

## 4.1.5 TRANSPORTATION AND CIRCULATION

The following section discuss the traffic study area, existing circulation systems, and traffic conditions, the traffic forecasting methodology, the performance criteria used in identifying impacts and evaluating alternatives, and the basic assumptions applied in the analysis.

### 4.1.5.1 Traffic Study Area

The proposed SAMP permitting procedures would not have direct traffic impacts. However, the implementation of projects that would be subject to permitting procedures may generate traffic and may have traffic impacts. Because the RMV Proposed Project and the SMWD Proposed Project are the only two specific projects under consideration in this SAMP EIS for long-term Individual Permits/Letters of Permission (LOP), the traffic study area focuses on the circulation system components that may be affected by implementation of the RMV Proposed Project and the SMWD Proposed Project. With the exception of one proposed domestic water reservoir site located outside the boundaries of the RMV Planning Area, the remaining potential reservoir sites (one domestic reservoir and two non-domestic reservoirs) are proposed within the RMV Planning Area, specifically within areas that would be disturbed through implementation of the RMV Planning Area project.<sup>1</sup> These reservoirs are intended to serve planned development and would not independently generate significant traffic volumes. As such, the traffic baseline for the SAMP EIS is the same as the traffic analysis prepared for GPA/ZC EIR 589.

The traffic study area is depicted on Figure 4.1.5-1. The traffic study area includes all or portions of the cities of Dana Point, Mission Viejo, San Juan Capistrano, and San Clemente, Rancho Santa Margarita, Laguna Hills, and Laguna Niguel. It also includes portions of unincorporated Orange County extending from Rancho Santa Margarita to San Clemente, including the communities of Las Flores, Ladera Ranch, Coto de Caza, and Talega, as well as the RMV Planning Area. The following specific criteria were used in defining this traffic study area.

- For arterial roads, the traffic study area includes all facilities where peak hour intersection volume/capacity ratios would increase by one percent or more as a result of the project. This is the impact threshold designated in the *Orange County General Plan Growth Management Element*.
- For freeways, the traffic study area includes all facilities where peak hour volumes would increase by more than three percent as a result of the project. This is the impact threshold designated in the *Orange County Congestion Management Program*.

The following provides a brief discussion of the circulation plans and systems for those jurisdictions in the SAMP Study Area.

### County of Orange

The County of Orange General Plan Circulation Element sets forth a comprehensive strategy for planning, developing, and maintaining a surface transportation system to serve existing and planned land uses in the unincorporated areas of Orange County. The Circulation Plan Component of the Transportation Element establishes a system of surface roadways within the unincorporated areas of the County. The County's goal is to coordinate with the cities and Orange County Transportation Authority, the regional transportation planning agency, to

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<sup>1</sup> The Upper Chiquita domestic water reservoir site is outside the RMV Planning Area and is proposed for north of Oso Parkway and west of SR-241.

develop a consistent intra-community arterial highway system that will effectively serve existing and future land uses within its jurisdiction.

### **City of Dana Point**

The major traffic problem within the City of Dana Point exists primarily on the section of Pacific Coast Highway where State Route 1 ends and becomes Pacific Coast Highway. The intersection of Del Obispo Street and Pacific Coast Highway is of particular concern. The future roadway system in the City of Dana Point has been defined using a classification system which describes a hierarchy of facility types. The categories of roadways included in this classification system differentiate the size, function and capacity of the roadway links for each type of roadway. The City's roadway network focuses on a number of major improvements with regard to the roadway system in the City. All roadway improvements are included in the County of Orange Master Plan of Arterial Highways (MPAH) with the exception of those to Camino Capistrano and Doheny Park Road. Both are designated as primary facilities on the MPAH and are forecast to carry traffic volumes significantly in excess of their intended capacities. Both facilities will be upgraded to "augmented primary" designations on the City's Circulation Element (or "modified majors"), as denoted in the MPAH.

### **City of Laguna Hills**

The City of Laguna Hills has a well defined vehicular circulation system based on a hierarchy of arterial function as conceived in the County of Orange MPAH. With the exception of individual intersection turn lanes, the circulation system is completed with full arterial lane complements. I-5 is the major north-south regional transportation facility that defines the northern and eastern boundary of the City of Laguna Hills. Significant north-south arterial routes through Laguna Hills include Moulton Parkway, Paseo de Valencia, Cabot Road, and Avenida de la Carlota. East-west travel is accommodated on Oso Parkway, La Paz Road, Alicia Parkway, Los Alisos Boulevard, El Toro Road, Ridge Route, and Lake Forest Drive. Currently, the arterial segments within the City and its Sphere of Influence operate within the County's standard daily highway capacities. However, three key intersections (Paseo de Valencia/Los Alisos Boulevard, Paseo de Valencia/Alicia Parkway, and Moulton Parkway/Lake Forest Drive) experience unsatisfactory levels of service during one or both a.m. or p.m. peak hours. Daily and peak hour traffic volumes will continue to increase within the City of Laguna Hills resulting in congestion along roadways and intersections. Based on traffic forecasts prepared for the preferred General Plan land use alternative, Cabot Road will exceed the capacity of a four-lane undivided Secondary arterial. In addition, Paseo de Valencia adjacent to the Laguna Hills Mall is forecast to operated unsatisfactorily, at a LOS E condition. Forecast deficiencies are caused by many factors, particularly anticipated new development as the City is virtually built out. The majority of growth in traffic forecast for roadways within the City is attributable to traffic generated in adjacent communities destined for the major employment and commercial centers in north and central Orange County. The General Plan identifies significant regional circulation improvements that are planned for the Laguna Hills area.

### **City of Laguna Niguel**

The City of Laguna Niguel's circulation network includes one freeway (I-5), one toll road (San Joaquin Hills Transportation Corridor), and local arterial roads and local and collector streets. The City of Laguna Niguel General Plan Circulation Element (August 4, 1992) notes that the planned circulation plan for the City is primarily established, with little ability to be modified. The General Plan Circulation Element identifies roadways that are anticipated to operate beyond capacity based on implementation of General Plan land uses. Based on post-2010 average

daily traffic volumes and the Master Plan of Arterial Highways, the General Plan identifies anticipated capacity deficiencies on portions of Street of the Golden Lantern, Crown Valley Parkway, and Greenfield Drive. The General Plan identifies improvements to maintain acceptable levels of service.

### **City of Mission Viejo**

The City of Mission Viejo is served by one regional highway, I-5. Access is provided by interchanges at El Toro Road, Alicia Parkway, La Paz Road, Oso Parkway, Crown Valley Parkway, and Avery Parkway. Planned arterial street improvements will help accommodate regional traffic outside and within the City. The City of Mission Viejo General Plan Circulation Element (October 8, 1990) notes that the Orange County Master Plan of Arterial Highways provides the framework for the future arterial street system.

### **City of Rancho Santa Margarita**

The City of Rancho Santa Margarita's circulation network includes a toll road (SR-241), arterial roadways, and local roadways. SR-241 bisects the City with interchanges at Antonio Parkway, Santa Margarita Parkway, and Los Alisos Boulevard, which are the primary east-west arterials. Non-motorized transportation routes in the City include bicycle and pedestrian facilities. Public transportation consists of fixed-route bus service provided by the Orange County Transportation Authority.

The City of Rancho Santa Margarita General Plan Program EIR's traffic analysis evaluated existing and future conditions on roadway segments within the City. The General Plan Program EIR did not identify any deficiencies on the analyzed roadway segments. Implementation of the City's proposed Arterial Highway Plan is designed to accommodate current and anticipated regional traffic levels, as well as traffic from the City and its Sphere of Influence.

### **City of San Clemente**

The City of San Clemente is generally divided by I-5. The General Plan Circulation Element notes that since north-south local circulation in the City is inadequate, I-5 is frequently used for intercity trips, which increases freeway ramp congestion. The General Plan also notes that construction of SR-241 South would relieve freeway ramp congestion on I-5. The General Plan also notes that buildout projections for the City indicate that there will be significant increases in traffic with the City and the surrounding area. A planned system of roadways is needed to serve currently undeveloped areas which are developing both within the city and in outlying regions. The San Clemente Regional Circulation Financing and Phasing Program (RCFPP) is a transportation improvement funding mechanism that assists in implementing the Circulation Element. Adopted in 1989, it establishes cost allocations for major circulation improvements in the northern portion of the City and the specific plan areas of the inland ranches.

### **City of San Juan Capistrano**

San Juan Capistrano's circulation system includes vehicular, public transit, bicycle, pedestrian, and equestrian components. Regional vehicular access is provided via I-5. The Southern California Regional Rail Authority railroad extends through the City and is served by a station located in the Historic Town Center. Public transit service includes buses and the Metrolink. Hiking, bicycling, and equestrian trails are located throughout the City. The San Juan Capistrano Circulation Element Arterial Highway Plan identifies anticipated traffic levels and the roadway system needed to avoid community impacts. The City of San Juan Capistrano

Reimbursement Agreement and Nexus Fee Program is a transportation improvement funding program that assists in implementing transportation improvements in the City.

### **Traffic Forecasting Methodology**

Traffic forecast data for the analysis was prepared using the South (Orange) County Sub-Area Model (SCSAM). This traffic forecasting model is a focused sub-area model derived from the Orange County Transportation Analysis Model (OCTAM) and was specifically designed to provide detailed forecasting capability in the traffic study area. The SCSAM is based on OCTAM Version 3.1 (OCTAM 3.1) which was adopted by the Orange County Transportation Authority (OCTA) in June 2001, together with a set of sub-area model consistency guidelines that are outlined in the *Orange County Subarea Modeling Guidelines Manual* (Orange County Transportation Authority, June 2001). The SCSAM has been certified by the OCTA as complying with these guidelines. For a complete description of the SCSAM, refer to the SCSAM *Traffic Model Description and Validation Report*.

The traffic forecast data produced by the SCSAM includes average daily traffic (ADT) volumes for arterial roadway and freeway mainline segments; and a.m. and p.m. peak hour volumes for intersection locations on the arterial and freeway circulation network, freeway ramps, and freeway mainline segments.

#### **4.1.5.2 SAMP Study Area Vehicular Traffic Performance Criteria**

As noted above, the traffic study area includes portions of unincorporated Orange County and portions of the cities of Dana Point, Laguna Hills, Laguna Niguel, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano, all of which have traffic performance criteria. Traffic performance criteria are based on two primary measures. The first is “capacity” which establishes the vehicle carrying ability of a road segment and the second is “volume.” The volume measure may be a traffic count (in the case of existing volumes) or traffic forecast for a future point in time. The ratio between the volume and the capacity gives a volume/capacity (V/C) ratio. Based on the V/C ratio, a corresponding “level of service” (LOS) is defined. Level of Service is a qualitative measure of a facility’s operating performance. Level of Service is described with a letter designation from A to F, with LOS A representing the best operating conditions and LOS F the worst.

Table 4.1.5- 1 identifies the V/C ranges that correspond to LOS A through F for arterial roads and freeway segments. The V/C ranges for arterial roads are designated in the County of Orange Congestion Management Program and are used by the County of Orange and by the local jurisdictions in the SAMP Study Area. The V/C ranges for freeway segments are based on the V/C and LOS relationships specified in the *Highway Capacity Manual 2000* (HCM, 2000) for basic freeway sections with free-flow speeds of 65 miles per hour.

#### **Arterial Roads Performance Criteria**

For the arterial roadway system, the peak hour is the time period used for performance evaluation. Various techniques are available to establish V/C ratios and to define the corresponding LOS. These definitions and procedures are established by local jurisdictions or by regional programs such as the County Congestion Management Program and the countywide Growth Management Plan. The analysis of the arterial road system is typically based on intersection capacity because this is the defining capacity limitation on an arterial highway system. Levels of service for arterial road intersections are determined based on operating conditions during the a.m. and p.m. peak hours. The intersection capacity utilization

(ICU) methodology is applied based on peak hour volumes and an intersection's geometric configuration. This methodology adds the V/C ratios for the critical movements of an intersection and is generally compatible with the intersection capacity analysis methodology in the *HCM 2000*. The ICU ranges that correspond to LOS A through LOS F are the same as the V/C ranges (Table 4.1.5-1) for arterial roads and intersections.

**TABLE 4.1.5-1  
LEVEL OF SERVICE RANGES AND VOLUME/CAPACITY RATIO**

| Level of Service (LOS) | Volume/Capacity (V/C) Ratio Range |                  |
|------------------------|-----------------------------------|------------------|
|                        | Arterial Roads and Intersections  | Freeway Segments |
| A                      | 0.00 – 0.60                       | 0.00 – 0.30      |
| B                      | 0.61 – 0.70                       | 0.31 – 0.50      |
| C                      | 0.71 – 0.80                       | 0.51 – 0.71      |
| D                      | 0.81 – 0.90                       | 0.72 – 0.89      |
| E                      | 0.91 – 1.00                       | 0.90 – 1.00      |
| F                      | Above 1.00                        | Above 1.00       |

Sources:  
 Arterial road and intersection V/C ranges: *2003 Orange County Congestion Management Program*, Orange County Transportation Authority.  
 Freeway segment V/C ranges: *Highway Capacity Manual 2000 (HCM 2000)*, Transportation Research Board, National Research Council.

Jurisdictions located in the traffic study area have established arterial intersection LOS standards that serve as a guideline for evaluating observed traffic conditions and as a target or goal when evaluating future development plans and circulation system modifications. These jurisdictions have also adopted various parameters for calculating ICU values and thresholds for identifying the effects of proposed projects. The ICU calculation methodology and performance criteria for each jurisdiction in the traffic study area are summarized in Table 4.1.5-2. Most of these jurisdictions use LOS D (ICU not to exceed 0.90) as the accepted standard, and exceptions are noted in the summary table for local jurisdictions that accept a different level of service standard for a certain section of road or for Congestion Management Program locations that have a different level of service standard. The table also summarizes the impact criteria used for identifying project impacts. They are based on the intersection performance criteria and establish the “threshold of significance” required for impact identification.

**Freeway Ramps Performance Criteria**

The peak hour is the time period typically used by Caltrans for freeway interchange ramp performance analyses. For the traffic study area, levels of service for freeway ramps are based on a.m. and p.m. peak hour V/C ratios. Carrying capacities for the various ramp configurations that either exist or are anticipated on the freeway system are based on information in the *Highway Design Manual* (Caltrans, July 1995) and the *Ramp Meter Design Manual* (Caltrans, January 2000) and have been used for other studies in Orange County. The capacities for calculating ramp V/C ratios and the performance criteria are summarized in Table 4.1.5-3.

**TABLE 4.1.5-2  
ARTERIAL INTERSECTION PERFORMANCE CRITERIA**

|   |
|---|
| <b>V/C Calculation Methodology</b>  |
| Level of service (LOS) to be based on peak hour intersection capacity utilization (ICU) values calculated using the following assumptions:<br>Saturation Flow Rate: 1,600 vehicles/hour/lane for City of San Clemente intersections, 1,700 vehicles/hour/lane for all other jurisdictions in the study area.<br>Clearance Interval: 0.00 for City of San Clemente intersections, 0.05 for all other jurisdictions in the study area.  |
| <b>Performance Standard</b>   |
| LOS D (peak hour ICU less than or equal to 0.90) for locations other than Congestion Management Program (CMP) intersections and Crown Valley Parkway intersections between I-5 and Marguerite Parkway.  |
| LOS E (peak hour ICU less than or equal to 1.00) for CMP intersections (i.e., the I-5 ramp intersections at Crown Valley Parkway and at Ortega Highway, and the intersection of Moulton Parkway and Crown Valley Parkway) and Crown Valley Parkway intersections between I-5 and Marguerite Parkway.  |
| <b>Impact Thresholds</b>  |
| A freeway ramp is considered to be adversely impacted if: <ol style="list-style-type: none"> <li>1. The intersection is forecast to operate deficiently with the project (i.e., worse than the performance standard).</li> <li>2. Compared to the ICU in the “without project” alternative, the ICU in a “with project” alternative increases as follows:             <ul style="list-style-type: none"> <li>• 0.01 or greater at County of Orange, City of Mission Viejo, City of Rancho Santa Margarita and City of San Juan Capistrano intersections (the impact threshold specified in the Growth Management Plan (GMP) and adopted by the Cities of Mission Viejo, Rancho Santa Margarita and San Juan Capistrano).</li> <li>• Greater than 0.01 at City of Laguna Hills, City of Laguna Niguel and City of San Clemente intersections (the impact threshold adopted by those Cities).</li> <li>• Greater than 0.03 at CMP intersections (the impact threshold specified in the CMP).</li> </ul> </li> </ol> |
| Source: The Ranch Plan EIR 589  |

**Freeway Mainline Performance Criteria**

The freeway mainline segment performance criteria are based on peak hour volumes by direction. When a peak hour V/C ratio for a freeway segment exceeds the theoretical (and practical) maximum V/C of 1.0, the actual value is reported, although it is recognized that this demand typically cannot be accommodated during the peak hour. In such cases, the excess peak hour demand will result in a peak period that exceeds one because vehicles will queue back from the bottleneck area. When this traffic condition occurs on a regular basis, many motorists will try to avoid the peak hours by traveling before or after the peak hours or may choose alternative arterial routes. The degree to which spreading into the peak period occurs is considered in the traffic forecasting process but is not used in the actual performance calculation.

Capacities for calculating peak hour V/C ratios for freeway mainline segments are based on information contained in the *Highway Design Manual* (Caltrans, July 1995) and have been verified by Caltrans staff in previous Orange County studies. A capacity of 2,000 vehicles per hour per lane (vphpl) is used for mixed-flow (general purpose) mainline freeway lanes, a capacity that corresponds to LOS E. Consistent with Caltrans’ guidelines for high occupancy vehicle (HOV) facilities, a desirable operating capacity of 1,600 vphpl is applied for a one-lane buffer-separated HOV facility and a desirable operating capacity of 1,750 vphpl is applied for a two-lane buffer-separated HOV facility in which passing is allowed. These HOV capacities,

which are lower than the capacity for a mixed-flow freeway lane, reflect Caltrans' objective for HOV facilities to operate better than LOS E.

**TABLE 4.1.5-3  
FREEWAY RAMP PERFORMANCE CRITERIA**

| <b>V/C Calculation Methodology</b>  |
|---|
| Level of service (LOS) to be based on peak hour volume/capacity (V/C) ratios calculated using the following ramp capacities:  |
| <p><b>Metered On-Ramps</b></p> <p>A maximum capacity of 900 vehicles per hour (vph) for a one-lane metered on-ramp with only one -flow lane at the meter.</p> <p>A maximum capacity of 1,080 (20 percent greater than 900) vph for a one-lane metered on-ramp with one -flow lane at the meter plus one high occupancy vehicle (HOV) preferential lane at the meter.</p> <p>A maximum capacity of 1,500 vph for a one-lane metered on-ramp with two -flow lanes at the meter.</p> <p>A maximum capacity of 1,800 vph for a two-lane metered on-ramp with two -flow lanes at the meter.</p> <p><b>Non-Metered On-Ramps and Off-Ramps</b></p> <p>A maximum capacity of 1,500 vph for a one-lane ramp.</p> <p>A maximum capacity of 2,250 (50 percent greater than 1,500) vph for a two-lane on-ramp that tapers to one merge lane at or beyond the freeway mainline gore point and for a two-lane off-ramp with one auxiliary lane.</p> <p>A maximum capacity of 3,000 vph for a two-lane on-ramp that does not taper to one merge lane and for a two-lane off-ramp with two auxiliary lanes.</p> |
| <b>Performance Standard</b>   |
| LOS E (peak hour V/C less than or equal to 1.00).   |
| <b>Impact Thresholds</b>  |
| <p>A freeway ramp is considered to be adversely impacted if:</p> <ol style="list-style-type: none"> <li>1. The ramp is forecast to operate deficiently with the project (i.e., worse than the performance standard).</li> <li>2. Compared to the V/C in the "without project" alternative, the V/C in a "with project" alternative increases as follows: <ul style="list-style-type: none"> <li>• 0.01 or greater for ramps at County of Orange, City of Mission Viejo, City of Rancho Santa Margarita, and City of San Juan Capistrano intersections (the impact threshold specified in the GMP and adopted by the Cities of Mission Viejo, Rancho Santa Margarita, and San Juan Capistrano).</li> <li>• Greater than 0.01 for ramps at City of Laguna Hills, City of Laguna Niguel and City of San Clemente intersections (the impact threshold adopted by those cities).</li> </ul> </li> </ol>  |
| Source: The Ranch Plan EIR 589  |

The capacity of a freeway auxiliary lane is generally different from that of a mainline lane because auxiliary lanes are typically implemented to preserve standard freeway capacities at locations where the geometric design is below standard (for example, between interchanges that are spaced less than one mile apart or where heavy on-/off-ramp volumes occur between interchanges). While an auxiliary lane can increase the overall capacity of a mainline freeway segment, the practical increase depends factors such as the length of the auxiliary lane and the on/off ramp volumes at the beginning and end of the auxiliary lane. The capacity assumptions for freeway mixed-flow, HOV, and auxiliary lanes and performance criteria are identified in Table 4.1.5-4.

**TABLE 4.1.5-4  
FREEWAY MAINLINE PERFORMANCE CRITERIA**

| <b>V/C Calculation Methodology</b>  |
|---|
| <p>Level of service (LOS) to be based on peak hour volume/capacity (V/C) ratios calculated using the following capacities:</p> <ul style="list-style-type: none"> <li>2,000 vehicles per hour per lane (vphpl) for -flow (general purpose) lanes.</li> <li>1,600 vphpl for a one-lane buffer-separated high occupancy vehicle (HOV) facility.</li> <li>1,750 vphpl for a two-lane buffer-separated HOV facility.</li> <li>0 vehicles per hour (vph) added capacity for an auxiliary lane that is 0.5 mile or less in length, an auxiliary lane that is between 0.5 mile and 1.0 mile in length carrying less than 1,000 vph of total on/off ramp volume at the beginning and end of the lane, or an auxiliary lane that acts as a climbing lane.</li> <li>500 vph added capacity for an auxiliary lane that is between 0.5 mile and 1.0 mile in length carrying between 1,000 and 2,000 vph of total on/off ramp volume at the beginning and end of the lane.</li> <li>1,000 vph added capacity for an auxiliary lane that is between 0.5 mile and 1.0 mile in length carrying more than 2,000 vph of total on/off ramp volume at the beginning and end of the lane.</li> <li>2,000 vph added capacity for an auxiliary lane that is more than 1.0 mile in length.</li> </ul> |
| <b>Performance Standard</b>   |
| <p>LOS E (peak hour V/C less than or equal to 1.00).</p>  |
| <b>Impact Threshold</b>   |
| <p>A freeway mainline segment is considered to be adversely impacted if:</p> <ol style="list-style-type: none"> <li>1. The segment is forecast to operate deficiently (i.e., worse than the performance standard).</li> <li>2. The V/C in a project alternative increases by greater than 0.03 (the impact threshold specified in the CMP) compared to the V/C in the "without project" alternative.</li> </ol>   |
| <p>Source: The Ranch Plan EIR 589</p>   |

When evaluating existing freeway conditions (i.e., based on traffic count data), the V/C and LOS criteria are applicable only in situations where the observed traffic volume occurs in stable flow. Freeway capacities can be substantially reduced under unstable congested conditions in which less traffic is accommodated than under ideal freeway operating conditions. LOS E has been established by Caltrans as the operating standard for freeway mainline segments and is consistent with the level of service standard specified in the County Congestion Management Program for Congestion Management Program facilities.

#### **4.1.5.3 Traffic Analysis Scenarios**

The overall approach to the impact analysis was noted earlier, and some elaboration of the various settings in the overall analysis follows.

**Existing Conditions.** This is the environmental baseline and is based on observed traffic conditions on the study area circulation system for preparation of the GPA/ZC EIR 589 traffic study. Average daily traffic (ADT) data was collected for the traffic study area as a part of GPA/ZC EIR 589. In addition, peak hour intersection counts were taken at 75 intersections in the traffic study area. Existing freeway traffic ramp data was also collected.

**Long-Range (Year 2025)** assumes cumulative growth in the traffic study area through year 2025, including buildout of the RMV Planning Area. The primary sources of information used in the GPA/ZC EIR 589 traffic study for areas outside of the RMV Planning Area were OCP-2000 Modified demographic data, which was adopted by the Orange County Board of Supervisors in 2000 and the General Plans for jurisdictions within the study area. The traffic study area circulation system assumes transportation improvements that have committed funding by 2010. The mitigation program for the RMV Planning Area is based on this assumption.



Three circulation system scenarios are used for the *Year 2025* analysis:

- Committed circulation system.<sup>2</sup>
- Committed circulation system plus La Pata Avenue extension.
- Committed circulation system plus La Pata Avenue extension and the southerly extension of SR-241.

#### **4.1.5.4 Existing Conditions**

##### **Average Daily Traffic Volumes**

Average daily traffic (ADT) data was collected for the traffic study area. In addition, peak hour intersection counts were taken at 75 intersections in the traffic study area. Figure 4.1.5-2 depicts existing ADT volumes on the traffic study area circulation system. Volumes on arterial roadways in the study area are based on weekday 24-hour traffic count data collected in 2003. Freeway counts on I-5 are from 2002 Caltrans annual ADT counts that have been converted to weekday ADT based on conversion factors provided by Caltrans. Existing ADT volumes shown on the SR-73 and SR-241 tollways are taken from 2002 count data supplied by the Transportation Corridor Agencies.

##### **Intersection Levels of Service**

As assessed in the GPA/ZC EIR 589, the following four intersections were found to be currently operating at deficient levels of service.

###### **City of Laguna Niguel**

20. Street of the Golden Lantern at Paseo de Colinas

###### **City of Mission Viejo**

3. Marguerite Parkway at Oso Parkway—a.m. peak and p.m. peak
11. Marguerite Parkway at Crown Valley Parkway—p.m. peak

###### **Unincorporated Orange County**

29. Antonio Parkway/La Pata Avenue at Ortega Highway—a.m. peak

##### **Freeway Ramp Levels of Service**

Under existing conditions, GPA/ZC EIR 589 found that the following three freeway ramps were operating at deficient levels of service:

- I-5 at Oso Parkway southbound off-ramp—p.m. peak

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<sup>2</sup> Committed improvements include those in a capital improvement program of a local jurisdiction within the traffic study area, or projects that are currently funded by Caltrans through year 2010. Also included are improvements that have a specific funding source, such as the City of San Juan Capistrano's Reimbursement Agreement and Nexus Fee Program and the City of San Clemente's Regional Circulation Financing and Phasing Program (RCFPP). In addition, improvements that are part of conditions of approval for development that is included in the demographic data forecasts (i.e., OCP-2000 Modified projections) are also assumed to be committed.

- I-5 at Crown Valley Parkway southbound off-ramp–p.m. peak
- I-5 at Ortega Highway northbound on-ramp–a.m. peak

### **Freeway Mainline Levels of Service**

Under existing conditions, the GPA/ZC EIR 589 found that the following freeway mainline segments were operating at deficient levels of service:

- Northbound I-5 north of Oso Parkway
- Southbound I-5 north of Oso Parkway
- Northbound I-5 north of Crown Valley Parkway
- Southbound I-5 north of Crown Valley Parkway
- Northbound I-5 north of Avery Parkway
- Southbound I-5 north of Avery Parkway
- Northbound I-5 north of Camino Capistrano

When the peak hour V/C ratio on a freeway mainline segment nears 1.0, unstable conditions can occur which may result in a breakdown in flow. This breakdown in flow causes a reduction in capacity (vehicle speeds drop below the speed at which maximum capacity is available), and the V/C increases, causing a further reduction in speed. The result is stop-and-go conditions. At the same time, the reduction in capacity and increase in V/C causes queue build-up and the stop-and-go conditions can extend for a considerable distance upstream of the problem section. This occurrence and its severity (i.e., length of queue) can vary on a daily basis from day to day, even when day-to-day fluctuations in traffic volumes are relatively small.

Speed and travel time measurements taken by Caltrans for the freeway system give an indication of when and where such conditions occur (i.e., for the day or days on which such measurements are taken). Specific level of service values are assigned based on the measured speeds; the level of service is determined by comparing the measured speed with a minimum desirable operating speed (typically 35 miles per hour [mph]). Travel time studies also reveal deficient freeway sections that are not in themselves a capacity problem, but which are adversely affected by queue build-up from a deficient section downstream. Therefore, LOS values as determined from speed measurements may not equate to the V/C because a queue can extend back from a deficient section to a section with a relatively low V/C.

For these reasons, the V/C based LOS is not always a true indication of the actual operating level of service on a freeway segment, particularly when a high V/C ratio on a given section adversely affects upstream sections because of queue build-up. The upstream section may have a relatively low V/C and suggest satisfactory operating conditions. However, stop-and-go conditions extending back to this section would cause it to be operating under congested conditions.

The Caltrans field measurements indicate that I-5 currently operates at a deficient LOS in the a.m. peak in the northbound direction from Camino Capistrano to Ortega Highway and from

Avery Parkway to north of Oso Parkway, and in the p.m. peak in the southbound direction from north of Oso Parkway to Avery Parkway.

#### **4.1.5.5 Future Transportation System Improvements**

Several transportation planning programs exist to provide direction for planning, developing, operating, and maintaining the highway circulation system in southern California. The Southern California Association of Governments (SCAG) is designated as the agency responsible for regional transportation planning in the SCAG region by both the state and federal governments. Orange County is included in the SCAG region together with Los Angeles, San Bernardino, Riverside, Ventura, and Imperial counties. The Regional Transportation Plan (RTP) is prepared by SCAG pursuant to the federal Transportation Equity Act for the 21st Century (TEA-21) and the state and federal Clean Air Acts. The RTP outlines the region's 25-year policy plan for meeting mobility goals, and identifies the master funding list for all transportation improvements needed to meet those goals. The RTP provides a long-range circulation plan for the regional circulation system. The RTP focuses on regional transportation improvements such as freeway widenings, HOV system enhancements, and freeway interchange improvements. By law, regionally significant projects must be included in the RTP to be eligible for federal or state funding and/or approvals. The Regional Transportation Improvement Program (RTIP) is the SCAG region's four-year capital improvement program for state and local highways. The RTIP represents the near-term implementation phase of the long-range RTP required under transportation legislation. The State Transportation Improvement Program (STIP) is a similar program overseen by the California Transportation Commission (CTC) to fund state highway projects. Both the STIP and the RTIP are used to program specific dollar amounts for transportation projects in each county.

The long-range circulation plan for the arterial system in Orange County is defined by the Orange County Master Plan of Arterial Highways (MPAH). The MPAH represents the arterial highway system in the Circulation Element of the County General Plan and the arterial street components included in the General Plan Circulation Elements of the local jurisdictions in Orange County. The MPAH also identifies the existing and proposed freeway and toll road components of the circulation system. The long-range (year 2025) analysis of cumulative project impacts assumes the existing study area circulation system plus implementation of only those MPAH and RTP improvements that are currently funded and/or committed.

Any freeway improvement project in Orange County that is included in the STIP and RTIP must also be included in the Capital Improvement Program (CIP) of the Orange County Congestion Management Program. Each county in California is required to prepare a Congestion Management Program to continue receiving gas tax funds made available through Proposition 111, which passed in June 1990. The OCTA is the lead agency for the Orange County Congestion Management Program, and is responsible for preparing and biennially updating the Congestion Management Program and for monitoring the implementation of the Congestion Management Program. With respect to freeway improvements included in the Congestion Management Program CIP, this involves monitoring the funding of such improvements through the STIP and RTIP and other available local and regional funding programs.

#### **Committed Circulation System**

Committed improvements include those in a capital improvement program of a local jurisdiction within the study area, or projects that are currently funded by Caltrans. Also included are improvements that have a specific funding source, such as the City of San Juan Capistrano's Reimbursement Agreement and Nexus Fee Program. In addition, improvements that are part of

conditions of approval for development that is included in the demographic data forecasts are also assumed to be committed.

Figure 4.1.5-3 depicts the committed circulation system in the traffic study area (funded improvements through year 2010). A list of the improvements contained in the committed circulation system and the source of funding or source of commitment as of the time of certification of GPA/ZC EIR 589 is provided in Table 4.1.5-5. The major study area roadway improvements that are committed include widening of Crown Valley Parkway to eight lanes and selected intersection improvements.

It is noted that the traffic improvements which were included in the mitigation program for GPA/ZC EIR 589, which was adopted by the County of Orange Board of Supervisors in conjunction with its approval of the GPA/ZC project, could be considered as “committed improvements.” However, in order to be consistent with the approach for the Coordinated Planning Process for the GPA/ZC, SAMP, and NCCP/MSAA/HCP, and their associated environmental analysis documents, these traffic improvements are presented here as a part of the County of Orange’s mitigation program.

### **MPAH Buildout Circulation System**

Figure 4.1.5-4 depicts the future circulation system in the study area based on full buildout of the General Plan Circulation Elements for the cities in the traffic study area, as well as the Orange County MPAH. Table 4.1.5-6 lists the non-committed improvements (no committed funding sources) associated with buildout of the study area circulation system as of the time of certification of GPA/ZC EIR 589.

**TABLE 4.1.5-5  
COMMITTED CIRCULATION SYSTEM IMPROVEMENTS (YEAR 2010) IN THE TRAFFIC STUDY AREA**

| Facility  | Jurisdiction         | Improvement   | Source <sup>a</sup> |
|---|----------------------|---|---------------------|
| Antonio Parkway (Oso Parkway to Crown Valley Parkway)   | County of Orange     | Widen to six lanes.   | 1                   |
| Avenida La Pata (Avenida Pico to Avenida Vista Hermosa)   | San Clemente         | Construct as a six-lane major arterial.                         | 2                   |
| Avenida Talega (east of Avenida Vista Hermosa)  | San Clemente         | Extend as secondary arterial.                                   | 3                   |
| Avenida Vista Hermosa (Camino Vera Cruz to north of Avenida La Pata)  | San Clemente         | Construct as a four-lane primary arterial.                      | 2                   |
| Camino Capistrano (south of Oso Road to Junipero Serra Road)  | San Juan Capistrano  | Widen to four lanes.  | 4                   |
| Camino Capistrano (south of San Juan Creek Road)  | San Juan Capistrano  | Widen to three lanes (two southbound and one northbound).       | 4                   |
| Crown Valley Parkway (I-5 to east of Trabuco Creek bridge)  | County/Mission Viejo | Widen to eight lanes.   | 1                   |
| Rancho Viejo Road (south of Junipero Serra Road)  | San Juan Capistrano  | Widen to four lanes.  | 4                   |
| Ortega Highway (north of I-5)   | TCA/Caltrans         | Widen to provide four general-purpose lanes in each direction.  | 5                   |
| SR-241 (Oso Parkway to Santa Margarita Parkway)   | TCA/Caltrans         | Widen to provide three general-purpose lanes in each direction. | 5                   |
| <p>Sources:</p> <ol style="list-style-type: none"> <li>1 Conditioned for implementation with development of Ladera Ranch.</li> <li>2 Implemented through the City of San Clemente Regional Circulation Financing and Phasing Program (RCFPP).</li> <li>3 Conditioned for implementation with development of Talega.</li> <li>4 Implemented through the City of San Juan Capistrano Reimbursement Agreement and Nexus Fee Program.</li> <li>5 Implemented through the Foothill/Eastern Transportation Corridor Agency (TCA) Capital Improvement Plan (CIP).</li> </ol> <p>Source: The Ranch Plan EIR 589</p> |                      |   |                     |

**TABLE 4.1.5-6  
NON-COMMITTED CIRCULATION SYSTEM IMPROVEMENTS IN THE TRAFFIC STUDY AREA**

| Facility  | Jurisdiction                         | Improvement   | Source <sup>a</sup> |
|---|--------------------------------------|---|---------------------|
| Alipaz Street (north of Del Obispo Street to Oso Road)                        | San Juan Capistrano                  | Construct as four-lane secondary arterial.                        | MPAH                |
| Antonio Parkway (south of Ladera Ranch to Ortega Highway/SR-74)               | County                               | Widen to six lanes.   | MPAH                |
| La Pata Avenue (south of Ortega Highway/SR-74)                                | County                               | Widen to four lanes.  | MPAH                |
| La Pata Avenue (south of Ortega Highway/SR-74 to San Clemente city limits)    | County                               | Construct as a four-lane primary arterial.                        | MPAH                |
| Avenida La Pata (San Clemente city limits to Avenida Vista Hermosa)           | San Clemente                         | Construct as a six-lane major arterial.                           | MPAH                |
| Camino Capistrano (south of San Juan Creek Road)                              | San Juan Capistrano                  | Widen to four lanes.  | MPAH                |
| Camino Capistrano (Junipero Serra Road to San Juan Capistrano city limits)    | San Juan Capistrano                  | Widen to four lanes.  | MPAH                |
| Camino De Los Mares (east of Camino Del Rio to Camino Las Ramblas)            | San Clemente                         | Construct as four-lane secondary arterial.                        | MPAH                |
| Camino Del Rancho (I-5 to Avenida Pico)                                       | San Clemente                         | Construct as a four-lane primary arterial.                        | MPAH                |
| Camino Del Rio (current termination east to Avenida La Pata)                  | San Clemente                         | Construct as four-lane secondary arterial.                        | MPAH                |
| Camino Las Ramblas (current termination east to Avenida La Pata)              | San Juan Capistrano/<br>San Clemente | Construct as four-lane secondary arterial.                        | MPAH                |
| Camino Los Padres (east of Street of the Golden Lantern to Camino Capistrano) | San Juan Capistrano                  | Construct as four-lane primary arterial.                          | MPAH                |
| Crown Valley Parkway (Antonio Parkway to SR-241)                              | County                               | Construct as six-lane major arterial.                             | MPAH                |
| Crown Valley Parkway (SR-241 to Oso Parkway)                                  | County                               | Construct as four-lane primary arterial.                          | MPAH                |
| I-5 (Oso Parkway to Crown Valley Parkway)                                     | Caltrans                             | Add southbound auxiliary lane.                                    | CT-RCR              |
| I-5 (Pacific Coast Highway/SR-1 to Avenida Pico)                              | Caltrans                             | Add northbound and southbound high occupancy vehicle (HOV) lanes. | SCAG<br>RTP         |
| Junipero Serra Road (Camino Capistrano to Rancho Viejo Road)                  | San Juan Capistrano                  | Widen to four lanes.  | MPAH                |
| La Novia Avenue (north of San Juan Creek Road)                                | San Juan Capistrano                  | Widen to four lanes.  | MPAH                |
| Olympiad Road (Alicia Parkway to La Paz Road)                                 | Mission Viejo                        | Widen to four lanes.  | MPAH                |
| Ortega Highway (Via Cordova to San Juan Capistrano city limits)               | San Juan Capistrano                  | Widen to four lanes.  | MPAH                |

**TABLE 4.1.5-6  
NON-COMMITTED CIRCULATION SYSTEM IMPROVEMENTS IN THE TRAFFIC STUDY AREA**

| Facility  | Jurisdiction        | Improvement   | Source <sup>a</sup> |
|---|---------------------|---|---------------------|
| Ortega Highway (San Juan Capistrano city limits to Orange County/Riverside County border)   | County              | Widen to four lanes.                                | MPAH                |
| Oso Road (Alipaz Street to Camino Capistrano)   | San Juan Capistrano | Widen to four lanes.                                | MPAH                |
| San Juan Creek Road (Camino Capistrano to San Juan Capistrano city limits)  | San Juan Capistrano | Widen to four lanes.                                | MPAH                |
| San Juan Creek Road (San Juan Capistrano city limits to Avenida La Pata)  | San Juan Capistrano | Construct as four-lane secondary arterial.          | MPAH                |
| SR-73 (north of I-5)  | TCA/Caltrans        | Add one northbound and southbound lane.             | OCTA                |
| SR-241 (Oso Parkway to Santa Margarita Parkway)   | TCA/Caltrans        | Add one northbound and southbound lane.             | OCTA                |
| SR-241 (Oso Parkway to I-5)   | TCA/Caltrans        | Construct and provide four lanes in each direction. | MPAH                |
| Trabuco Canyon Road (extension to Avery Parkway)  | Mission Viejo       | Construct as two-lane collector road.               | MPAH                |
| <p>Source:</p> <p>CT-RCR: Caltrans I-5 Route Concept Report (May 2000)</p> <p>MPAH: Orange County Master Plan of Arterial Highways</p> <p>OCTA: Orange County Transportation Authority (consistent with the number of lanes on the SR-73 and SR-241 toll roads in the 2025 buildout version of OCTA's Orange County Transportation Analysis Model – OCTAM 3.1)</p> <p>RTP: Regional Transportation Plan</p> <p>SANDAG: San Diego Association of Governments</p> <p>SCAG: Southern California Association of Governments</p> <p>Source: The Ranch Plan EIR 589</p> |                     |   |                     |