3.11 TRANSPORTATION/TRAFFIC

The purpose of this section is to evaluate the transportation and traffic impacts of the proposed project. RBF Consulting (RBF) prepared an analysis evaluating traffic impacts of the project, dated August 19, 2005, which is provided in Appendix D (Traffic Impact Analysis).

3.11.1 Environmental Setting

3.11.1.1 Level of Service

Level of service (LOS) is commonly used as a qualitative description of intersection operation and is based on the type of traffic control and delay experienced at the intersection. The Highway Capacity Manual (HCM) analysis methodology for *Unsignalized Intersections* is utilized to determine the operating LOS of the unsignalized study intersections.

The HCM analysis methodology describes the operation of an intersection using a range of LOS from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding ranges of stopped delay experienced per vehicle for unsignalized intersections, as shown in Table 3.11-1.

Table 3.11-1 Unsignalized Level of Service and Delay Ranges

Level of Service (LOS)	Delay (seconds/vehicle)
A	≤ 10.0
B	> 10.0 to ≤ 15.0
C	> 15.0 to ≤ 25.0
D	> 25.0 to ≤ 35.0
E	> 35.0 to ≤ 50.0
F	> 50.0
Source: 2000 Highway Capacity Manual	

Level of service is based on the average stopped delay per vehicle for all movements at all-way stop-controlled unsignalized intersections; for one-way or two-way stop-controlled unsignalized intersections, LOS is based on the worst stop-controlled movement.

3.11.1.2 Analysis Methodology

The City of Lafayette (City) currently has no specific performance standards established for unsignalized intersection LOS. In accordance with City staff direction, this analysis utilizes LOS standards identified in the City's *General Plan EIR Addendum Traffic Study* (Robert L. Harrison Transportation Planning, 2004), as shown in Table 3.11-2.

Table 3.11-2 Performance Standards for Unsignalized Intersections

	Level of Service (LOS) Standard	Maximum Delay at Peak-Hours
All-Way Stop Control (AWSC)		
Overall Intersection	D (Poor)	30 seconds
One- or Two-Way Stop Control		
Overall Intersection	C (Poor)	20 seconds
Side-Street Traffic[1]	E (Poor)	45 seconds

1. Applies to side streets with a minimum of 10 vehicles an hour.

Source: Robert L. Harrison Transportation Planning (2004). *Addendum to the Lafayette General Plan Revision Final EIR.*

3.11.1.3 Existing Roadway System

Figure 3.11-1 (Project Location and Study Intersections) shows the project location, study intersections analyzed, and roadways in the project vicinity. Characteristics of this roadway system are described below.

Lucas Drive is a two-lane, undivided roadway trending east-west. The posted speed limit is 25 miles per hour (mph); on-street parking is permitted. Access for seven of the eight single-family dwelling units proposed by the project is planned at the end of Lucas Drive.

Lucas Circle is a two-lane, undivided roadway trending east-west. Lucas Circle provides access for existing residential uses south of Lucas Drive. The posted speed limit on Lucas Circle is 25 mph; on-street parking is permitted. Access for one of the eight single-family dwelling units proposed by the project is planned at the eastern terminus of Lucas Circle. No existing dwelling units are served by this stub of Lucas Circle.

Michael Lane is a two-lane, undivided roadway trending north-south. The posted speed limit is 25 mph; on-street parking is permitted.

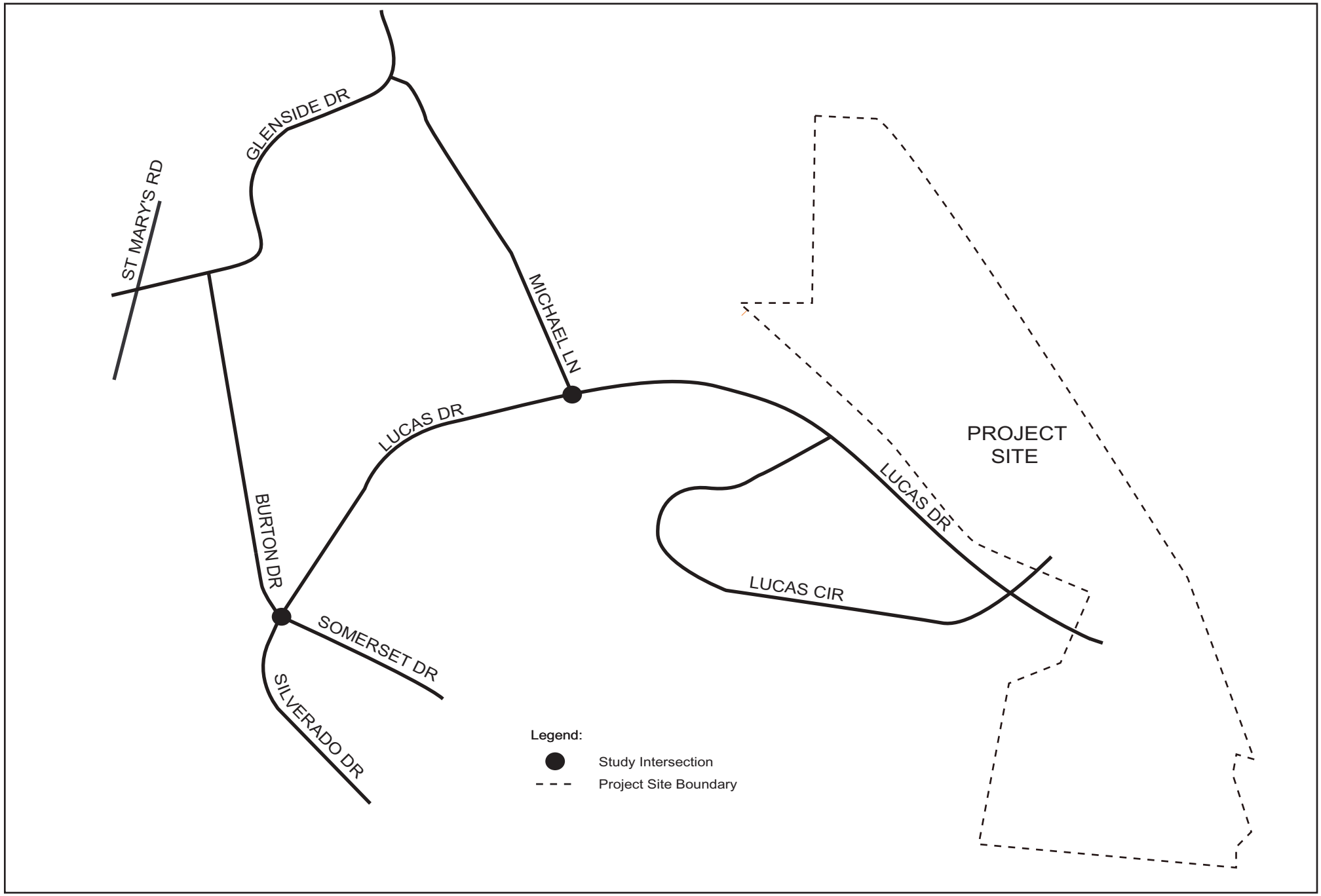
Burton Drive in the project vicinity is a two-lane, undivided roadway trending north-south. The posted speed limit is 25 mph; on-street parking is permitted

Somerset Drive is a two-lane, undivided roadway trending east-west. The posted speed limit is 25 mph; on-street parking is permitted. Somerset Drive provides access for existing residential land uses.

Silverado Drive is a two-lane, undivided roadway trending north-south. The posted speed limit is 25 mph; on-street parking is permitted

3.11.1.4 Existing Peak-Hour LOS

To determine the existing operation of the study intersections, a.m. and p.m. peak-hour intersection movement counts were taken on Tuesday, April 19, 2005. Figure 3.11-2 (Existing Conditions AM/PM Peak-Hour Intersection Volumes) shows existing a.m. and p.m. peak-hour volumes at the study intersections.



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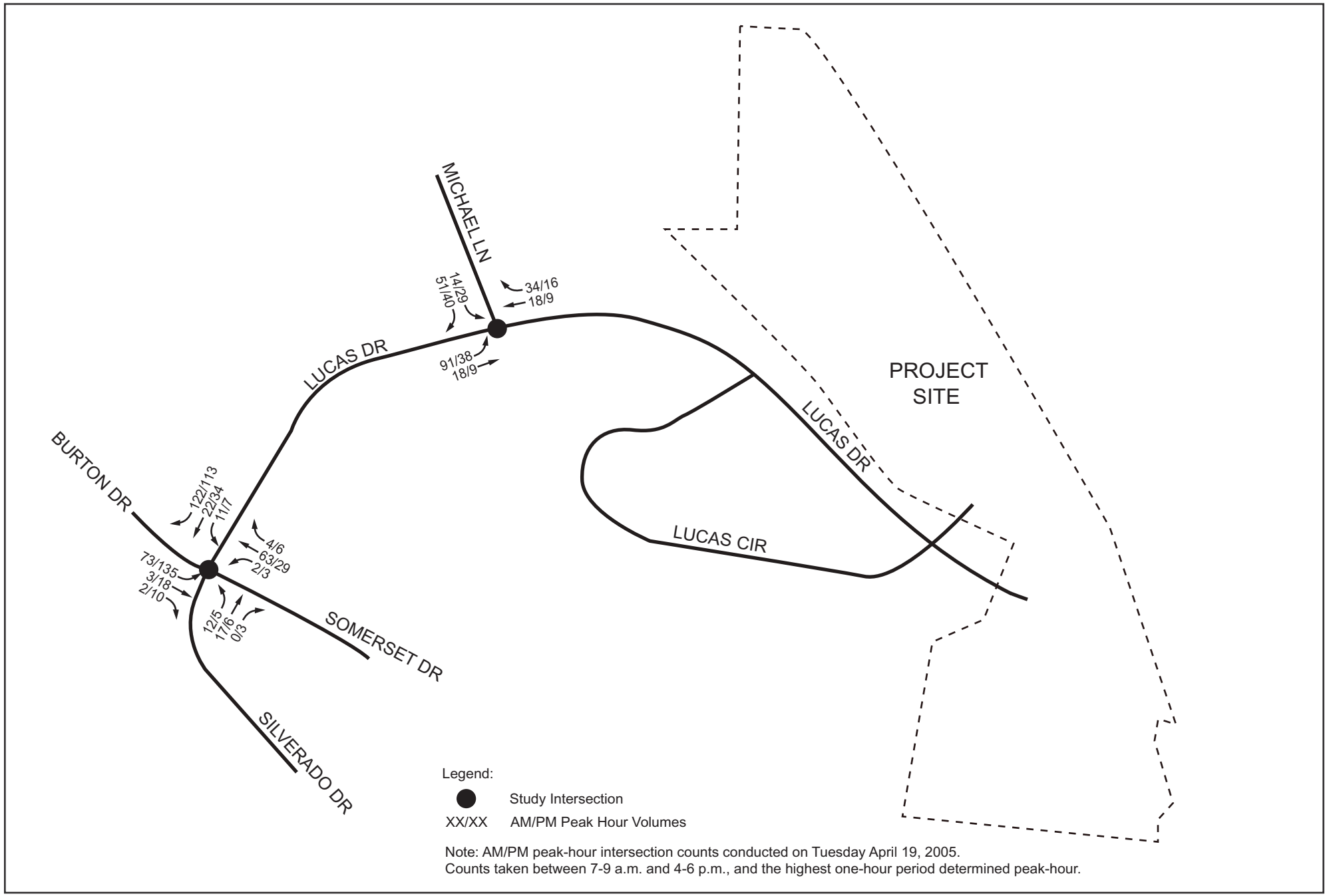
Project Location and Study Intersections

Figure 3.11-1



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Existing AM/PM Peak Hour Intersection Volumes

Figure 3.11-2

Table 3.11-3 (Existing Conditions AM/PM Peak-Hour Intersection LOS) summarizes existing a.m. and p.m. peak-hour LOS of the study intersections based on existing peak-hour intersection volumes shown in Figure 3.11-2. The a.m. peak-hour for the Burton Drive/Lucas Drive/Somerset Drive/Silverado Drive intersection is 7:45 to 8:45 a.m. and the p.m. peak-hour is 4:30 to 5:30 p.m. The a.m. peak-hour for the Michael Lane/Lucas Drive intersection is 8:00 to 9:00 a.m. and the p.m. peak-hour is 5:00 to 6:00 p.m.

Table 3.11-3 Existing Conditions AM/PM Peak-Hour Intersection LOS

Study Intersection	Control	AM Peak-Hour	PM Peak-Hour
		Delay (seconds) – Level of Service (LOS)	Delay (seconds) – Level of Service (LOS)
Burton Drive/Lucas Drive/Somerset Drive/Silverado Drive	All-way Stop	7.8 – A	8.1 – A
Michael Lane/Lucas Drive	All-way Stop	7.4 – A	7.2 – A

As shown in Table 3.11-3, the study intersections are currently operating at an acceptable LOS (LOS D or better) during the a.m. and p.m. peak-hours according to City performance criteria.

3.11.2 Regulatory Setting

3.11.2.1 CCTA and City of Lafayette Standards

Traffic capacity standards for development within the Lafayette area are established by the City of Lafayette *General Plan* (*General Plan*) and the Contra Costa Transportation Authority (CCTA). The CCTA standards are for signalized intersections. For signalized intersections, capacity conditions should not exceed LOS D. For unsignalized intersections, there are no specific guidelines or standards; however, the *General Plan* uses both the HCM and CCTA calculation methodologies to determine the average delay and LOS for individual movements within intersections. Since all intersections studied for the proposed project are unsignalized, only the HCM standard applies.

3.11.2.2 City of Lafayette General Plan

The Circulation Element of the *General Plan* discusses transportation and circulation issues in the Lafayette Planning Area. It briefly describes the existing circulation system and travel characteristics, projects future traffic based on the buildout of land uses described in the Land Use Element, and identifies the resulting anticipated roadway conditions. Policies and implementation programs in the *General Plan* provide a guide for decisions regarding circulation system improvements needed to accommodate Lafayette's anticipated growth. The Circulation Element takes into account the traffic impact of anticipated regional development and the roadway improvements adopted by regional agencies, such as CCTA and the Metropolitan Transportation Commission (MTC). The Circulation Element also includes policies and programs that support methods of alternative transportation, including carpooling, public transportation, walking and bicycling.

3.11.2.3 Lamorinda Action Plan

The basis for the *Lamorinda Action Plan* is to address existing congestion problems and establish a process by which the Lamorinda communities can work cooperatively to manage the transportation impacts of growth in Contra Costa County. The *Lamorinda Action Plan* requires all general plan amendments within the Lamorinda communities to be subject to review by the Lamorinda Project

Management Committee (LPMC). The threshold for review is projects that would generate more than 50 peak-hour (a.m. or p.m.) trips, but the communities have an informal agreement to review projects that would generate more than 10 peak hour trips.

3.11.3 Environmental Analysis

3.11.3.1 Thresholds of Significance

The proposed project would result in a significant impact if it would:

- Cause an increase in traffic that 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);
- Cause the operation of an unsignalized intersection to fail to meet the LOS criteria shown in Table 3.11.2;
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment);
- Result in inadequate emergency access;
- Result in inadequate parking capacity; or
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

3.11.3.2 Forecast Cumulative Year Without Project - Existing Plus Approved Projects

To determine the impacts of the project, traffic conditions were examined for forecast cumulative year without the project, then conditions for forecast cumulative year with the project were examined. Forecast cumulative year without project conditions were derived by adding trips from three approved projects identified by City staff (See table 3.11-4).

Table 3.11-4 (Forecast Approved Projects Peak-Hour Trip Generation) summarizes trips forecast to be generated by the approved projects during the a.m. and p.m. peak-hours.

Table 3.11-4 Forecast Approved Projects Peak-Hour Trip Generation

Approved Project	AM Peak-Hour Trips			PM Peak-Hour Trips			Daily Trips
	In	Out	Total	In	Out	Total	
Lafayette Mercantile							
22,000-square-foot (sf) Shopping Center	14	9	23	40	43	83	945
33,000-sf Office Building	15	6	51	8	41	49	363
Lafayette Library and Learning Center							
30,300-sf Library	23	9	32	103	112	215	1,636

Approved Project	AM Peak-Hour Trips			PM Peak-Hour Trips			Daily Trips
	In	Out	Total	In	Out	Total	
Veteran's Building 10,500-sf Civic Building	10	7	17	4	10	14	240
Total	92	31	123	155	206	361	3,184

As shown in Table 3.11-4, the approved projects are forecast to generate approximately 3,184 daily trips, which include 123 a.m. peak-hour trips and 361 p.m. peak-hour trips. This trip generation analysis is conservative because no pass-by trip discount is applied to the shopping center component of the Lafayette Mercantile project, nor is any on-site trip capture discount applied to the mixed-use nature of the retail/office project.

Figure 3.11-3 (Forecast Approved Projects AM/PM Peak-Hour Trip Assignment) shows the forecast assignment of a.m. and p.m. peak-hour trips generated by the three approved projects in the vicinity of the project site. Figure 3.11-4 (Forecast Cumulative Year Without Project AM/PM Peak-Hour Intersection Volumes) shows a.m. and p.m. peak-hour intersection volumes for forecast cumulative year without the project.

Table 3.11-5 (Forecast Cumulative Year Without Project Peak-Hour Intersection LOS) summarizes peak-hour LOS at the study intersections for forecast cumulative year without the project based on the traffic volumes shown in Figure 3.11-4.

Table 3.11-5 Forecast Cumulative Year Without Project Peak-Hour Intersection LOS

Study Intersection	AM Peak-Hour	PM Peak-Hour
	Delay (seconds) – Level of Service (LOS)	Delay (seconds) – Level of Service (LOS)
Burton Drive/Lucas Drive/Somerset Drive/Silverado Drive	7.8 – A	8.1 – A
Michael Lane/Lucas Drive	7.4 – A	7.2 – A

As shown in Table 3.11-5, the study intersections are forecast to operate at an acceptable LOS (LOS D or better) during the a.m. and p.m. peak-hours, according to City performance criteria for forecast cumulative year without project conditions.

3.11.3.3 Potential Impacts and Mitigation

Potential Impact 3.11-1: Would the proposed project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system? (Less Than Significant Impact)

Typically, daily peak hour trip generation forecasts use rates provided by the Institute of Transportation Engineers (ITE). Based on data collected from actual counts at 300 existing residential subdivisions, the average ITE trip generation rate for a single-family residence is 9.57 trips per day. However, because the homes in this project would reflect higher income levels with the likelihood of higher than average travel patterns, trip generation rates contained in the *Dianne Court EIR* (STA Planning, Inc., 1992) were utilized in accordance with City staff direction (the Dianne Court subdivision is also in Burton Valley). Table

3.11-6 (Proposed Project Trip Rates) summarizes the Dianne Court subdivision trip generation rates used to forecast the number of trips that would be generated by the proposed project.

Table 3.11-6 Proposed Project Trip Rates

Land Use	Units	AM Peak-Hour Rates			PM Peak-Hour Rates			Daily Trip Rate
		In	Out	Total	In	Out	Total	
Single-Family Detached Housing	DU	0.45	1.10	1.55	0.82	0.54	1.36	14.2
DU = dwelling unit(s)								
Source: *Dianne Court EIR* (STA Planning, Inc., 1992).								

Table 3.11-7 (Forecast Proposed Project Trip Generation) summarizes the number of trips forecast to be generated by the proposed project utilizing the trip generation rates in Table 3.11-6.

Table 3.11-7 Forecast Proposed Project Trip Generation

Land Use	AM Peak-Hour Trips			PM Peak-Hour Trips			Daily Trips
	In	Out	Total	In	Out	Total	
8 DU Single-Family Detached Housing	4	9	13	7	4	11	114
DU = dwelling unit(s)							

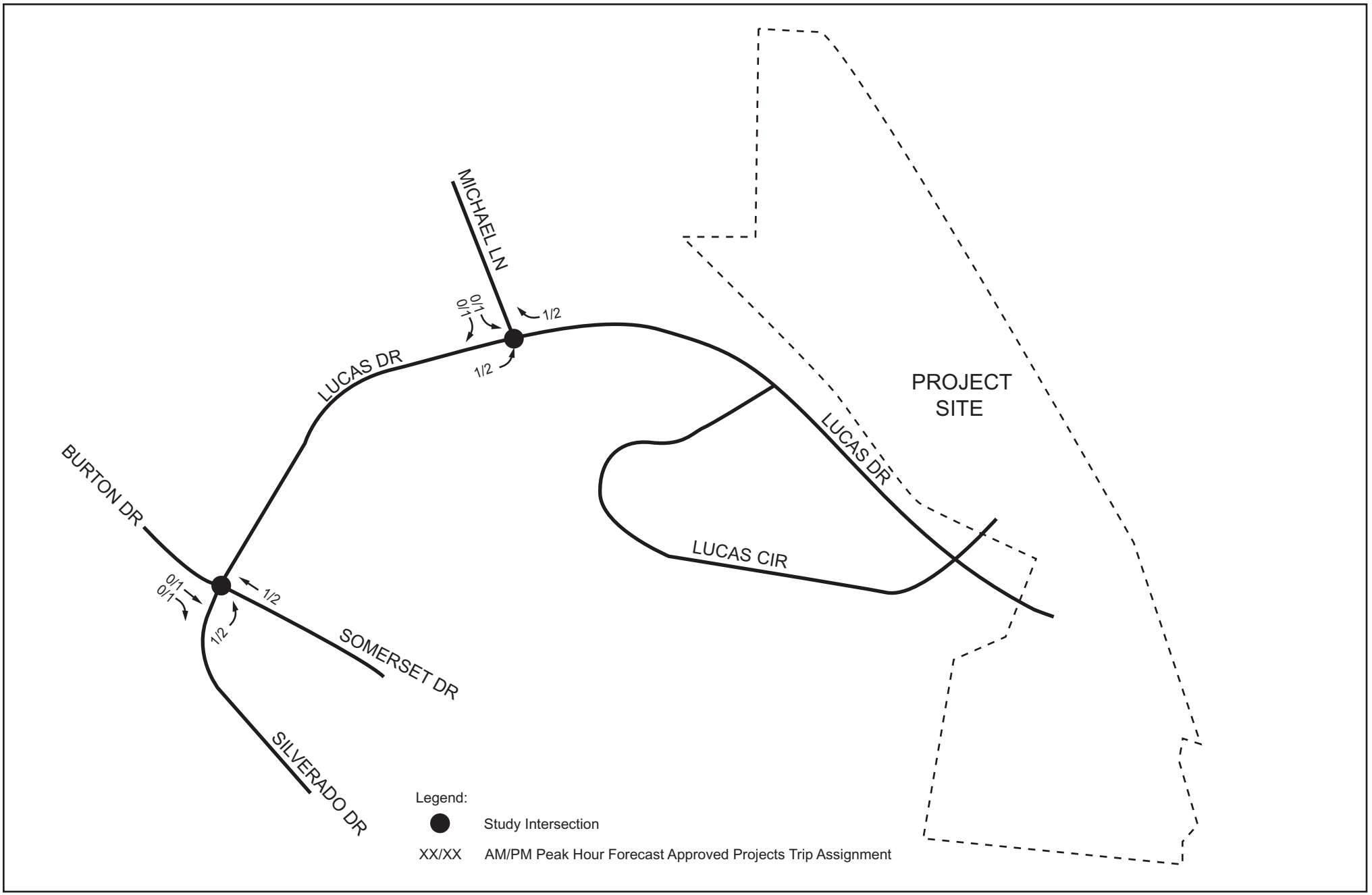
As shown in Table 3.11-7, the proposed project is forecast to generate approximately 114 daily trips, which includes approximately 13 a.m. peak-hour trips and approximately 11 p.m. peak-hour trips.

Figure 3.11-5 (Forecast Project-Generated AM/PM Peak-Hour Trip Assignment) shows forecast assignment of project-generated a.m. and p.m. peak-hour trips based on the distribution of project-generated trips approved by City staff for use in this analysis. This number of increased trips is not considered to be substantial, and impacts would be less than significant on Lucas Drive and other area streets. At the study intersections, peak hour volumes are forecast to increase approximately one-percent during the a.m. peak hour, and between one and four-percent during the p.m. peak hour. An increase in average delay is forecast to occur at the Michael Lane/Lucas Drive intersection during the a.m. peak hour only. The increase is forecast to be approximately one-tenth of one second. No mitigation is required.

Potential Impact 3.11-2: Would the proposed project cause the operation of an unsignalized intersection to fail to meet the LOS criteria shown in Table 3.11.2? (Less Than Significant Impact)

Traffic conditions in forecast cumulative year with project conditions were determined by adding the number of trips forecast to be generated by the proposed project (Table 3.11-7) to the number of trips that were forecast for forecast cumulative year without the project. Figure 3.11-6 (Forecast Cumulative Year With Project AM/PM Peak-Hour Intersection Volumes) shows the peak-hour traffic volumes that are forecast for year 2007 with the project.

Table 3.11-8 (Forecast Cumulative Year With Project AM/PM Peak-Hour Intersection LOS) summarizes forecast year 2007 with project conditions peak-hour LOS of the study intersections based on traffic volumes shown in Figure 3.11-6.



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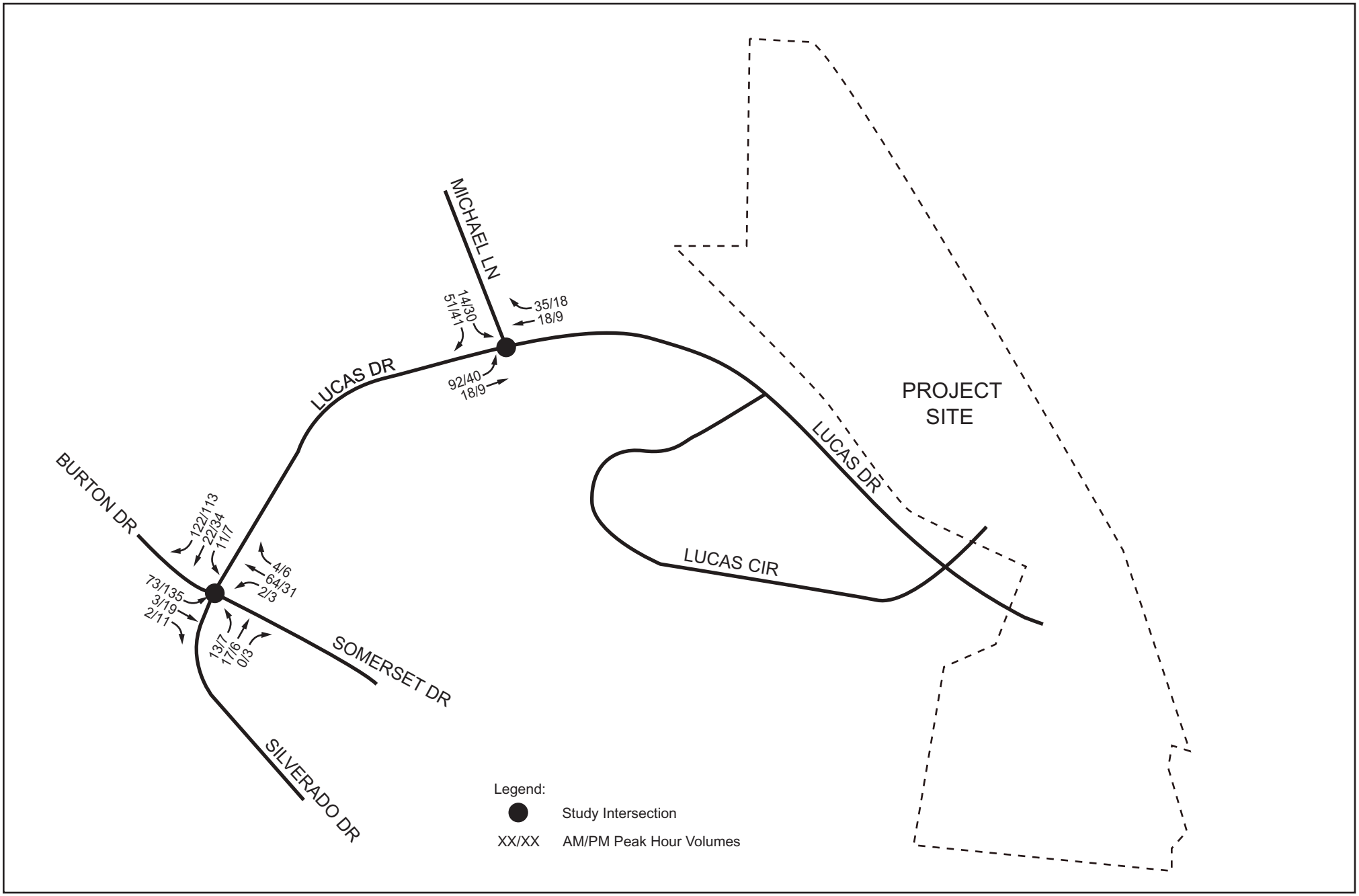
Forecast Approved Projects AM/PM Peak Hour Trip Assignment

Figure 3.11-3



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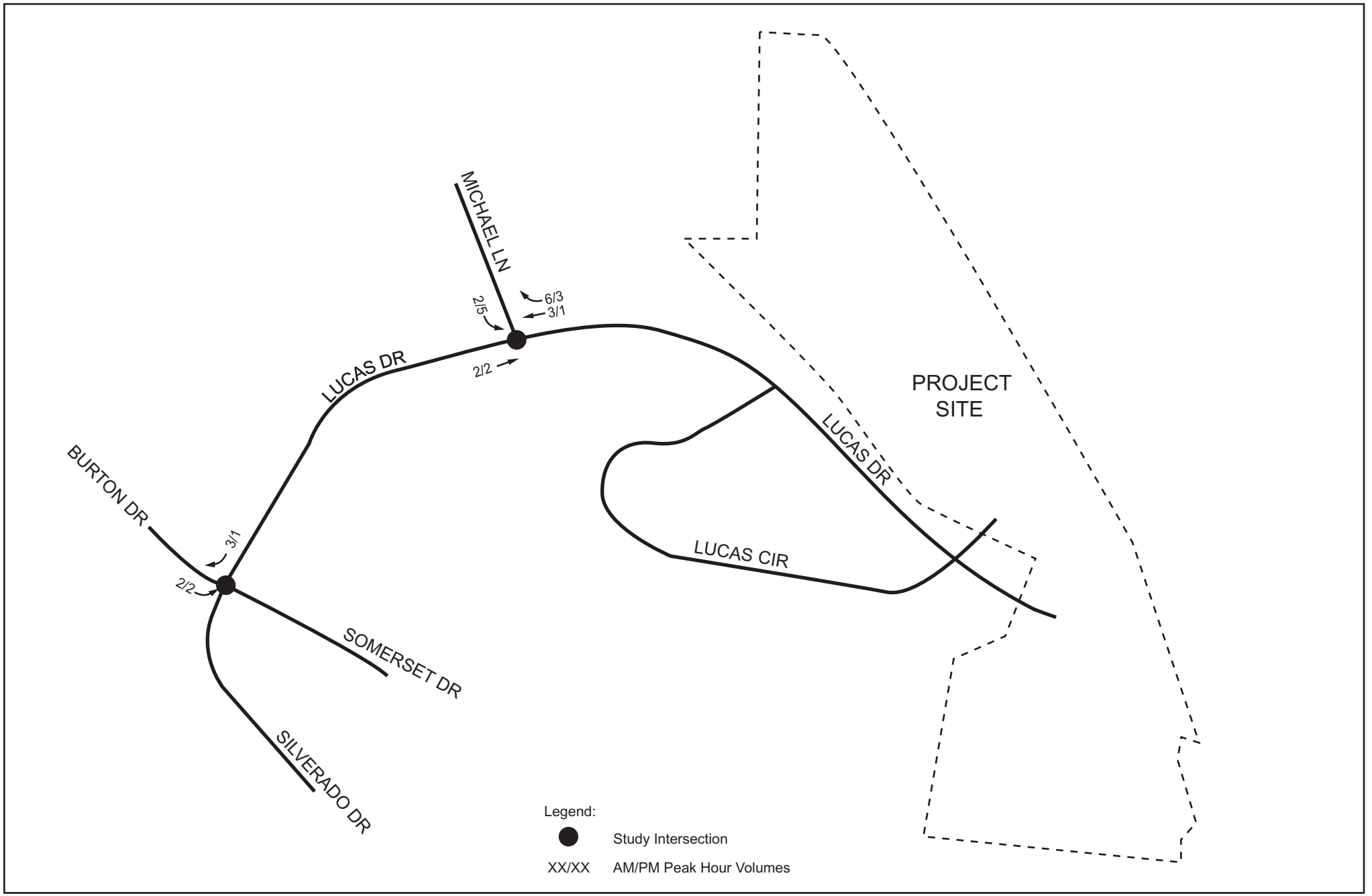
SOLDIER FIELD SUBDIVISION EIR

Forecast Cumulative Year (Without Project) AM/PM Peak Hour Intersection Volumes

Figure 3.11-4



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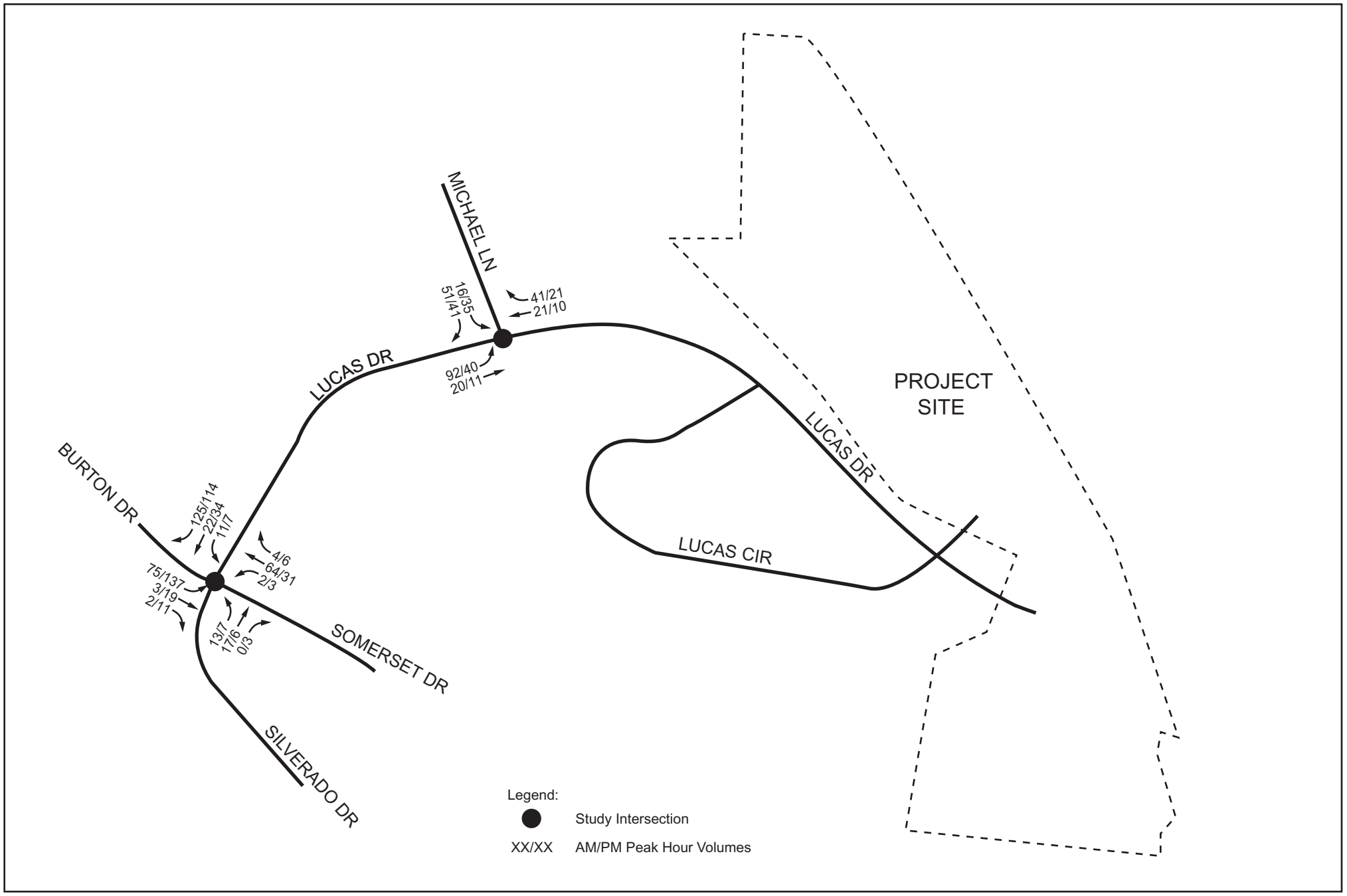
SOLDIER FIELD SUBDIVISION EIR

Forecast Project-Generated AM/PM Peak Hour Trip Assignment

Figure 3.11-5



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Forecast Cumulative Year (With Project) AM/PM Peak Hour Intersection Volumes

Figure 3.11-6

Table 3.11-8 Cumulative Year With Project AM/PM Peak-Hour Intersection LOS

Study Intersection	Forecast Cumulative Year Conditions Without Project		Forecast Cumulative Year Conditions With Project		Significant Impact?
	AM Peak-Hour	PM Peak-Hour	AM Peak-Hour	PM Peak-Hour	
	Delay (seconds) – Level of Service (LOS)	Delay (seconds) – Level of Service (LOS)	Delay (seconds) – Level of Service (LOS)	Delay (seconds) – Level of Service (LOS)	
Burton DriveLucas Drive/Somerset Drive/Silverado Drive	7.8 – A	8.1 – A	7.8 – A	8.1 – A	No
Michael Lane/Lucas Drive	7.4 – A	7.2 – A	7.5 – A	7.2 – A	No

As shown in Table 3.11-8, with the addition of proposed project-generated trips in forecast cumulative year, the study intersections are expected to continue to operate at an acceptable LOS (LOS D or better) during the a.m. and p.m. peak-hours, according to City performance criteria.

Due to the limited size of the proposed project, and the dispersion of the small number of trips generated by the proposed project to the project vicinity, project-generated trips are forecast to have an imperceptible impact on Glenside Drive and St. Mary's Road. No mitigation is required.

The addition of project-generated trips at the study intersections would result in a less than significant impact for forecast cumulative year. No mitigation is required.

Potential Impact 3.11-3: 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? (Less Than Significant Impact)

As shown in Table 3.11-8 above, in forecast cumulative year, the unsignalized study intersections are forecast to continue to operate at an acceptable LOS (LOS D or better) during the a.m. and p.m. peak-hours with the addition of project-generated trips. No county congestion management agency designated roads or highways would be affected by the proposed project. A less than significant impact would result and no mitigation is required.

Potential Impact 3.11-4: Would the proposed project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? (No Impact)

Because of the nature and scope of the proposed land uses, project implementation would not affect air traffic patterns and would not result in safety risks. No impact would occur in this regard. No mitigation is required.

Potential Impact 3.11-5: Would the proposed project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)? (No Impact)

The proposed project would introduce a new private street, Lucas Ranch Road, to the end of Lucas Drive. Lots 1-7 would be accessed at Lucas Drive and Lucas Ranch Road, while Lot 8 would be accessed at the eastern extension of Lucas Circle. As proposed and designed, no impacts are expected. Additionally, the project design would be subject to review and approval by the City, which would preclude the possibility of hazardous conditions related to traffic. The proposed project would not interfere with public trail use in the area. Thus, no impacts are anticipated in this regard. No mitigation is required.

Potential Impact 3.11-6: Would the proposed project result in inadequate emergency access? (No Impact)

Project implementation would not interfere with an adopted emergency response plan or emergency evacuation plan. In addition, the site plan must satisfy all City design standards related to emergency access. Thus, no significant impacts are anticipated in this regard. No mitigation is required.

Potential Impact 3.11-7: Would the proposed project result in inadequate parking capacity? (No Impact)

Pursuant to City of Lafayette Municipal Code Section 6-7211, each lot would be required to provide off-street parking space for at least four automobiles. Each parking space must be at least 10 feet by 20 feet in size, and may not be located within 50 feet of any property line. The project proposes the construction of custom homes and, therefore, specific home designs have not yet been submitted. However, given the large size of the proposed lots, there would be sufficient land area available to provide parking to meet the City's parking requirement. Thus, no significant impacts are anticipated in this regard. No mitigation is required.

Potential Impact 3.11-8: Would the proposed project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? (No Impact)

Project implementation would not include modifications to the roadway system or existing land uses that would conflict with adopted policies, plans or programs supporting alternative transportation. The proposed project would not conflict with existing bicycle lanes or routes. No mitigation is required.