Computation Report

**Future with Project**

**PM Peak Hour**

<table>
<thead>
<tr>
<th>Intersection #3 Spring St. &amp; Road Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cycle (sec)</strong>: 100</td>
</tr>
<tr>
<td><strong>Critical Vol./Cap. (%)</strong>: 0.547</td>
</tr>
</tbody>
</table>

**Loss Time (sec)**: 10 (YR = 0 sec), **Average Delay (sec/veh)**: XXXXX

**Optimal Cycle**: 78, **Level of Service**: D

### Approach

<table>
<thead>
<tr>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rights:</td>
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<td></td>
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</tr>
<tr>
<td>Min. Green</td>
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<td>0</td>
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<tr>
<td>Label:</td>
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### Volume Module

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<tbody>
<tr>
<td>517</td>
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### Performance Module

- **Average Delay (sec/veh)**: XXXXX

### Saturation Flow Module

- **Adj. Sat. Vol.**: 1760
- **Final Sat.**: 930

### Capacity Analysis Module

<table>
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<th>Vol./S&amp;G</th>
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<td>Crit. Move</td>
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<td>Vehicle Mode</td>
<td>Base Vol</td>
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<tr>
<td>--------------</td>
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<tr>
<td>Base Vol</td>
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<tr>
<td>Growth Adj</td>
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<tr>
<td>Initial Bas</td>
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<td>Added Vol</td>
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<td>Volume</td>
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</tbody>
</table>

| Lane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Traffic Flow Module**

- **Sat./Lanes:** 1760 1760 1760 1760 1760 1760 1760 1760 1760
- **Adjustment:** 0.80 1.00 1.00 0.80 1.00 0.80 0.80 1.00 1.00
- **Final Sat.:** 3168 3300 3168 3487 303 3168 3025 1004

**Capacity Analysis Module**

- **Vol/Sat.:** 0.10 0.14 0.23 0.13 0.08 0.12 0.13 0.05 0.13
- **Crew Names:** ****

---

**Traffic Flow Module**

- **Sat./Lanes:** 1760 1760 1760 1760 1760 1760 1760 1760 1760
- **Adjustment:** 0.80 1.00 1.00 0.80 1.00 0.80 0.80 1.00 1.00
- **Final Sat.:** 3168 3300 3168 3487 303 3168 3025 1004

---

**Capacity Analysis Module**

- **Vol/Sat.:** 0.10 0.14 0.23 0.13 0.08 0.12 0.13 0.05 0.13
- **Crew Names:** ****

---

**Future with Project PM**

- **Peak Hour Reporting Period:** 2031-01-01 00:00-01:00

---

**Future with Project PM**

- **Peak Hour Reporting Period:** 2031-01-01 00:00-01:00
<table>
<thead>
<tr>
<th>Intersection of Service Computation Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCU 1 (Loss as Cycle Length b) Method: [Future Volume/Average</td>
</tr>
<tr>
<td>Cycle (sec): 180</td>
</tr>
<tr>
<td>Average Delay (sec/veh): 0.000</td>
</tr>
<tr>
<td>Level Of Service: F</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approach: North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control: Protected</td>
<td>Protected</td>
<td>Protected</td>
<td>Protected</td>
</tr>
<tr>
<td>Lanes: 2 0 3 1 0 2 0 3 1 0 2 0 3 1 0 2 0 3 1 0 2 0 3 1 0</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Volume Module:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Vol: 224 1220 16 227 1909 419 402 2115 425 98 891 407</td>
</tr>
<tr>
<td>Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>Initial Vol: 224 1220 16 227 1909 419 402 2115 425 98 891 407</td>
</tr>
<tr>
<td>Added Vol: 0 23 (9 34 19 13 0 0 0 0 0 0 0 49)</td>
</tr>
<tr>
<td>Passenger Vol: 0 0 (0 0 0 0 0 0 0 0 0 0 0 0 0)</td>
</tr>
<tr>
<td>Initial Freq: 224 1220 16 227 1909 419 402 2115 425 98 891 456</td>
</tr>
<tr>
<td>User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>PAF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>PAF Volume: 224 1220 16 227 1909 419 402 2115 425 98 891 456</td>
</tr>
<tr>
<td>Reduced Vol: 0 0 (0 0 0 0 0 0 0 0 0 0 0 0 0)</td>
</tr>
<tr>
<td>Reduced Freq: 224 1220 16 227 1909 419 402 2115 425 98 891 456</td>
</tr>
<tr>
<td>PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>PCE Volume: 224 1220 16 227 1909 419 402 2115 425 98 891 456</td>
</tr>
<tr>
<td>MFP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>MFP Volume: 224 1220 16 227 1909 419 402 2115 425 98 891 456</td>
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<table>
<thead>
<tr>
<th>Security Flow Module:</th>
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</thead>
<tbody>
<tr>
<td>Sec/Per: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760</td>
</tr>
<tr>
<td>Adjustment: 0.80 1.00 1.00 0.80 1.00 0.80 1.00 0.80 1.00 0.80 1.00 0.80 1.00</td>
</tr>
<tr>
<td>Length: 2.00 3.45 0.46 2.00 1.42 0.61 2.00 1.42 1.00 2.00 2.00 1.75</td>
</tr>
<tr>
<td>Final Set: 3186 6229 81 3186 8212 1065 3186 5280 1760 3186 4657 2303</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capacity Analysis Module:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vol/Seg: 0.07 0.09 0.37 0.07 0.41 0.41 0.13 0.40 0.25 0.03 0.19 0.19</td>
</tr>
<tr>
<td>Criss Cross: ***</td>
</tr>
</tbody>
</table>

Traffic 7.7.0515 (c) 2005 Bowling Assoc. Licensed to MTA, LONG BEACH, CA
### Level Of Service Computation Report

**Traffic Flow Module:**

- Base Vol: 203 2369 155 42 3695 246 571 38 258 371 40 125
- Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Initial ED: 203 2369 155 42 3695 246 571 38 258 371 40 125
- Added Vol: 18 6 ( 0 0 6 4 0 15 0 0 0)
- Passenger Vol: 0 0 ( 0 0 0 0 0 0 0 0 0 0 0)
- Initial Fnr: 221 2444 155 42 3695 252 575 38 270 371 40 125
- User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- PNP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- PNP Volume: 221 2444 155 42 3695 252 575 38 270 371 40 125
- Reduced Vol: 0 0 ( 0 0 0 0 0 0 0 0 0 0 0)
- Reduced Fnr: 221 2444 155 42 3695 252 575 38 270 371 40 125
- PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Sec/Phase: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760
- Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Lane: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Final Vol: 221 2444 155 42 3695 252 575 38 270 371 40 125

### Capacity Analysis Module:

- Vol/Phase: 0.13 0.46 0.06 0.02 0.41 0.41 0.17 0.17 0.17 0.11 0.09 0.09
- Crit Notes: *****

---

### Volume Module:

- Base Vol: 310 3364 516 634 2628 98 140 152 67 127 78 123
- Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Initial ED: 310 3364 516 634 2628 98 140 152 67 127 78 123
- Added Vol: 108 0 0 0 0 123 177 57 60 0 22 0
- Passenger Vol: 0 0 0 0 0 0 0 0 0 0 0 0
- Initial Fnr: 458 3364 516 634 2628 221 317 147 185 127 78 123
- User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- PNP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- PNP Volume: 458 3364 516 634 2628 221 317 147 185 127 78 123
- Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
- Reduced Fnr: 458 3364 516 634 2628 221 317 147 185 127 78 123
- PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- MLP Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Sec/Phase: 3168 6210 800 3168 6454 546 5160 3520 1760 1168 3520 1760
- Adjustment: 0.98 1.00 1.00 0.98 1.00 1.00 0.98 1.00 1.00 0.98 1.00 1.00
- Lane: 2.00 3.59 0.97 2.00 3.09 0.91 2.00 3.09 1.00 2.00 3.09 1.00
- Final Vol: 3168 6210 800 3168 6454 546 5160 3520 1760 1168 3520 1760

---

### Summary:

- Traffic 7.7.0515 (c) 2005 Bowling Assoc. Licensed to MLA, LONG BEACH, CA
### Level of Service Computation Report - Future With Project

#### Intersection #1: Carson St. & Clark Ave.

<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Protect</td>
<td>Protect</td>
<td>Protect</td>
<td>Protect</td>
</tr>
<tr>
<td>Rights</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Label</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

#### Volume Module

<table>
<thead>
<tr>
<th>Base Vol.</th>
<th>62 924</th>
<th>61 33 723</th>
<th>20 33 49 73</th>
<th>12 17 24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth Adj.</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
<tr>
<td>Initial Vol.</td>
<td>62 924</td>
<td>61 33 723</td>
<td>20 33 49 73</td>
<td>12 17 24</td>
</tr>
<tr>
<td>Added Vol.</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
</tr>
<tr>
<td>Pedestrian Vol.</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
</tr>
<tr>
<td>Initial Flt.</td>
<td>62 924</td>
<td>61 33 723</td>
<td>20 33 49 73</td>
<td>12 17 24</td>
</tr>
<tr>
<td>Width Adj.</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
<tr>
<td>PSF Adj.</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
<tr>
<td>PSF Volume</td>
<td>62 924</td>
<td>61 33 723</td>
<td>20 33 49 73</td>
<td>12 17 24</td>
</tr>
<tr>
<td>Reduced Vol.</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
</tr>
<tr>
<td>Reduced Flt.</td>
<td>62 924</td>
<td>61 33 723</td>
<td>20 33 49 73</td>
<td>12 17 24</td>
</tr>
<tr>
<td>PCE Adj.</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
<tr>
<td>MLP Adj.</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
</tbody>
</table>

#### Saturation Flow Module

<table>
<thead>
<tr>
<th>Sec/Lane</th>
<th>1760 1760 1760 1760 1760</th>
<th>1760 1760 1760 1760 1760</th>
<th>1760 1760 1760 1760 1760</th>
<th>1760 1760 1760 1760 1760</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment</td>
<td>0.81 0.81 0.81 0.81 0.81</td>
<td>0.91 0.91 0.91 0.91 0.91</td>
<td>0.82 0.82 0.82 0.82 0.82</td>
<td>0.91 0.91 0.91 0.91 0.91</td>
</tr>
<tr>
<td>Final Sat.</td>
<td>1600 1600 1600 1600 1600</td>
<td>1600 1600 1600 1600 1600</td>
<td>1600 1600 1600 1600 1600</td>
<td>1600 1600 1600 1600 1600</td>
</tr>
</tbody>
</table>

#### Capacity Analysis Module

| Vol/Sat. | 0.04 0.02 0.02 0.04 0.04 0.03 0.03 0.03 0.03 | 0.03 0.03 0.03 0.03 0.03 | 0.03 0.03 0.03 0.03 0.03 | 0.03 0.03 0.03 0.03 0.03 | 0.03 0.03 0.03 0.03 0.03 |

**Traffic 7.7.0515 (c) 2005 Bowling Assoc. Licensed to MMA, LONG BEACH, CA**
<table>
<thead>
<tr>
<th>Level Of Service Computation Report</th>
<th>Level Of Service Computation Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersection #17: Carson St. &amp; Paramount Blvd.</td>
<td>Intersection #18: Carson St. &amp; Lakeshore Blvd.</td>
</tr>
<tr>
<td>Cycle (sec): 200</td>
<td>Cycle (sec): 180</td>
</tr>
<tr>
<td>Optimal Cycle: 180</td>
<td>Optimal Cycle: 180</td>
</tr>
<tr>
<td>Approach: North Bound</td>
<td>Approach: North Bound</td>
</tr>
<tr>
<td>South Bound</td>
<td>South Bound</td>
</tr>
<tr>
<td>East Bound</td>
<td>East Bound</td>
</tr>
<tr>
<td>West Bound</td>
<td>West Bound</td>
</tr>
</tbody>
</table>

### Volume Module

| Base Vol. | 131 729 | 33 | 199 423 | 178 | 375 1650 | 103 | 168 1581 | 321 |
| Growth Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Use: | 131 729 | 33 | 199 423 | 178 | 375 1650 | 103 | 168 1581 | 321 |
| Added Vol: | 0 | 0 | ( | 0 | 0 | 0 | 0 | 0 |
| Passenger Vol: | 0 | 0 | ( | 0 | 0 | 0 | 0 | 0 |
| Initial Fac: | 131 729 | 33 | 199 423 | 178 | 375 1650 | 103 | 168 1581 | 321 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PPF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PPF Volume: | 131 729 | 33 | 199 423 | 178 | 375 1650 | 103 | 168 1581 | 321 |
| Reduce Vol: | 0 | 0 | ( | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 131 729 | 33 | 199 423 | 178 | 375 1650 | 103 | 168 1581 | 321 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLP Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

### Securization Flow Module

<table>
<thead>
<tr>
<th>Set/Use:</th>
<th>Securization</th>
<th>Securization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1760 1760</td>
<td>1760 1760</td>
<td>1760 1760</td>
</tr>
<tr>
<td>Initial Adj:</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Location:</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
</tr>
<tr>
<td>Final Set:</td>
<td>1760 3520</td>
<td>1760 3520</td>
</tr>
</tbody>
</table>

### Capacity Module

| Volume/Grade: | 0.07 0.81 | 0.11 0.12 | 0.10 0.21 | 0.34 0.34 | 0.10 0.37 | 0.37 |
| Critical: | **** |

---

Traffic 7.7.0515 (c) 2005 Bowlus Assoc. Licensed to MMA, LONG BEACH, CA
### Level of Service Computation Report

**ICF 1 [Loss as Cycle Length 1/2 Method (Future Volume Alternative)]**

<table>
<thead>
<tr>
<th>Intersection #10 Carson St. &amp; Clark Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle [sec]: 100</td>
</tr>
<tr>
<td>Critical Vol./Cap. [X]: 1,000</td>
</tr>
<tr>
<td>Loss Time [sec]: 38</td>
</tr>
<tr>
<td>[Y] = 0 sec; Average Delay [sec/veh]:</td>
</tr>
<tr>
<td>Optimal Cycle: 180</td>
</tr>
<tr>
<td>Level of Service: F</td>
</tr>
</tbody>
</table>

**Approach:** Northbound  Southbound  Eastbound  Westbound

<table>
<thead>
<tr>
<th>Movement</th>
<th>L - T - R</th>
<th>L - T - F</th>
<th>L - T - R</th>
<th>L - T - R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Include</td>
<td>Protect</td>
<td>Protect</td>
<td>Protect</td>
</tr>
</tbody>
</table>

| Min. Green: | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| Lanes:      | 2 0 1 0 2 0 1 0 0 1 3 0 1 2 0 3 1 0 |

**Volume Module:**

| Base Vol: 277 788 48 50 52 187 120 162 273 203 1129 142 |
| Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Initial Veh: 277 788 48 50 52 187 120 162 273 203 1129 142 |
| Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 |
| PasseVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| Initial Fix: 277 788 48 50 52 187 120 162 273 203 1129 142 |
| West Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PSF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PSF Volume: 277 788 48 50 52 187 120 162 273 203 1129 142 |
| Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| Reduced Vol: 277 788 48 50 52 187 120 162 273 203 1129 142 |
| PCF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Final Vol: 277 788 48 50 52 187 120 162 273 203 1129 142 |

**Secution Flow Module:**

| Set/Lane: 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 1760 |
| Adjustment: 0.90 1.00 0.90 1.00 1.00 1.00 1.00 0.90 1.00 1.00 1.00 |
| Lanes: 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 |
| Final Veh: 3168 1760 1368 1368 212 606 1760 5280 1760 5168 4704 576 |

**Capacity Analysis Module:**

<p>| Vol/Sq: 0.09 0.3 0.2 0.03 0.24 0.24 0.18 0.18 0.08 0.28 0.28 |
| Crit Ppov: **** **** **** **** **** **** **** **** **** **** **** |</p>
<table>
<thead>
<tr>
<th>Movement</th>
<th>EBL</th>
<th>EBT</th>
<th>NBL</th>
<th>NBT</th>
<th>SBT</th>
<th>SBR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lane Configurations</td>
<td>Yield</td>
<td>Free</td>
<td>Free</td>
<td>Free</td>
<td>Free</td>
<td>Free</td>
</tr>
<tr>
<td>Grade</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Volume (veh/h)</td>
<td>0</td>
<td>488</td>
<td>6,317</td>
<td>3,393</td>
<td>2,986</td>
<td>0</td>
</tr>
<tr>
<td>Peak Hour Factor</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Hourly flow rate (veh)</td>
<td>0</td>
<td>488</td>
<td>6,317</td>
<td>3,393</td>
<td>2,986</td>
<td>0</td>
</tr>
<tr>
<td>Pedestrian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane Width (ft)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Walking Speed (fps)</td>
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<td></td>
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<tr>
<td>Pedestrian Volume</td>
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<td></td>
</tr>
<tr>
<td>Right turn volume (veh)</td>
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<td></td>
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</tr>
<tr>
<td>Median type</td>
<td>None</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Median storage vol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left-turn signal (f)</td>
<td>597</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW, platoon unblocked</td>
<td>0.66</td>
<td>0.68</td>
<td>0.58</td>
<td></td>
<td></td>
<td></td>
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<td>vC1, stage 1 control</td>
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<td>GC, edge act</td>
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<td>SP (s)</td>
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<td>PO, queue flow (veh/h)</td>
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<td>STL capacity (veh/h)</td>
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**Proportion-Lane**

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</table>

**Intersection Summary**

| Average Delay | 1.9 |
| Intersection Capacity Utilization | 78.3% |
| LOV Level of Service | D |
| Analysis Period (min) | 15 |