

Appendix K: Traffic Analysis

**K.1 - MARINA PARK TPO
TRAFFIC ANALYSIS**

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Traffic Analysis

February 2009



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MARINA PARK TPO TRAFFIC ANALYSIS

This report summarizes an analysis performed for the proposed development of Marina Park in Newport Beach based on the City's Traffic Phasing Ordinance (TPO) methodology. In addition, this report summarizes the results of an analysis of cumulative conditions in compliance with California Environmental Quality Act (CEQA) requirements.

PROJECT DESCRIPTION

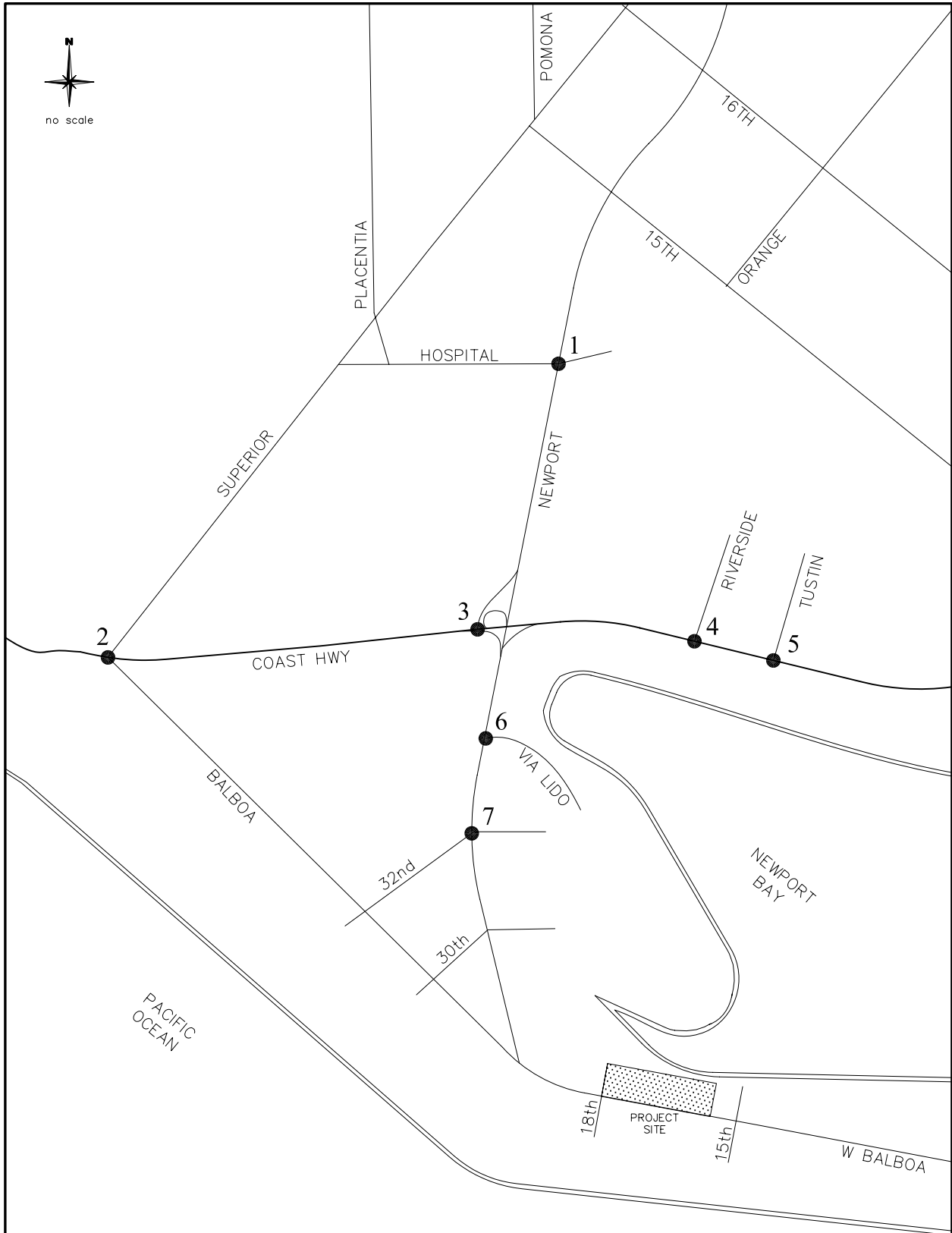
The proposed Marina Park project is located on the Bay side of Balboa Boulevard between 18th Street and 16th Street on the Balboa Peninsula in the City of Newport Beach. Marina Park consists of a 10,200 square foot Community Center, an 11,200 square foot Sailing Center, recreational park uses, and a 23-berth non-commercial Visitor Marina. The Sailing Center will include a 54-seat café. A playground, two tennis courts, two half-court basketball courts, beach volleyball courts, and open lawn areas for picnicking and free play are proposed. New docks and slips for sailing programs and expanded and improved beach access will be provided. The existing Girl Scout House will be relocated on-site.

The approximately nine-acre site is currently developed with a 57-unit mobile home park, a community center, four tennis courts, a small playground, and the Girl Scout House. The Girl Scout House will be relocated to the northwest corner of the project site. Adjacent to the project site between 16th Street and 15th Street is the existing American Legion Post 291, a small residential development, and a commercial building.

Figure 1 illustrates the location of the project. Figure 2 illustrates the proposed concept plan.

TRIP GENERATION AND DISTRIBUTION

The proposed Community Center will include three ground-floor classrooms for use by the sailing program or other City programs, and the second floor will provide administrative functions and a large room that accommodates up to 80 people for use as a large classroom, four small classrooms, or a banquet facility.



Legend

● TPO study locations

Figure 1

PROJECT LOCATION

The Sailing Center consists of a reception area, a medium sized meeting room, and a two-story gallery space. The second floor will include a 54-seat café and administrative offices. The Sailing Center will provide indoor space for storage and maintenance of the boats and equipment used in the sailing program.

The Visitor Marina includes 21 40-foot long berths and two 50-foot long berths for use by the public for short-term visiting non-commercial vessels plus a 200 foot long dock. Full hook-ups will be provided to all berths. The marina will be fenced and controlled security access provided at the southeastern corner. A marina control building containing an office, restrooms, and washing machines will be provided adjacent to the marina entry point.

Amenities in the park will include picnic tables, restrooms, showers, play areas, half-court basketball courts, benches, public beach and access to the water. Tennis courts are located adjacent to the American Legion.

The site is currently developed with a 57-unit mobile home park, community center, Girl Scout House, tennis courts, and playground which are generating peak hour and daily traffic. The mobile home park is only partially occupied full-time. Credit for the peak hour and daily trips currently being generated by the mobile home park was determined from driveway counts conducted in early June 2008. These counts were collected prior to the beginning of the Summer season. Credit for the trips currently being generated by the existing community center, tennis courts and playground were determined from Institute of Transportation Engineers (ITE) trip rates.

The Girl Scout House will be relocated from its current location to the northwest corner of the site. No changes in the trips generated by the Girl Scout House are expected.

Trip generation rates for the proposed project were derived from peak hour and daily trip rates contained in ITE Trip Generation, Seventh Edition. A combined rate that consists of the ITE City Park peak hour rates per acre and an average of the ITE City Park and Beach Park daily rates per acre was applied to the park uses. ITE's Recreational Community Center trip rates were applied to the proposed Community Center and Sailing Center, which includes a 54-seat café. These rates and the resulting trips are summarized in Table 1.

The existing trips from the mobile home park, the tennis courts, and the playground were subtracted from the proposed trip generation to produce the net new trips for the project. The project

Table 1
TRIP GENERATION SUMMARY

| LAND USE | UNITS | AM PEAK HOUR | | | PM PEAK HOUR | | | ADT |
|--|------------|--------------|----------|-----------|--------------|-----------|-----------|------------|
| | | IN | OUT | TOTAL | IN | OUT | TOTAL | |
| TRIP RATES | | | | | | | | |
| Park ¹ | Acre | .28 | .20 | .48 | .38 | .92 | 1.30 | 15.70 |
| Recreational Community Center (ITE 495) ² | TSF | .99 | .63 | 1.62 | .48 | 1.16 | 1.64 | 22.88 |
| Marina (ITE 420) | Berth | .03 | .05 | .08 | .11 | .08 | .19 | 2.96 |
| TRIP GENERATION | | | | | | | | |
| Proposed Project | | | | | | | | |
| Park | 4.89 Acres | 1 | 1 | 2 | 2 | 4 | 6 | 77 |
| Community Ctr/Sailing Ctr/Cafe | 21.3 TSF | 21 | 13 | 34 | 10 | 25 | 35 | 487 |
| Visitor Marina | 23 Berths | 1 | 1 | 2 | 3 | 2 | 5 | 68 |
| Sub-Total | | 23 | 15 | 38 | 15 | 31 | 46 | 632 |
| Existing Use | | | | | | | | |
| Mobile Home Park | 57 DU | -5 | -13 | -18 | -7 | -7 | -14 | -194 |
| Park | 1.2 Acres | 0 | 0 | 0 | 0 | -1 | -1 | -19 |
| Community Ctr | 2.9 TSF | -3 | -2 | -5 | -1 | -4 | -5 | -67 |
| NET NEW TRIPS | | 15 | 0 | 15 | 7 | 19 | 26 | 352 |

Notes:

¹ Park AM and PM trip rates from ITE City Park (411) rate/acre, ADT rate averaged from City (411) and Beach (415) Park ADT rate/acre.

² ITE Recreational Community Center (495) trip rates applied to Community Center, Sailing Center, and Café.

The Girl Scout House will be relocated on-site and results in no net change in project trips.

impacts are analyzed under worst case conditions since peak summer intersection counts are used in the analysis and the trips generated by the proposed project represent peak summer trips; whereas, the credit from the existing mobile home park is based on the non-peak season when the mobile home park is not fully occupied. As the trip generation table indicates, the proposed project results in a net increase of 352 trips daily. During the AM peak hour there is a net increase of 15 trips generated compared with the trip generation of the existing uses on the site. During the PM peak hour the proposed project generates 26 new trips compared with the trip generation of the existing uses on the site.

Trip distribution of project-generated traffic onto the surrounding circulation system was determined from observed travel patterns in the vicinity of the project site as well as from locations and levels of development in relation to the subject property. A large portion of trips generated by the project are estimated to originate within the City of Newport Beach. Approximately 35 percent of project trips are oriented toward the areas south of Coast Highway, including the Balboa Peninsula area. The remaining 65 percent of project traffic is distributed along Coast Highway and Newport Boulevard. The general distribution for the proposed development is illustrated in Figure 3. Project-generated trips were distributed to the circulation system according to these distribution patterns. The AM and PM peak hour trips for the proposed development are illustrated in Appendix A.

TPO TRAFFIC IMPACTS

The City of Newport Beach identified seven intersections for analysis to determine the impact of the proposed Marina Park development. These intersections are:

Newport Boulevard and Hospital Road
Balboa Boulevard/Superior Avenue and Coast Highway
Newport Boulevard and Coast Highway
Riverside Avenue and Coast Highway
Tustin Avenue and Coast Highway
Newport Boulevard and Via Lido
Newport Boulevard and 32nd Street

Existing peak hour intersection volumes for the seven study locations listed above were provided by City Staff (existing peak hour volumes are illustrated in Appendix A). The peak hour data was collected during the non-peak season in 2006, 2007, and 2008. Existing intersection levels of service are

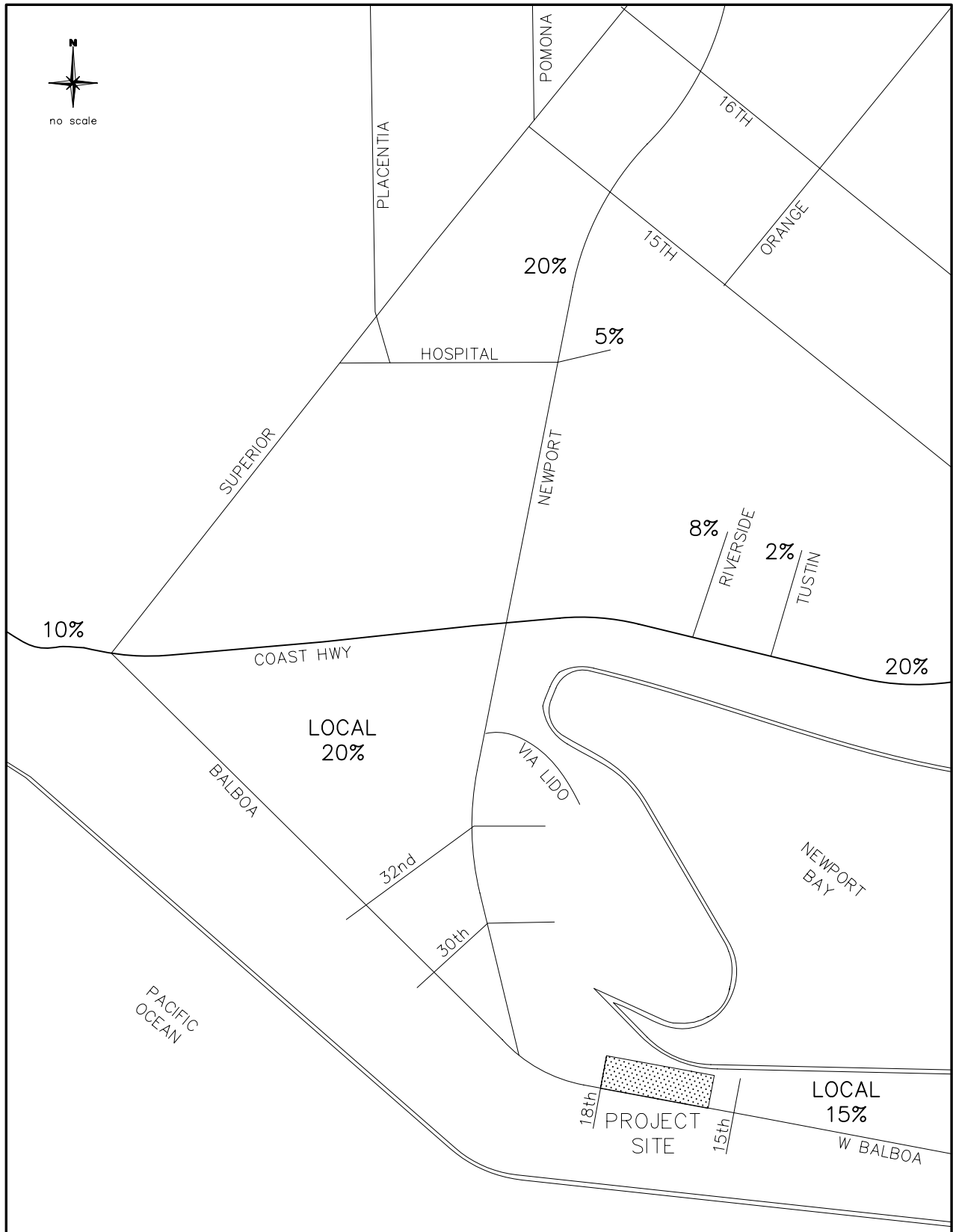


Figure 3
GENERAL PROJECT DISTRIBUTION

based on intersection capacity utilization (ICU) values. The ICU values are a means of presenting the volume to capacity ratios, with a V/C ratio of .90 representing the upper threshold for an acceptable level of service (LOS “D”) in the City of Newport Beach. The City methodology calculates the ICU value to three decimal places, and then reports the resulting ICU value rounded to two decimal places.

Existing ICU values for the study intersections assuming existing lane configurations are summarized in Table 2 (actual ICU calculation sheets are included in Appendix B). As this table shows, the study intersections are currently operating at LOS “D” or better during the AM and PM peak hours. These ICU values represent the non-peak season conditions.

Sample mid-block counts were collected to determine the seasonal increase in Summer traffic volumes for this area of Newport Beach. Counts collected on Newport Boulevard at 32nd Street and on Balboa Boulevard at 18th Street in early June 2008 (non-peak season) and late June 2008 (peak Summer season) indicate an average increase of 18 percent in the daily traffic volume during the Summer (count data is included in Appendix D). During the peak hours, the Summer increase averages 17 percent over the non-peak season volume during the AM peak hour and 16 percent during the PM peak hour. Existing peak hour volumes at the study intersections were increased to Summer conditions (illustrated in Appendix A), and the resulting Summer season ICU values are summarized in Table 3.

An ambient growth rate of 1.0 percent per year was added to the existing volumes along Newport Boulevard north of Coast Highway and along Coast Highway. Construction of the project is assumed to be complete in 2010; therefore, the study year is 2011. Traffic generated by approved projects in the study area, obtained from City Staff, were added to the existing peak hour volumes to obtain year 2011 background peak hour volumes for the intersections prior to the addition of project-generated traffic (illustrated in Appendix A). Table 4 summarizes the approved projects included in this analysis.

Background-plus-project peak hour volumes were obtained by adding the project-generated peak hour intersection volumes presented above to the existing-plus-regional growth-plus-approved projects peak hour volumes. Background-plus-project peak hour volumes are illustrated in Appendix A.

The TPO analysis consists of a one percent analysis and an ICU analysis at each study intersection. The one percent analysis compares the proposed project traffic with projected background peak hour volumes. To pass the one percent analysis, peak hour traffic from the proposed project must be less than one percent of the projected background peak hour traffic on each leg of the intersection. If the proposed

Table 2

EXISTING ICU ANALYSIS SUMMARY – NON-PEAK SEASON

| INTERSECTION | AM | PM |
|--------------------------------|-----|-----|
| 1. Newport & Hospital | .59 | .64 |
| 2. Balboa/Superior & Coast Hwy | .68 | .72 |
| 3. Newport & Coast Hwy | .77 | .68 |
| 4. Riverside & Coast Hwy | .70 | .81 |
| 5. Tustin & Coast Hwy | .67 | .58 |
| 6. Newport & Via Lido | .47 | .43 |
| 7. Newport & 32nd | .48 | .66 |

Level of service ranges: .00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 - 1.00 E
Above 1.00 F

Table 4

APPROVED PROJECTS SUMMARY

| LOCATION | PERCENT COMPLETE |
|---|------------------|
| Fashion Island Expansion | 40 |
| Temple Bat Yahm Expansion | 65 |
| CIOSA – Irvine Project | 91 |
| Newport Dunes | 0 |
| 1401 Dove Street | 0 |
| 1901 Westcliff Surgical Center | 0 |
| Hoag Hospital Phase III | 0 |
| Birch Medical Office | 0 |
| St Mark Presbyterian Church | 77 |
| Corporate Plaza West | 0 |
| Mariner’s Mile Gateway | 0 |
| Land Rover NB Service Center | 0 |
| Our Lady Queen of Angels Church Expansion | 0 |
| 2300 Newport Boulevard | 0 |
| Newport Executive Court | 0 |
| Hoag Health Center | 0 |
| North Newport Center | 0 |
| Santa Barbara Condo | 0 |

project passes the one percent analysis, then the ICU analysis is not required and no further analysis is necessary. If the proposed project does not pass the one percent analysis, then the ICU analysis must be performed for the intersection which fails to pass the one percent test.

Table 5 summarizes the results of the non-peak season one percent analysis (the one percent analysis sheets are included in Appendix C). As this table indicates, the proposed project does not pass the one percent analysis at two study intersections during the AM and PM peak hour; therefore, an ICU analysis is required for the intersections of Newport Boulevard at Via Lido and Newport Boulevard at 32nd Street. The non-peak season volumes represent the worst-case one percent analysis since the Summer season volumes increase the background level against which the project trips are compared. If the project passes the one percent analysis at a location under non-peak season conditions, then the project will pass the one percent analysis at that location under Summer season conditions.

An ICU analysis was performed for the two intersections which did not pass the one percent test. Existing lane configurations were assumed, and a capacity of 1,600 vph per lane with no clearance factor was utilized. Table 6 summarizes the existing, background, and background-plus-project ICU values during the AM and PM peak hours under non-peak season and Summer season conditions (actual ICU calculation sheets are included in Appendix B).

As the ICU summary table indicates, the project will have no marginal impact on the intersections of Newport Boulevard at Via Lido and Newport Boulevard at 32nd Street which will operate at LOS “C” or better during the AM and PM peak hours under non-peak season and Summer season conditions. The project has no significant impact on the study intersections, and no mitigation is required.

CUMULATIVE CONDITIONS ANALYSIS

City Staff provided a list of two known but not approved projects for use in a cumulative conditions analysis. These cumulative projects are summarized in Table 7. Trip generation and distribution for each cumulative project was also provided by City Staff. The peak hour cumulative intersection volumes were added to the background volumes presented earlier, and then project-generated traffic was added (see Appendix A). The previous non-peak season one percent analysis without cumulative volumes represents the worst-case one percent analysis since the addition of cumulative traffic to the background volumes increases the chances of a project passing the one percent analysis. If an

Table 5

SUMMARY OF ONE PERCENT ANALYSIS – NON-PEAK SEASON

| INTERSECTION | AM PEAK HOUR PROJECT VOLUMES | | | | LESS THAN 1% OF PEAK HOUR VOLUMES |
|--------------------------------|--------------------------------|----|----|----|--------------------------------------|
| | NB | SB | EB | WB | |
| 1. Newport & Hospital | 1 | 4 | 0 | 0 | Yes |
| 2. Balboa/Superior & Coast Hwy | 0 | 0 | 2 | 0 | Yes |
| 3. Newport & Coast Hwy | 0 | 0 | 0 | 5 | Yes |
| 4. Riverside & Coast Hwy | 0 | 1 | 0 | 4 | Yes |
| 5. Tustin & Coast Hwy | 0 | 0 | 0 | 4 | Yes |
| 6. Newport & Via Lido | 1 | 10 | 0 | 0 | Yes |
| 7. Newport & 32nd | 1 | 10 | 1 | 0 | No |
| INTERSECTION | PM PEAK HOUR PROJECT VOLUMES-- | | | | LESS THAN 1% OF PEAK HOUR VOLUMES |
| | NB | SB | EB | WB | |
| 1. Newport & Hospital | 6 | 2 | 0 | 0 | Yes |
| 2. Balboa/Superior & Coast Hwy | 2 | 0 | 1 | 0 | Yes |
| 3. Newport & Coast Hwy | 0 | 0 | 0 | 3 | Yes |
| 4. Riverside & Coast Hwy | 0 | 1 | 7 | 2 | Yes |
| 5. Tustin & Coast Hwy | 0 | 0 | 5 | 2 | Yes |
| 6. Newport & Via Lido | 13 | 5 | 0 | 0 | No |
| 7. Newport & 32nd | 14 | 5 | 0 | 0 | No |

Table 7
 CUMULATIVE PROJECTS SUMMARY

| PROJECT | LAND USE | AMOUNT |
|----------------------------|------------------------|------------|
| Newport Coast TAZ 1 – 4 | Single Family Detached | 954 DU |
| | Condominium/Townhouse | 389 DU |
| | Multi-Family Attached | 175 DU |
| Newport Ridge TAZ 1 – 3 | Single Family Detached | 632 DU |
| | Multi-Family Attached | 384 DU |
| | Commercial | 102.96 TSF |
| DU – dwelling units | | |
| TSF – thousand square feet | | |

intersection passes the one percent analysis prior to the addition of cumulative traffic, then the intersection will pass the one percent analysis with the addition of cumulative traffic and no further analysis is required at that location. Therefore, an ICU analysis for the two study intersections that did not pass the non-peak season one percent analysis was prepared.

The results of the cumulative ICU analysis are summarized in Table 8 (actual ICU calculation sheets are included in Appendix B). This table includes the non-peak season and Summer season ICU values. As the cumulative ICU table indicates, the proposed project will have no significant impact on the study intersections which operate at LOS “C” or better, and no mitigation is required.

PARKING ANALYSIS

Parking for the proposed project will be provided in a main parking lot adjacent to the Community Center, Sailing Center, and Visitor Marina. This parking lot will provide approximately 127 spaces with two-way circulation throughout the lot. Access to the main parking lot will be provided at 16th Street and with a connection to 15th Street. Parking for the Girl Scout House will be provided in a 26-space lot at 18th Street. One-way circulation should be provided in the 18th Street parking lot with traffic entering the south driveway and exiting the north driveway.

The amount of parking required for the proposed project was determined from ITE parking rates modified to suit this specific development. The parking rate applied to the Community Center is the ITE Recreational Community Center parking rate; however, the rate applied to the Sailing Center is reduced from the ITE Recreational Community Center rate since large areas of the sailing center are used for storage and maintenance. The parking rate for the Visitor Marina is the ITE Marina parking rate. These rates were developed in coordination with City staff.

Table 9 summarizes the required project parking. As this table indicates, the worst-case parking estimate for the project is 144 spaces. Approximately 127 spaces will be provided in the main project parking lot, with another 26 spaces provided in the 18th Street parking lot for a total of 153 spaces.

The City is in the process of acquiring the existing SCE substation on Balboa Boulevard. The proposed site plan shows parking on the substation property. If the City is unsuccessful in obtaining the SCE property and cannot include that land in the parking lot, the parking lot will lose approximately 11 spaces resulting in an overall parking deficiency of two spaces.

Table 9

PARKING SUMMARY

| LAND USE | SIZE | PARKING RATE | RATE SOURCE | SPACES REQUIRED |
|------------------|-----------|--------------|-------------|-----------------|
| Girl Scout House | 5.5 TSF | 2.36 sp/TSF | 1 | 13 sp |
| Community Ctr | 10.2 TSF | 6 sp/TSF | 2 | 61 sp |
| Sailing Ctr | 11.1 TSF | 5 sp/TSF | 3 | 56 sp |
| Visitor Marina | 23 Berths | .59 sp/Berth | 4 | 14 sp |
| TOTAL SPACES | | | | 144 sp |

Parking rate sources:

- 1 Existing 6 spaces plus 7 added for expansion of facility
- 2 ITE Recreational Community Center (495) – includes Café and Park uses
- 3 Modified ITE Recreational Community Center (495)
- 4 ITE Marina (420)

The proposed parking lot is intended for the project only and not to provide additional beach parking. To prevent the parking lot from being used for beach parking, as a result reducing the amount of parking available for the project uses, signs indicating appropriate users and time limits and warning signs indicating enforcement will be posted throughout the parking lot. Periodic monitoring and surveying of parking lot users will be performed to determine if beach parking is encroaching on the project parking lot. If the warning signs are discouraging inappropriate users, then no further actions will be required. If the warning signs are being ignored, then a parking management plan with a more rigorous enforcement program will be developed.

Currently, on-street parking is allowed along Balboa Boulevard in the vicinity of the project site. Parking along the project frontage (i.e., the north side of Balboa Boulevard) is not metered; however, parking is not allowed on Monday mornings (8:30 AM – 12:30 PM) for street sweeping. Furthermore, parking is prohibited from 9:00 AM to 6:00 PM on Saturdays and Sundays from May through September, Memorial Day, Fourth of July, and Labor Day to provide an additional travel lane. These parking restrictions are assumed to remain in place with the development of the proposed project. Metered parking spaces are provided in the center median along Balboa Boulevard, and development of the project will have no affect on the operation of these spaces. A public parking lot with 24 spaces is currently located at the corner of 18th Street and Balboa Boulevard. This parking lot will be removed and replaced with a 26-space lot in the same location with development of the project.

The number of on-street parking spaces along the project frontage will change with the development of the proposed project. Development of the project site will result in the widening of 18th Street north of Balboa Boulevard which will allow additional on-street parking (approximately eight spaces). In addition, development of the project will result in the closure of driveways on Balboa Boulevard along the project frontage at the public parking lot on the corner of 18th Street, the existing community center, Girl Scout House, and SCE substation, and the removal of the 30 minute loading zone in front of the existing community center. With the closure of these driveways, an additional four on-street parking spaces may be available; although, a new on-street drop-off zone may reduce this number of new on-street parking spaces. On the other hand, the need to provide adequate sight distance east of 16th Street will require the removal of approximately 15 existing on-street parking spaces.

A left-turn pocket from eastbound Balboa Boulevard into the parking lot driveway at 16th Street should be provided to reduce entering project traffic from blocking through traffic on Balboa Boulevard. Although the hourly volume entering the parking lot driveway is not large (approximately 11 to 17 vehicles per hour), project trips are not spread out evenly throughout the hour, with the majority of

vehicles entering the parking lot in the 10 to 15 minutes before classes begin. An 85-foot pocket, similar to existing left-turn pockets on Balboa Boulevard in the project vicinity, would result in the loss of approximately three existing parking spaces in the center median on Balboa Boulevard.

The overall change in on-street parking as a result of the proposed project is a reduction of approximately six spaces between 18th Street and 15th Street.

SPECIAL ISSUES

Access to the main parking lot of the proposed project will be provided by a driveway opposite 16th Street. A connection to 15th Street will also be available. A traffic signal exists at the intersection of 15th Street and Balboa Boulevard, approximately 400 feet east of the proposed driveway. Installation of a traffic signal is being considered at the driveway opposite 16th Street. The need for a signal at this location was examined.

Satisfaction of Caltrans Peak Hour Signal Warrant (Figure F-1) requires a minimum of 100 peak hour trips on the side street approach. The proposed project will generate 39 AM peak hour driveway trips, 15 of which are outbound, and 46 PM peak hour driveway trips, 31 of which are outbound. The project does not generate enough peak hour traffic to satisfy the signal warrant. Besides, the majority of outbound trips from the project will be oriented toward the west; therefore, they will make a right turn out of the driveway and will experience very little benefit from a traffic signal at this location. Installation of a signal at the project driveway is not recommended due to the low peak hour volumes expected and the close proximity to the existing signal at 15th Street.

Without a signal at the project driveway, outbound vehicles will have to wait for gaps in Balboa Boulevard traffic to exit. Vehicles making a left turn from the parking lot will have the option of exiting the parking lot onto 15th Street and utilizing the existing signal at the intersection of 15th Street and Balboa Boulevard. However, relatively little project traffic (approximately 15 percent) is expected to be oriented toward the Balboa Peninsula east of the project site during the peak hours. Less than five peak hour trips would be added to the 15th Street/Balboa Boulevard intersection. The existing signal at 15th Street can accommodate the addition of five peak hour trips.

Without a signal at the driveway on Balboa Boulevard, vehicles will have to wait for gaps in traffic on Balboa Boulevard. Balboa Boulevard is classified as a primary roadway in the vicinity of the project

site. Parking and landscaping will need to be restricted east of the driveway so that a sight distance of 450 feet is provided per City Standard STD-110-L. This restriction will remove all on-street parking along the north side of Balboa Boulevard between 16th Street and 15th Street (approximately 15 spaces).

CONCLUSIONS

The proposed project, consisting of a 10,200 square foot community center, an 11,200 square foot sailing center, park uses, a 23-berth non-commercial visitor marina, and re-located on-site Girl Scout House, will generate 15 new AM peak hour trips, 26 new PM peak hour trips, and 352 new daily trips. The marginal impact of project traffic on the street system was determined at seven intersections in the vicinity. Two of the seven intersections did not pass the City's one percent analysis; however, the project had no marginal impact on the ICU values at these two intersections, which will continue to operate at level of service (LOS) "C" or better during the AM and PM peak hours under non-peak season and Summer season conditions. Consequently, the proposed project has no significant impact on the study intersections, and no additional intersection improvements are required.

The impact of traffic from known but not approved projects was included in a cumulative conditions analysis. Under cumulative non-peak season and Summer season conditions, the project had no marginal impact during the AM or PM peak hour on the ICU values at the two intersections that did not pass the one percent analysis. Therefore, the proposed project has no significant impact on the study intersections under cumulative conditions, and no intersection mitigation measures are required.

A review of the proposed parking reveals that the 153 spaces provided on-site are adequate to satisfy the project's demand. However, some monitoring of the parking lot as outlined in a parking management plan will be required to ensure that the parking there is limited to legitimate Marina Park users.

APPENDIX A
PEAK HOUR INTERSECTION VOLUMES

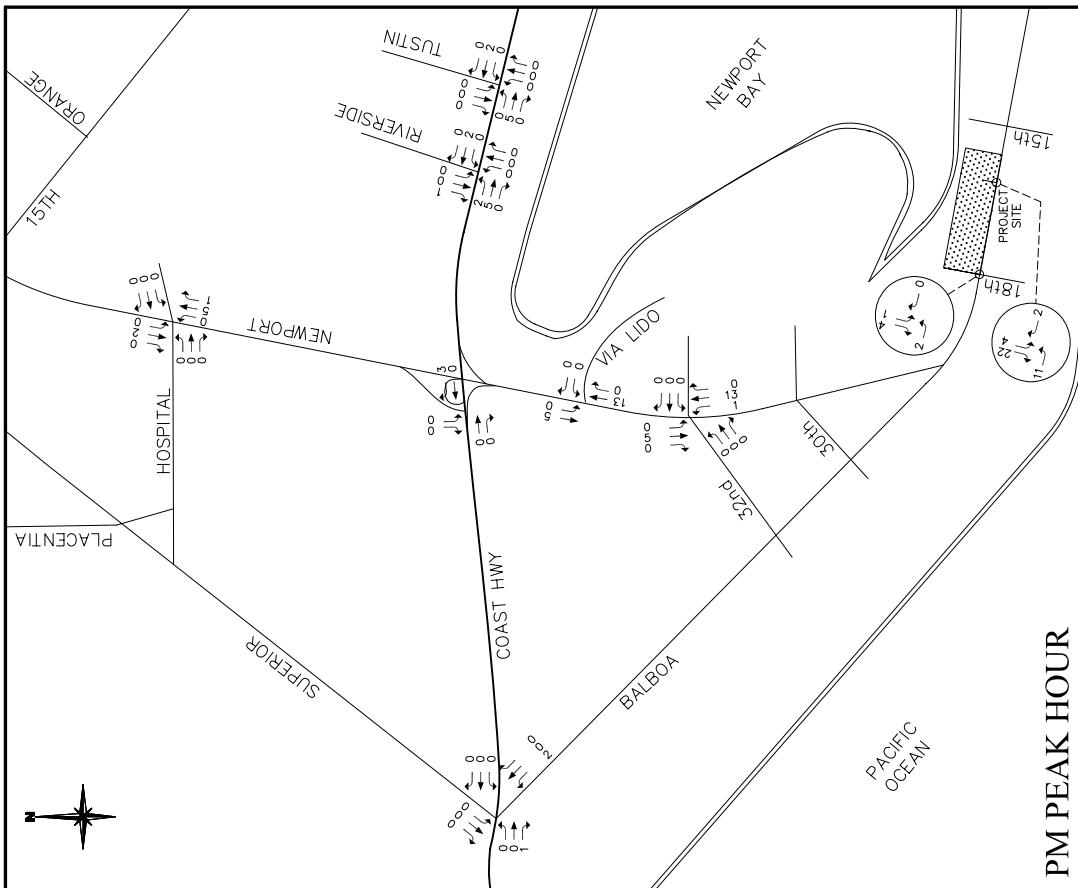
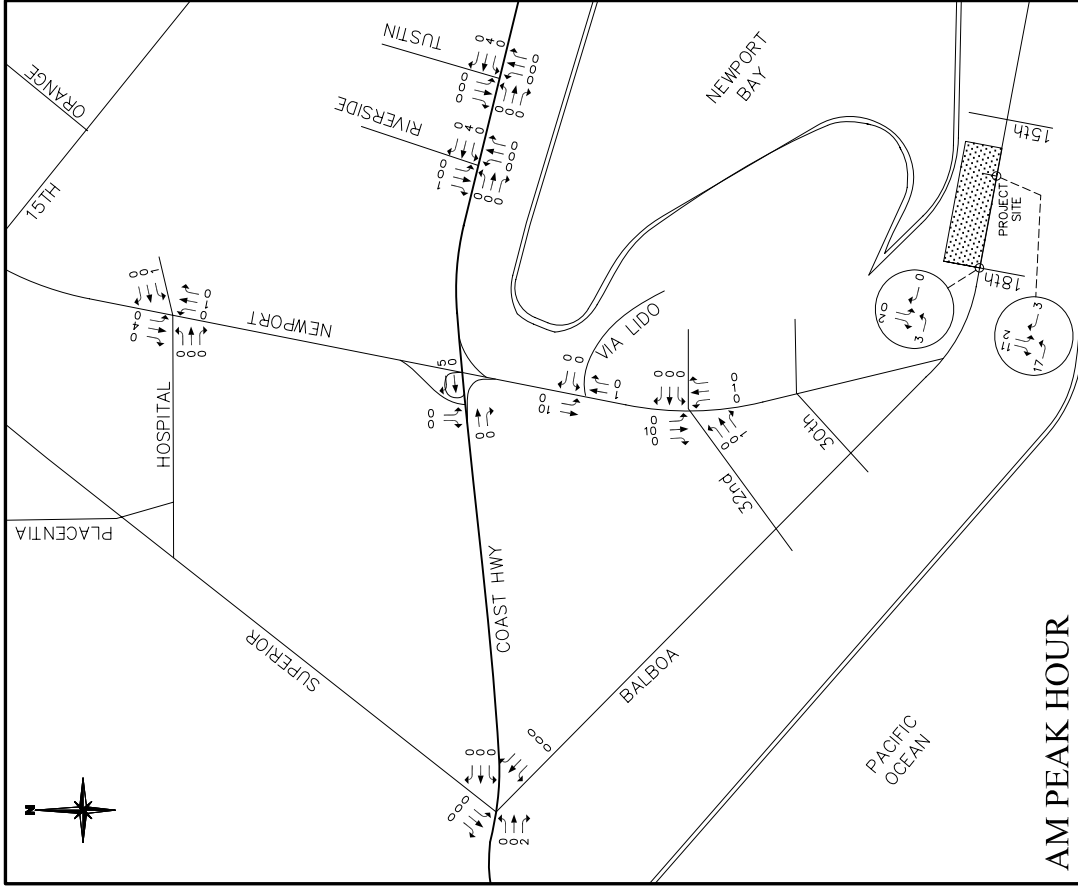


Figure A-1
PEAK HOUR PROJECT TRIPS

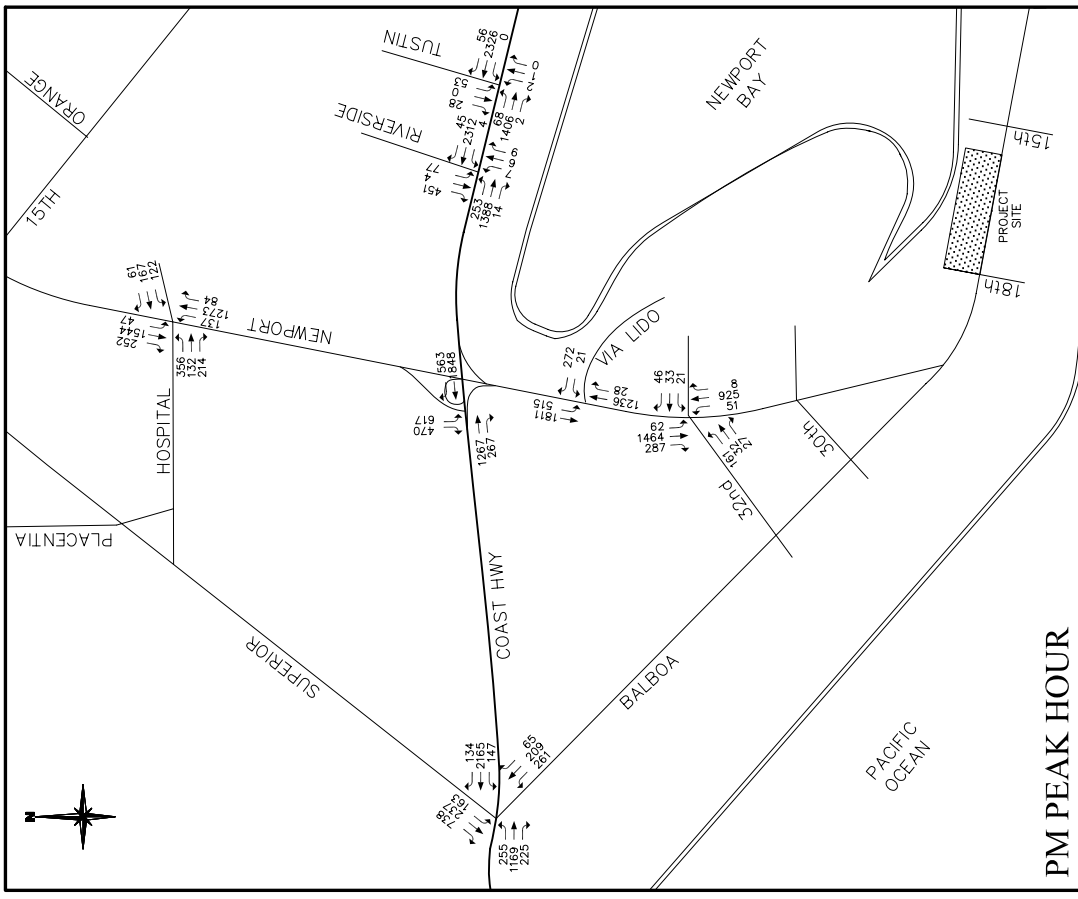
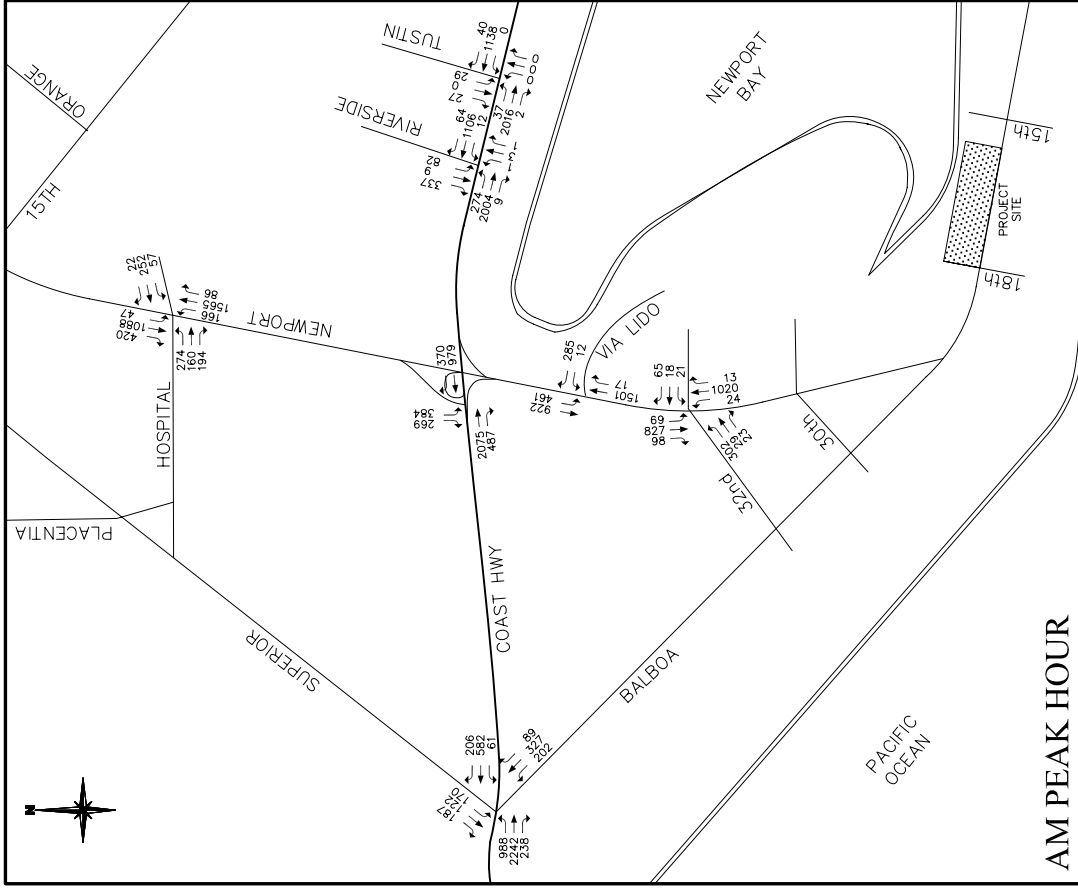


Figure A-2
 EXISTING PEAK HOUR VOLUMES
 - NON-PEAK SEASON

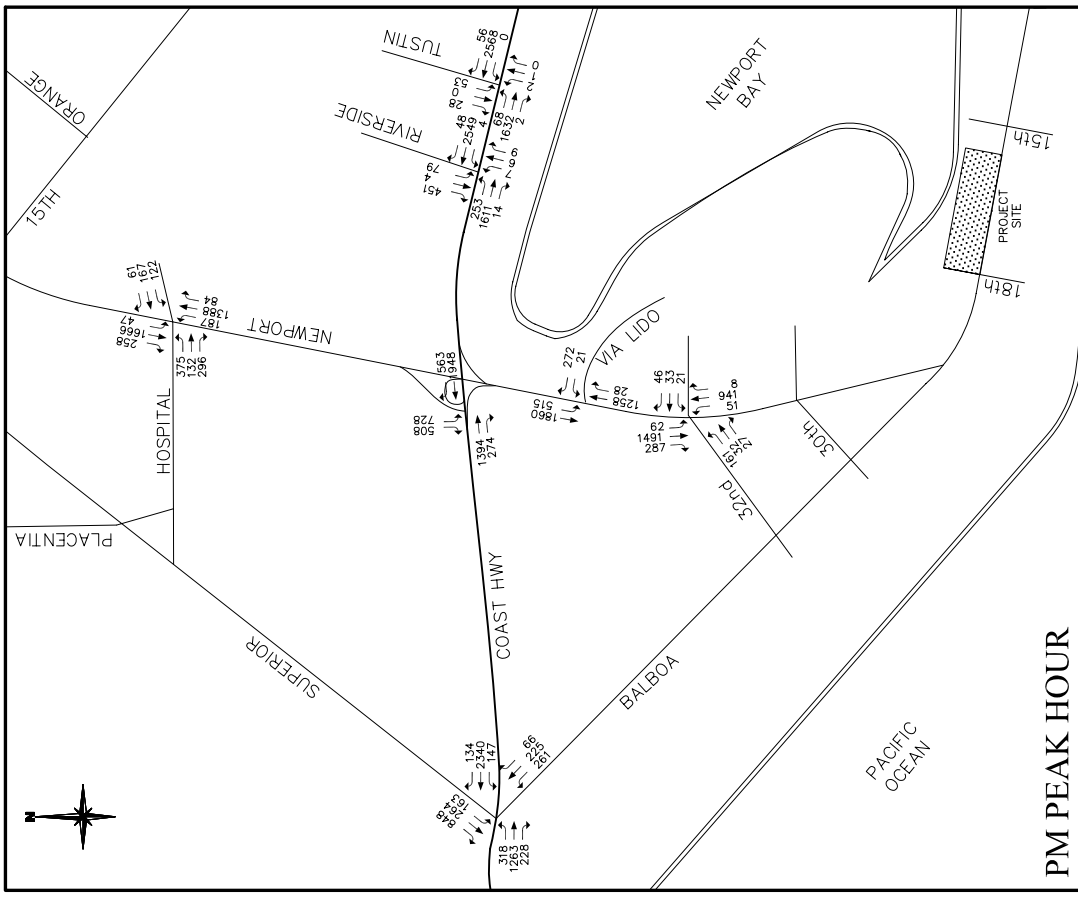
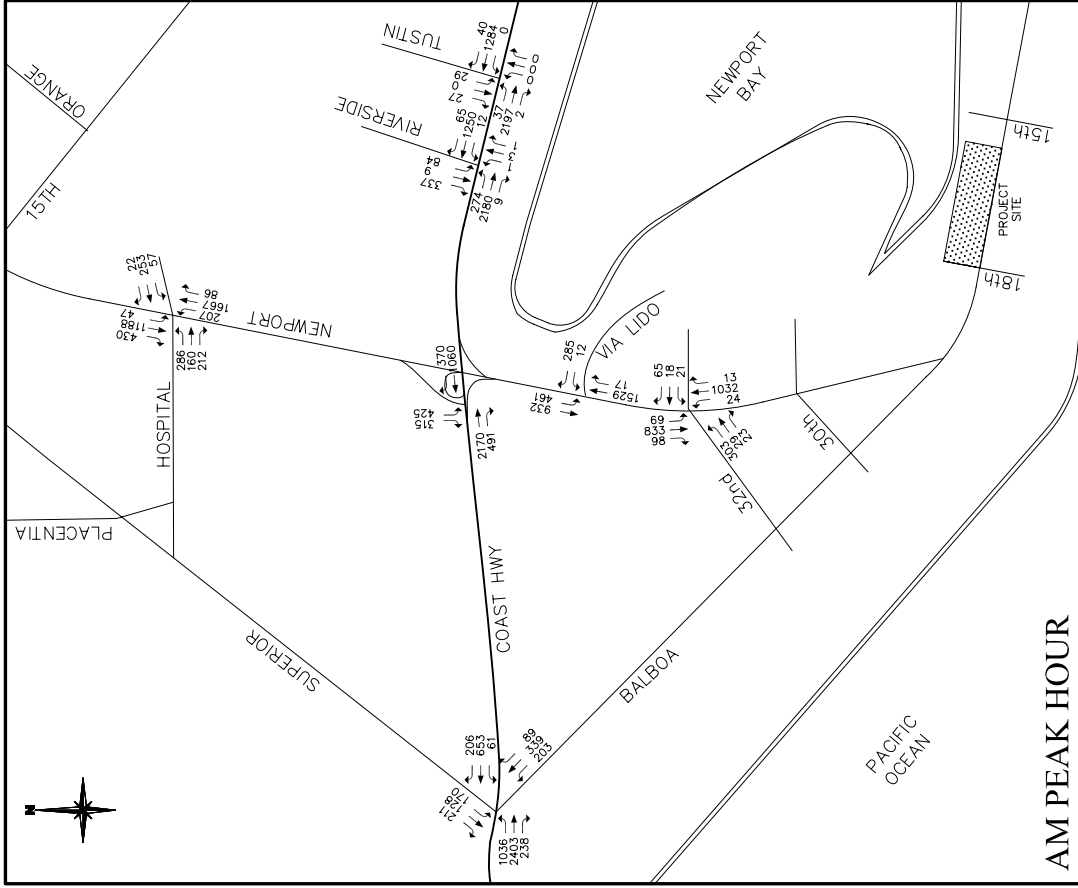


Figure A-3
 EXISTING + REGIONAL GROWTH + APPROVED
 PEAK HOUR VOLUMES
 - NON-PEAK SEASON

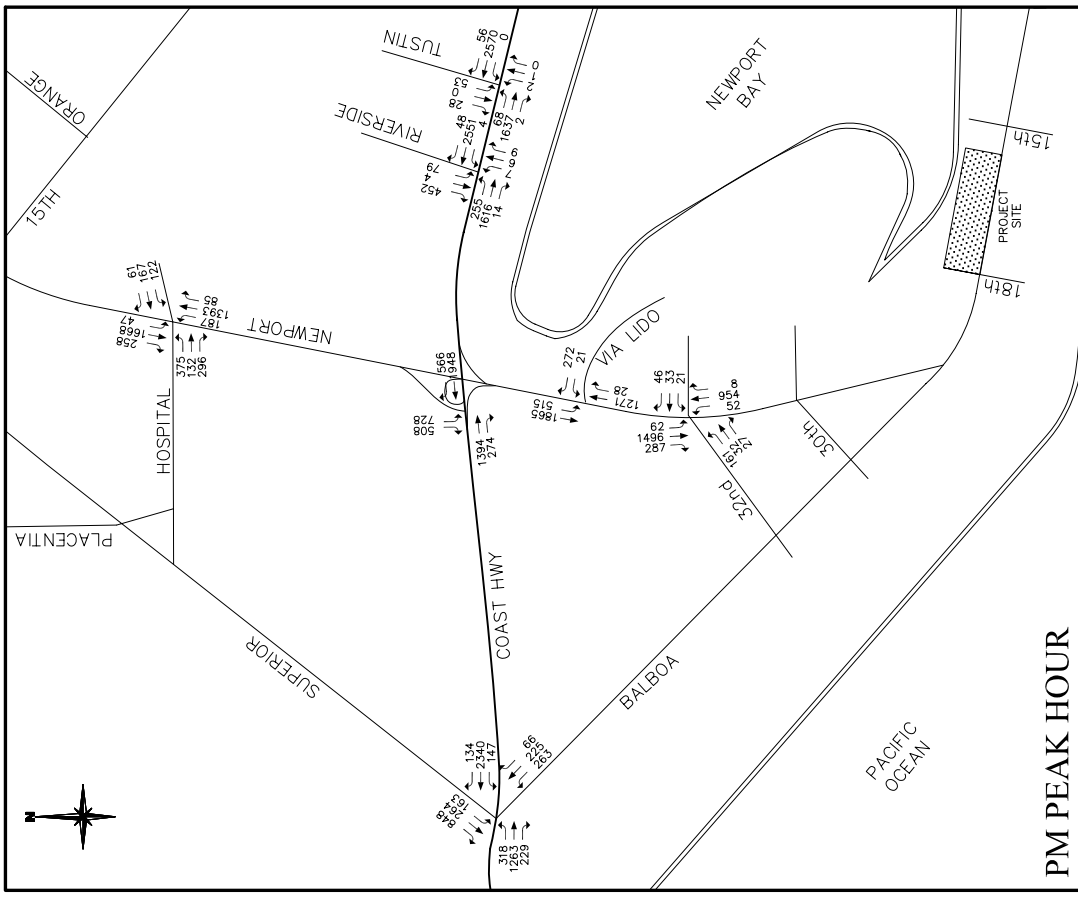
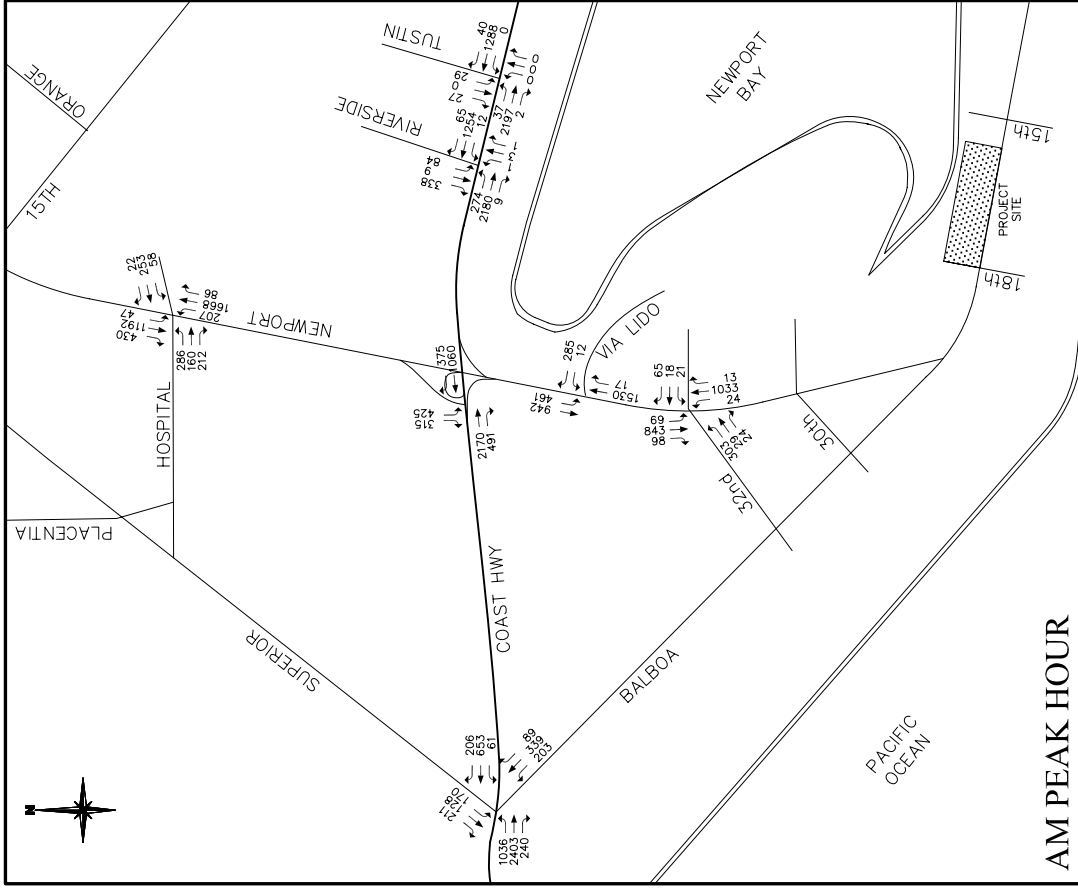


Figure A-4
 EXISTING + GROWTH + APPROVED + PROJECT
 PEAK HOUR VOLUMES
 - NON-PEAK SEASON

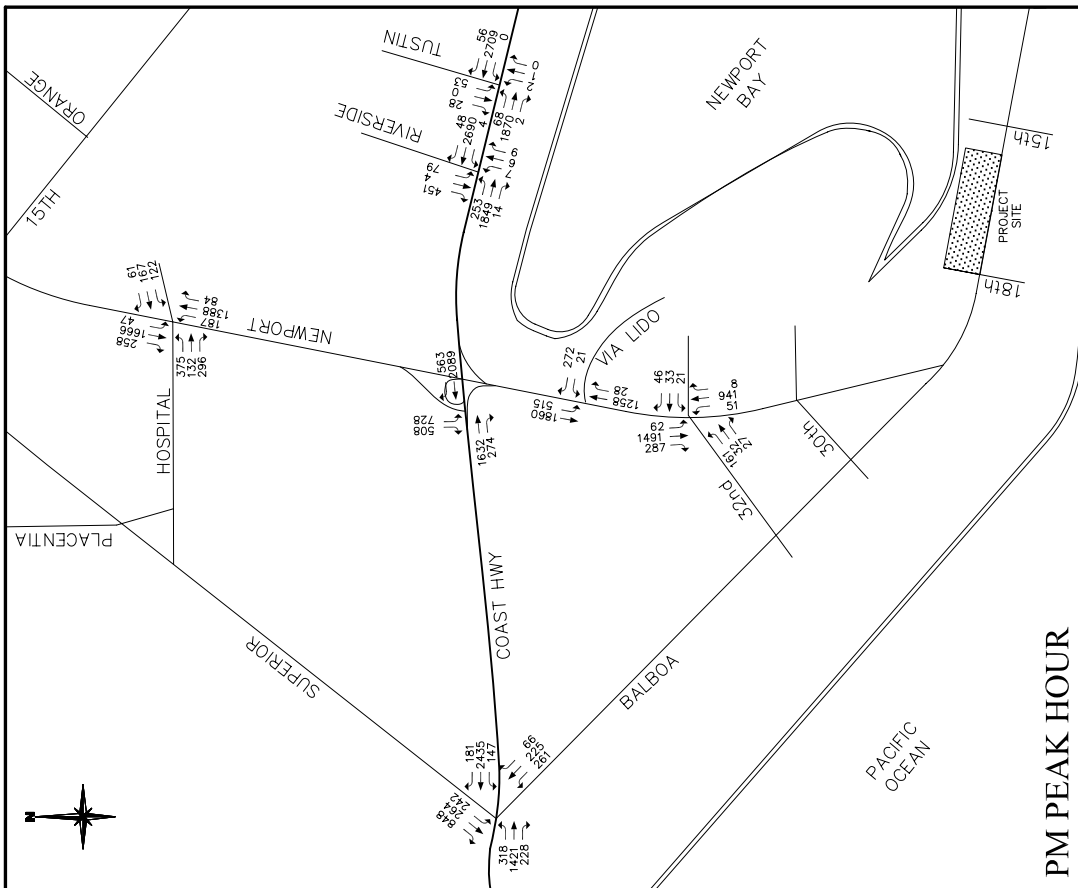
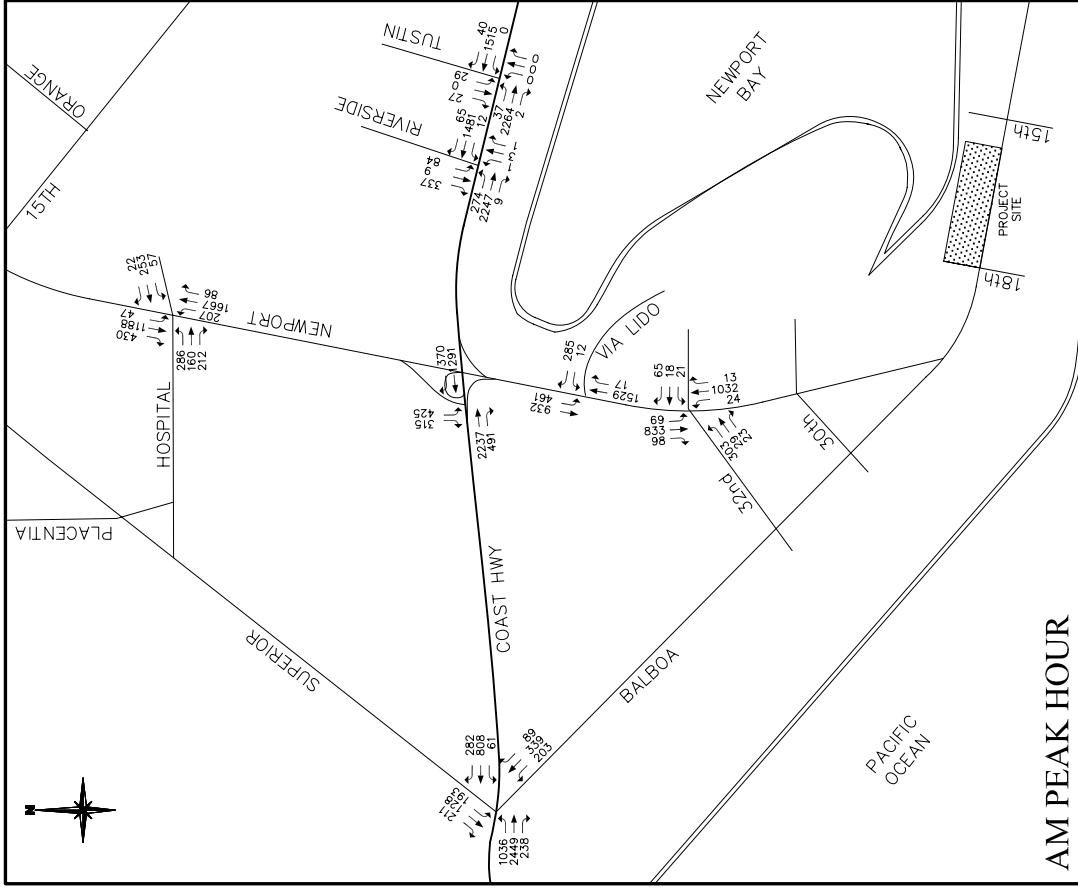


Figure A-5
 EXISTING + GROWTH + APPROVED + CUMULATIVE
 PEAK HOUR VOLUMES
 - NON-PEAK SEASON

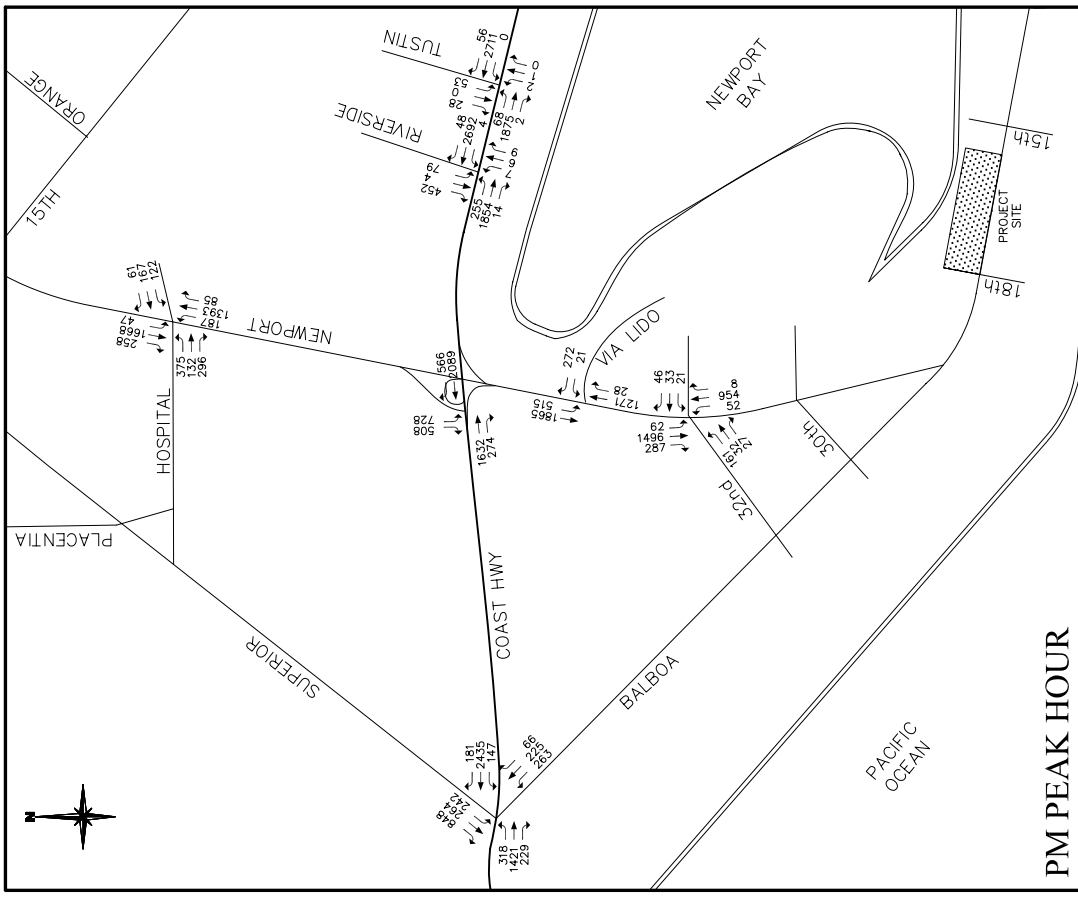
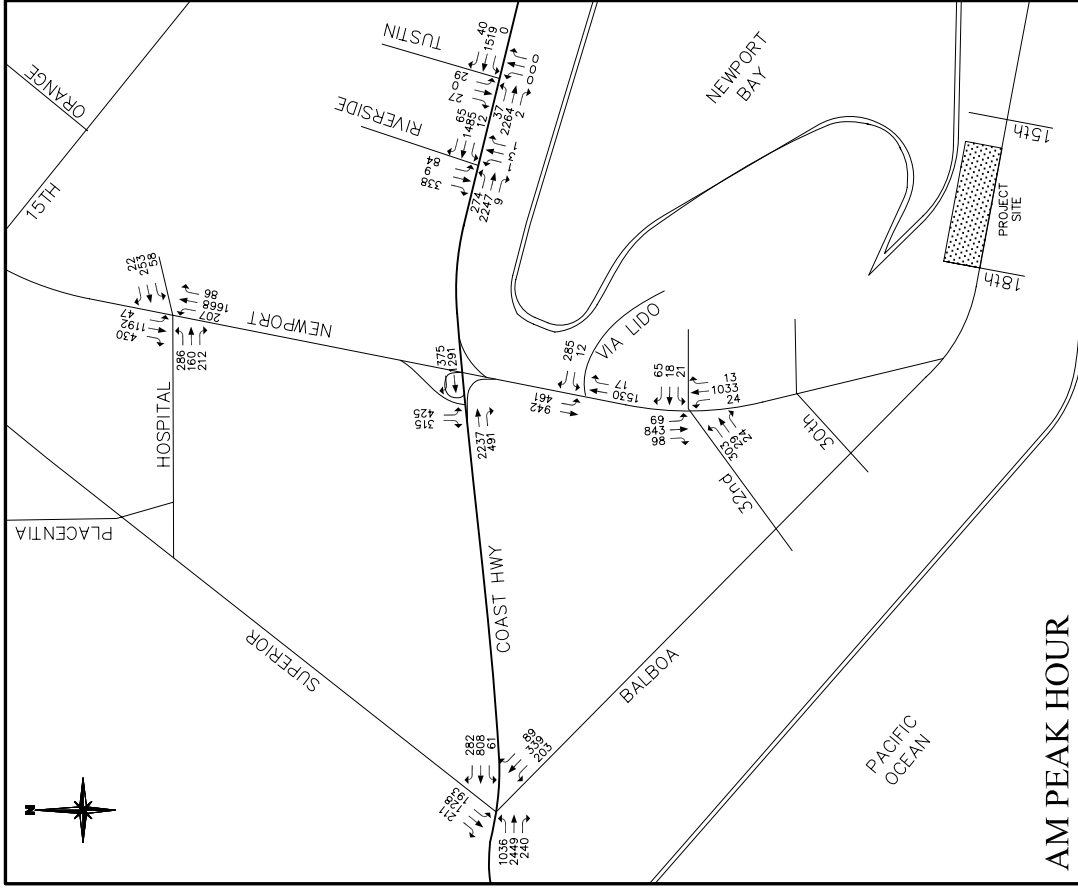


Figure A-6
 EXISTING + GROWTH + APPROVED + CUMULATIVE
 + PROJECT PEAK HOUR VOLUMES
 - NON-PEAK SEASON

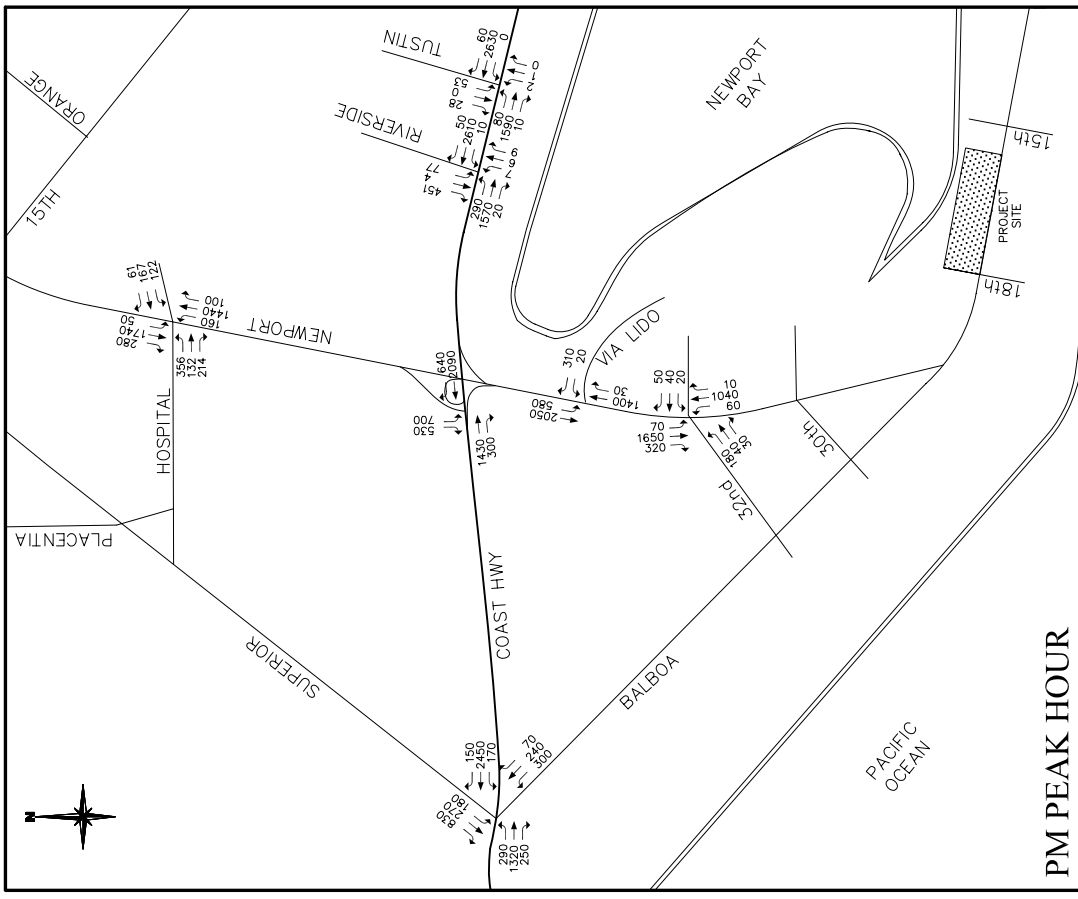
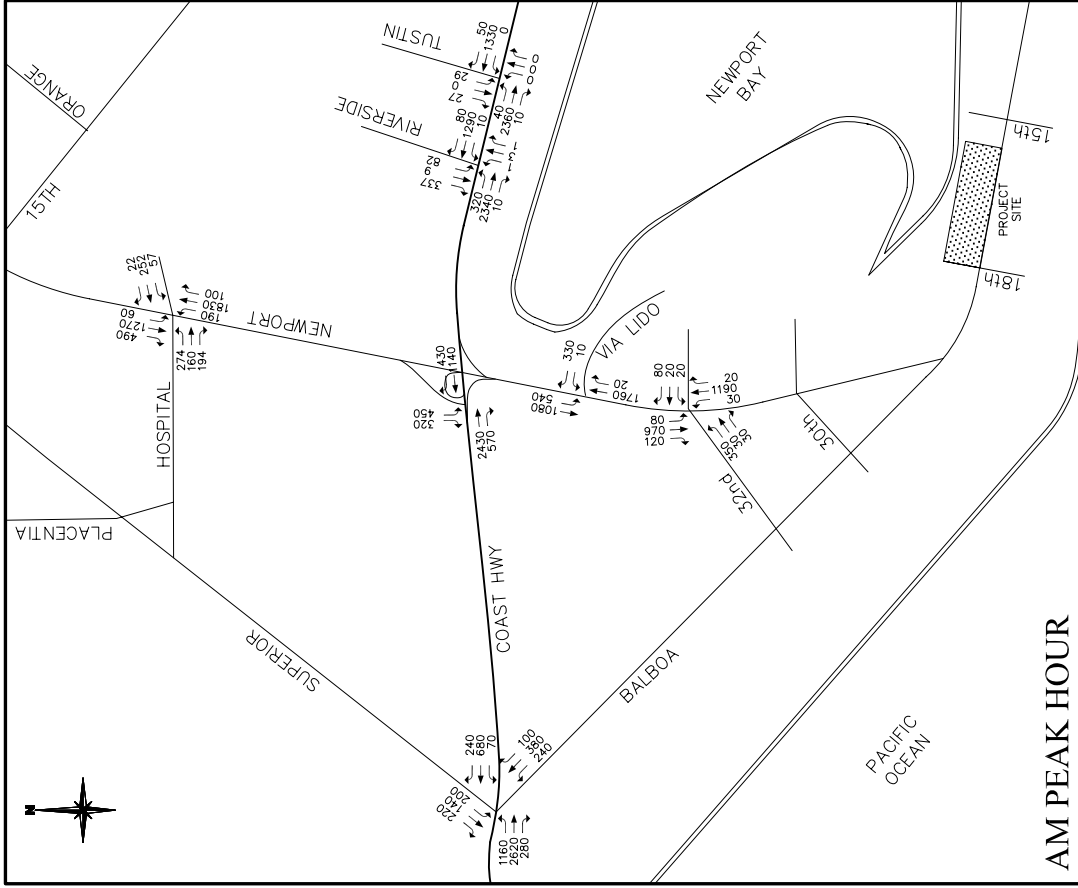


Figure A-7
EXISTING PEAK HOUR VOLUMES
- SUMMER SEASON

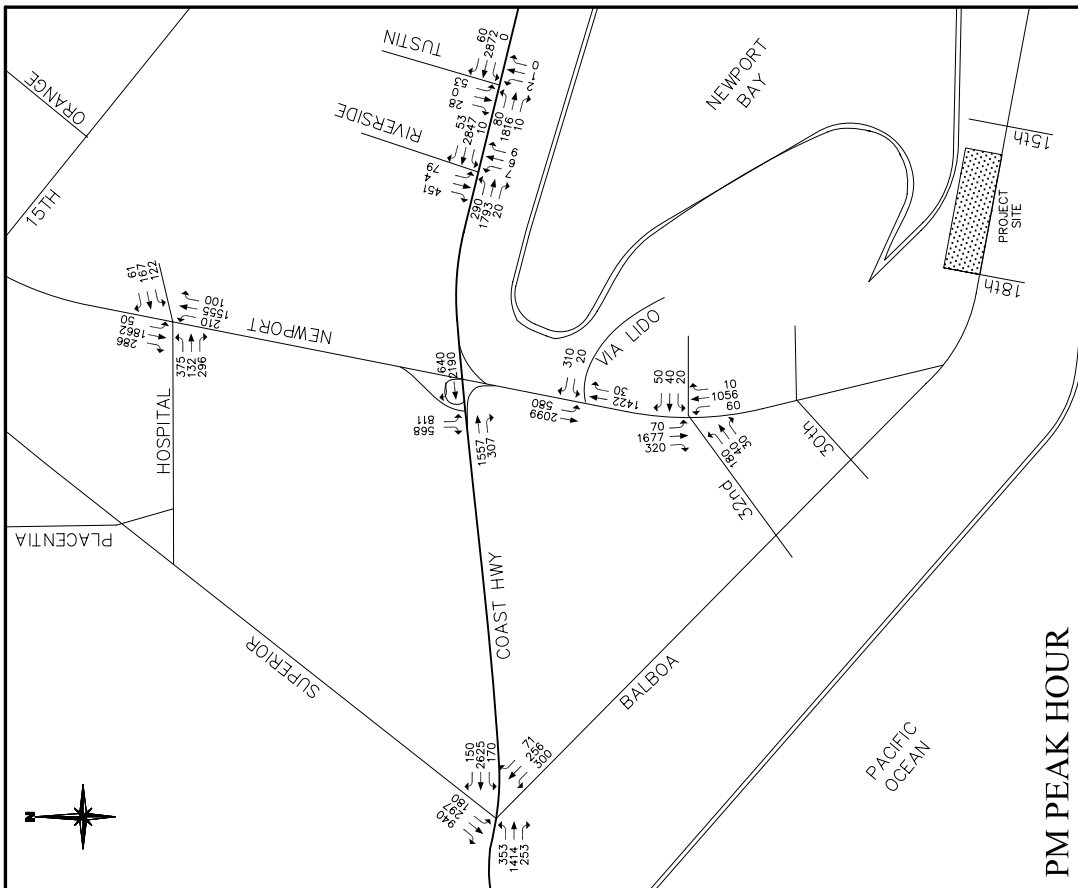
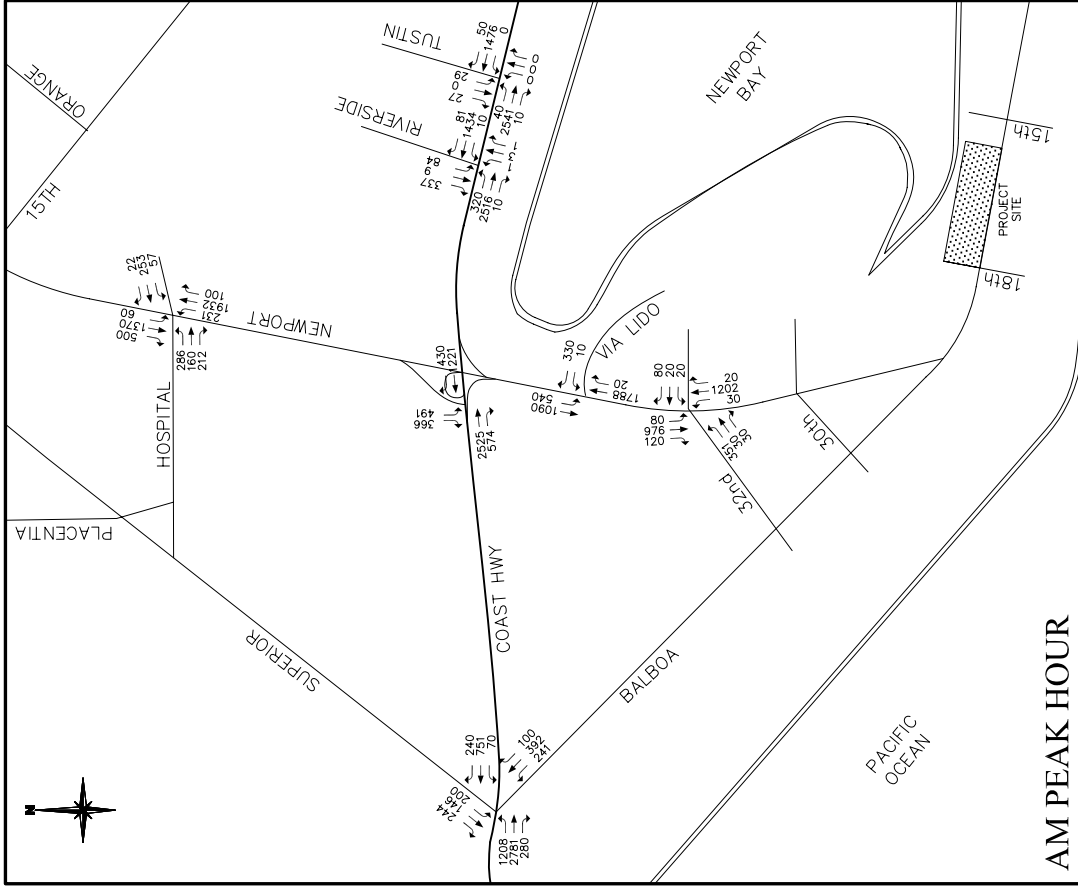


Figure A-8
 EXISTING + REGIONAL GROWTH + APPROVED
 PEAK HOUR VOLUMES
 - SUMMER SEASON

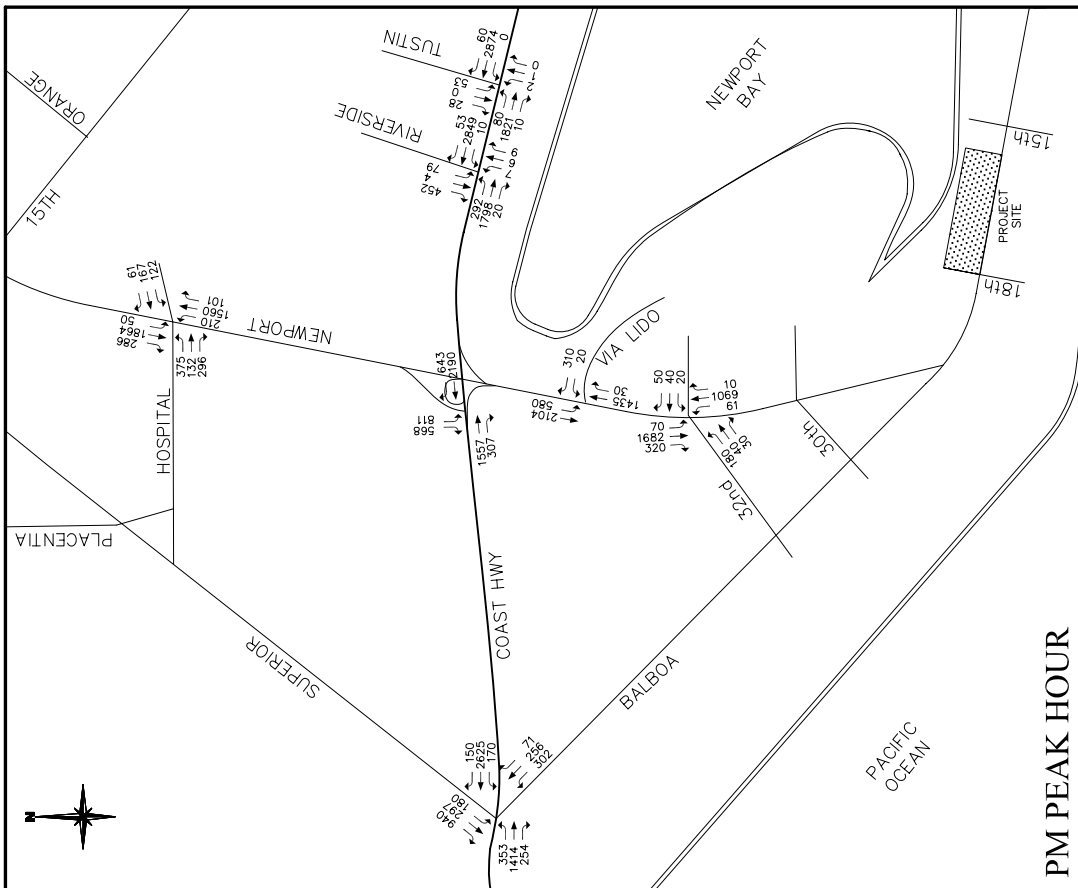
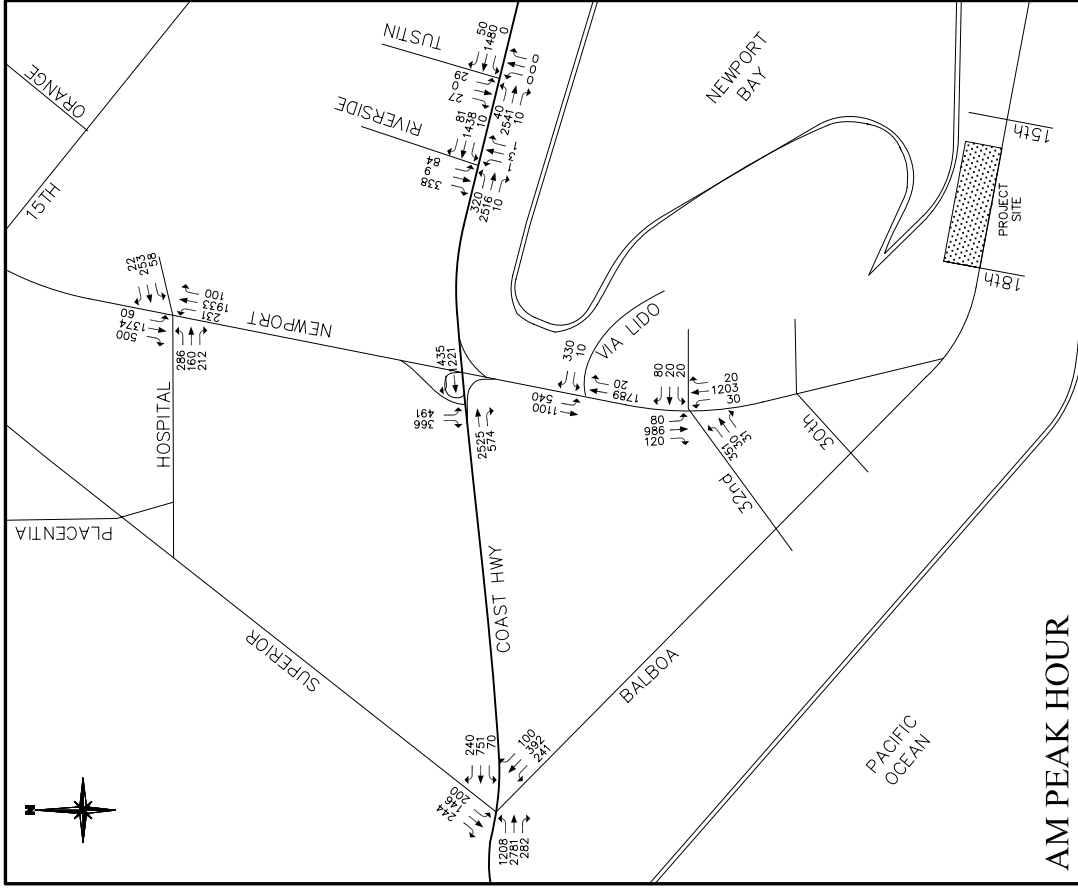


Figure A-9
 EXISTING + GROWTH + APPROVED + PROJECT
 PEAK HOUR VOLUMES
 - SUMMER SEASON

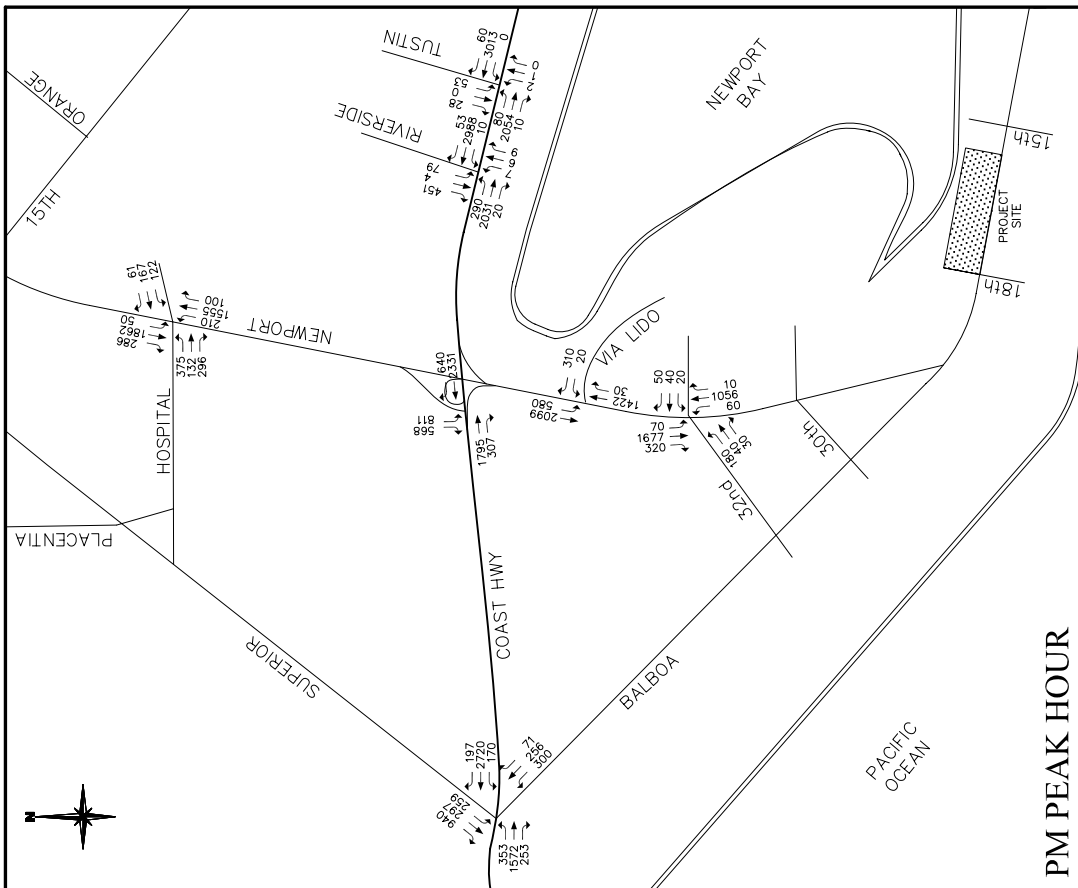
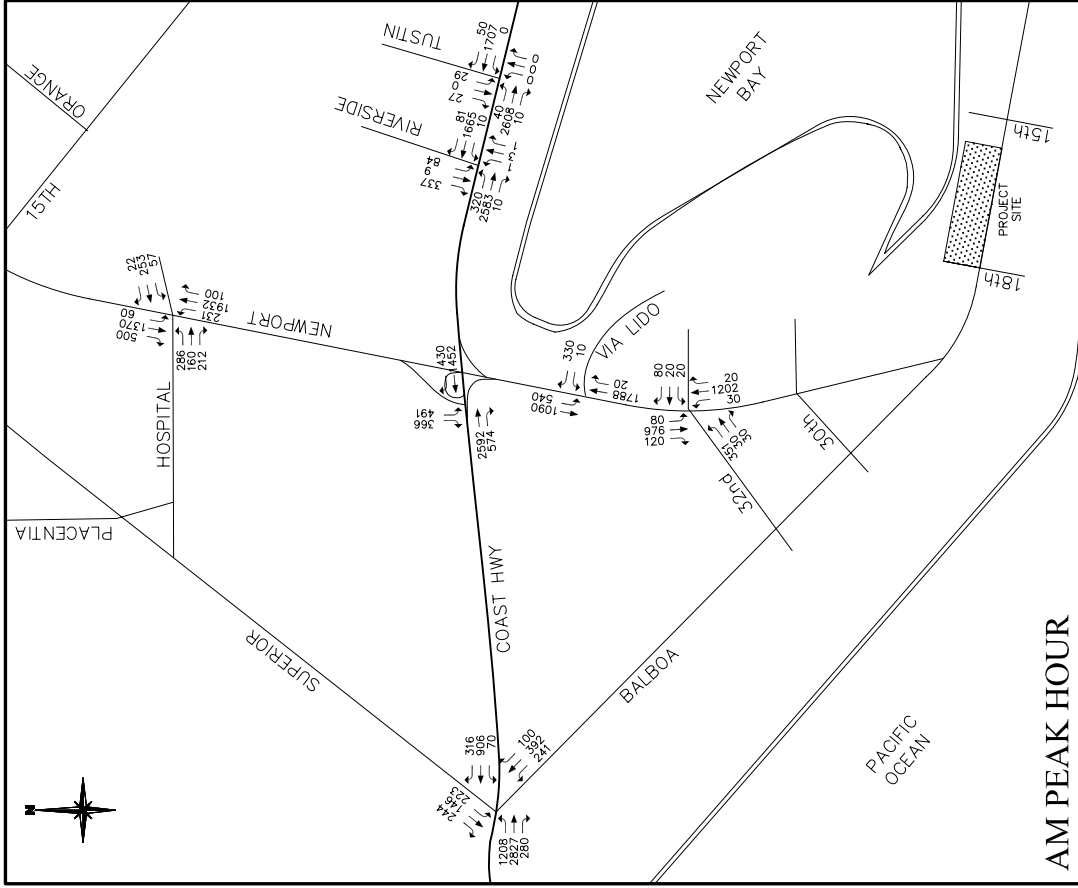


Figure A-10
 EXISTING + GROWTH + APPROVED + CUMULATIVE
 PEAK HOUR VOLUMES
 - SUMMER SEASON

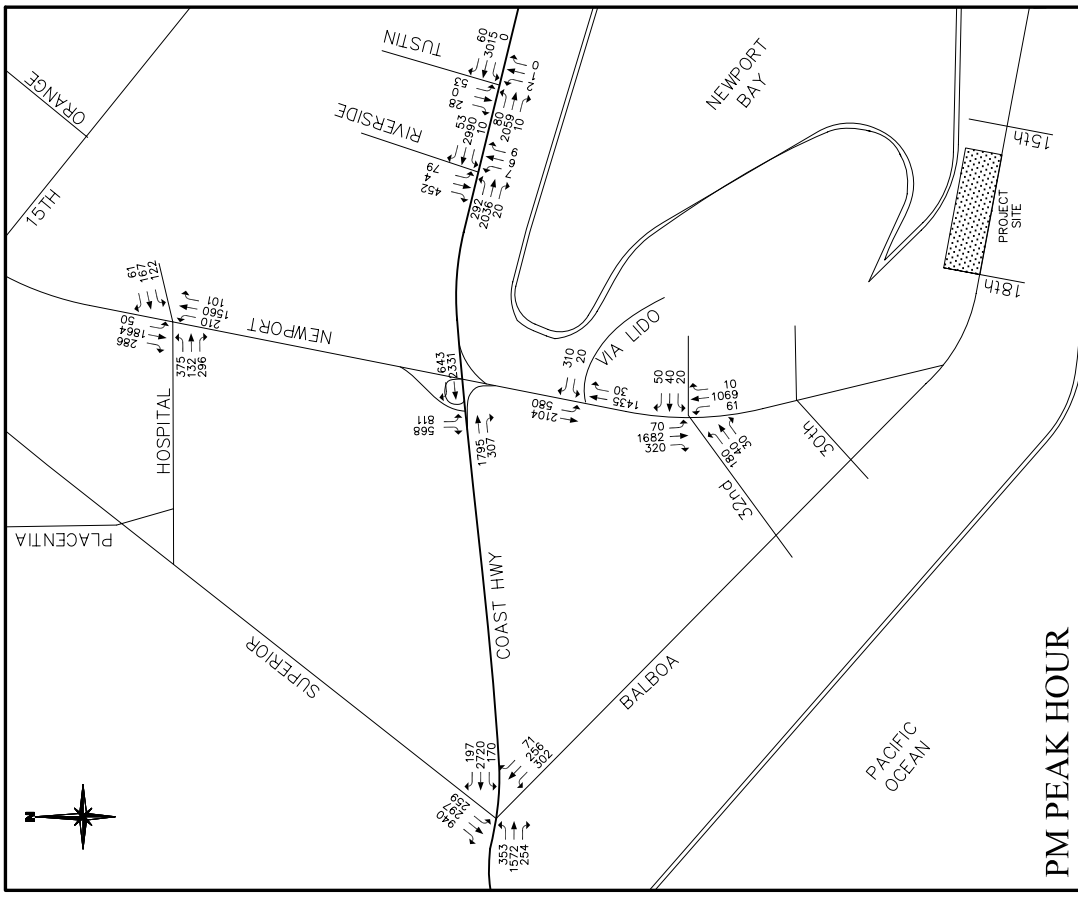
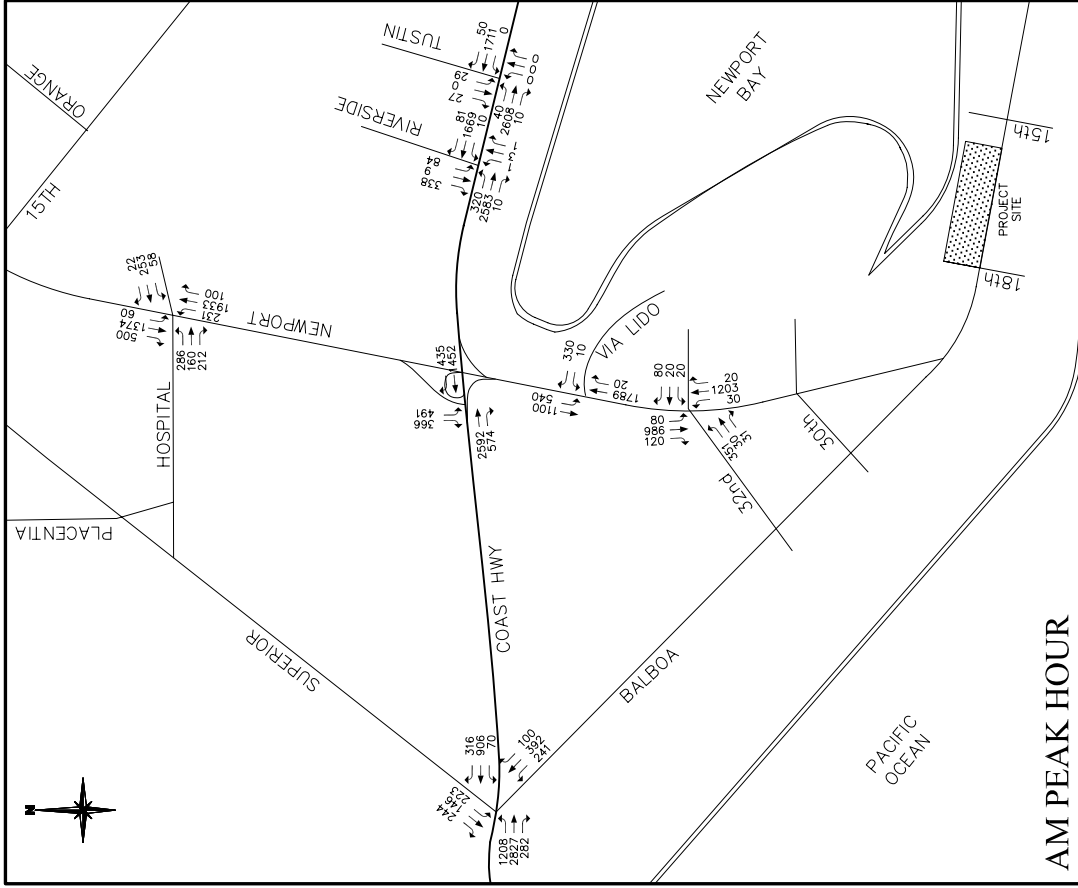


Figure A-11
 EXISTING + GROWTH + APPROVED + CUMULATIVE
 + PROJECT PEAK HOUR VOLUMES
 - SUMMER SEASON

APPENDIX B

INTERSECTION CAPACITY UTILIZATION

Peak hour intersection volume/capacity ratios are calculated by means of intersection capacity utilization (ICU) values. ICU calculations were performed for the intersections shown in Figure B-1. For simplicity, signalization is assumed at each intersection. Precise ICU calculations of existing non-signalized intersections would require a more detailed analysis.

The procedure is based on the critical movement methodology, and shows the amount of capacity utilized by each critical move. A capacity of 1600 vehicles per hour (VPH) per lane is assumed with no clearance interval. Calculations are carried out to three decimal places. A "de-facto" right-turn lane is used in the ICU calculation for cases where a curb lane is wide enough to separately serve both thru and right-turn traffic (typically with a width of 19 feet from curb to outside of thru-lane with parking prohibited during peak periods). Such lanes are treated the same as striped right-turn lanes during the ICU calculations, but they are denoted on the ICU calculation worksheets using the letter "d" in place of a numerical entry for right-turn lanes.

The methodology also incorporates a check for right-turn capacity utilization. Both right-turn-on-green (RTOG) and right-turn-on-red (RTOR) capacity availability are calculated and checked against the total right-turn capacity need. If insufficient capacity is available, then an adjustment is made to the total capacity utilization value. The following example shows how this adjustment is made.

Example For Northbound Right

1. Right-Turn-On-Green (RTOG)

If NBT is critical move, then:

$$\text{RTOG} = \text{V/C (NBT)}$$

Otherwise,

$$\text{RTOG} = \text{V/C (NBL)} + \text{V/C (SBT)} - \text{V/C (SBL)}$$

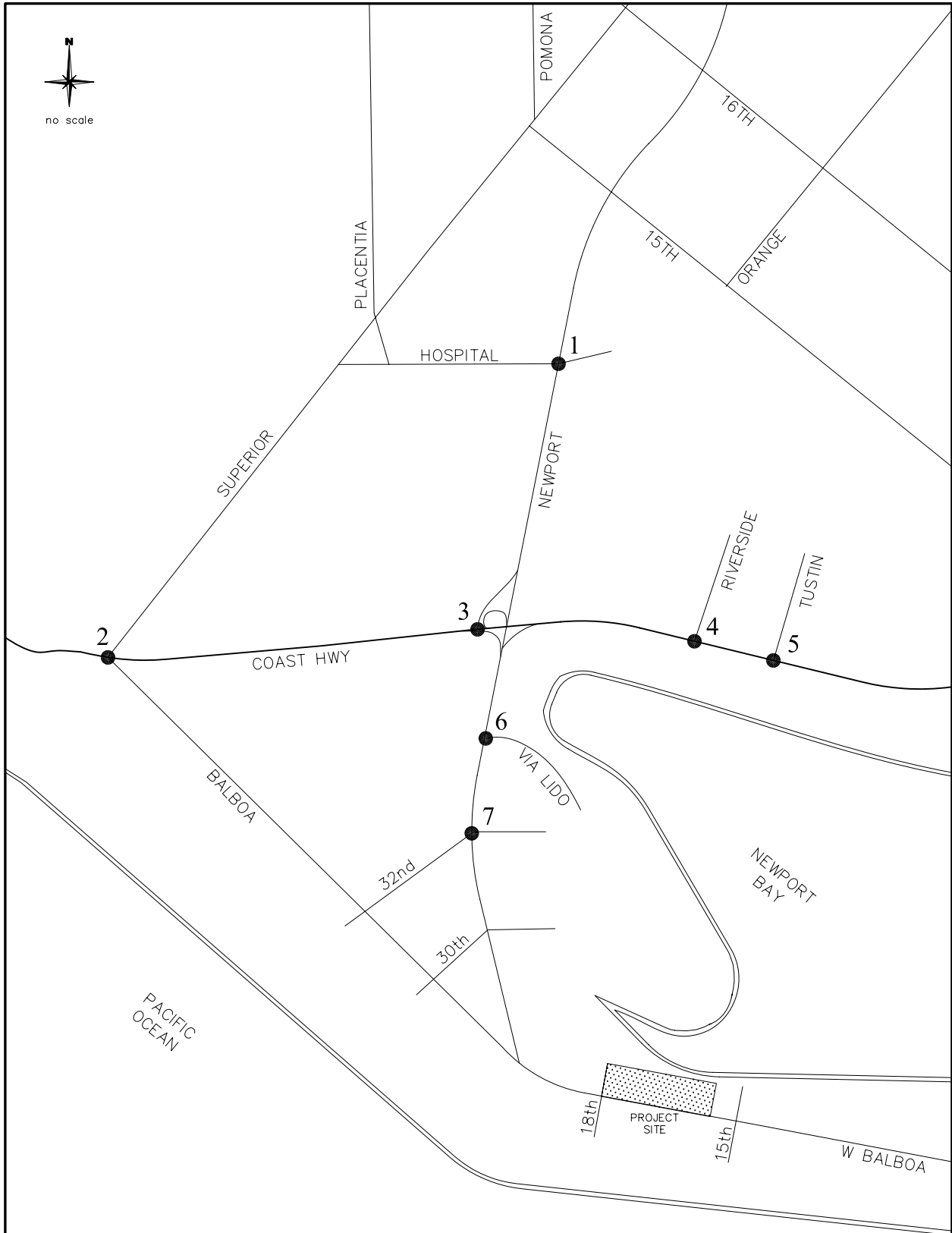
2. Right-Turn-On-Red (RTOR)

If WBL is critical move, then:

$$\text{RTOR} = \text{V/C (WBL)}$$

Otherwise,

$$\text{RTOR} = \text{V/C (EBL)} + \text{V/C (WBT)} - \text{V/C (EBT)}$$



Legend

● TPO study locations

Figure B-1

STUDY INTERSECTION LOCATIONS

3. Right-Turn Overlap Adjustment

If the northbound right is assumed to overlap with the adjacent westbound left, adjustments to the RTOG and RTOR values are made as follows:

$$\begin{aligned} \text{RTOG} &= \text{RTOG} + \text{V/C (WBL)} \\ \text{RTOR} &= \text{RTOR} - \text{V/C (WBL)} \end{aligned}$$

4. Total Right-Turn Capacity (RTC) Availability For NBR

$$\begin{aligned} \text{RTC} &= \text{RTOG} + \text{factor} \times \text{RTOR} \\ \text{Where factor} &= \text{RTOR saturation flow factor (75\%)} \end{aligned}$$

Right-turn adjustment is then as follows: Additional ICU = V/C (NBR) - RTC

A zero or negative value indicates that adequate capacity is available and no adjustment is necessary. A positive value indicates that the available RTOR and RTOG capacity does not adequately accommodate the right-turn V/C, therefore the right-turn is essentially considered to be a critical movement. In such cases, the right-turn adjustment is noted on the ICU worksheet and it is included in the total capacity utilization value. When it is determined that a right-turn adjustment is required for more than one right-turn movement, the word "multi" is printed on the worksheet instead of an actual right-turn movement reference, and the right-turn adjustments are cumulatively added to the total capacity utilization value. In such cases, further operational evaluation is typically carried out to determine if under actual operational conditions, the critical right-turns would operate simultaneously, and therefore a right-turn adjustment credit should be applied.

Shared Lane V/C Methodology

For intersection approaches where shared usage of a lane is permitted by more than one turn movement (e.g., left/thru, thru/right, left/thru/right), the individual turn volumes are evaluated to determine whether dedication of the shared lane is warranted to any one given turn movement. The following example demonstrates how this evaluation is carried out:

Example for Shared Left/Thru Lane

1. Average Lane Volume (ALV)

$$\text{ALV} = \frac{\text{Left-Turn Volume} + \text{Thru Volume}}{\text{Total Left} + \text{Thru Approach Lanes (including shared lane)}}$$

2. ALV for Each Approach

$$\text{ALV (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Lanes (including shared lane)}}$$

$$\text{ALV (Thru)} = \frac{\text{Thru Volume}}{\text{Thru Approach Lanes (including shared lane)}}$$

3. Lane Dedication is Warranted

If ALV (Left) is greater than ALV then full dedication of the shared lane to the left-turn approach is warranted. Left-turn and thru V/C ratios for this case are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (including shared lane)}}$$

$$\text{V/C (Thru)} = \frac{\text{Thru Volume}}{\text{Thru Approach Capacity (excluding shared lane)}}$$

Similarly, if ALV (Thru) is greater than ALV then full dedication to the thru approach is warranted, and left-turn and thru V/C ratios are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (excluding shared lane)}}$$

$$\text{V/C (Thru)} = \frac{\text{Thru Volume}}{\text{Thru Approach Capacity (including shared lane)}}$$

4. Lane Dedication is not Warranted

If ALV (Left) and ALV (Thru) are both less than ALV, the left/thru lane is assumed to be truly shared and each left, left/thru or thru approach lane carries an evenly distributed volume of traffic equal to ALV. A combined left/thru V/C ratio is calculated as follows:

$$\text{V/C (Left/Thru)} = \frac{\text{Left-Turn Volume} + \text{Thru Volume}}{\text{Total Left} + \text{Thru Approach Capacity (including shared lane)}}$$

This V/C (Left/Thru) ratio is assigned as the V/C (Thru) ratio for the critical movement analysis and ICU summary listing.

If split phasing has not been designated for this approach, the relative proportion of V/C (Thru) that is attributed to the left-turn volume is estimated as follows:

If approach has more than one left-turn (including shared lane), then:

$$\text{V/C (Left)} = \text{V/C (Thru)}$$

If approach has only one left-turn lane (shared lane), then:

$$V/C \text{ (Left)} = \frac{\text{Left-Turn Volume}}{\text{Single Approach Lane Capacity}}$$

If this left-turn movement is determined to be a critical movement, the V/C (Left) value is posted in brackets on the ICU summary printout.

These same steps are carried out for shared thru/right lanes. If full dedication of a shared thru/right lane to the right-turn movement is warranted, the right-turn V/C value calculated in step three is checked against the RTOR and RTOG capacity availability if the option to include right-turns in the V/C ratio calculations is selected. If the V/C value that is determined using the shared lane methodology described here is reduced due to RTOR and RTOG capacity availability, the V/C value for the thru/right lanes is posted in brackets.

When an approach contains more than one shared lane (e.g., left/thru and thru/right), steps one and two listed above are carried out for the three turn movements combined. Step four is carried out if dedication is not warranted for either of the shared lanes. If dedication of one of the shared lanes is warranted to one movement or another, step three is carried out for the two movements involved, and then steps one through four are repeated for the two movements involved in the other shared lane.

1. Newport & Hospital

| Existing | | | | | | |
|-----------------------------------|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 166 | .104* | 137 | .086* |
| NBT | 3 | 4800 | 1565 | .326 | 1273 | .265 |
| NBR | 1 | 1600 | 86 | .054 | 84 | .053 |
| SBL | 1 | 1600 | 47 | .029 | 47 | .029 |
| SBT | 3 | 4800 | 1088 | .314* | 1544 | .374* |
| SBR | 0 | 0 | 420 | | 252 | |
| EBL | 2 | 3200 | 274 | .086* | 356 | .111* |
| EBT | 1 | 1600 | 160 | .100 | 132 | .083 |
| EBR | 1 | 1600 | 194 | .121 | 214 | .134 |
| WBL | 1 | 1600 | 57 | .036 | 122 | .076 |
| WBT | 2 | 3200 | 252 | .086* | 167 | .071* |
| WBR | 0 | 0 | 22 | | 61 | |
| TOTAL CAPACITY UTILIZATION | | | .590 | | .642 | |

| Summer - Existing | | | | | | |
|-----------------------------------|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 190 | .119* | 160 | .100* |
| NBT | 3 | 4800 | 1830 | .381 | 1440 | .300 |
| NBR | 1 | 1600 | 100 | .063 | 100 | .063 |
| SBL | 1 | 1600 | 60 | .038 | 50 | .031 |
| SBT | 3 | 4800 | 1270 | .367* | 1740 | .421* |
| SBR | 0 | 0 | 490 | | 280 | |
| EBL | 2 | 3200 | 274 | .086* | 356 | .111* |
| EBT | 1 | 1600 | 160 | .100 | 132 | .083 |
| EBR | 1 | 1600 | 194 | .121 | 214 | .134 |
| WBL | 1 | 1600 | 57 | .036 | 122 | .076 |
| WBT | 2 | 3200 | 252 | .086* | 167 | .071* |
| WBR | 0 | 0 | 22 | | 61 | |
| TOTAL CAPACITY UTILIZATION | | | .658 | | .703 | |

2. Balboa/Superior & Coast Hwy

| Existing | | | | | | |
|---------------------------------|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1.5 | | 202 | | 261 | |
| NBT | 1.5 | 4800 | 327 | .129* | 209 | .111* |
| NBR | 0 | | 89 | | 65 | |
| SBL | 2.5 | | 170 | | 163 | .051 |
| SBT | 1.5 | 6400 | 122 | .046* | 237 | .074* |
| SBR | 2 | 3200 | 187 | .058 | 738 | .231 |
| EBL | 2 | 3200 | 988 | .309 | 255 | .080* |
| EBT | 3 | 4800 | 2242 | .467* | 1169 | .244 |
| EBR | 1 | 1600 | 238 | .149 | 225 | .141 |
| WBL | 1 | 1600 | 61 | .038* | 147 | .092 |
| WBT | 4 | 6400 | 582 | .121 | 2165 | .359* |
| WBR | 0 | 0 | 206 | .129 | 134 | |
| Right Turn Adjustment | | | | | SBR | .097* |
| Note: Assumes N/S Split Phasing | | | | | | |

TOTAL CAPACITY UTILIZATION .680 .721

| Summer - Existing | | | | | | |
|---------------------------------|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1.5 | | 240 | | 300 | |
| NBT | 1.5 | 4800 | 380 | .150* | 240 | .127* |
| NBR | 0 | | 100 | | 70 | |
| SBL | 2.5 | | 200 | | 180 | .056 |
| SBT | 1.5 | 6400 | 140 | .053* | 270 | .084* |
| SBR | 2 | 3200 | 220 | .069 | 830 | .259 |
| EBL | 2 | 3200 | 1160 | .363 | 290 | .091* |
| EBT | 3 | 4800 | 2620 | .546* | 1320 | .275 |
| EBR | 1 | 1600 | 280 | .175 | 250 | .156 |
| WBL | 1 | 1600 | 70 | .044* | 170 | .106 |
| WBT | 4 | 6400 | 680 | .142 | 2450 | .406* |
| WBR | 0 | 0 | 240 | .150 | 150 | |
| Right Turn Adjustment | | | | | SBR | .107* |
| Note: Assumes N/S Split Phasing | | | | | | |

TOTAL CAPACITY UTILIZATION .793 .815

3. Newport & Coast Hwy

| Existing | | | | | | |
|-----------------------------------|-------|----------|------------|-------------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 0 | 0 | 0 | | 0 | |
| NBR | 0 | 0 | 0 | | 0 | |
| SBL | 2 | 3200 | 384 | .120* | 617 | .193* |
| SBT | 0 | 0 | 0 | | 0 | |
| SBR | 1 | 1600 | 269 | .168 | 470 | .294 |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 2 | 3200 | 2075 | .648* | 1267 | .396* |
| EBR | f | | 487 | | 267 | |
| WBL | 0 | 0 | 0 | | 0 | |
| WBT | 3 | 4800 | 979 | .204 | 1848 | .385 |
| WBR | f | | 370 | | 563 | |
| Right Turn Adjustment | | | | | SBR | .093* |
| TOTAL CAPACITY UTILIZATION | | | | .768 | .682 | |

| Summer - Existing | | | | | | |
|-----------------------------------|-------|----------|------------|-------------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 0 | 0 | 0 | | 0 | |
| NBR | 0 | 0 | 0 | | 0 | |
| SBL | 2 | 3200 | 450 | .141* | 700 | .219* |
| SBT | 0 | 0 | 0 | | 0 | |
| SBR | 1 | 1600 | 320 | .200 | 530 | .331 |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 2 | 3200 | 2430 | .759* | 1430 | .447* |
| EBR | f | | 570 | | 300 | |
| WBL | 0 | 0 | 0 | | 0 | |
| WBT | 3 | 4800 | 1140 | .238 | 2090 | .435 |
| WBR | f | | 430 | | 640 | |
| Right Turn Adjustment | | | | | SBR | .103* |
| TOTAL CAPACITY UTILIZATION | | | | .900 | .769 | |

4. Riverside & Coast Hwy

| Existing | | | | | | |
|-----------------------------------|-------|----------|-------------|---------|-------------|---------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 1 | {.001}* | 7 | |
| NBT | 1 | 1600 | 3 | .003 | 6 | .014* |
| NBR | 0 | 0 | 1 | | 9 | |
| SBL | 0 | 0 | 82 | | 77 | {.048}* |
| SBT | 1 | 1600 | 9 | .057* | 4 | .051 |
| SBR | 1 | 1600 | 337 | .211 | 451 | .282 |
| EBL | 1 | 1600 | 274 | .171 | 253 | .158* |
| EBT | 2 | 3200 | 2004 | .629* | 1388 | .438 |
| EBR | 0 | 0 | 9 | | 14 | |
| WBL | 1 | 1600 | 12 | .008* | 4 | .003 |
| WBT | 3 | 4800 | 1106 | .230 | 2312 | .482* |
| WBR | 1 | 1600 | 64 | .040 | 45 | .028 |
| Right Turn Adjustment | | | | | SBR | .106* |
| TOTAL CAPACITY UTILIZATION | | | .695 | | .808 | |

| Summer - Existing | | | | | | |
|-----------------------------------|-------|----------|-------------|---------|-------------|---------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 1 | {.001}* | 7 | |
| NBT | 1 | 1600 | 3 | .003 | 6 | .014* |
| NBR | 0 | 0 | 1 | | 9 | |
| SBL | 0 | 0 | 82 | | 77 | {.048}* |
| SBT | 1 | 1600 | 9 | .057* | 4 | .051 |
| SBR | 1 | 1600 | 337 | .211 | 451 | .282 |
| EBL | 1 | 1600 | 320 | .200 | 290 | .181* |
| EBT | 2 | 3200 | 2340 | .734* | 1570 | .497 |
| EBR | 0 | 0 | 10 | | 20 | |
| WBL | 1 | 1600 | 10 | .006* | 10 | .006 |
| WBT | 3 | 4800 | 1290 | .269 | 2610 | .544* |
| WBR | 1 | 1600 | 80 | .050 | 50 | .031 |
| Right Turn Adjustment | | | | | SBR | .088* |
| TOTAL CAPACITY UTILIZATION | | | .798 | | .875 | |

5. Tustin & Coast Hwy

| Existing | | | | | | |
|-----------------------------------|-------|----------|-------------|-------|-------------|---------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 2 | {.001}* |
| NBT | 1 | 1600 | 0 | .000 | 1 | .002 |
| NBR | 0 | 0 | 0 | | 0 | |
| SBL | 0 | 0 | 29 | | 53 | |
| SBT | 1 | 1600 | 0 | .035* | 0 | .051* |
| SBR | 0 | 0 | 27 | | 28 | |
| EBL | 1 | 1600 | 37 | .023 | 68 | .043* |
| EBT | 2 | 3200 | 2016 | .631* | 1406 | .440 |
| EBR | 0 | 0 | 2 | | 2 | |
| WBL | 0 | 0 | 0 | | 0 | |
| WBT | 3 | 4800 | 1138 | .237 | 2326 | .485* |
| WBR | 1 | 1600 | 40 | .025 | 56 | .035 |
| TOTAL CAPACITY UTILIZATION | | | .666 | | .580 | |

| Summer - Existing | | | | | | |
|-----------------------------------|-------|----------|-------------|-------|-------------|---------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 2 | {.001}* |
| NBT | 1 | 1600 | 0 | .000 | 1 | .002 |
| NBR | 0 | 0 | 0 | | 0 | |
| SBL | 0 | 0 | 29 | | 53 | |
| SBT | 1 | 1600 | 0 | .035* | 0 | .051* |
| SBR | 0 | 0 | 27 | | 28 | |
| EBL | 1 | 1600 | 40 | .025 | 80 | .050* |
| EBT | 2 | 3200 | 2360 | .741* | 1590 | .500 |
| EBR | 0 | 0 | 10 | | 10 | |
| WBL | 0 | 0 | 0 | | 0 | |
| WBT | 3 | 4800 | 1330 | .277 | 2630 | .548* |
| WBR | 1 | 1600 | 50 | .031 | 60 | .038 |
| TOTAL CAPACITY UTILIZATION | | | .776 | | .650 | |

6. Newport & Via Lido

| Existing | | | | | | |
|-----------------------------------|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1501 | .313* | 1236 | .258* |
| NBR | f | | 17 | | 28 | |
| SBL | 2 | 3200 | 461 | .144* | 515 | .161* |
| SBT | 3 | 4800 | 922 | .192 | 1811 | .377 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 12 | .008* | 21 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 285 | .089 | 272 | .085 |
| TOTAL CAPACITY UTILIZATION | | | .465 | | .432 | |

| Existing + Regional Growth + Approved | | | | | | |
|---------------------------------------|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1529 | .319* | 1258 | .262* |
| NBR | f | | 17 | | 28 | |
| SBL | 2 | 3200 | 461 | .144* | 515 | .161* |
| SBT | 3 | 4800 | 932 | .194 | 1860 | .388 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 12 | .008* | 21 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 285 | .089 | 272 | .085 |
| TOTAL CAPACITY UTILIZATION | | | .471 | | .436 | |

| Existing + Growth + Approved + Project | | | | | | |
|--|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1530 | .319* | 1271 | .265* |
| NBR | f | | 17 | | 28 | |
| SBL | 2 | 3200 | 461 | .144* | 515 | .161* |
| SBT | 3 | 4800 | 942 | .196 | 1865 | .389 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 12 | .008* | 21 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 285 | .089 | 272 | .085 |
| TOTAL CAPACITY UTILIZATION | | | .471 | | .439 | |

| Existing + Growth + Approved + Cumulative | | | | | | |
|---|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1529 | .319* | 1258 | .262* |
| NBR | f | | 17 | | 28 | |
| SBL | 2 | 3200 | 461 | .144* | 515 | .161* |
| SBT | 3 | 4800 | 932 | .194 | 1860 | .388 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 12 | .008* | 21 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 285 | .089 | 272 | .085 |
| TOTAL CAPACITY UTILIZATION | | | .471 | | .436 | |

6. Newport & Via Lido

| Existing + Growth + Approved + Cumulative + Project | | | | | | |
|---|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1530 | .319* | 1271 | .265* |
| NBR | f | | 17 | | 28 | |
| SBL | 2 | 3200 | 461 | .144* | 515 | .161* |
| SBT | 3 | 4800 | 942 | .196 | 1865 | .389 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 12 | .008* | 21 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 285 | .089 | 272 | .085 |
| TOTAL CAPACITY UTILIZATION | | | .471 | | .439 | |

| Summer - Existing | | | | | | |
|-----------------------------------|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1760 | .367* | 1400 | .292* |
| NBR | f | | 20 | | 30 | |
| SBL | 2 | 3200 | 540 | .169* | 580 | .181* |
| SBT | 3 | 4800 | 1080 | .225 | 2050 | .427 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 10 | .006* | 20 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 330 | .103 | 310 | .097 |
| TOTAL CAPACITY UTILIZATION | | | .542 | | .486 | |

| Summer - Existing + Regional Growth + Approved | | | | | | |
|--|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1788 | .373* | 1422 | .296* |
| NBR | f | | 20 | | 30 | |
| SBL | 2 | 3200 | 540 | .169* | 580 | .181* |
| SBT | 3 | 4800 | 1090 | .227 | 2099 | .437 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 10 | .006* | 20 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 330 | .103 | 310 | .097 |
| TOTAL CAPACITY UTILIZATION | | | .548 | | .490 | |

| Summer - Existing + Growth + Approved + Project | | | | | | |
|---|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1789 | .373* | 1435 | .299* |
| NBR | f | | 20 | | 30 | |
| SBL | 2 | 3200 | 540 | .169* | 580 | .181* |
| SBT | 3 | 4800 | 1100 | .229 | 2104 | .438 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 10 | .006* | 20 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 330 | .103 | 310 | .097 |
| TOTAL CAPACITY UTILIZATION | | | .548 | | .493 | |

6. Newport & Via Lido

| Summer - Existing + Growth + Approved + Cumulative | | | | | | |
|--|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1788 | .373* | 1422 | .296* |
| NBR | f | | 20 | | 30 | |
| SBL | 2 | 3200 | 540 | .169* | 580 | .181* |
| SBT | 3 | 4800 | 1090 | .227 | 2099 | .437 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 10 | .006* | 20 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 330 | .103 | 310 | .097 |
| TOTAL CAPACITY UTILIZATION | | | .548 | | .490 | |

| Summer - Existing + Growth + Approved + Cumulative + Project | | | | | | |
|--|-------|----------|-------------|-------|-------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 0 | 0 | 0 | | 0 | |
| NBT | 3 | 4800 | 1789 | .373* | 1435 | .299* |
| NBR | f | | 20 | | 30 | |
| SBL | 2 | 3200 | 540 | .169* | 580 | .181* |
| SBT | 3 | 4800 | 1100 | .229 | 2104 | .438 |
| SBR | 0 | 0 | 0 | | 0 | |
| EBL | 0 | 0 | 0 | | 0 | |
| EBT | 0 | 0 | 0 | | 0 | |
| EBR | 0 | 0 | 0 | | 0 | |
| WBL | 1 | 1600 | 10 | .006* | 20 | .013* |
| WBT | 0 | 0 | 0 | | 0 | |
| WBR | 2 | 3200 | 330 | .103 | 310 | .097 |
| TOTAL CAPACITY UTILIZATION | | | .548 | | .493 | |

7. Newport & 32nd

| Existing | | | | | | |
|----------|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 24 | .015 | 51 | .032* |
| NBT | 2 | 3200 | 1020 | .323* | 925 | .292 |
| NBR | 0 | 0 | 13 | | 8 | |
| SBL | 1 | 1600 | 69 | .043* | 62 | .039 |
| SBT | 2 | 3200 | 827 | .289 | 1464 | .547* |
| SBR | 0 | 0 | 98 | | 287 | |
| EBL | 1.5 | | 302 | | 161 | |
| EBT | 0.5 | 3200 | 29 | .103* | 32 | .060* |
| EBR | f | | 23 | | 27 | |
| WBL | 0 | 0 | 21 | | 21 | |
| WBT | 2 | 3200 | 18 | .012* | 33 | .017* |
| WBR | f | | 65 | | 46 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .481 .656

| Existing + Regional Growth + Approved | | | | | | |
|---------------------------------------|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 24 | .015 | 51 | .032* |
| NBT | 2 | 3200 | 1032 | .327* | 941 | .297 |
| NBR | 0 | 0 | 13 | | 8 | |
| SBL | 1 | 1600 | 69 | .043* | 62 | .039 |
| SBT | 2 | 3200 | 833 | .291 | 1491 | .556* |
| SBR | 0 | 0 | 98 | | 287 | |
| EBL | 1.5 | | 303 | | 161 | |
| EBT | 0.5 | 3200 | 29 | .104* | 32 | .060* |
| EBR | f | | 23 | | 27 | |
| WBL | 0 | 0 | 21 | | 21 | |
| WBT | 2 | 3200 | 18 | .012* | 33 | .017* |
| WBR | f | | 65 | | 46 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .486 .665

| Existing + Growth + Approved + Project | | | | | | |
|--|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 24 | .015 | 52 | .033* |
| NBT | 2 | 3200 | 1033 | .327* | 954 | .301 |
| NBR | 0 | 0 | 13 | | 8 | |
| SBL | 1 | 1600 | 69 | .043* | 62 | .039 |
| SBT | 2 | 3200 | 843 | .294 | 1496 | .557* |
| SBR | 0 | 0 | 98 | | 287 | |
| EBL | 1.5 | | 303 | | 161 | |
| EBT | 0.5 | 3200 | 29 | .104* | 32 | .060* |
| EBR | f | | 24 | | 27 | |
| WBL | 0 | 0 | 21 | | 21 | |
| WBT | 2 | 3200 | 18 | .012* | 33 | .017* |
| WBR | f | | 65 | | 46 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .486 .667

| Existing + Growth + Approved + Cumulative | | | | | | |
|---|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 24 | .015 | 51 | .032* |
| NBT | 2 | 3200 | 1032 | .327* | 941 | .297 |
| NBR | 0 | 0 | 13 | | 8 | |
| SBL | 1 | 1600 | 69 | .043* | 62 | .039 |
| SBT | 2 | 3200 | 833 | .291 | 1491 | .556* |
| SBR | 0 | 0 | 98 | | 287 | |
| EBL | 1.5 | | 303 | | 161 | |
| EBT | 0.5 | 3200 | 29 | .104* | 32 | .060* |
| EBR | f | | 23 | | 27 | |
| WBL | 0 | 0 | 21 | | 21 | |
| WBT | 2 | 3200 | 18 | .012* | 33 | .017* |
| WBR | f | | 65 | | 46 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .486 .665

7. Newport & 32nd

| Existing + Growth + Approved + Cumulative + Project | | | | | | |
|---|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 24 | .015 | 52 | .033* |
| NBT | 2 | 3200 | 1033 | .327* | 954 | .301 |
| NBR | 0 | 0 | 13 | | 8 | |
| SBL | 1 | 1600 | 69 | .043* | 62 | .039 |
| SBT | 2 | 3200 | 843 | .294 | 1496 | .557* |
| SBR | 0 | 0 | 98 | | 287 | |
| EBL | 1.5 | | 303 | | 161 | |
| EBT | 0.5 | 3200 | 29 | .104* | 32 | .060* |
| EBR | f | | 24 | | 27 | |
| WBL | 0 | 0 | 21 | | 21 | |
| WBT | 2 | 3200 | 18 | .012* | 33 | .017* |
| WBR | f | | 65 | | 46 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .486 .667

| Summer - Existing | | | | | | |
|-------------------|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 30 | .019 | 60 | .038* |
| NBT | 2 | 3200 | 1190 | .378* | 1040 | .328 |
| NBR | 0 | 0 | 20 | | 10 | |
| SBL | 1 | 1600 | 80 | .050* | 70 | .044 |
| SBT | 2 | 3200 | 970 | .341 | 1650 | .616* |
| SBR | 0 | 0 | 120 | | 320 | |
| EBL | 1.5 | | 350 | | 180 | |
| EBT | 0.5 | 3200 | 30 | .119* | 40 | .069* |
| EBR | f | | 30 | | 30 | |
| WBL | 0 | 0 | 20 | | 20 | |
| WBT | 2 | 3200 | 20 | .013* | 40 | .019* |
| WBR | f | | 80 | | 50 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .560 .742

| Summer - Existing + Regional Growth + Approved | | | | | | |
|--|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 30 | .019 | 60 | .038* |
| NBT | 2 | 3200 | 1202 | .382* | 1056 | .333 |
| NBR | 0 | 0 | 20 | | 10 | |
| SBL | 1 | 1600 | 80 | .050* | 70 | .044 |
| SBT | 2 | 3200 | 976 | .343 | 1677 | .624* |
| SBR | 0 | 0 | 120 | | 320 | |
| EBL | 1.5 | | 351 | | 180 | |
| EBT | 0.5 | 3200 | 30 | .119* | 40 | .069* |
| EBR | f | | 30 | | 30 | |
| WBL | 0 | 0 | 20 | | 20 | |
| WBT | 2 | 3200 | 20 | .013* | 40 | .019* |
| WBR | f | | 80 | | 50 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .564 .750

| Summer - Existing + Growth + Approved + Project | | | | | | |
|---|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 30 | .019 | 61 | .038* |
| NBT | 2 | 3200 | 1203 | .382* | 1069 | .337 |
| NBR | 0 | 0 | 20 | | 10 | |
| SBL | 1 | 1600 | 80 | .050* | 70 | .044 |
| SBT | 2 | 3200 | 986 | .346 | 1682 | .626* |
| SBR | 0 | 0 | 120 | | 320 | |
| EBL | 1.5 | | 351 | | 180 | |
| EBT | 0.5 | 3200 | 30 | .119* | 40 | .069* |
| EBR | f | | 31 | | 30 | |
| WBL | 0 | 0 | 20 | | 20 | |
| WBT | 2 | 3200 | 20 | .013* | 40 | .019* |
| WBR | f | | 80 | | 50 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .564 .752

7. Newport & 32nd

| Summer - Existing + Growth + Approved + Cumulative | | | | | | |
|--|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 30 | .019 | 60 | .038* |
| NBT | 2 | 3200 | 1202 | .382* | 1056 | .333 |
| NBR | 0 | 0 | 20 | | 10 | |
| SBL | 1 | 1600 | 80 | .050* | 70 | .044 |
| SBT | 2 | 3200 | 976 | .343 | 1677 | .624* |
| SBR | 0 | 0 | 120 | | 320 | |
| EBL | 1.5 | | 351 | | 180 | |
| EBT | 0.5 | 3200 | 30 | .119* | 40 | .069* |
| EBR | f | | 30 | | 30 | |
| WBL | 0 | 0 | 20 | | 20 | |
| WBT | 2 | 3200 | 20 | .013* | 40 | .019* |
| WBR | f | | 80 | | 50 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .564 .750

| Summer - Existing + Growth + Approved + Cumulative + Project | | | | | | |
|--|-------|----------|------------|-------|------------|-------|
| | LANES | CAPACITY | AM PK HOUR | | PM PK HOUR | |
| | | | VOL | V/C | VOL | V/C |
| NBL | 1 | 1600 | 30 | .019 | 61 | .038* |
| NBT | 2 | 3200 | 1203 | .382* | 1069 | .337 |
| NBR | 0 | 0 | 20 | | 10 | |
| SBL | 1 | 1600 | 80 | .050* | 70 | .044 |
| SBT | 2 | 3200 | 986 | .346 | 1682 | .626* |
| SBR | 0 | 0 | 120 | | 320 | |
| EBL | 1.5 | | 351 | | 180 | |
| EBT | 0.5 | 3200 | 30 | .119* | 40 | .069* |
| EBR | f | | 31 | | 30 | |
| WBL | 0 | 0 | 20 | | 20 | |
| WBT | 2 | 3200 | 20 | .013* | 40 | .019* |
| WBR | f | | 80 | | 50 | |

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .564 .752

APPENDIX C
1% ANALYSIS WORKSHEETS

1% Traffic Volume Analysis

Intersection: 1. Newport Blvd & Hospital Rd
 Existing Traffic Volumes Based on Average Winter/Spring 2008

| Approach Direction | Existing Peak 1 Hour Volume | Peak 1 Hour Regional Growth Volume | Approved Projects Peak 1 Hour Volume | Cumulative Projects Peak 1 Hour Volume | Projected Peak 1 Hour Volume | 1% of Projected Peak 1 Hour Volume | Project Peak 1 Hour Volume |
|------------------------------|-----------------------------|------------------------------------|--------------------------------------|--|------------------------------|------------------------------------|----------------------------|
| <u>AM PEAK PERIOD</u> | | | | | | | |
| Northbound | 1817 | 55 | 96 | 0 | 1968 | 20 | 1 |
| Southbound | 1555 | 47 | 78 | 0 | 1680 | 17 | 4 |
| Eastbound | 628 | 0 | 30 | 0 | 658 | 7 | 0 |
| Westbound | 331 | 0 | 1 | 0 | 332 | 3 | 1 |

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

| | | | | | | | |
|------------------------------|------|----|-----|---|------|----|---|
| <u>PM PEAK PERIOD</u> | | | | | | | |
| Northbound | 1494 | 45 | 127 | 0 | 1666 | 17 | 6 |
| Southbound | 1843 | 55 | 82 | 0 | 1980 | 20 | 2 |
| Eastbound | 702 | 0 | 102 | 0 | 804 | 8 | 0 |
| Westbound | 350 | 0 | 0 | 0 | 350 | 4 | 0 |

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 2. Balboa Blvd/Superior Ave & Coast Hwy
 Existing Traffic Volumes Based on Average Winter/Spring 2006

| Approach Direction | Existing Peak 1 Hour Volume | Peak 1 Hour Regional Growth Volume | Approved Projects Peak 1 Hour Volume | Cumulative Projects Peak 1 Hour Volume | Projected Peak 1 Hour Volume | 1% of Projected Peak 1 Hour Volume | Project Peak 1 Hour Volume |
|------------------------------|-----------------------------|------------------------------------|--------------------------------------|--|------------------------------|------------------------------------|----------------------------|
| <u>AM PEAK PERIOD</u> | | | | | | | |
| Northbound | 618 | 0 | 13 | 0 | 631 | 6 | 0 |
| Southbound | 479 | 0 | 30 | 0 | 509 | 5 | 0 |
| Eastbound | 3468 | 173 | 97 | 0 | 3738 | 37 | 2 |
| Westbound | 849 | 42 | 42 | 0 | 933 | 9 | 0 |

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

| | | | | | | | |
|------------------------------|------|-----|-----|---|------|----|---|
| <u>PM PEAK PERIOD</u> | | | | | | | |
| Northbound | 535 | 0 | 17 | 0 | 552 | 6 | 2 |
| Southbound | 1138 | 0 | 137 | 0 | 1275 | 13 | 0 |
| Eastbound | 1649 | 82 | 102 | 0 | 1833 | 18 | 1 |
| Westbound | 2446 | 122 | 67 | 0 | 2635 | 26 | 0 |

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 3. Newport Blvd & Coast Hwy
 Existing Traffic Volumes Based on Average Winter/Spring 2007

| Approach Direction | Existing Peak 1 Hour Volume | Peak 1 Hour Regional Growth Volume | Approved Projects Peak 1 Hour Volume | Cumulative Projects Peak 1 Hour Volume | Projected Peak 1 Hour Volume | 1% of Projected Peak 1 Hour Volume | Project Peak 1 Hour Volume |
|------------------------------|-----------------------------|------------------------------------|--------------------------------------|--|------------------------------|------------------------------------|----------------------------|
| <u>AM PEAK PERIOD</u> | | | | | | | |
| Northbound | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Southbound | 653 | 26 | 61 | 0 | 740 | 7 | 0 |
| Eastbound | 2562 | 102 | 16 | 0 | 2680 | 27 | 0 |
| Westbound | 1098 | 44 | 42 | 0 | 1184 | 12 | 5 |

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

| | | | | | | | |
|------------------------------|------|----|-----|---|------|----|---|
| <u>PM PEAK PERIOD</u> | | | | | | | |
| Northbound | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Southbound | 1087 | 43 | 105 | 0 | 1235 | 12 | 0 |
| Eastbound | 1534 | 61 | 83 | 0 | 1678 | 17 | 0 |
| Westbound | 2411 | 96 | 26 | 0 | 2533 | 25 | 3 |

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 4. Riverside Ave & Coast Hwy
 Existing Traffic Volumes Based on Average Winter/Spring 2008

| Approach Direction | Existing Peak 1 Hour Volume | Peak 1 Hour Regional Growth Volume | Approved Projects Peak 1 Hour Volume | Cumulative Projects Peak 1 Hour Volume | Projected Peak 1 Hour Volume | 1% of Projected Peak 1 Hour Volume | Project Peak 1 Hour Volume |
|------------------------------|-----------------------------|------------------------------------|--------------------------------------|--|------------------------------|------------------------------------|----------------------------|
| <u>AM PEAK PERIOD</u> | | | | | | | |
| Northbound | 5 | 0 | 0 | 0 | 5 | 0 | 0 |
| Southbound | 428 | 0 | 2 | 0 | 430 | 4 | 1 |
| Eastbound | 2287 | 69 | 116 | 0 | 2472 | 25 | 0 |
| Westbound | 1182 | 35 | 112 | 0 | 1329 | 13 | 4 |

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

| | | | | | | | |
|------------------------------|------|----|-----|---|------|----|---|
| <u>PM PEAK PERIOD</u> | | | | | | | |
| Northbound | 22 | 0 | 0 | 0 | 22 | 0 | 0 |
| Southbound | 532 | 0 | 2 | 0 | 534 | 5 | 1 |
| Eastbound | 1655 | 50 | 181 | 0 | 1886 | 19 | 7 |
| Westbound | 2361 | 71 | 171 | 0 | 2603 | 26 | 2 |

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 5. Tustin Ave & Coast Hwy
 Existing Traffic Volumes Based on Average Winter/Spring 2008

| Approach Direction | Existing Peak 1 Hour Volume | Peak 1 Hour Regional Growth Volume | Approved Projects Peak 1 Hour Volume | Cumulative Projects Peak 1 Hour Volume | Projected Peak 1 Hour Volume | 1% of Projected Peak 1 Hour Volume | Project Peak 1 Hour Volume |
|------------------------------|-----------------------------|------------------------------------|--------------------------------------|--|------------------------------|------------------------------------|----------------------------|
| <u>AM PEAK PERIOD</u> | | | | | | | |
| Northbound | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Southbound | 56 | 0 | 0 | 0 | 56 | 1 | 0 |
| Eastbound | 2055 | 62 | 121 | 0 | 2238 | 22 | 0 |
| Westbound | 1178 | 35 | 112 | 0 | 1325 | 13 | 4 |

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

| | | | | | | | |
|------------------------------|------|----|-----|---|------|----|---|
| <u>PM PEAK PERIOD</u> | | | | | | | |
| Northbound | 3 | 0 | 0 | 0 | 3 | 0 | 0 |
| Southbound | 81 | 0 | 0 | 0 | 81 | 1 | 0 |
| Eastbound | 1476 | 44 | 184 | 0 | 1704 | 17 | 5 |
| Westbound | 2382 | 71 | 172 | 0 | 2625 | 26 | 2 |

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 6. Newport Blvd & Via Lido
 Existing Traffic Volumes Based on Average Winter/Spring 2007

| Approach Direction | Existing Peak 1 Hour Volume | Peak 1 Hour Regional Growth Volume | Approved Projects Peak 1 Hour Volume | Cumulative Projects Peak 1 Hour Volume | Projected Peak 1 Hour Volume | 1% of Projected Peak 1 Hour Volume | Project Peak 1 Hour Volume |
|------------------------------|-----------------------------|------------------------------------|--------------------------------------|--|------------------------------|------------------------------------|----------------------------|
| <u>AM PEAK PERIOD</u> | | | | | | | |
| Northbound | 1518 | 0 | 28 | 0 | 1546 | 15 | 1 |
| Southbound | 1383 | 0 | 10 | 0 | 1393 | 14 | 10 |
| Eastbound | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Westbound | 297 | 0 | 0 | 0 | 297 | 3 | 0 |

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

| | | | | | | | |
|------------------------------|------|---|----|---|------|----|----|
| <u>PM PEAK PERIOD</u> | | | | | | | |
| Northbound | 1264 | 0 | 22 | 0 | 1286 | 13 | 13 |
| Southbound | 2326 | 0 | 49 | 0 | 2375 | 24 | 5 |
| Eastbound | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Westbound | 293 | 0 | 0 | 0 | 293 | 3 | 0 |

Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

==> Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
 Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 7. Newport Blvd & 32nd St
 Existing Traffic Volumes Based on Average Winter/Spring 2007

| Approach Direction | Existing Peak 1 Hour Volume | Peak 1 Hour Regional Growth Volume | Approved Projects Peak 1 Hour Volume | Cumulative Projects Peak 1 Hour Volume | Projected Peak 1 Hour Volume | 1% of Projected Peak 1 Hour Volume | Project Peak 1 Hour Volume |
|------------------------------|-----------------------------|------------------------------------|--------------------------------------|--|------------------------------|------------------------------------|----------------------------|
| <u>AM PEAK PERIOD</u> | | | | | | | |
| Northbound | 1057 | 0 | 12 | 0 | 1069 | 11 | 1 |
| Southbound | 994 | 0 | 6 | 0 | 1000 | 10 | 10 |
| Eastbound | 354 | 0 | 1 | 0 | 355 | 4 | 1 |
| Westbound | 104 | 0 | 0 | 0 | 104 | 1 | 0 |

Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

==> Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume. Intersection Capacity Utilization (ICU) Analysis is required.

| | | | | | | | |
|------------------------------|------|---|----|---|------|----|----|
| <u>PM PEAK PERIOD</u> | | | | | | | |
| Northbound | 984 | 0 | 16 | 0 | 1000 | 10 | 14 |
| Southbound | 1813 | 0 | 27 | 0 | 1840 | 18 | 5 |
| Eastbound | 220 | 0 | 0 | 0 | 220 | 2 | 0 |
| Westbound | 100 | 0 | 0 | 0 | 100 | 1 | 0 |

Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

==> Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume. Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

APPENDIX D
COUNT DATA

LOCATION - NEWPORT-BTN 32ND/31ST

VOLUMES FOR - TUESDAY 6/24/08

***** AM ***** PM *****

| TIME | NB | SB | TOTAL | TIME | NB | SB | TOTAL |
|---------------|---------|----------|----------|---------------|----------|----------|----------|
| 12:00 - 12:15 | 35 | 48 | 83 | 12:00 - 12:15 | 220 | 329 | 549 |
| 12:15 - 12:30 | 47 | 35 | 82 | 12:15 - 12:30 | 291 | 350 | 641 |
| 12:30 - 12:45 | 60 | 30 | 90 | 12:30 - 12:45 | 264 | 378 | 642 |
| 12:45 - 1:00 | 44 186 | 32 145 | 76 331 | 12:45 - 1:00 | 254 1029 | 354 1411 | 608 2440 |
| 1:00 - 1:15 | 40 | 26 | 66 | 1:00 - 1:15 | 296 | 322 | 618 |
| 1:15 - 1:30 | 34 | 20 | 54 | 1:15 - 1:30 | 282 | 290 | 572 |
| 1:30 - 1:45 | 37 | 22 | 59 | 1:30 - 1:45 | 260 | 294 | 554 |
| 1:45 - 2:00 | 23 134 | 16 84 | 39 218 | 1:45 - 2:00 | 288 1126 | 294 1200 | 582 2326 |
| 2:00 - 2:15 | 13 | 14 | 27 | 2:00 - 2:15 | 271 | 286 | 557 |
| 2:15 - 2:30 | 11 | 14 | 25 | 2:15 - 2:30 | 253 | 280 | 533 |
| 2:30 - 2:45 | 4 | 6 | 10 | 2:30 - 2:45 | 268 | 316 | 584 |
| 2:45 - 3:00 | 6 34 | 9 43 | 15 77 | 2:45 - 3:00 | 304 1096 | 282 1164 | 586 2260 |
| 3:00 - 3:15 | 8 | 8 | 16 | 3:00 - 3:15 | 304 | 242 | 546 |
| 3:15 - 3:30 | 6 | 4 | 10 | 3:15 - 3:30 | 290 | 261 | 551 |
| 3:30 - 3:45 | 12 | 4 | 16 | 3:30 - 3:45 | 307 | 283 | 590 |
| 3:45 - 4:00 | 9 35 | 10 26 | 19 61 | 3:45 - 4:00 | 284 1185 | 296 1082 | 580 2267 |
| 4:00 - 4:15 | 13 | 5 | 18 | 4:00 - 4:15 | 326 | 312 | 638 |
| 4:15 - 4:30 | 11 | 8 | 19 | 4:15 - 4:30 | 320 | 312 | 632 |
| 4:30 - 4:45 | 7 | 4 | 11 | 4:30 - 4:45 | 288 | 274 | 562 |
| 4:45 - 5:00 | 17 48 | 28 45 | 45 93 | 4:45 - 5:00 | 262 1196 | 296 1194 | 558 2390 |
| 5:00 - 5:15 | 23 | 31 | 54 | 5:00 - 5:15 | 288 | 343 | 631 |
| 5:15 - 5:30 | 22 | 45 | 67 | 5:15 - 5:30 | 238 | 304 | 542 |
| 5:30 - 5:45 | 45 | 64 | 109 | 5:30 - 5:45 | 286 | 364 | 650 |
| 5:45 - 6:00 | 47 137 | 66 206 | 113 343 | 5:45 - 6:00 | 290 1102 | 349 1360 | 639 2462 |
| 6:00 - 6:15 | 58 | 68 | 126 | 6:00 - 6:15 | 294 | 317 | 611 |
| 6:15 - 6:30 | 86 | 92 | 178 | 6:15 - 6:30 | 246 | 366 | 612 |
| 6:30 - 6:45 | 98 | 100 | 198 | 6:30 - 6:45 | 268 | 306 | 574 |
| 6:45 - 7:00 | 118 360 | 124 384 | 242 744 | 6:45 - 7:00 | 266 1074 | 292 1281 | 558 2355 |
| 7:00 - 7:15 | 146 | 138 | 284 | 7:00 - 7:15 | 285 | 324 | 609 |
| 7:15 - 7:30 | 184 | 138 | 322 | 7:15 - 7:30 | 256 | 288 | 544 |
| 7:30 - 7:45 | 220 | 160 | 380 | 7:30 - 7:45 | 246 | 252 | 498 |
| 7:45 - 8:00 | 188 738 | 205 641 | 393 1379 | 7:45 - 8:00 | 243 1030 | 272 1136 | 515 2166 |
| 8:00 - 8:15 | 213 | 195 | 408 | 8:00 - 8:15 | 238 | 206 | 444 |
| 8:15 - 8:30 | 247 | 214 | 461 | 8:15 - 8:30 | 229 | 214 | 443 |
| 8:30 - 8:45 | 247 | 256 | 503 | 8:30 - 8:45 | 209 | 186 | 395 |
| 8:45 - 9:00 | 262 969 | 250 915 | 512 1884 | 8:45 - 9:00 | 216 892 | 186 792 | 402 1684 |
| 9:00 - 9:15 | 244 | 232 | 476 | 9:00 - 9:15 | 203 | 160 | 363 |
| 9:15 - 9:30 | 201 | 196 | 397 | 9:15 - 9:30 | 208 | 168 | 376 |
| 9:30 - 9:45 | 199 | 208 | 407 | 9:30 - 9:45 | 210 | 154 | 364 |
| 9:45 - 10:00 | 229 873 | 250 886 | 479 1759 | 9:45 - 10:00 | 186 807 | 147 629 | 333 1436 |
| 10:00 - 10:15 | 200 | 254 | 454 | 10:00 - 10:15 | 166 | 151 | 317 |
| 10:15 - 10:30 | 184 | 270 | 454 | 10:15 - 10:30 | 164 | 147 | 311 |
| 10:30 - 10:45 | 204 | 258 | 462 | 10:30 - 10:45 | 145 | 98 | 243 |
| 10:45 - 11:00 | 212 800 | 270 1052 | 482 1852 | 10:45 - 11:00 | 133 608 | 95 491 | 228 1099 |
| 11:00 - 11:15 | 200 | 308 | 508 | 11:00 - 11:15 | 116 | 78 | 194 |
| 11:15 - 11:30 | 232 | 295 | 527 | 11:15 - 11:30 | 84 | 66 | 150 |
| 11:30 - 11:45 | 246 | 345 | 591 | 11:30 - 11:45 | 73 | 62 | 135 |
| 11:45 - 12:00 | 225 903 | 362 1310 | 587 2213 | 11:45 - 12:00 | 78 351 | 74 280 | 152 631 |

| | | | | | | |
|--------|-------|-------|--------|--------|--------|--------|
| TOTALS | 5,217 | 5,737 | 10,954 | 11,496 | 12,020 | 23,516 |
| ADT'S | | | | 16,713 | 17,757 | 34,470 |

LOCATION - BALBOA-BTN 19TH/18TH

VOLUMES FOR - TUESDAY 6/24/08

| ***** AM ***** | | | | | ***** PM ***** | | | | | | | | |
|----------------|-----|------|-------|---------------|----------------|------|---------------|-----|------|-----|------|-----|------|
| TIME | EB | WB | TOTAL | TIME | EB | WB | TOTAL | | | | | | |
| 12:00 - 12:15 | 34 | 25 | 59 | 12:00 - 12:15 | 294 | 236 | 530 | | | | | | |
| 12:15 - 12:30 | 30 | 24 | 54 | 12:15 - 12:30 | 312 | 260 | 572 | | | | | | |
| 12:30 - 12:45 | 26 | 42 | 68 | 12:30 - 12:45 | 320 | 208 | 528 | | | | | | |
| 12:45 - 1:00 | 22 | 112 | 32 | 123 | 54 | 235 | 12:45 - 1:00 | 285 | 1211 | 245 | 949 | 530 | 2160 |
| 1:00 - 1:15 | 23 | 26 | 49 | 1:00 - 1:15 | 246 | 242 | 488 | | | | | | |
| 1:15 - 1:30 | 14 | 15 | 29 | 1:15 - 1:30 | 234 | 228 | 462 | | | | | | |
| 1:30 - 1:45 | 16 | 15 | 31 | 1:30 - 1:45 | 236 | 217 | 453 | | | | | | |
| 1:45 - 2:00 | 17 | 70 | 14 | 70 | 31 | 140 | 1:45 - 2:00 | 242 | 958 | 224 | 911 | 466 | 1869 |
| 2:00 - 2:15 | 12 | 9 | 21 | 2:00 - 2:15 | 225 | 234 | 459 | | | | | | |
| 2:15 - 2:30 | 10 | 6 | 16 | 2:15 - 2:30 | 260 | 220 | 480 | | | | | | |
| 2:30 - 2:45 | 6 | 4 | 10 | 2:30 - 2:45 | 226 | 211 | 437 | | | | | | |
| 2:45 - 3:00 | 8 | 36 | 5 | 24 | 13 | 60 | 2:45 - 3:00 | 205 | 916 | 252 | 917 | 457 | 1833 |
| 3:00 - 3:15 | 5 | 6 | 11 | 3:00 - 3:15 | 212 | 240 | 452 | | | | | | |
| 3:15 - 3:30 | 5 | 4 | 9 | 3:15 - 3:30 | 252 | 241 | 493 | | | | | | |
| 3:30 - 3:45 | 2 | 4 | 6 | 3:30 - 3:45 | 233 | 252 | 485 | | | | | | |
| 3:45 - 4:00 | 5 | 17 | 4 | 18 | 9 | 35 | 3:45 - 4:00 | 254 | 951 | 236 | 969 | 490 | 1920 |
| 4:00 - 4:15 | 4 | 11 | 15 | 4:00 - 4:15 | 275 | 304 | 579 | | | | | | |
| 4:15 - 4:30 | 3 | 10 | 13 | 4:15 - 4:30 | 218 | 262 | 480 | | | | | | |
| 4:30 - 4:45 | 8 | 8 | 16 | 4:30 - 4:45 | 254 | 253 | 507 | | | | | | |
| 4:45 - 5:00 | 23 | 38 | 14 | 43 | 37 | 81 | 4:45 - 5:00 | 224 | 971 | 228 | 1047 | 452 | 2018 |
| 5:00 - 5:15 | 20 | 23 | 43 | 5:00 - 5:15 | 288 | 242 | 530 | | | | | | |
| 5:15 - 5:30 | 30 | 23 | 53 | 5:15 - 5:30 | 262 | 206 | 468 | | | | | | |
| 5:30 - 5:45 | 36 | 39 | 75 | 5:30 - 5:45 | 266 | 218 | 484 | | | | | | |
| 5:45 - 6:00 | 46 | 132 | 48 | 133 | 94 | 265 | 5:45 - 6:00 | 287 | 1103 | 264 | 930 | 551 | 2033 |
| 6:00 - 6:15 | 44 | 53 | 97 | 6:00 - 6:15 | 260 | 273 | 533 | | | | | | |
| 6:15 - 6:30 | 54 | 73 | 127 | 6:15 - 6:30 | 274 | 187 | 461 | | | | | | |
| 6:30 - 6:45 | 58 | 88 | 146 | 6:30 - 6:45 | 210 | 220 | 430 | | | | | | |
| 6:45 - 7:00 | 83 | 239 | 102 | 316 | 185 | 555 | 6:45 - 7:00 | 232 | 976 | 187 | 867 | 419 | 1843 |
| 7:00 - 7:15 | 104 | 130 | 234 | 7:00 - 7:15 | 237 | 202 | 439 | | | | | | |
| 7:15 - 7:30 | 102 | 150 | 252 | 7:15 - 7:30 | 223 | 190 | 413 | | | | | | |
| 7:30 - 7:45 | 112 | 180 | 292 | 7:30 - 7:45 | 212 | 199 | 411 | | | | | | |
| 7:45 - 8:00 | 160 | 478 | 178 | 638 | 338 | 1116 | 7:45 - 8:00 | 198 | 870 | 178 | 769 | 376 | 1639 |
| 8:00 - 8:15 | 154 | 194 | 348 | 8:00 - 8:15 | 148 | 152 | 300 | | | | | | |
| 8:15 - 8:30 | 174 | 227 | 401 | 8:15 - 8:30 | 160 | 142 | 302 | | | | | | |
| 8:30 - 8:45 | 204 | 234 | 438 | 8:30 - 8:45 | 130 | 140 | 270 | | | | | | |
| 8:45 - 9:00 | 192 | 724 | 238 | 893 | 430 | 1617 | 8:45 - 9:00 | 140 | 578 | 150 | 584 | 290 | 1162 |
| 9:00 - 9:15 | 184 | 214 | 398 | 9:00 - 9:15 | 131 | 124 | 255 | | | | | | |
| 9:15 - 9:30 | 166 | 175 | 341 | 9:15 - 9:30 | 129 | 132 | 261 | | | | | | |
| 9:30 - 9:45 | 152 | 172 | 324 | 9:30 - 9:45 | 133 | 145 | 278 | | | | | | |
| 9:45 - 10:00 | 208 | 710 | 196 | 757 | 404 | 1467 | 9:45 - 10:00 | 111 | 504 | 126 | 527 | 237 | 1031 |
| 10:00 - 10:15 | 202 | 164 | 366 | 10:00 - 10:15 | 108 | 102 | 210 | | | | | | |
| 10:15 - 10:30 | 220 | 156 | 376 | 10:15 - 10:30 | 108 | 111 | 219 | | | | | | |
| 10:30 - 10:45 | 196 | 177 | 373 | 10:30 - 10:45 | 81 | 96 | 177 | | | | | | |
| 10:45 - 11:00 | 210 | 828 | 162 | 659 | 372 | 1487 | 10:45 - 11:00 | 85 | 382 | 84 | 393 | 169 | 775 |
| 11:00 - 11:15 | 233 | 184 | 417 | 11:00 - 11:15 | 56 | 55 | 111 | | | | | | |
| 11:15 - 11:30 | 260 | 189 | 449 | 11:15 - 11:30 | 52 | 44 | 96 | | | | | | |
| 11:30 - 11:45 | 286 | 212 | 498 | 11:30 - 11:45 | 38 | 41 | 79 | | | | | | |
| 11:45 - 12:00 | 294 | 1073 | 172 | 757 | 466 | 1830 | 11:45 - 12:00 | 52 | 198 | 42 | 182 | 94 | 380 |

 TOTALS 4,457 4,431 8,888 9,618 9,045 18,663
 ADT'S 14,075 13,476 27,551

419%

LOCATION - NEWPORT-BTN 32ND/31ST

AVERAGED VOLUMES FOR - TUESDAY 6/3/08 TO WEDNESDAY 6/4/08

***** AM ***** PM *****

| TIME | NB | SB | TOTAL | TIME | NB | SB | TOTAL |
|---------------|---------|---------|----------|---------------|---------|----------|----------|
| 12:00 - 12:15 | 44 | 46 | 90 | 12:00 - 12:15 | 210 | 276 | 486 |
| 12:15 - 12:30 | 54 | 35 | 89 | 12:15 - 12:30 | 202 | 286 | 488 |
| 12:30 - 12:45 | 39 | 38 | 77 | 12:30 - 12:45 | 222 | 272 | 494 |
| 12:45 - 1:00 | 37 174 | 25 144 | 62 318 | 12:45 - 1:00 | 240 874 | 290 1124 | 530 1998 |
| 1:00 - 1:15 | 40 | 22 | 62 | 1:00 - 1:15 | 212 | 238 | 450 |
| 1:15 - 1:30 | 30 | 15 | 45 | 1:15 - 1:30 | 266 | 242 | 508 |
| 1:30 - 1:45 | 33 | 23 | 56 | 1:30 - 1:45 | 202 | 240 | 442 |
| 1:45 - 2:00 | 22 125 | 16 76 | 38 201 | 1:45 - 2:00 | 224 904 | 256 976 | 480 1880 |
| 2:00 - 2:15 | 24 | 18 | 42 | 2:00 - 2:15 | 208 | 232 | 440 |
| 2:15 - 2:30 | 12 | 11 | 23 | 2:15 - 2:30 | 226 | 255 | 481 |
| 2:30 - 2:45 | 0 | 4 | 4 | 2:30 - 2:45 | 226 | 216 | 442 |
| 2:45 - 3:00 | 11 47 | 9 42 | 20 89 | 2:45 - 3:00 | 240 900 | 255 958 | 495 1858 |
| 3:00 - 3:15 | 11 | 5 | 16 | 3:00 - 3:15 | 227 | 237 | 464 |
| 3:15 - 3:30 | 8 | 6 | 14 | 3:15 - 3:30 | 196 | 245 | 441 |
| 3:30 - 3:45 | 6 | 3 | 9 | 3:30 - 3:45 | 232 | 270 | 502 |
| 3:45 - 4:00 | 5 30 | 5 19 | 10 49 | 3:45 - 4:00 | 236 891 | 244 996 | 480 1887 |
| 4:00 - 4:15 | 6 | 4 | 10 | 4:00 - 4:15 | 241 | 238 | 479 |
| 4:15 - 4:30 | 8 | 2 | 10 | 4:15 - 4:30 | 229 | 256 | 485 |
| 4:30 - 4:45 | 9 | 12 | 21 | 4:30 - 4:45 | 216 | 264 | 480 |
| 4:45 - 5:00 | 14 37 | 11 29 | 25 66 | 4:45 - 5:00 | 212 898 | 290 1048 | 502 1946 |
| 5:00 - 5:15 | 24 | 14 | 38 | 5:00 - 5:15 | 228 | 300 | 528 |
| 5:15 - 5:30 | 24 | 28 | 52 | 5:15 - 5:30 | 244 | 306 | 550 |
| 5:30 - 5:45 | 29 | 36 | 65 | 5:30 - 5:45 | 236 | 329 | 565 |
| 5:45 - 6:00 | 40 117 | 44 122 | 84 239 | 5:45 - 6:00 | 191 899 | 342 1277 | 533 2176 |
| 6:00 - 6:15 | 77 | 62 | 139 | 6:00 - 6:15 | 215 | 341 | 556 |
| 6:15 - 6:30 | 88 | 82 | 170 | 6:15 - 6:30 | 200 | 344 | 544 |
| 6:30 - 6:45 | 109 | 98 | 207 | 6:30 - 6:45 | 236 | 320 | 556 |
| 6:45 - 7:00 | 148 422 | 118 360 | 266 782 | 6:45 - 7:00 | 214 865 | 312 1317 | 526 2182 |
| 7:00 - 7:15 | 182 | 150 | 332 | 7:00 - 7:15 | 221 | 306 | 527 |
| 7:15 - 7:30 | 171 | 144 | 315 | 7:15 - 7:30 | 224 | 234 | 458 |
| 7:30 - 7:45 | 247 | 156 | 403 | 7:30 - 7:45 | 208 | 249 | 457 |
| 7:45 - 8:00 | 240 840 | 203 653 | 443 1493 | 7:45 - 8:00 | 200 853 | 192 981 | 392 1834 |
| 8:00 - 8:15 | 235 | 186 | 421 | 8:00 - 8:15 | 212 | 192 | 404 |
| 8:15 - 8:30 | 232 | 174 | 406 | 8:15 - 8:30 | 180 | 198 | 378 |
| 8:30 - 8:45 | 223 | 179 | 402 | 8:30 - 8:45 | 202 | 195 | 397 |
| 8:45 - 9:00 | 197 887 | 190 729 | 387 1616 | 8:45 - 9:00 | 204 798 | 170 755 | 374 1553 |
| 9:00 - 9:15 | 185 | 179 | 364 | 9:00 - 9:15 | 188 | 144 | 332 |
| 9:15 - 9:30 | 174 | 202 | 376 | 9:15 - 9:30 | 220 | 156 | 376 |
| 9:30 - 9:45 | 185 | 212 | 397 | 9:30 - 9:45 | 136 | 119 | 255 |
| 9:45 - 10:00 | 196 740 | 220 813 | 416 1553 | 9:45 - 10:00 | 133 677 | 116 535 | 249 1212 |
| 10:00 - 10:15 | 200 | 214 | 414 | 10:00 - 10:15 | 150 | 112 | 262 |
| 10:15 - 10:30 | 197 | 183 | 380 | 10:15 - 10:30 | 114 | 114 | 228 |
| 10:30 - 10:45 | 190 | 174 | 364 | 10:30 - 10:45 | 108 | 84 | 192 |
| 10:45 - 11:00 | 208 795 | 254 825 | 462 1620 | 10:45 - 11:00 | 82 454 | 90 400 | 172 854 |
| 11:00 - 11:15 | 183 | 215 | 398 | 11:00 - 11:15 | 82 | 70 | 152 |
| 11:15 - 11:30 | 194 | 202 | 396 | 11:15 - 11:30 | 81 | 57 | 138 |
| 11:30 - 11:45 | 228 | 234 | 462 | 11:30 - 11:45 | 75 | 54 | 129 |
| 11:45 - 12:00 | 197 802 | 268 919 | 465 1721 | 11:45 - 12:00 | 56 294 | 42 223 | 98 517 |
| TOTALS | 5,016 | 4,731 | 9,747 | | 9,307 | 10,590 | 19,897 |
| ADT'S | | | | | 14,323 | 15,321 | 29,644 |

LOCATION - BALBOA-BTN 19TH/18TH

AVERAGED VOLUMES FOR - TUESDAY 6/3/08 TO WEDNESDAY 6/4/08

***** AM ***** PM *****

| TIME | EB | WB | TOTAL | TIME | EB | WB | TOTAL | | | | | | |
|---------------|-----|-----|-------|---------------|-----|------|---------------|-----|------|-----|-----|-----|------|
| 12:00 - 12:15 | 37 | 26 | 63 | 12:00 - 12:15 | 194 | 175 | 369 | | | | | | |
| 12:15 - 12:30 | 28 | 26 | 54 | 12:15 - 12:30 | 180 | 158 | 338 | | | | | | |
| 12:30 - 12:45 | 32 | 22 | 54 | 12:30 - 12:45 | 174 | 152 | 326 | | | | | | |
| 12:45 - 1:00 | 23 | 120 | 19 | 93 | 42 | 213 | 12:45 - 1:00 | 242 | 790 | 196 | 681 | 438 | 1471 |
| 1:00 - 1:15 | 18 | 19 | 37 | 1:00 - 1:15 | 151 | 138 | 289 | | | | | | |
| 1:15 - 1:30 | 19 | 16 | 35 | 1:15 - 1:30 | 190 | 216 | 406 | | | | | | |
| 1:30 - 1:45 | 21 | 16 | 37 | 1:30 - 1:45 | 188 | 156 | 344 | | | | | | |
| 1:45 - 2:00 | 13 | 71 | 9 | 60 | 22 | 131 | 1:45 - 2:00 | 198 | 727 | 172 | 682 | 370 | 1409 |
| 2:00 - 2:15 | 12 | 10 | 22 | 2:00 - 2:15 | 184 | 163 | 347 | | | | | | |
| 2:15 - 2:30 | 12 | 14 | 26 | 2:15 - 2:30 | 189 | 182 | 371 | | | | | | |
| 2:30 - 2:45 | 5 | 5 | 10 | 2:30 - 2:45 | 223 | 192 | 415 | | | | | | |
| 2:45 - 3:00 | 9 | 38 | 5 | 34 | 14 | 72 | 2:45 - 3:00 | 199 | 795 | 206 | 743 | 405 | 1538 |
| 3:00 - 3:15 | 3 | 5 | 8 | 3:00 - 3:15 | 193 | 163 | 356 | | | | | | |
| 3:15 - 3:30 | 8 | 7 | 15 | 3:15 - 3:30 | 184 | 165 | 349 | | | | | | |
| 3:30 - 3:45 | 2 | 5 | 7 | 3:30 - 3:45 | 206 | 214 | 420 | | | | | | |
| 3:45 - 4:00 | 3 | 16 | 5 | 22 | 8 | 38 | 3:45 - 4:00 | 181 | 764 | 210 | 752 | 391 | 1516 |
| 4:00 - 4:15 | 3 | 5 | 8 | 4:00 - 4:15 | 218 | 185 | 403 | | | | | | |
| 4:15 - 4:30 | 3 | 5 | 8 | 4:15 - 4:30 | 198 | 198 | 396 | | | | | | |
| 4:30 - 4:45 | 4 | 9 | 13 | 4:30 - 4:45 | 208 | 182 | 390 | | | | | | |
| 4:45 - 5:00 | 5 | 15 | 10 | 29 | 15 | 44 | 4:45 - 5:00 | 211 | 835 | 166 | 731 | 377 | 1566 |
| 5:00 - 5:15 | 9 | 21 | 30 | 5:00 - 5:15 | 220 | 172 | 392 | | | | | | |
| 5:15 - 5:30 | 18 | 26 | 44 | 5:15 - 5:30 | 216 | 220 | 436 | | | | | | |
| 5:30 - 5:45 | 22 | 30 | 52 | 5:30 - 5:45 | 256 | 189 | 445 | | | | | | |
| 5:45 - 6:00 | 33 | 82 | 34 | 111 | 67 | 193 | 5:45 - 6:00 | 286 | 978 | 148 | 729 | 434 | 1707 |
| 6:00 - 6:15 | 41 | 77 | 118 | 6:00 - 6:15 | 268 | 178 | 446 | | | | | | |
| 6:15 - 6:30 | 43 | 70 | 113 | 6:15 - 6:30 | 254 | 179 | 433 | | | | | | |
| 6:30 - 6:45 | 58 | 83 | 141 | 6:30 - 6:45 | 292 | 162 | 454 | | | | | | |
| 6:45 - 7:00 | 81 | 223 | 132 | 362 | 213 | 585 | 6:45 - 7:00 | 226 | 1040 | 168 | 687 | 394 | 1727 |
| 7:00 - 7:15 | 106 | 156 | 262 | 7:00 - 7:15 | 236 | 159 | 395 | | | | | | |
| 7:15 - 7:30 | 122 | 162 | 284 | 7:15 - 7:30 | 208 | 177 | 385 | | | | | | |
| 7:30 - 7:45 | 108 | 207 | 315 | 7:30 - 7:45 | 180 | 148 | 328 | | | | | | |
| 7:45 - 8:00 | 224 | 560 | 257 | 782 | 481 | 1342 | 7:45 - 8:00 | 163 | 787 | 148 | 632 | 311 | 1419 |
| 8:00 - 8:15 | 179 | 254 | 433 | 8:00 - 8:15 | 146 | 148 | 294 | | | | | | |
| 8:15 - 8:30 | 114 | 200 | 314 | 8:15 - 8:30 | 140 | 144 | 284 | | | | | | |
| 8:30 - 8:45 | 117 | 226 | 343 | 8:30 - 8:45 | 142 | 134 | 276 | | | | | | |
| 8:45 - 9:00 | 140 | 550 | 166 | 846 | 306 | 1396 | 8:45 - 9:00 | 130 | 558 | 137 | 563 | 267 | 1121 |
| 9:00 - 9:15 | 138 | 154 | 292 | 9:00 - 9:15 | 118 | 116 | 234 | | | | | | |
| 9:15 - 9:30 | 138 | 170 | 308 | 9:15 - 9:30 | 135 | 169 | 304 | | | | | | |
| 9:30 - 9:45 | 153 | 159 | 312 | 9:30 - 9:45 | 92 | 78 | 170 | | | | | | |
| 9:45 - 10:00 | 161 | 590 | 171 | 654 | 332 | 1244 | 9:45 - 10:00 | 81 | 426 | 74 | 437 | 155 | 863 |
| 10:00 - 10:15 | 160 | 148 | 308 | 10:00 - 10:15 | 92 | 100 | 192 | | | | | | |
| 10:15 - 10:30 | 132 | 154 | 286 | 10:15 - 10:30 | 93 | 66 | 159 | | | | | | |
| 10:30 - 10:45 | 132 | 162 | 294 | 10:30 - 10:45 | 62 | 68 | 130 | | | | | | |
| 10:45 - 11:00 | 158 | 582 | 196 | 660 | 354 | 1242 | 10:45 - 11:00 | 61 | 308 | 52 | 286 | 113 | 594 |
| 11:00 - 11:15 | 182 | 158 | 340 | 11:00 - 11:15 | 55 | 58 | 113 | | | | | | |
| 11:15 - 11:30 | 164 | 150 | 314 | 11:15 - 11:30 | 56 | 54 | 110 | | | | | | |
| 11:30 - 11:45 | 168 | 210 | 378 | 11:30 - 11:45 | 33 | 44 | 77 | | | | | | |
| 11:45 - 12:00 | 178 | 692 | 165 | 683 | 343 | 1375 | 11:45 - 12:00 | 40 | 184 | 28 | 184 | 68 | 368 |

TOTALS 3,539 4,336 7,875 8,192 7,107 15,299

ADT'S 11,731 11,443 23,174

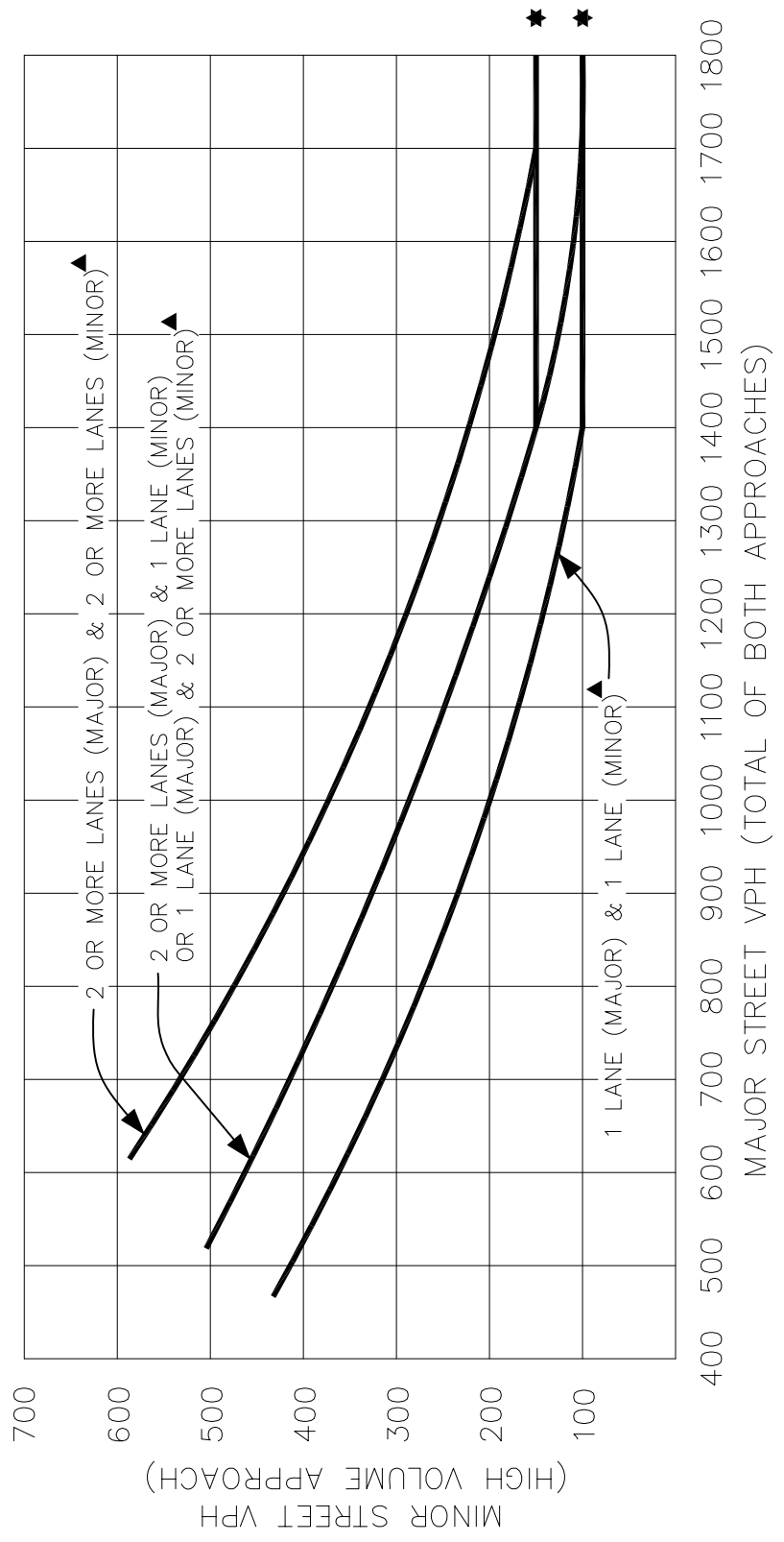
APPENDIX E

DEFINITIONS

Certain terms used throughout this report are defined below to clarify their intended meaning:

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|-----------|--|
| ADT | Average Daily Traffic. Generally used to measure the total two-directional traffic volumes passing a given point on a roadway. |
| DU | Dwelling Unit. Used in quantifying residential land use. |
| ICU | Intersection Capacity Utilization. A measure of the volume to capacity ratio for an intersection. Typically used to determine the peak hour level of service for a given set of intersection volumes. |
| LOS | Level of Service. A scale used to evaluate circulation system performance based on intersection ICU values or volume/capacity ratios of arterial segments. |
| Peak Hour | This refers to the hour during the AM peak period (typically 7 AM - 9 AM) or the PM peak period (typically 3 PM - 6 PM) in which the greatest number of vehicle trips are generated by a given land use or are traveling on a given roadway. |
| TSF | Thousand Square Feet. Used in quantifying non-residential land uses, and refers to building floor area. |
| V/C | Volume to Capacity Ratio. This is typically used to describe the percentage of capacity utilized by existing or projected traffic on a segment of an arterial or intersection. |
| VPH | Vehicles Per Hour. Used for roadway volumes (counts or forecasts) and trip generation estimates. Measures the number of vehicles in a one hour period, typically the AM or PM peak hour. |

APPENDIX F
PEAK HOUR SIGNAL WARRANT



- ▲ NOTE: THESE CURVES ARE RECOMMENDED FOR USE IN AREAS OF URBAN CLASSIFICATION (i.e. POSTED SPEED LIMIT ON THE MAJOR STREET IS 64 km/hr or 35 MPH OR LESS).
- ★ NOTE: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES, AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH ONE LANE.

Source: MUTCD – Figure 4C-3

Figure F-1
PEAK HOUR SIGNAL WARRANT

K.2 - PARKING MANAGEMENT PLAN



October 24, 2008

Anthony Brine, P.E., Principal Civil Engineer
City of Newport Beach
3300 Newport Boulevard
Newport Beach, CA 92663

Re: *Parking Management Recommendations – Marina Park Project (revised)*
Newport Beach, California

Dear Mr. Brine,

Walker Parking Consultants is pleased to present this letter report covering the parking management alternatives for the Marina Park project on Balboa Peninsula.

SUMMARY

In discussing parking management issues with other community centers and sailing facilities in Southern California we have determined that parking management issues at similar facilities present unique and distinct challenges. We also determined that parking capacity issues at Marina Park are likely to occur during peak summer weekends, indicating that a permanent, year-round solution may not be the most efficient solution for this area. Rather, flexible solutions that can be modified and managed rapidly may be the best way to ensure efficient and available parking. From discussions with City staff, we understand that enforcement beyond 8:00 AM to 6:00 PM may be difficult to attain. Nonetheless, our recommendations sometimes include extending the hours of enforcement, when appropriate, for efficient operation. With this in mind, we recommend that the City develop the following initiatives to help manage parking at Marina Park:

1. Charge a fee for parking to help turn over the spaces and ensure the lot is available for beach goers and Marina Park patrons.
2. Parking fees should be enforced 24 hours per day to help manage overnight parking by residents that may otherwise interfere with access to the Marina Park community center.
3. Install multi-space meters at the lot to enable automatic payment for all spaces in all lots to efficiently manage the payment system.
4. Install flip signs to quickly, inexpensively and efficiently reserve spaces during events at the community center, Girl Scout House, marina, and sailing center.

In general, parking in Balboa Peninsula is impacted during the summer weekends from June to September. The peak demand period begins in the early afternoon and does not subside until nearly sunset. If events at Marina Park do not coincide with these peak demand periods, parking can be managed with simple economic cues. During peak summer periods, events should be scheduled either early in the morning (e.g. beginning at 8:00AM) or later in the evening to avoid the impact from the beach visitors.

PROJECT DESCRIPTION

The City of Newport Beach is creating a new plan for Marina Park that includes a community center, sailing center, and marina. The site is located between 15th Street and 18th Street along the bay side of the Newport Peninsula and currently includes various recreational uses and approximately 60 mobile homes. The proposed plan for the site consists of a 10,200 square foot community center, an 11,200 square foot sailing center and café, a recreational park, and a 28-berth visitor marina. The Girl Scout House will also be relocated from its current location to the northwest corner of the project site. The recreational amenities at the park will include a playground, tennis courts, basketball courts, beach volleyball courts, and open park areas. In addition, docks and slips for sailing programs and improved beach access will be provided. Figure 1 outlines the proposed location of the Marina Park development.

Figure 1: Project Study Area



Source: Google Earth Pro, Accessed September 24, 2008.

Figure 2 shows the proposed project site plan and related parking areas.

Figure 2: Project Site Plan



Source: City of Newport Beach, September 2008.

PROJECT BACKGROUND

Access to Marina Park will be critical to the success of the development. A parking study examining the myriad uses was conducted by Austin-Foust in July 2008. Our understanding is that the City is satisfied with the projections from the Austin-Foust report; therefore, we have not studied the parking generation for this project.

Our understanding is that parking at the Marina Park project is being developed to ensure that patrons and visitors using the facilities at Marina Park have appropriate parking and access to those facilities. During the summer months, parking will likely be problematic because as the Newport Peninsula beach lots and nearby on-street parking becomes unavailable many beach goers will likely park in any nearby space. With over 150 spaces in the main lot and the nearby "Girl Scout" lot, the Marina Park complex (Marina Park) will likely be used by beach visitors or other excursionists on the central part of the Peninsula. If the price for parking at Marina Park is attractive, beach goers and nearby residents will immediately fill the lot, leaving the Marina Park users unable to park anywhere near their intended destination. If beach goers and residents have a greater willingness to pay than Marina Park patrons then the Marina Park parking lot will be unavailable to Marina Park patrons throughout much of the summer, and particularly during the weekends. Our belief is that demand for parking on Newport Peninsula is nearly unlimited during the busy summer season. If supply is continually developed and subsidized, effectively removing economic considerations, parking will continue to be a problem throughout Newport Beach and near the Marina Park area specifically.

PARKING MANAGEMENT


In our earlier discussion and analyses we referred to many of the elements of parking management. Parking Management includes myriad strategies aimed at making better use of the available parking supply in any defined area. Proper parking management incorporates a number of goals, but a core principle is that parking spaces should be used efficiently. Parking spaces that sit unoccupied are inefficient as they represent significant financial and land resources, as well as the opportunity costs of the funds and real estate, that is not devoted to productive uses. This is especially true in a desirable place such as Newport Beach. It is also true where competition for impacted parking spaces exists a short distance away. The time and frustration that results from the search for a convenient space in these impacted areas represents inefficiencies.

Parking management practices attempt to address inefficiencies through restrictions and parking pricing. We aim to allocate parking spaces for which there is high demand with user restrictions and/or prices to park. For spaces for which there is low demand, we relax parking restrictions and lower prices in order to maximize their utilization. In high demand area we recommend increased prices, strict enforcement, and greater turnover of the parking spaces.

If spaces in high demand are free and/or spaces in low demand are priced, inefficiencies are created. We note that parking spaces are a finite resource and represent a real cost. We wish to allocate that resource as efficiently as possible. Finally, although not always politically popular, pricing is virtually always the most effective way to manage parking spaces.

ALTERNATIVES

This report is focused on managing the future parking at the Marina Park development. In an effort to conform to the likely requirements of the California Coastal Commission, our recommendations try to support equal access to all visitors and patrons of Marina Park as well as the beach going public. This is particularly important during the summer months from June to September. As we have observed from other parking studies conducted in the area, parking during weekend days throughout the summer will be nearly impossible to manage due to the significant demand and presumed willingness of infrequent beach goers to pay for parking during their excursion to the Newport beaches. To mitigate demand and help manage the parking, we have come up with several alternatives for the City to consider. The following is a list outlining the possible parking management strategies to help prioritize parking at Marina Park.

1. *Install automated multi-space meters.* In an area that has virtually unlimited demand for parking and a commensurate shortage of land, one of the few solutions to help manage parking is to allocate the spaces to those who are most willing to pay. That is, we recommend installing parking meters. This may seem inherently unfair, or regressive; however, it helps alleviate parking in the less expensive, less desirable areas by removing vehicles that are willing to pay a premium for a space from the on-street spaces they would otherwise occupy. Given the size and circulation of the parking lots at Marina Park, we believe that multi-space pay-and-display meters will be the best solution, used in conjunction with any other combination of parking management that we outline in this report. To ensure optimal efficiency, pricing in the lot should be marginally higher than nearby on-street parking meter fees.
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2. *Charge for overnight parking.* To help ensure that residents or businesses do not over utilize the Marina Park parking lot, we recommend that a paid parking system be in operation at all times. This will ensure that there are no cars occupying the lot that are not there for a specific event or purpose. This will help ensure the lot does not become a long-term storage area for vehicles. If the lot is open, and free to residents overnight, having the lot available for morning classes or sailing lessons will be difficult to achieve.
 3. *Do not accept master park permits.* Another measure that should be included in the plan is that the Marina Park lot should not accept Newport Beach master park permits, blue pole permits or any other exempt parking permit that is accepted in other areas of the City. Again, this will help ensure that the Marina Park lot is available for Marina Park patrons, visitors and guests.

These first three recommendations will help ensure that the lot is primarily utilized by day visitors to Marina Park and not by long-term excursionists to other destinations or by residents seeking inexpensive and convenient parking. The alternatives below may help supplement these solutions by segmenting parking at Marina Park. It should be noted that these alternatives are more nuanced than the first three recommendations and have additional limitations that should be considered by the City.

BEST OPTIONS—THOUGH NOT LIKELY TO BE APPROVED BY COASTAL COMMISSION

4. *Marina Park Only Parking.* The most obvious solution to achieve the City's goal of ensuring the Marina Park lot is only used by its intended patrons is to restrict Marina Park parking to only the patrons, visitors and guests of the Marina, Sailing Center, Girl Scout Center, Community Center or Park. Of course this would be extremely difficult to enforce because it would not be readily apparent which vehicles were using the Marina Park facilities and which vehicles were using the beach or other nearby land uses. Permits could be used for community center visitors, or other registered users, but issuing permits for park users would be difficult to identify and control. In addition, we do not feel that this solution would be agreeable with the Coastal Commission's stated goal of ensuring equal access to ALL beach visitors.
5. *Validation.* If there is a pricing mechanism for the Marina Park lot, all patrons, visitors, users, and guests could receive a validation sticker to off-set or eliminate their cost to park in the lot. If pricing at the Marina Park lots is significantly higher than the surrounding spaces, it is likely to discourage all but the most price-insensitive patrons to park elsewhere. Of course, this again means that the lot will be underutilized except when there is an event at Marina Park. From our experience it is unlikely that the Coastal Commission will agree to this sort of validation system since it creates a preferential parking system that limits or restricts public access to the nearby beaches.
6. *Reverse Validation.* If the price to park at the Marina Park lot was twice as high as nearby on-street or surface lot users of Marina Park facilities could be offered a rebate on their parking fees for whichever activity they are pursuing at Marina Park (reverse validation). Rather than validate parking (offsetting the price of parking) the user could pay the same price for parking as other users (beach visitors, residents and others seeking parking) but bring their parking receipt into the Marina Park offices to receive a discount on their sailing lesson, community center activity, or moorage fee. This system could be a bit confusing to infrequent users and may not be readily accepted by many Marina Park patrons, visitors, or guests. While technically everyone would pay the same fee for parking, the Coastal Commission may not approve such a minor technicality. As a result of these uncertainties, this may not be the most desirable solution.

OTHER OPTIONS – NOT RECOMMENDED

7. *Pricing.* If the Marina Park lot is priced significantly higher than nearby beach lots and on-street spaces it is likely that the lot will fill up only after all other areas spaces fill. This strategy may help ensure that Marina Park has as much availability as possible for as much time as possible. One drawback to this strategy is that during peak demand periods this lot will eventually fill up and Marina Park patrons will not have access. Another problem is that the lot will be significantly underutilized throughout the remainder of the year, as neither beach visitors, residents, nor Marina Park patrons will want to park in the most expensive spaces except during high demand days or during busy events. A market-rate pricing scheme that adjusts prices based on demand (occupancy) is recommended.

8. *Create priority areas for the Marina Park users.* Another option is to create a parking system that sets aside (either with nesting gates or chains) a certain number of spaces for visitors that have Marina Park reservations for daily activities. As classes, events, or other reservations are made for the Marina Park users, parking could be paid in advance, along with their other fees, this helps ensure the Marina Park user that they will have a parking space when they come to Marina Park. This option would be fairly labor intensive because it would likely require that spaces be set aside in advance of any classes or events at the center and would essentially reduce the total number of available parking spaces for much of the day. A parking attendant would be recommended to ensure that parking is appropriately assigned. This sort of inefficiency is not desirable from a parking management perspective and would not likely be approved by the Coastal Commission.

RECOMMENDED OPTIONS

9. *Install flip signs.* Rather than create “Marina Park Parking Only” areas, a sign that changes dependant upon the expected amount of daily visitors can be installed. We often call these “flip signs” since they can flip open to display a message or flip closed to display a different message (or no message). Flip signs can be installed in some or all of the spaces (including near the Girl Scout Center) at Marina Park. When the facility has an event during the peak season, the signs can display a “Reserved For Marina Park Visitors Only” (or “Reserved for Girl Scout House”) sign. When there is no event, the sign can be flipped closed; opening the space to all visitors or guests to the area. Event reservations can be used to help determine the appropriate number of spaces to reserve.
10. *Increase bicycle/pedestrian facilities.* Demand for parking can be reduced by providing bicycle and pedestrian facilities and amenities that make it easier and more pleasant to bicycle or walk to nearby destinations. This strategy could prove to be particularly valuable for a community center in an area like Balboa Peninsula. Some cities have also begun experimenting with bike stations or full-service bike lockers near destinations that provide lockers, changing rooms and showers for bicycle commuters. Bikestation services include secure, indoor bicycle parking available to members with a membership pass. In the Seattle Bikestation there is free attended bicycle parking during operating hours. Bicycle repair services and commuter retail items are also available at this facility, as well as public transportation schedules, bike maps, and a personalized service matching new bicycle commuters with experienced cyclists who can help them plan a commute route, provide tips on bicycle commuting, and generally serve as mentors.¹



Source: emedco.com

Bikestations are currently in use in several California cities including Long Beach, Palo Alto, and San Francisco.

¹ Metro King County Government, <http://transit.metrokc.gov/tops/bike/bikestation.html>, accessed September 29, 2008.



RECOMMENDATIONS

The goal of this report is to provide the City with parking management solutions that will likely help provide the appropriate amount of access to Marina Park without restricting beach goers from parking at the area lots. We believe that a combination of solutions will be the most effective approach to achieving this goal. Namely, we believe that paid parking will be essential to help manage this facility. A multi-space, pay-and-display system that operates 24-hours per day will likely be the most efficient solution to help manage the parking. In addition, a fee that is slightly higher than the nearby on-street spaces will likely ensure that the Marina Park lots are the last to be occupied during busy summer peak demand periods. Flip signs that alternate between "Reserved For Marina Park Visitors Only" and "Parking Available" should be installed to help manage parking during events at Marina Park. To accomplish this, the Marina Park lots can estimate the number of users for any event, and flip open the "Reserved Parking" side of the sign to help ensure that Marina Park patrons have access to the facility. At all other times, the signs can be flipped closed, or display a "Parking Available" message to enable all vehicles on the Peninsula to use the parking facility. Finally, while not necessarily a parking management technique, demand for parking in general could be reduced at Marina Park by providing ample bicycle and pedestrian access and facilities.

If you have any questions regarding our report, please do not hesitate to contact us.

Sincerely,

Mark Linsenmayer
WALKER PARKING CONSULTANTS

cc: Steffen Turoff
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