

4.10 TRANSPORTATION

The potential traffic impacts of the proposed project are evaluated in the *Nohl Canyon Tank Traffic Impact Analysis* (TIA) for the proposed project prepared by Urban Crossroads (September 2007). The traffic study is summarized below and is included in its entirety in Appendix G of this EIR.

4.10.1 METHODOLOGY

For the traffic impact analysis, roadways and intersections within the traffic analysis study area were analyzed for the following timeframes: existing (2007) and year 2010. For each of the existing and future scenarios, traffic conditions with and without the Nohl Canyon Water Storage Tank project have been analyzed; project mitigation measures are identified to address any adverse traffic impacts attributed to the proposed project. Existing intersection capacity utilization (ICU) is based on the AM (7:00 AM to 9:00 AM), afternoon (3:00 PM to 4:00 PM), and PM (4:00 PM to 6:00 PM) peak hours. The afternoon peak hour is included in the analysis because of the proximity of the project site and construction route to Nohl Canyon Elementary School which has an academic day that begins at approximately 8:00 AM and ends at 2:15 PM.

Based on discussions with the City of Anaheim and the City of Orange Transportation staff, the study area includes the ten intersections, as listed below. The intersection locations are shown in Exhibit 4.10-1 while the existing number of through lanes and type of intersection controls are shown in Exhibit 4.10-2.

Tustin Street at:

- Lincoln Avenue

Santiago Boulevard at:

- Nohl Ranch Road
- SR-55 Northbound Ramps

Nohl Canyon Road at:

- Santa Ana Canyon Road
- Nohl Ranch Road

SR-91 Eastbound Off Ramp at:

- Santa Ana Canyon Road

Lakeview Avenue at:

- SR-91 Westbound Ramps
- Santa Ana Canyon Road

Royal Oak Road at:

- Santa Ana Canyon Road
- Nohl Ranch Road

As stated in Section 3.0, Project Description, inbound construction access would be from SR-91. From SR-91, construction traffic would travel along Lakeview Avenue to Santa Ana Canyon Road, west to Santiago Boulevard, south to Nohl Ranch Road, and east to Nohl Canyon Road (refer to Exhibit 4.10-3). Outbound construction vehicles would exit the site along

Nohl Canyon Road, east to Royal Oak Road, north to Santa Ana Canyon Road, and west to Lakeview Avenue and SR-91 (refer to Exhibit 4.10-4).

Intersection Capacity Utilization

Existing AM, afternoon, and PM peak hour operating conditions for the key signalized intersections were evaluated using the Intersection Capacity Utilization (ICU) method of analysis. The ICU technique estimates the volume to capacity (V/C) relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements. To calculate an ICU, the volume of traffic using the intersection is compared with the capacity of the intersection. ICU is expressed as a percent which represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

The ICU calculations use a lane capacity of 1,700 vehicles per hour (vph) per lane per hour for intersections; no adjustments are used for protected movements with dedicated lanes (including both right and left turns). A lost time factor of 0.05 (5 percent) was applied to the ICU calculations.

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The six qualitative categories of Level of Service and the corresponding ICU value range are shown in Table 4.10-1, Level of Service. LOS definitions are provided in Appendix A of the Traffic Study which is included as Appendix G of the EIR.

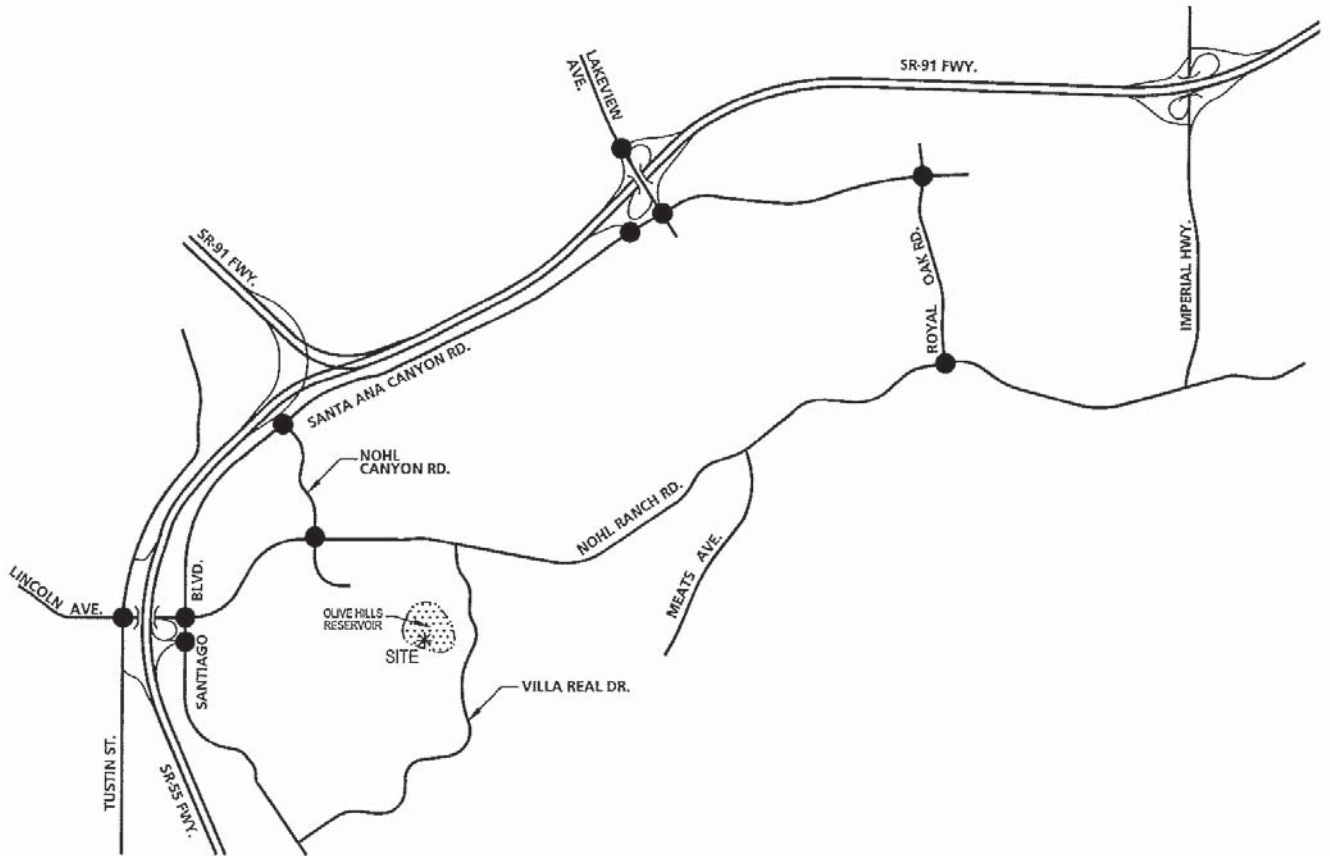
**TABLE 4.10-1
LEVEL OF SERVICE (SIGNALIZED INTERSECTIONS)**

| Level of Service (LOS) | Intersection Capacity Utilization Value (V/C) |
|--------------------------------|---|
| A | 0.00 – 0.60 |
| B | 0.61 – 0.70 |
| C | 0.71 – 0.80 |
| D | 0.81 – 0.90 |
| E | 0.91 – 1.00 |
| F | ≥ 1.01 |
| Source: Urban Crossroads 2007. | |

The ICU value is the sum of the critical volume to capacity ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements.

For an unsignalized intersection (i.e., Nohl Canyon Road at Santa Ana Canyon), the Highway Capacity Manual (HCM) methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The study area intersection, which is currently stop sign controlled on Nohl Canyon Road only, has been analyzed using the unsignalized intersection methodology of the HCM. For this intersection, the calculation of LOS is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at the study area location, the LOS is calculated. The LOS criteria for this type of intersection analysis, shown in Table 4.10-2, is based on average total delay per vehicle for the worst minor street movements.

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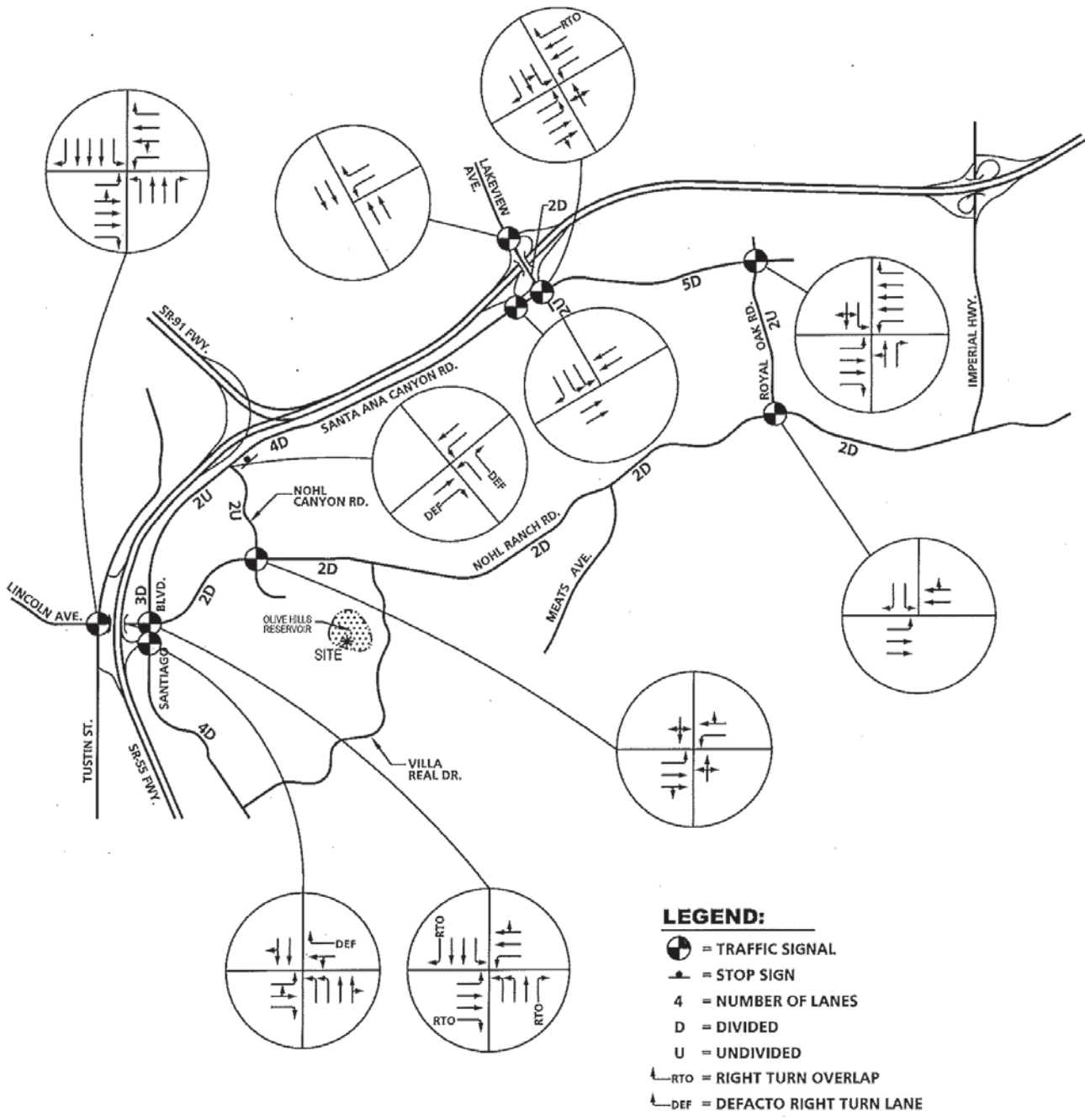
● = INTERSECTION ANALYSIS LOCATION

Location Map

Exhibit 4.10-1

Nohl Canyon Water Storage Tank Project





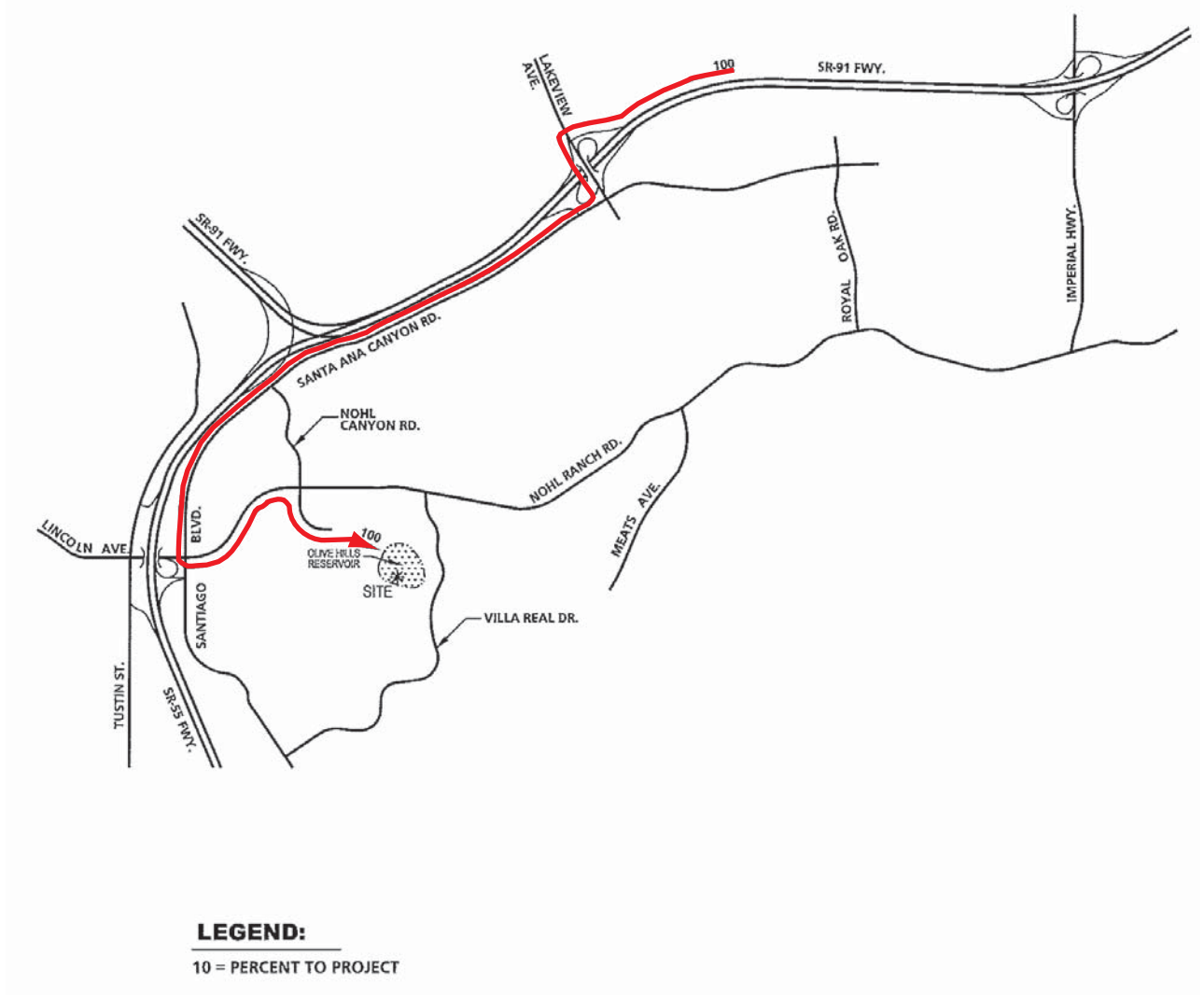
Existing Number of Through Lanes and Intersection Controls

Exhibit 4.10-2

Nohl Canyon Water Storage Tank Project



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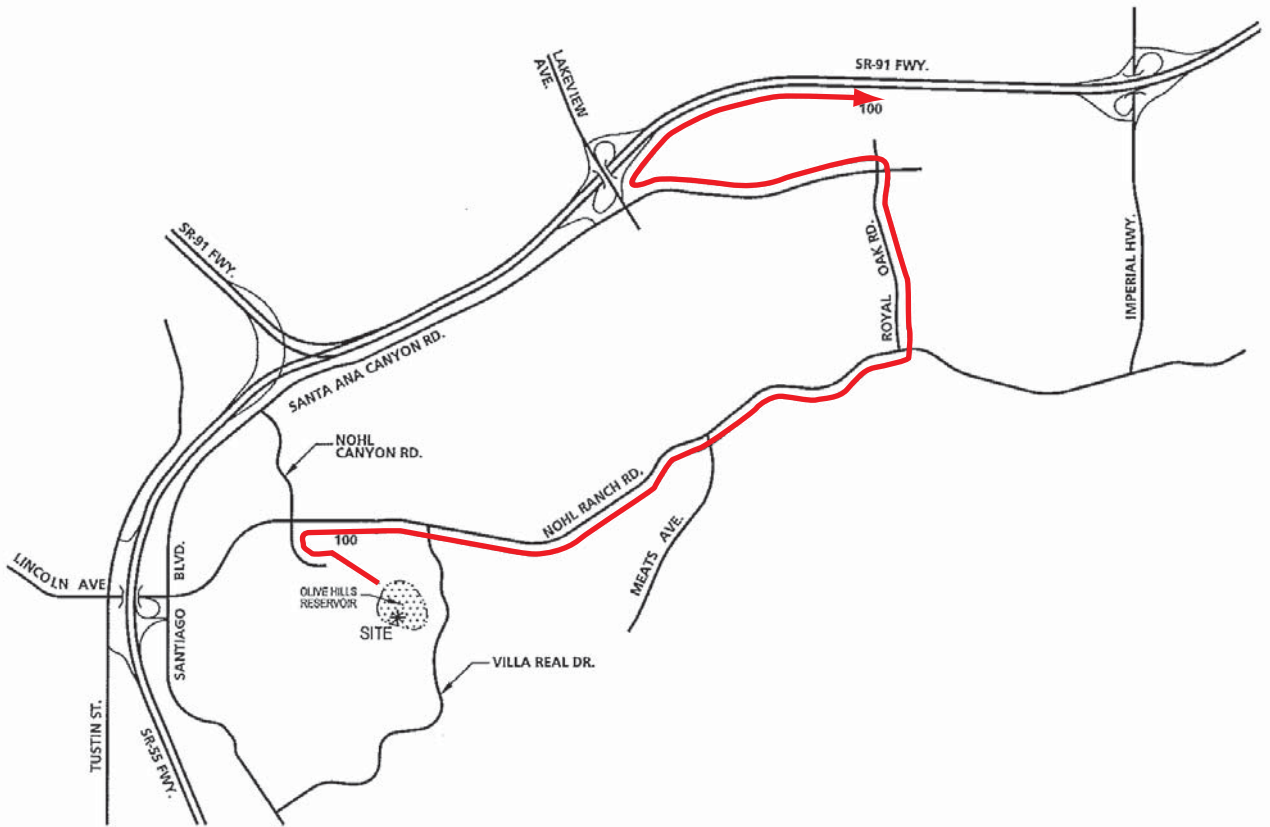
Inbound Construction Vehicle Access Route

Exhibit 4.10-3

Nohl Canyon Water Storage Tank Project

Bonterra
CONSULTING

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10 = PERCENT FROM PROJECT

Outbound Construction Vehicle Access Route

Exhibit 4.10-4

Nohl Canyon Water Storage Tank Project



**TABLE 4.10-2
LEVEL OF SERVICE (UNSIGNALIZED INTERSECTIONS)**

| Level of Service (LOS) | Intersection Capacity Utilization Value (V/C) |
|------------------------|---|
| A | 0.00 – 10.00 |
| B | 10.01 – 15.00 |
| C | 15.01 – 25.00 |
| D | 25.01 – 35.00 |
| E | 35.01 – 50.00 |
| F | ≥50.01 |

Source: Urban Crossroads 2007.

4.10.2 EXISTING CONDITIONS

Project Study Area Existing Roadways

The proposed Nohl Canyon Water Storage Tank is located south of Nohl Ranch Road and west of North Villa Real Drive in the City of Anaheim. As shown in Exhibit 4.10-1, access to the study area is limited to Nohl Canyon Road via Nohl Ranch Road. Following is a discussion of the existing circulation system.

Major Local Roadways

Major local roadways within the project study area include the following:

- **Nohl Ranch Road** – Nohl Ranch Road is an east-west facility with two to four lanes. Nohl Ranch Road is designated as a Hillside Secondary Arterial with an existing demand of approximately 25,900 cars per day.
- **Santiago Boulevard** – Santiago Boulevard is a north-south facility with four lanes. Santiago Boulevard is designated as a Primary Arterial Road with an existing demand of approximately 13,300 cars per day.
- **Nohl Canyon Road** – Nohl Canyon Road is a north-south facility with two lanes. Nohl Canyon Road is designated as a Hillside Collector Street north of Nohl Ranch Road and unclassified to the south. This street has an existing demand of 600 cars per day.
- **Royal Oak Road** – Royal Oak Road is a north-south facility with two lanes. Royal Oak Road is designated as a Hillside Secondary Arterial with an existing demand of approximately 4,300 cars per day.
- **Tustin Street** – Tustin Street is a north-south facility with six lanes. Tustin Street is designated as a Primary Arterial Road with an existing demand of 32,200 cars per day.
- **Lakeview Avenue** – Lakeview Avenue is a north-south roadway and is classified as a primary arterial in the study area. Lakeview Avenue has two lanes in each direction and has an existing demand of 29,300 cars per day.
- **Santa Ana Canyon Road** – Santa Ana Canyon Road is an east-west roadway and is classified as a primary arterial west of Lakeview Avenue and a Scenic Expressway east

of Lakeview Avenue in the study area. Santa Ana Canyon Road varies between a two lane and four lane roadway and has an existing demand of between 12,800 and 27,700 cars per day.

Current Transportation System Performance in the Traffic Analysis Study Area

Average Daily Traffic Volumes

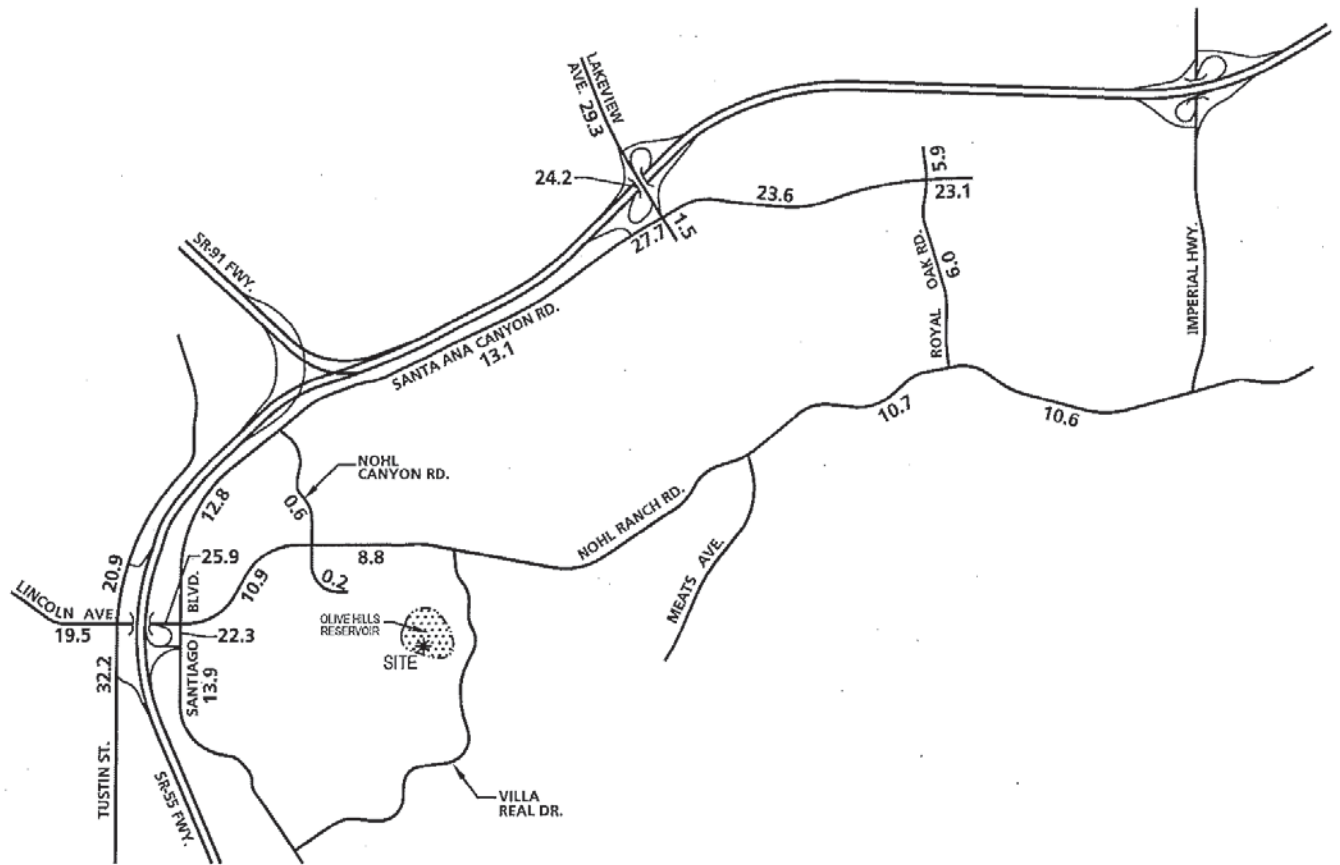
Exhibit 4.10-5 illustrates current average daily traffic (ADT) volumes on the study area circulation system. Existing ADT volumes for the arterial roads in the study area are based on traffic counts collected June 2006 and July 2007.

Peak Hour Intersection Levels of Service

Existing peak hour levels of service at key intersection locations in the traffic analysis study area were determined based on AM (7:00 AM to 9:00 AM), afternoon (3:00 PM to 4:00 PM), and PM (4:00 PM to 6:00 PM) peak hour turn movement counts collected in July 2006 and June 2007. Table 4.10-3 provides existing AM, afternoon, and PM peak hour ICU values for the intersection locations that were analyzed under existing conditions. Existing AM, afternoon, and PM peak hour intersection volumes are shown in Exhibits 4.10-6 through 4.10-8. The City of Anaheim and City of Orange have adopted a standard of LOS D (ICU value less than or equal to 0.90) as the performance standard for the intersections in the study area. The existing peak hour ICU results indicate that each of the study area intersections currently operates at LOS D or better with the exception of the Tustin Street/Lincoln Avenue intersection which operates at an LOS E in the PM peak hour.

**TABLE 4.10-3
INTERSECTION ANALYSIS (ICU) FOR EXISTING PEAK HOUR CONDITIONS**

| Intersection | AM Peak Hour | | Afternoon Peak Hour | | PM Peak Hour | |
|---|-----------------|--------|---------------------|--------|-----------------|--------|
| | ICU | LOS | ICU | LOS | ICU | LOS |
| Tustin Street at: • Lincoln Avenue | 0.767 | C | 0.712 | C | 0.905 | E |
| Santiago Boulevard at: • Nohl Ranch Road • SR-55 NB Ramps | 0.715 0.376 | C A | 0.532 0.468 | A A | 0.635 0.596 | B A |
| Nohl Canyon Road at: • Santa Ana Canyon Road ^a • Nohl Ranch Road | 15.400 0.406 | C A | 18.600 0.228 | C A | 26.000 0.251 | D A |
| SR-91 EB Ramps • Santa Ana Canyon Road | 0.539 | A | 0.551 | A | 0.639 | B |
| Lakeview Avenue • SR-91 WB Ramp • Santa Ana Canyon Road | 0.780 0.796 | C C | 0.593 0.631 | A B | 0.819 0.687 | D B |
| Royal Oak Road at: • Santa Ana Canyon Road • Nohl Ranch Road | 0.494 0.434 | A A | 0.437 0.247 | A A | 0.650 0.280 | B A |
| ICU: Intersection Capacity Utilization LOS: Level of Service a Unsignalized Intersection (refer to Table 4.10-2 for LOS and ICU values) Source: Urban Crossroads 2007. | | | | | | |



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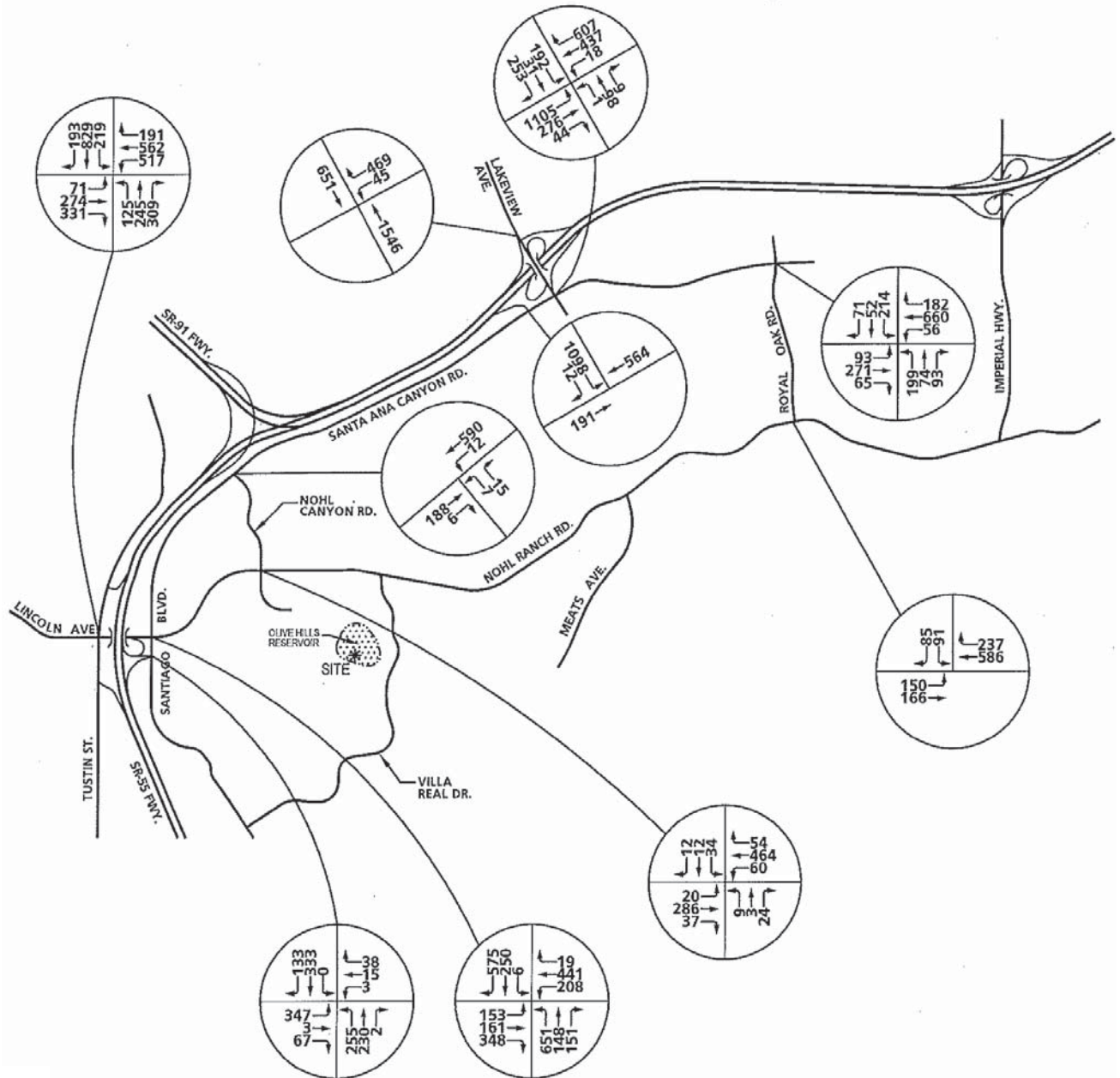
10.0 = VEHICLES PER DAY (1000'S)

Existing Average Daily Traffic (ADT)

Exhibit 4.10-5

Nohl Canyon Water Storage Tank Project





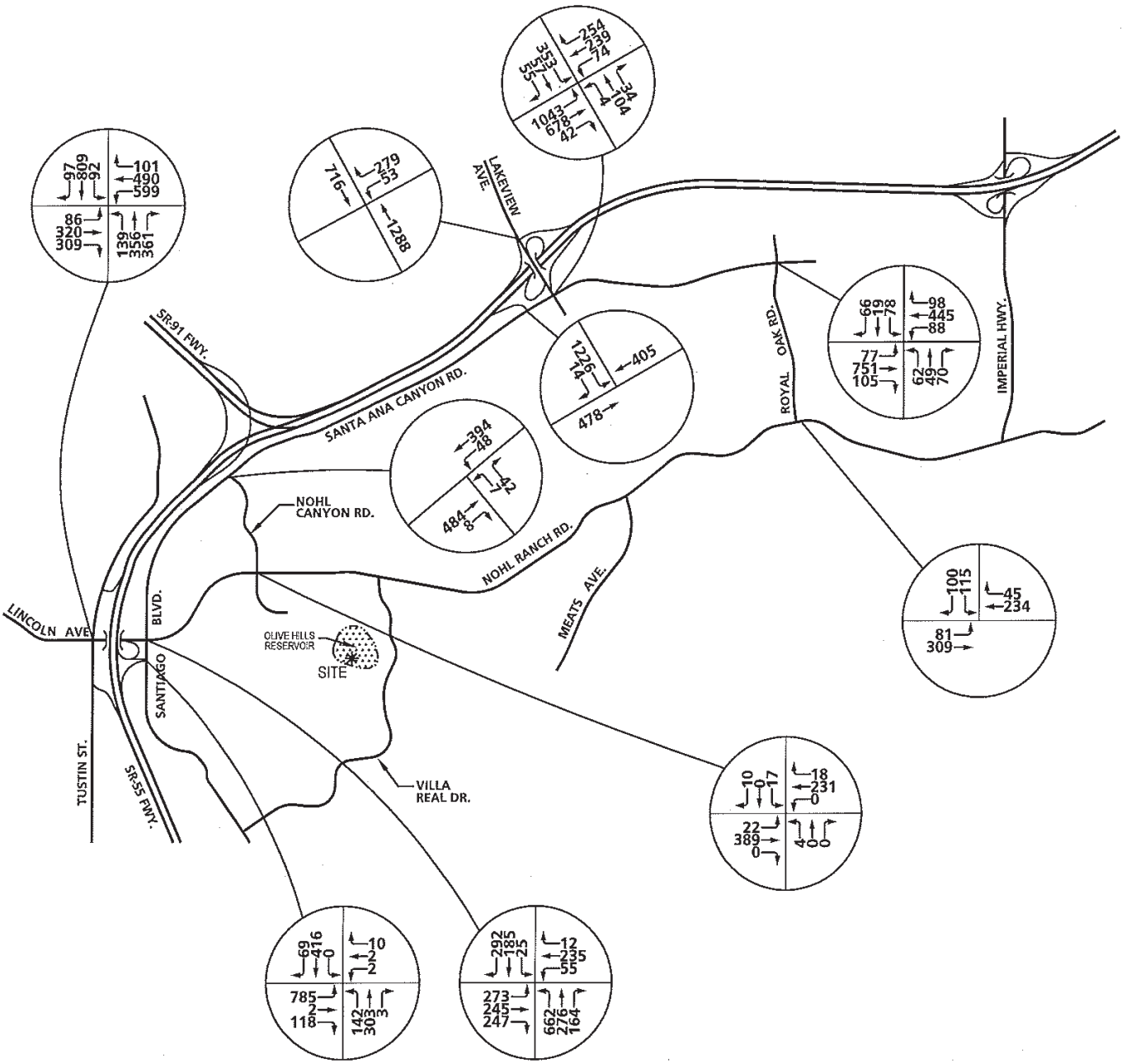
Existing AM Peak Hour Intersection Volumes

Exhibit 4.10-6

Nohl Canyon Water Storage Tank Project



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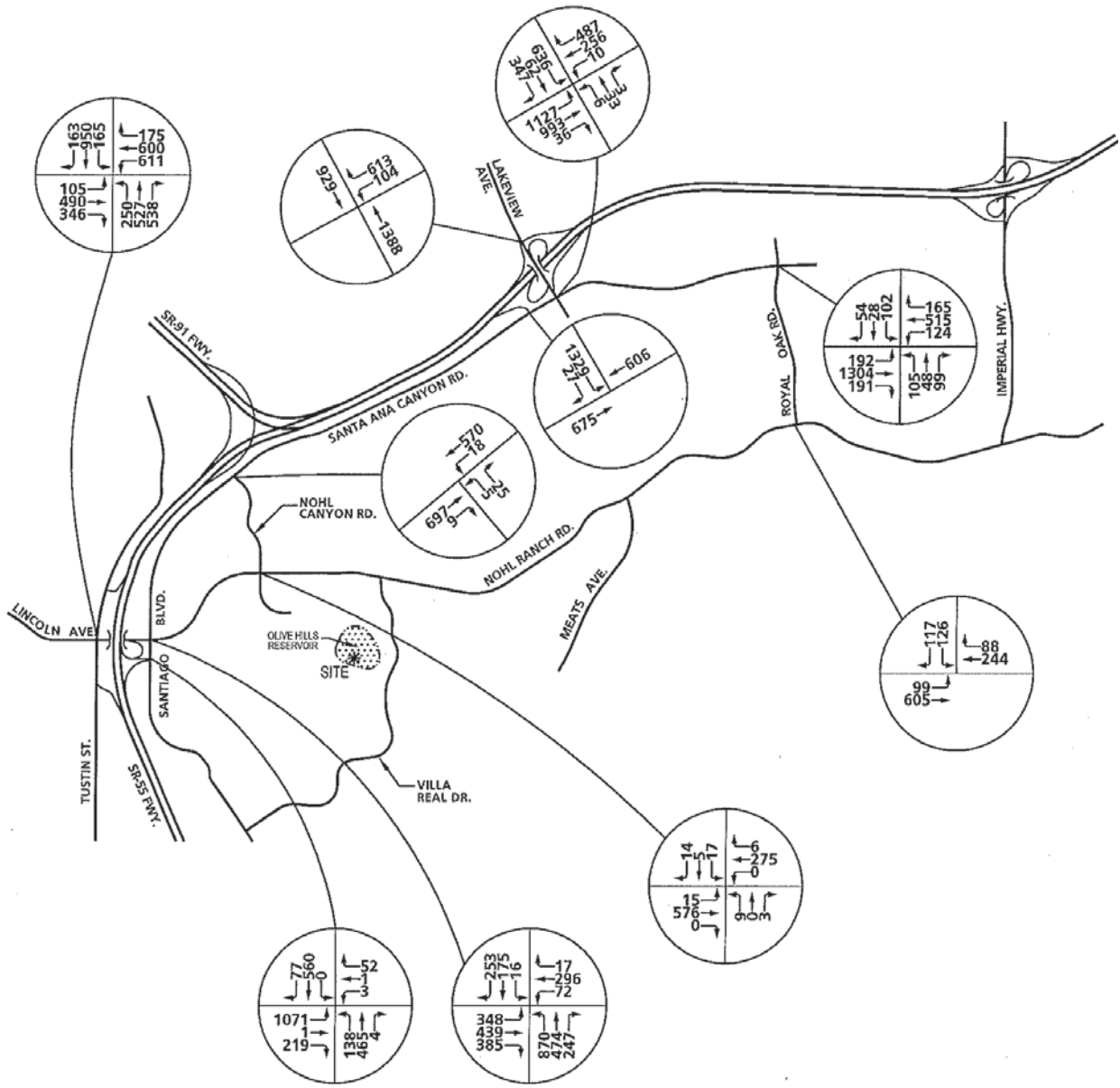


Existing Afternoon Peak Hour Intersection Volumes

Exhibit 4.10-7

Nohl Canyon Water Storage Tank Project





Existing PM Peak Hour Intersection Volumes

Exhibit 4.10-8

Nohl Canyon Water Storage Tank Project



Related Planning Programs

City of Anaheim General Plan

Circulation Element

The goals and policies of the City of Anaheim's Circulation and Land Use Elements relevant to the proposed project and an evaluation of the project's consistency with these goals and policies is provided in Table 4.10-7.

4.10.3 THRESHOLDS OF SIGNIFICANCE

The criteria used to determine the significance of potential project-related traffic impacts are based on the City's Initial Study and the Initial Study checklist form in Appendix G of the State CEQA Guidelines. Based on these thresholds, the project would result in a significant impact related to traffic and circulation if it would:

- Threshold 4.10.1** Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).
- Threshold 4.10.2** Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.
- Threshold 4.10.3** Result in inadequate emergency access.
- Threshold 4.10.4** Result in inadequate parking capacity.
- Threshold 4.10.5** Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).
- Threshold 4.10.6** Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible land uses.
- Threshold 4.10.7** Conflict with any applicable plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.

4.10.4 ENVIRONMENTAL IMPACTS

Impact Analysis

Threshold 4.10.1: *Would the proposed project cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?*

Threshold 4.10.2: *Would the proposed project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?*

Short-Term Impacts

Construction of the proposed project is anticipated to take 30 to 34 months once demolition of the existing dam and 60 MG reservoir has begun. Construction activities associated with the proposed project have the potential to temporarily disrupt traffic flow along surrounding roadways. The typical academic day at the Nohl Canyon Elementary School begins at 8:00 AM and ends at approximately 2:15 PM. When school is in session, truck deliveries, including concrete trucks, will not occur within 30 minutes of the scheduled start and end times for each grade level. When school is not in session, truck deliveries will be allowed from 7:00 AM to 5:00 PM. Construction equipment would be stored on the project site.

Site trip generation has been calculated based on the number of employees and construction trucks. The amount of trips from employees was based on rates developed for office uses. In the assumptions, it was assumed that up to 25 percent of the daily truck trips would occur during the afternoon peak hour. It is anticipated that in the AM and PM peak hours, a total of four inbound and four outbound trucks would access the site with employee traffic occurring outside of these timeframes. In addition, a 3.0 passenger car equivalency (PCE) has been assumed (1 truck equals 3 passenger cars) to determine traffic impacts. With this information, based on the trip generation rates shown in Table 4.10-4, the proposed project construction activities are projected to generate a total of 340 PCE trip-ends per day with 24 PCEs per hour during the AM peak hour, 73 PCEs per hour during the afternoon peak hour, and 24 PCEs per hour during the PM peak hour. This is also shown in Table 4.10-5.

**TABLE 4.10-4
TRIP GENERATION RATE SUMMARY**

| Land Use | Quantity | Units | Afternoon Peak Hour Trip Rates | | ADT |
|---|----------|-------|--------------------------------|----------|------|
| | | | Inbound | Outbound | |
| Construction Site ^a | 30 | EMP | 0.08 | 0.38 | 3.32 |
| ^a A general office use has been used to estimate the trip generation of the anticipated number of employees. ADT: Average Daily Trips EMP: Employees Source: Urban Crossroads 2007. | | | | | |

**TABLE 4.10-5
PROJECT CONSTRUCTION TRIP GENERATION SUMMARY**

| Land Use | Quantity | Units | AM Peak Hour | | | Afternoon Peak Hour | | | PM Peak Hour | | | Daily |
|---|----------|-------|--------------|-----------|-----------|---------------------|-----------|-----------|--------------|-----------|-----------|------------|
| | | | Inbound | Outbound | Total | Inbound | Outbound | Total | Inbound | Outbound | Total | |
| Construction Site | 30 | EMP | – | – | – | 2 | 11 | 13 | – | – | – | 100 |
| Truck Activity | 40 | TAOT | 4 | 4 | 8 | 10 | 10 | 30 | 4 | 4 | 8 | 80 |
| Passenger Car Equivalency Factor ^a | | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Truck Subtotal | | | 12 | 12 | 24 | 30 | 30 | 60 | 12 | 12 | 24 | 240 |
| Total PCEs | | | 12 | 12 | 24 | 32 | 41 | 73 | 12 | 12 | 24 | 340 |
| ^a A 3.0 Passenger car equivalency has been assumed (1 truck equals 3 passenger cars) to determine traffic impacts. “–”: Employees are anticipated to arrive before the AM peak hour and leave after the PM peak hour. EMP: Employees TAOT: Number of Trucks At One Time (Continuous hauling represents the worst case during the construction phase.) Source: Urban Crossroads 2007. | | | | | | | | | | | | |

Project Construction Trip Assignment

Exhibit 4.10-9 illustrates the employee directional distribution patterns for traffic generated by the proposed project. The distribution patterns of project-generated traffic were based upon near-term conditions without potential long range MPAH improvements. As shown in Exhibit 4.10-9, 70 percent of employee generated project traffic is expected to access the site from west of Nohl Canyon Road, while the remaining 30 percent is anticipated to access the site from the east of Nohl Canyon Road. As indicated previously, all construction vehicles would be routed to and from the SR-91. As stated in Section 3.0, Project Description, inbound construction access would be from SR-91. From SR-91, construction traffic would travel along Lakeview Avenue to Santa Ana Canyon Road, west to Santiago Boulevard, south to Nohl Ranch Road, and east to Nohl Canyon Road. Outbound construction vehicles would exit the site along Nohl Canyon Road. From this point, construction traffic would travel east to Royal Oak Road, north to Santa Ana Canyon Road, and west to the SR-91 via Lakeview Avenue. The net project ADT volumes are shown on Exhibit 4.10-10.

Year 2010 Project Impacts

The proposed project is anticipated to be completed in Year 2010. Year 2010 ADT volumes without and with the proposed project are shown on Exhibits 4.10-11 and 4.10-12. As shown in Table 4.10-3 above, for existing traffic conditions, most of the study area intersections are operating at an acceptable level of service during the AM, afternoon, and PM peak hours, except for the intersection of Tustin Street/Lincoln Avenue (LOS E in the PM peak hour). For year 2010 without and with project traffic conditions, most of the study area intersections are projected to operate at an acceptable level of service during the AM, afternoon, and PM peak hours, as shown in Table 4.10-6 below, with the exception of the intersection of Tustin Street/Lincoln Avenue which is forecast to operate at LOS E in the PM peak hour. However, this intersection would operate at a deficient level without or with the project. Implementation of MMs 10-1 and 10-2 would further reduce the potential for impacts related to traffic volumes and street capacities. The ICU peak hour intersection volumes for year 2010 without and with the project are shown in Exhibits 4.10-13 through 4.10-18. As shown in these exhibits and in Table 4.10-6, the proposed project would not significantly impact any intersections in the study area.

Nohl Canyon Road Post-Construction Repair

It is assumed that after project construction has been completed, Nohl Canyon Road south of Nohl Ranch Road would require repair from construction activities. Implementation of MM 10-3 would ensure that Nohl Canyon Road would be repaired to its pre-construction condition. With implementation of MM 10-3, impacts to the condition of Nohl Canyon Road would be less than significant.

Long Term Impacts

Daily operation of the proposed water tank storage project has the potential to generate traffic related to routine maintenance; however, these trips would be limited to an average of six trips per day and would not significantly impact the existing traffic volumes and street capacities.

**TABLE 4.10-6
INTERSECTION ANALYSIS FOR YEAR 2010**

| Intersection | Traffic Control | Without Project | | | | | | With Project | | | | | | Minimum Acceptable LOS |
|--|------------------------|-----------------|-----------------|-----------------|--------|------------|--------|-----------------|-----------------|-----------------|--------|------------|--------|------------------------|
| | | ICU/Delay | | | LOS | | | ICU/Delay | | | LOS | | | |
| | | AM | After-noon | PM | AM | After-noon | PM | AM | After-noon | PM | AM | After-noon | PM | |
| Tustin Street at: • Lincoln Avenue | TS | 0.788 | 0.733 | 0.932 | C | C | E | 0.788 | 0.735 | 0.932 | C | C | E | D |
| Santiago Blvd. at: • Nohl Ranch Rd. • SR-55 NB Ramps | TS TS | 0.736 0.385 | 0.547 0.482 | 0.653 0.613 | C A | A A | B B | 0.736 0.385 | 0.549 0.483 | 0.660 0.613 | C A | A A | B B | D D |
| Nohl Canyon Road at: • Santa Ana Canyon Rd. • Nohl Ranch Rd. | CSS ^a TS | 15.800 0.418 | 19.200 0.234 | 27.300 0.257 | C A | C A | D A | 16.000 0.418 | 19.900 0.252 | 27.700 0.257 | C A | C A | D A | D D |
| SR-91 EB Ramps at: • Santa Ana Canyon Rd. | TS | 0.554 | 0.566 | 0.657 | A | A | B | 0.557 | 0.566 | 0.657 | A | A | B | D |
| Lakeview Ave at: • SR-91 WB Ramps • Santa Ana Canyon Rd. | TS TS | 0.804 0.819 | 0.610 0.650 | 0.843 0.707 | D D | B B | D C | 0.804 0.826 | 0.610 0.650 | 0.843 0.712 | D D | B B | D C | D D |
| Royal Oak Rd. at: • Santa Ana Canyon Rd. • Nohl Ranch Rd. | TS TS | 0.507 0.446 | 0.450 0.254 | 0.669 0.287 | A A | A A | B A | 0.515 0.453 | 0.468 0.272 | 0.677 0.294 | A A | A A | B A | D D |
| ICU: Intersection Capacity Utilization TS: Traffic Signal CSS: Cross Street Stop a Unsignalized Intersection (refer to Table 4.10-2 for LOS and ICU values) Source: Urban Crossroads 2007. | | | | | | | | | | | | | | |

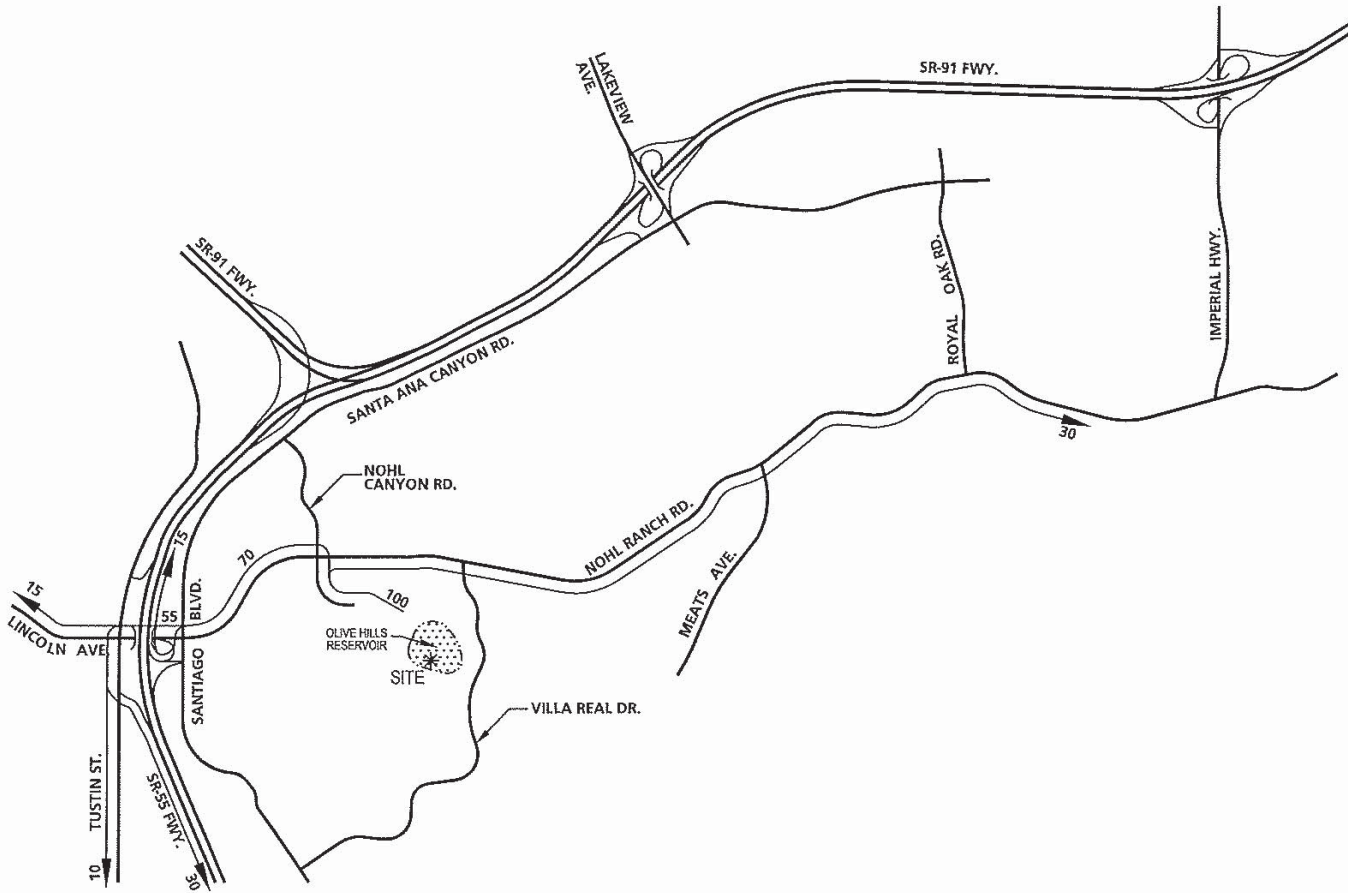
Impact Statement: Less Than Significant with Mitigation Incorporated.

Construction activities associated with the proposed project are not anticipated to result in unacceptable levels of service for future conditions without or with the project except for the intersection of Tustin Street/Lincoln Avenue. This intersection would be at an LOS E during the PM peak hour without and with the project. Although the proposed project would not have a direct significant impact at the study area intersections, implementation of MM 10-1 and MM 10-2 is recommended to further reduce the potential for impacts related to traffic volumes and street capacities. Potential impacts to the condition of Nohl Canyon Road south of Nohl Ranch Road would be reduced with implementation of MM 10-3 which would ensure that this segment of Nohl Canyon Road would be repaired to its pre-construction condition.

Threshold 4.10.3: Would the project result in inadequate emergency access?

Implementation of the project would have the potential to temporarily impact emergency access along construction traffic routes, primarily Nohl Canyon Road and Nohl Ranch Road. Construction traffic would include daily construction worker vehicle trips and parking as well as varying numbers of truck trips for delivery of materials and for debris disposal.

Maintaining access to the project site and adequate circulation along Nohl Ranch Road are the primary project-related concerns of the Anaheim and Orange Fire Departments; both departments may use Nohl Ranch Road to access different portions of their respective cities and service areas. Both the Anaheim and Orange fire departments have indicated that a



LEGEND:

10 = PERCENT TO/FROM PROJECT

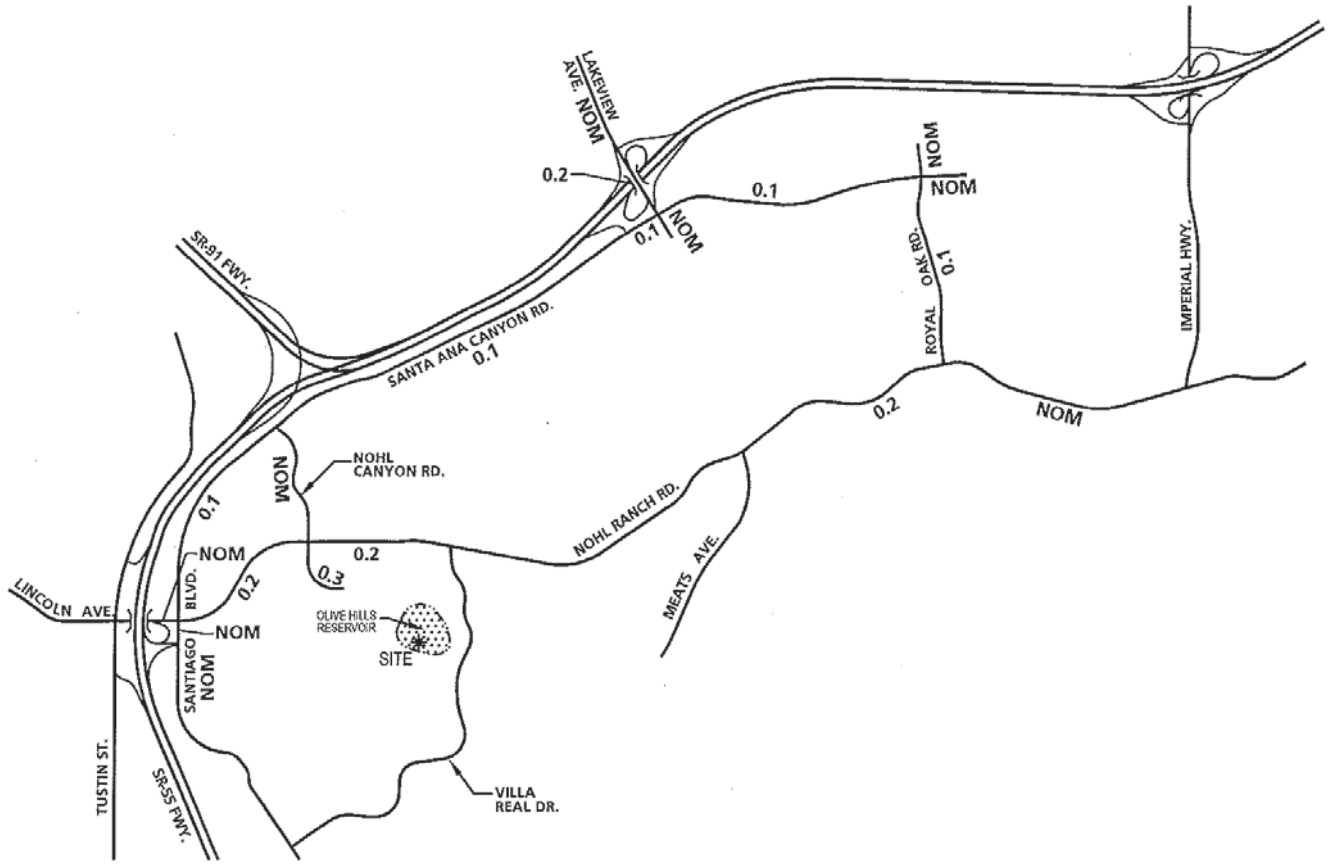
Employee Project Trip Distribution

Exhibit 4.10-9

Nohl Canyon Water Storage Tank Project



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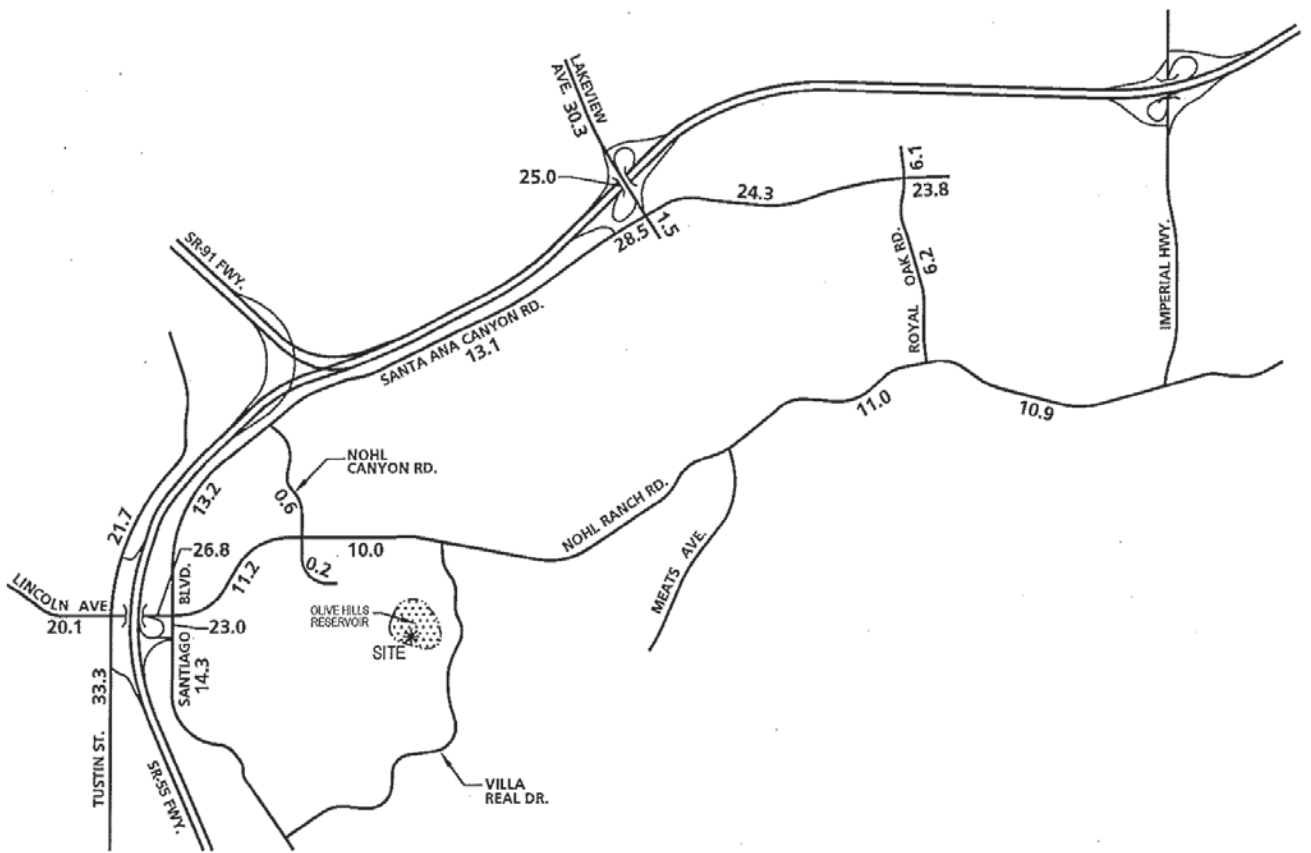
10.0 = VEHICLES PER DAY (1000'S)
 NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

Project Average Daily Traffic (ADT)

Exhibit 4.10-10

Nohl Canyon Water Storage Tank Project





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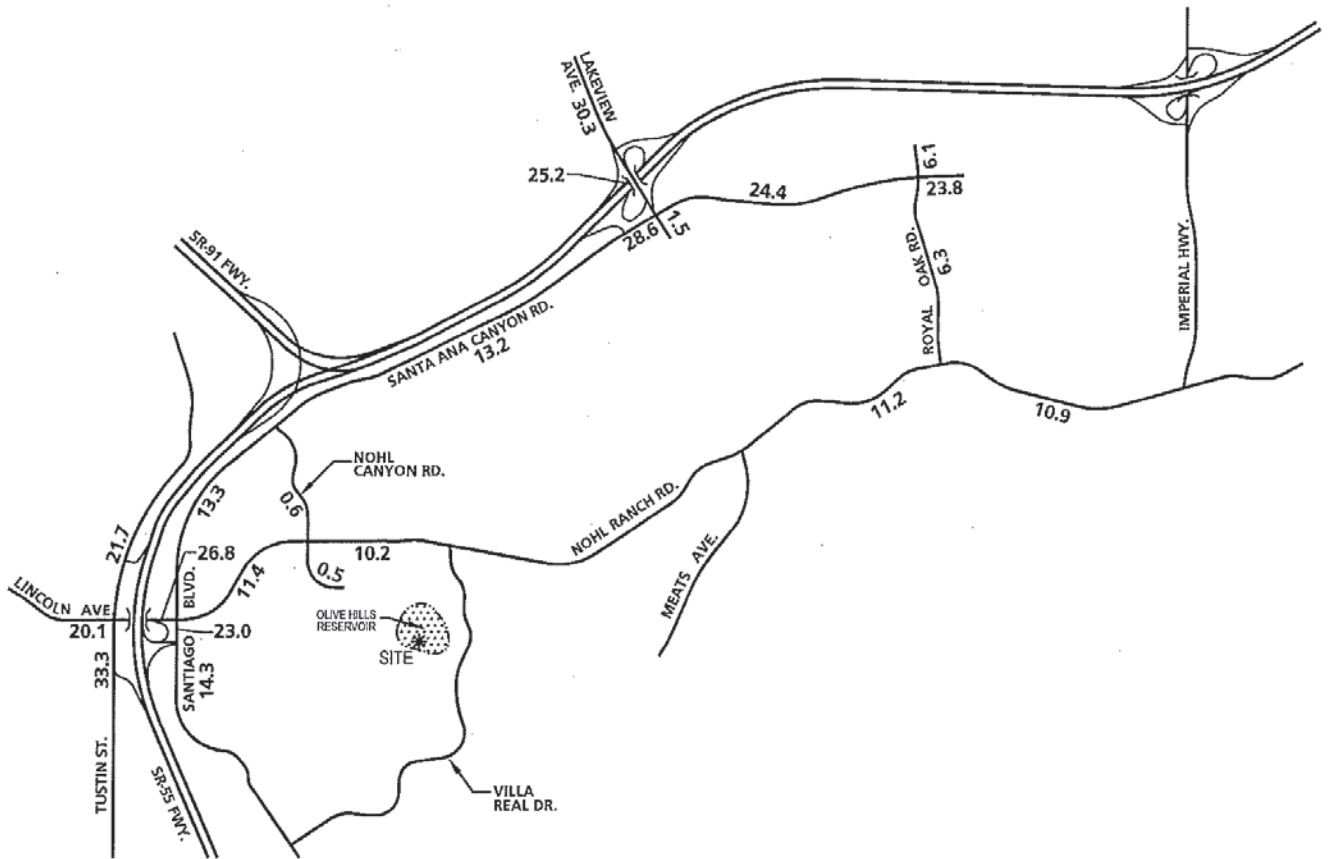
10.0 = VEHICLES PER DAY (1000'S)

**Year 2010 Without Project
Average Daily Traffic (ADT)**

Nohl Canyon Water Storage Tank Project

Exhibit 4.10-11





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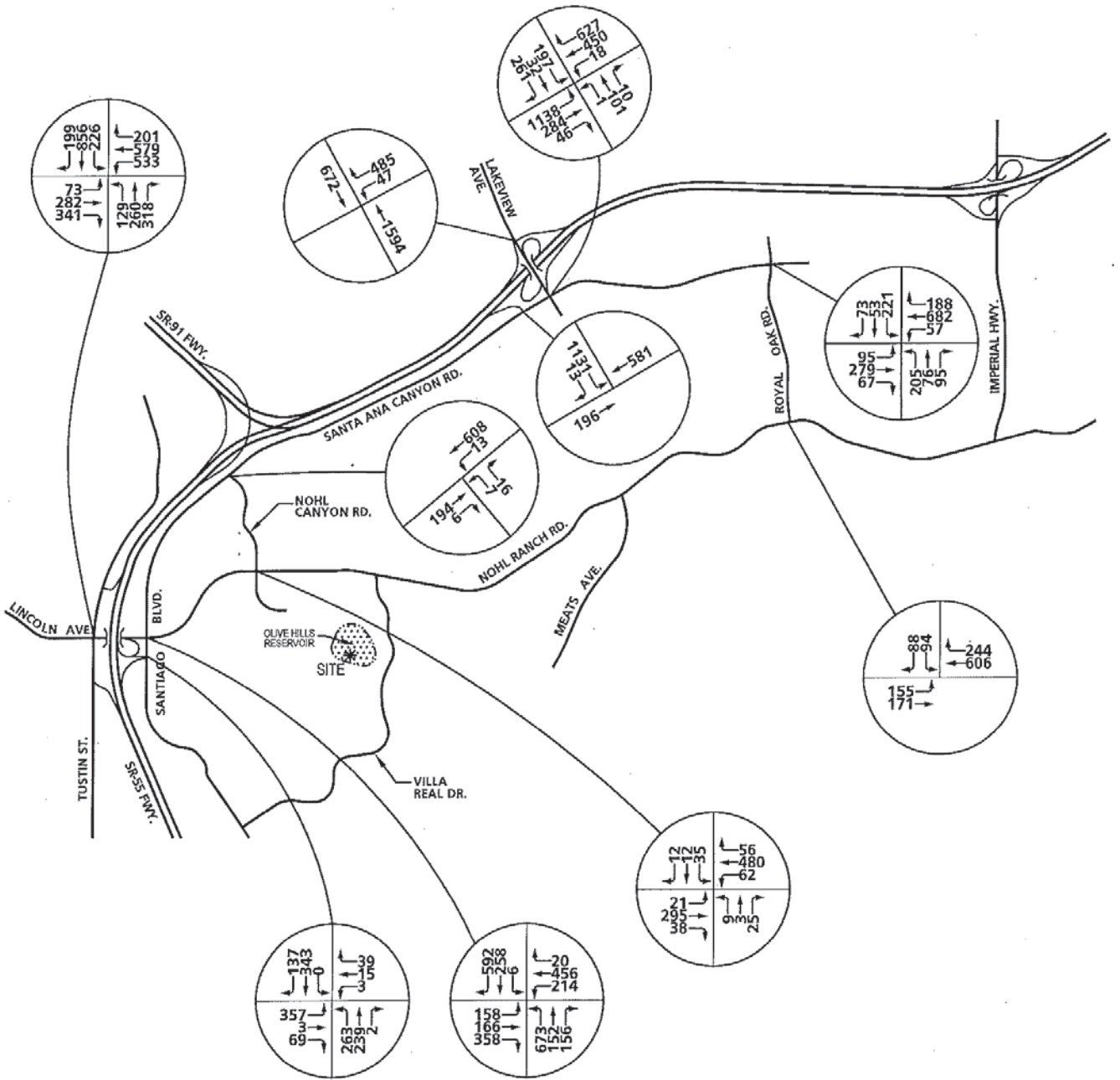
10.0 = VEHICLES PER DAY (1000'S)

Year 2010 With Project
Average Daily Traffic (ADT)

Nohl Canyon Water Storage Tank Project

Exhibit 4.10-12



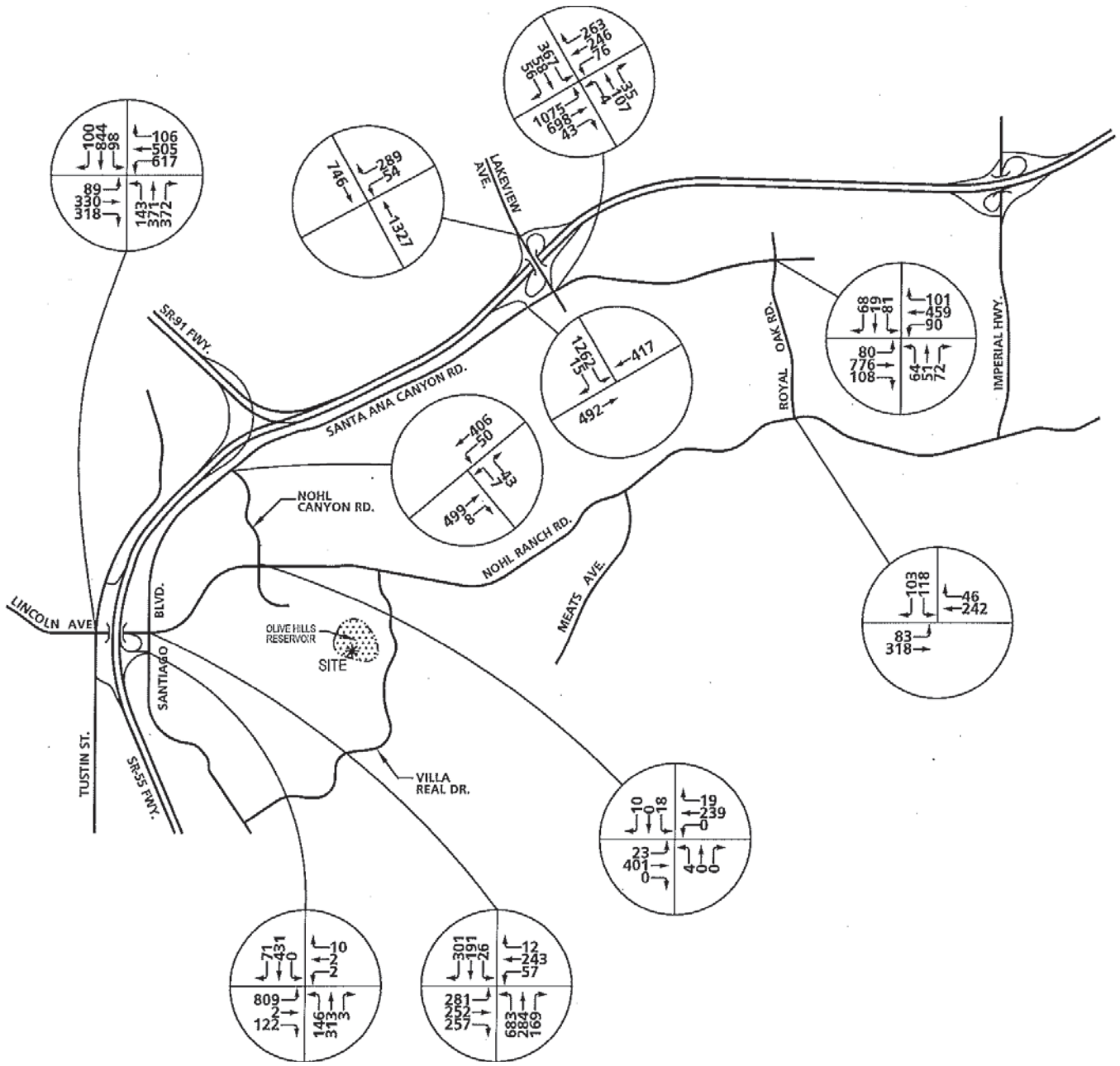


Year 2010 Without Project AM
Peak Hour Intersection Volumes

Exhibit 4.10-13

Nohl Canyon Water Storage Tank Project





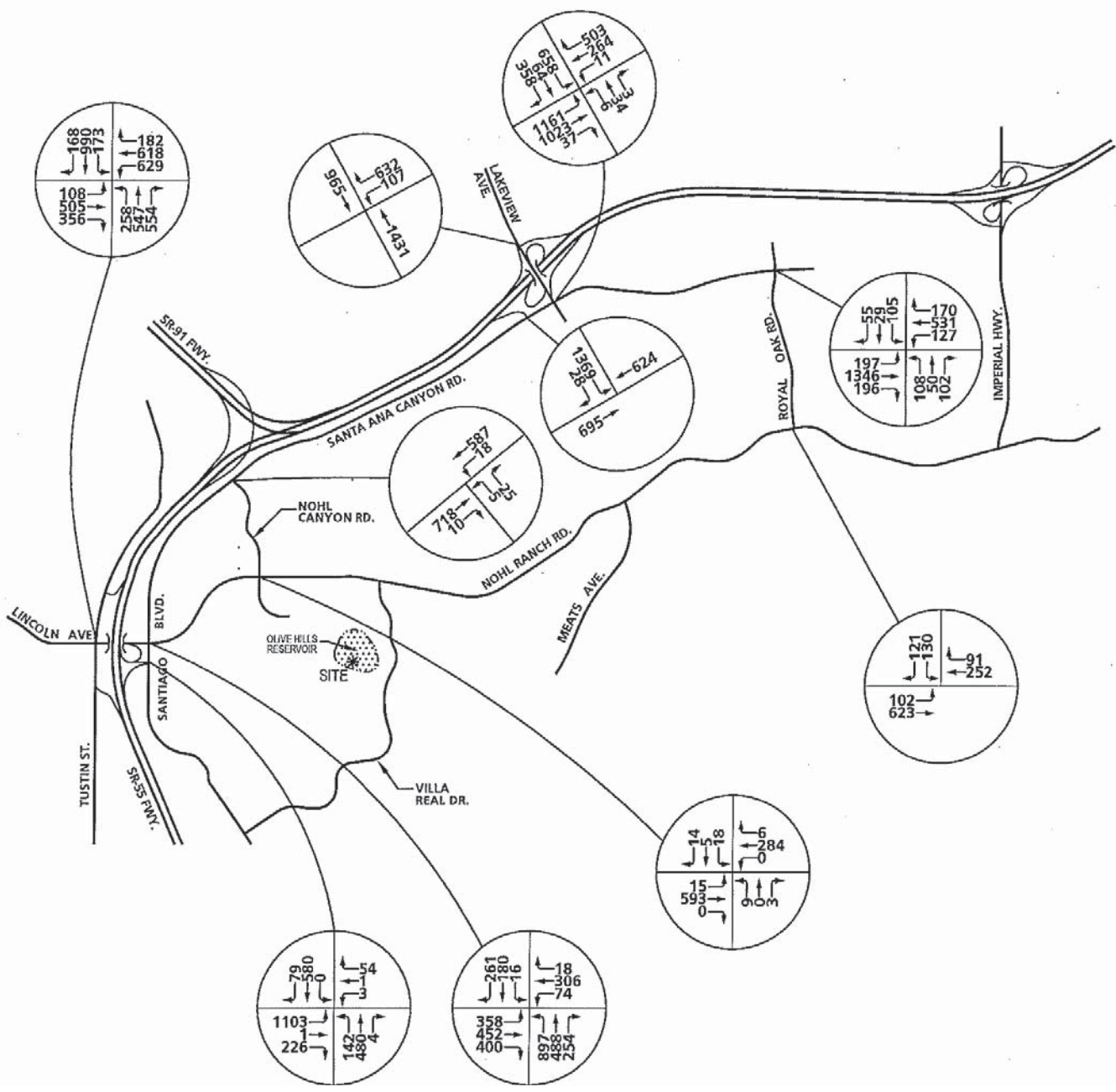
Year 2010 Without Project
 Afternoon Peak Hour Intersection Volumes

Exhibit 4.10-14

Nohl Canyon Water Storage Tank Project



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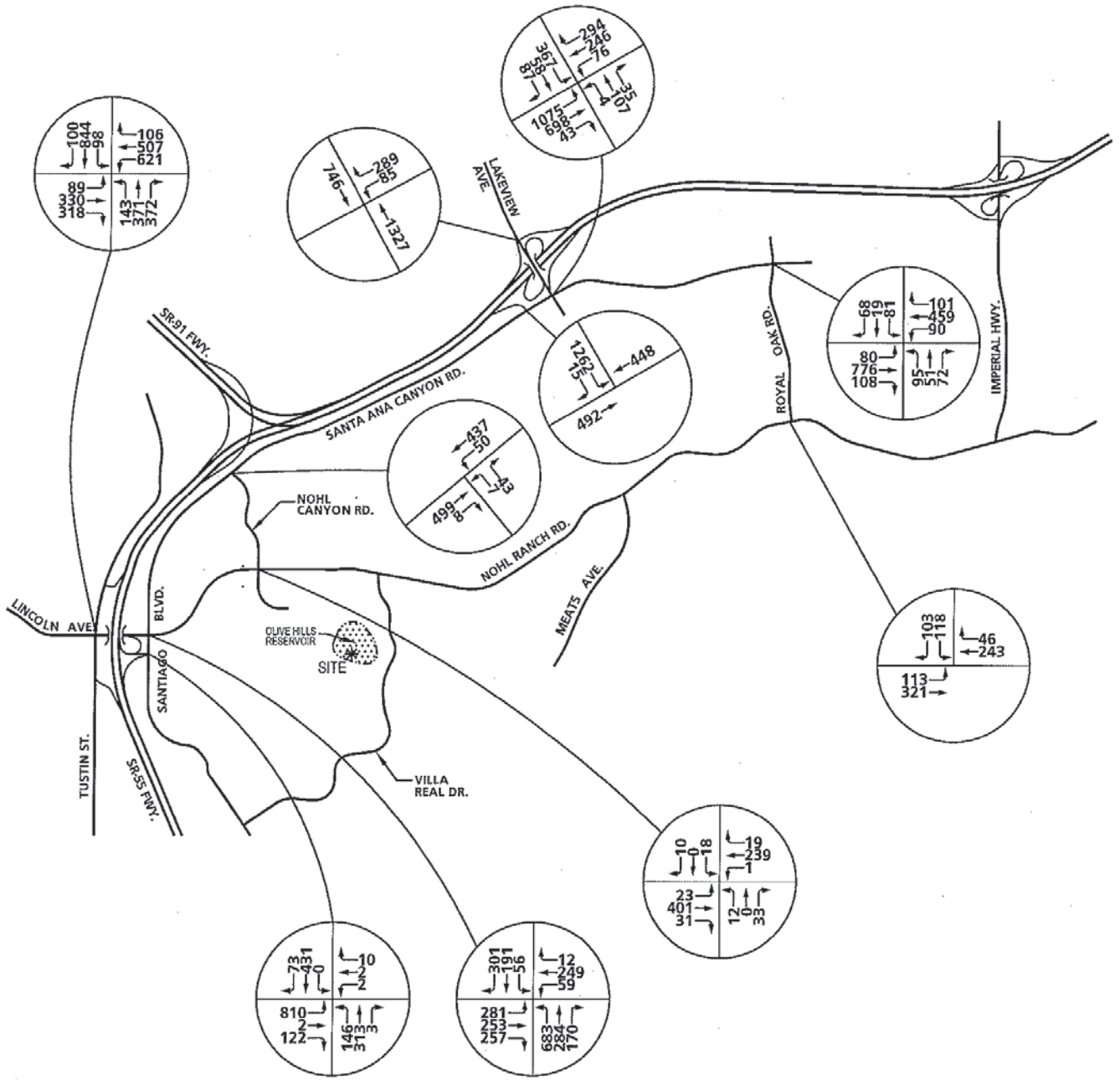
Year 2010 Without Project PM Peak Hour Intersection Volumes

Exhibit 4.10-15

Nohl Canyon Water Storage Tank Project



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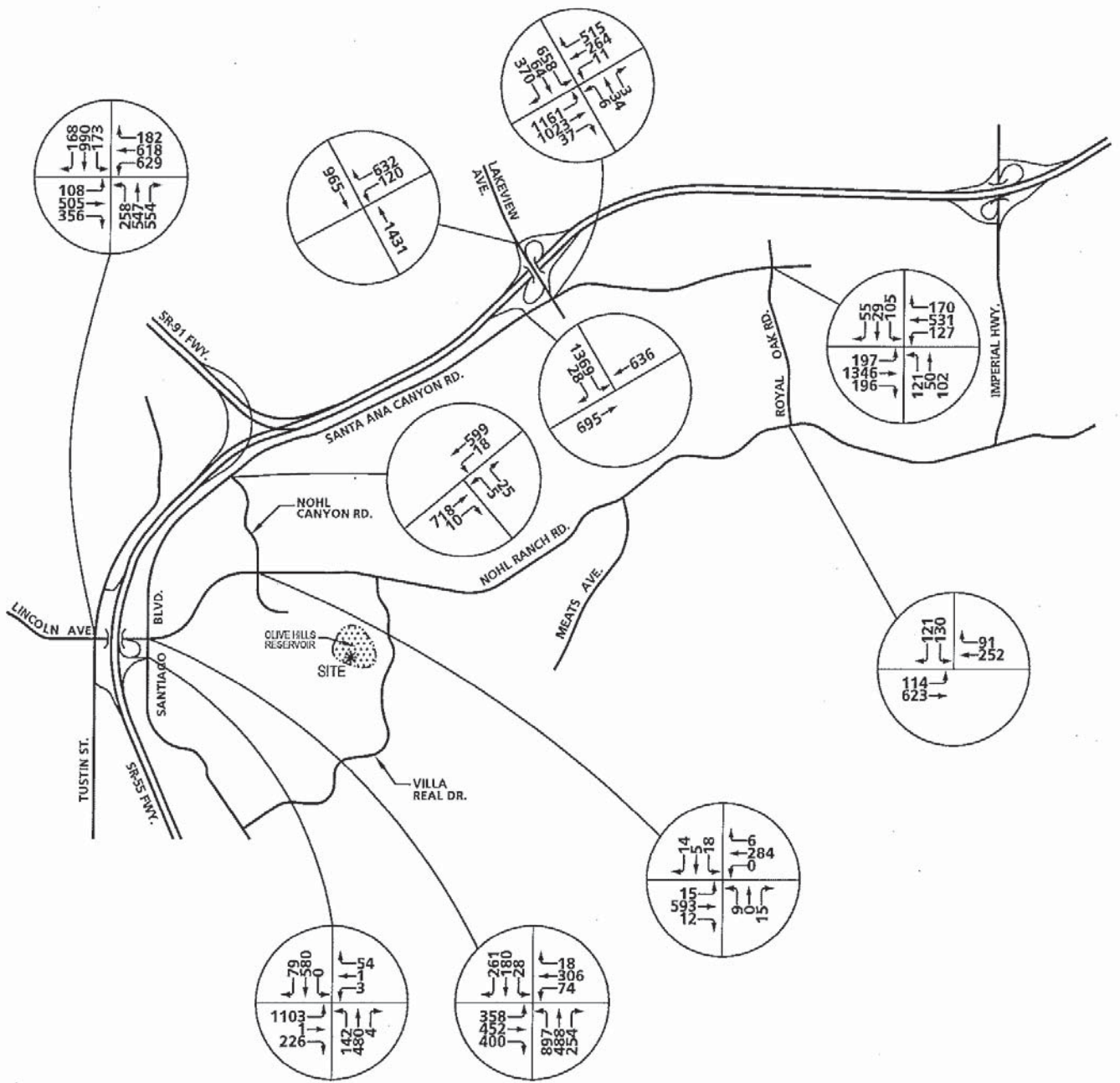


Year 2010 With Project
 Afternoon Peak Hour Intersection Volumes

Exhibit 4.10-17

Nohl Canyon Water Storage Tank Project





Year 2010 With Project
PM Peak Hour Intersection Volumes

Exhibit 4.10-18

Nohl Canyon Water Storage Tank Project



significant impact to emergency access would occur only with a closure of Nohl Canyon Road (Lutz 2007; MacDonald 2007). Aside from the two fire stations, the Anaheim Police Department also showed concern about potential impacts from a closure of Nohl Ranch Road. The Police Department indicated that a significant impact would occur only if Nohl Ranch Road was closed. They also noted that, because their equipment is small and more maneuverable than that used by fire departments, any accessibility sufficient for the fire departments would be adequate for them as well.

The TIA was prepared to quantify the effect of construction traffic. According to the TIA, all but one study intersection (Tustin Street at Lincoln Avenue) would operate at acceptable levels of service (LOS) for future conditions (year 2010) without or with the project. The Tustin Street and Lincoln Avenue intersection would operate at a deficient level (LOS E) during the PM peak hour. When considering project-related construction traffic in addition to ambient growth and related project traffic, the future LOS at each study intersection would be unchanged. Therefore, construction traffic would not significantly impact traffic volumes in the study area. Additionally, closure of Nohl Ranch Road, or any other roads in the project vicinity, is not proposed and would not be required during construction. Implementation of PDFs 10-1 through 10-6, PDF 9-1, and MM 9-1, and MMs 10-1 and 10-2 would further minimize effects of construction traffic on both emergency access and local traffic. Implementation of these measures would ensure that emergency access by fire and police protection agencies in the project vicinity is minimally affected during construction of the proposed project. Therefore, impacts to emergency access would be less than significant.

Impact Statement: **Less Than Significant.** Construction activities would not require roadway closures; therefore, the project would not result in inadequate emergency access. This impact is considered less than significant; however, implementation of PDFs 10-1 through 10-6, PDF 9-1, MM 9-1, and MMs 10-1 and 10-2 would further alleviate the impact of construction traffic on both emergency access and local traffic.

Threshold 4.10.4 Would the project result in inadequate parking capacity?

During project construction, all construction equipment storage and construction worker parking would occur within the limits of the project. Specifically, parking space would be provided at the construction staging area adjacent to the Olive Hills Park parking lot (PDF 10-6). However, in an effort to minimize potential conflicts with construction vehicles along Nohl Canyon Road, PDF 10-3 specifies that on-street parking on the northbound side of Nohl Canyon Road would be restricted 24 hours a day for the duration of demolition and construction activities. Because the street parking restriction would only occur during demolition and construction activities, this is considered a temporary and less than significant impact. Furthermore, expansion of the Nohl Canyon Elementary School parking lot would provide additional parking capacity for school employees and school-related traffic that may otherwise park along Nohl Canyon Road (MM 9-1).

Operation of the proposed project would involve a nominal number of trips for maintenance purposes and deliveries. Parking for these vehicles would be provided on-site.

Impact Statement: **Less Than Significant.** The project would not result in inadequate parking capacity on Nohl Canyon Road or other public streets after implementation of PDFs 10-3 and 10-6. However, to further minimize construction vehicle

conflicts on Nohl Canyon Road, on-street parking would be restricted during construction. This impact is considered less than significant; however, implementation of MM 9-1 would further reduce construction traffic conflicts on Nohl Canyon Road.

Threshold 4.10.5: *Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?*

The proposed project does not include any permanent changes to public roadways such that existing means of alternative transportation on streets within the study area would be adversely affected. There are no striped bike lanes along the proposed construction access route and construction activities would not require lane closures or detours of the bike lanes. Further, the number and frequency of construction-related truck trips would not be substantial enough to impact public transportation routes in the area. Therefore, the proposed project would not result in significant impacts to alternative transportation.

Impact Statement: Less Than Significant. Project construction would not require lane closures or detours on roadways within the study area. Therefore, bike lanes and bus stops within the study area would not be affected by construction activities. Therefore, the project would not conflict with alternative transportation programs and would result in a less than significant impact. Mitigation measures are not required.

Threshold 4.10.6: *Would the proposed project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible land uses?*

As identified previously, the expansion of the Nohl Canyon Elementary School parking lot (MM 9-1) would provide additional parking capacity for school employees and school-related traffic that may otherwise park along Nohl Canyon Road. This action would lessen the potential interface between school-related traffic and construction vehicles and would reduce the number of students being dropped off along Nohl Canyon Road. As identified in MM 10-1, the provision of flagmen and an additional crossing guard at the intersection of Nohl Ranch Road and Nohl Canyon Road, along with other traffic control provisions, will also be provided to reduce potential hazards to pedestrians and local residents. With implementation of MM 9-1 and MM 10-1, potential hazards due to a design feature or incompatible uses would be reduced to a level considered less than significant.

Impact Statement: Less Than Significant With Mitigation. The expansion of the Nohl Canyon Elementary School parking lot (MM 9-1) and implementation of a traffic control plan (MM 10-1) would reduce potential hazards along the construction access route to a less than significant level.

Threshold 4.10.7: *Would the proposed project conflict with any applicable plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect?*

Table 4.10-7 below addresses the consistency of the proposed project with the relevant goals and policies outlined in the City of Anaheim General Plan. As identified in Table 4.10-7, the

proposed project would be considered consistent with the relevant goals and policies related to traffic and circulation.

**TABLE 4.10-7
CONSISTENCY OF THE PROPOSED PROJECT WITH TRAFFIC AND
CIRCULATION-RELATED GOALS AND POLICIES**

| Goals and Policies | | Consistency Analysis |
|-------------------------------------|--|---|
| City of Anaheim General Plan | | |
| Circulation Element | | |
| Goal 1.1 | Provide a comprehensive transportation system that facilitates current and long-term circulation in and through the City. | The proposed project would use the City's existing transportation system. The project would not result in any significant traffic impacts associated with the project. |
| Policy 3 | Require that major new development proposals include traffic impact analyses that identify measures and financing to mitigate traffic impacts. | The <i>Nohl Canyon Water Storage Tank EIR</i> includes a traffic analysis and provides a mitigation program for the provision of necessary traffic monitoring and improvements as needed. |
| Policy 6 | Ensure the provision of needed transportation improvements through the site plan and environmental review process. | As a part of the Mitigation Monitoring Program, the project is required to comply with all transportation conditions placed on the project. |
| Goal 2.1 | Maintain efficient traffic operations on City streets and maintain a peak hour level of service not worse than D at street intersections. | Daily operation of the project would generate traffic-related to routine maintenance; however, these trips would be limited to an average of three trips per day. Construction of the project would generate approximately 340 PCE trip-ends per day with 24 PCEs per hour during the AM peak hour, 73 PCEs per hour during the afternoon peak hour, and 24 PCEs per hour during the PM peak hour. The addition of these trips would not create an unacceptable level of service at the study area intersections in the year 2010. The intersection of Tustin Street and Lincoln Avenue is forecast to operate at LOS E in the PM peak hour in 2010; however, this would result without or with the project. The proposed project would not significantly impact any intersections in the study area. |
| Goal 2.2 | Provide a safe circulation system. | A traffic study has been prepared as a part of the EIR and addresses both on-site and off-site traffic and circulation. No significant circulation impacts are anticipated. |
| Policy 1 | Promote the principle that streets have multiple uses and users, and protect the safety of all users. | Nohl Canyon Road would provide construction access to the project site. Because this road is adjacent to residential uses and an elementary school, mitigation is proposed to minimize construction vehicle conflicts on the roadway. Mitigation includes a permanent expansion of the school parking lot (MM 9-1), temporarily restricting parking on Nohl Canyon Road (PDF 10-3), and temporary restriping of area roadways to provide more efficient movement of construction vehicles (PDFs 10-1 and 10-2). Although these measures are not required to reduce a significant impact, they have been identified to further alleviate construction traffic effects. |
| Policy 5 | Minimize disruptions to traffic and pedestrian/bicycle flow. | Ingress and egress to the site would only occur from Nohl Canyon Road to limit disruptions of vehicle traffic movement. There are no designated bikeways on Nohl Canyon Road. |
| Goal 7.1 | Protect and encourage bicycle travel. | Construction activities are not anticipated to affect existing bicycle lanes on streets in the study area. Therefore, the potential for bicycle travel would not be affected. |

**TABLE 4.10-7 (Continued)
CONSISTENCY OF THE PROPOSED PROJECT WITH TRAFFIC AND
CIRCULATION-RELATED GOALS AND POLICIES**

| Goals and Policies | | Consistency Analysis |
|-------------------------------------|--|--|
| City of Anaheim General Plan | | |
| Circulation Element | | |
| Goal 10.1 | Facilitate safe surface truck movement while minimizing the impact of truck traffic on residential streets. | Nohl Canyon Road is a residential street that provides access to the project site. To facilitate safe truck movement, mitigation has been identified to minimize the potential for construction traffic conflicts. Mitigation includes temporarily restricting parking on Nohl Canyon Road (PDF 10-3) and temporary restriping of area roadways to provide more efficient movement of construction vehicles (PDFs 10-1 and 10-2). In addition, a permanent expansion of the school parking lot would be included as part of the proposed project to further reduce construction conflicts with school traffic (PDF 9-1). |
| Policy 4 | Restrict heavy vehicles from entering the immediate vicinity of school and other institutions to minimize noise and safety impacts. | Although construction access would occur via Nohl Canyon Road which is adjacent to an elementary school, measures have been identified to minimize potential construction traffic conflicts including limiting truck access during key times throughout the school day (PDF 9-1). In addition, the expansion of the school parking lot would further reduce the number of vehicles that queue on Nohl Canyon Road for school drop off and pick up (MM 9-1). With these truck access restrictions, potential safety impacts associated with the school would be minimized. |
| Goal 12.1 | Ensure adequate parking is made available to City residents, visitors, and businesses. | Construction vehicles would park on-site and would not affect parking on public streets (PDF 10-6). However, PDF 10-3 has been identified to restrict parking on the northbound side of Nohl Canyon Road during demolition and construction activities. Because this restriction would be temporary in nature, restriction of this parking would not result in a significant impact to surrounding residents. |
| Policy 1 | Assess the adequacy of existing or proposed on- and off-street parking as needed, especially in urban and commercial areas, to ensure that an adequate supply is provided. | |

Impact Statement: Less Than Significant. The project is consistent with the applicable goals and policies of the City of Anaheim General Plan related to circulation. However, implementation of PDFs 9-1, 10-1 through 10-3, and 10-6 as well as MM 9-1 would further reduce the potential for a significant impact.

4.10.5 CUMULATIVE IMPACTS

The traffic scenario addressed throughout this section for Year 2010 takes into account project (employee and construction related activities) plus areawide growth. To account for areawide background growth on roadways, baseline year 2010 traffic conditions have been estimated by applying an annual growth rate of one percent per year for three years. Based on this information (and details from discussions with the cities of Anaheim and Orange), the expansion of the Kaiser Hospital was also included in the future background traffic estimates. The expansion is anticipated to include redevelopment of an existing storage and office facility with medical office uses. As a result, the analysis presented in this section assesses the traffic impacts of cumulative development anticipated. As shown in the preceding analysis, the traffic impacts resulting from implementation of the project would be mitigated to a level considered

less than significant. The proposed project would not result in significant cumulative traffic impacts.

4.10.6 MITIGATION PROGRAM

Project Design Features

The following project design feature was identified in Section 4.9, Public Services and Utilities, and is repeated below:

- PDF 9-1 When school is in session, truck deliveries (including concrete trucks) shall not occur within 30 minutes of the scheduled start and end times for each grade level. When school is not in session, truck deliveries shall be permitted from 7:00 AM to 5:00 PM.
- PDF 10-1 Throughout the duration of construction, the center lane shall be re-striped at the intersection of Nohl Canyon Road and Nohl Ranch Road while the second existing eastbound lane on Nohl Ranch Road west of Nohl Canyon Road shall be eliminated. These temporary improvements would facilitate construction vehicle movement on Nohl Ranch Road and Nohl Canyon Road.
- PDF 10-2 A permanent eastbound protective-permissive left-turn phase for the traffic signal at Royal Oak Road and Nohl Ranch Road shall be incorporated as part of the proposed project to facilitate construction vehicle movement.
- PDF 10-3 Parking shall be restricted 24 hours a day along the northbound side of Nohl Canyon Road for the duration of demolition and construction activities.
- PDF 10-4 Inbound construction traffic from SR-91 to the site shall be directed to exit at Lakeview Avenue and proceed along Santa Ana Canyon Road to Santiago Boulevard, Nohl Ranch Road and, ultimately, to Nohl Canyon Road.
- PDF 10-5 Outbound construction traffic shall be directed to exit the site using Nohl Canyon Road. From this point, traffic shall travel along Nohl Ranch Road to Royal Oak Road, to Santa Ana Canyon Road, and, ultimately, to SR-91 via Lakeview Avenue.
- PDF 10-6 Construction equipment shall be stored on site within the City's property. The construction staging area, including worker parking, shall be located at the existing parking area adjacent to the Olive Hills Park.

Standard Conditions

No standard conditions are required.

Mitigation Measures

The following mitigation measure was identified in Section 4.9, Public Services and Utilities, and is repeated below:

- MM 9-1 Prior to commencement of demolition or construction activities related to the project, the City of Anaheim Public Utilities Department shall expand the existing parking lot serving Nohl Canyon Elementary by a total of 8,500 sq ft within school grounds to minimize traffic conflicts along Nohl Canyon Road.
- MM 10-1 Prior to approval of grading plans, the City of Anaheim shall create a traffic control plan including construction haul routes, temporary worker parking, use of flagmen, and any pedestrian-related impacts to sidewalks and intersection crossings for review and approval by the Department of Public Works. The traffic control plan shall be implemented during all stages of project construction.
- Provide an eastbound protective-permissive left-turn lane at the intersection of Royal Oak Road and Nohl Ranch Road.
 - Restrict construction traffic to non pick-up/drop-off time periods for the adjacent school and limit truck activity during the AM and PM peak hours.
 - Extend the centerline stripe along Nohl Canyon Road a total of 40 feet, south of Nohl Ranch Road.
 - Retain Flagmen to control traffic at the intersection of Nohl Ranch Road and Nohl Canyon Road. The flagmen shall be in place on every day of construction that requires deliveries, hauling of debris, concrete pours, or any other traffic in the form of trips by large construction vehicles, such as double trailers and single trailer/cement trucks. A flagman would not be necessary for control of construction worker traffic in the AM, afternoon, and PM peak hours, in the absence of other qualifying construction vehicles.
 - Retain an additional Crossing Guard at the intersection of Nohl Ranch Road and Nohl Canyon Road. The crossing guard shall be in place every construction day that requires deliveries, hauling of debris, concrete pours, or any other traffic in the form of trips by large construction vehicles (such as double trailers and single trailer cement trucks) during drop-off and pick-up times when school is in session.
- MM 10-2 The City of Anaheim shall seek approval from the City of Orange Traffic Commission to remove and/or restrict on-street parking along Nohl Canyon Road between the project site and Nohl Ranch Road, 24 hours a day and 7 days a week. Approval from the City of Orange shall be obtained prior to issuance of demolition permits.
- MM 10-3 Following project completion, the City of Anaheim shall repave (grind and cap) Nohl Canyon Road south of Nohl Ranch Road. Completion of roadway improvements shall be approved by the City of Orange.

4.10.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the mitigation program would reduce potential effects associated with construction traffic to less than significant levels.