LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS

BORREGO SPRINGS LIBRARY & PARK

County of San Diego, California
November 25, 2015

LLG Ref. 3-15-2493

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BORREGO SPRINGS LIBRARY & PARK

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1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has been retained to assess the traffic impacts associated with the proposed Borrego Springs Library & Park project (Project). The Project consists of a 13,500 square foot public library, with the possibility of an attached ancillary 2,000 square foot community room and an attached 1,600 square foot sheriff substation, located in the northwest quadrant of the Project site, and an approximately 17.7 acre park located in the southwest quadrant of the Project site.

Included in this traffic study are the following:

- Project Description
- Existing Conditions Discussion
- Traffic Analysis Approach & Methodology
- Significance Criteria
- Analysis of Existing conditions
- Trip generation, Distribution, and Assignment
- Cumulative Projects Discussion
- Near Term Conditions Analysis
- Church Lane Vacation Alternative Analysis
- Conclusions

2.0 PROJECT DESCRIPTION

The Project site is generally located in the northwest and southwest quadrants of the intersection of Country Club Road and Church Lane (North) in the unincorporated community of Borrego Springs in the County of San Diego. The existing site is currently undeveloped. The Project consists of a 13,500 square foot public library (with the possibility of an attached ancillary 2,000 square foot community room and an attached 1,600 square foot sheriff substation) located in the northwest quadrant of the Project site, and an approximately 17.7 acre park located in the southwest quadrant of the Project site. ***Figure 2-1*** shows the general location of the project, while ***Figure 2-2*** shows a more detailed project area map.

The proposed library/sheriff substation will be accessible via Country Club Road, north of Church Lane, and will provide a total of approximately 92 parking spaces. The library component of the Project will replace the existing 3,700 SF Borrego Springs Public Library located in The Mall shopping center located just northwest of the Project site. In order to provide a conservative analysis, credits for the existing library, which is proposed to be vacated, were not taken. ***Figure 2-3*** shows the site plan for the library component of the Project.

As previously noted, the project may also include a 1,600-square-foot sheriff substation attached to the southwestern corner of the library. This substation would replace the current San Diego County Sheriff's Borrego Springs Office, located directly across Country Club Road from the Project site, in The Mall shopping center. *Figure 2-3* also shows the sheriff substation component of the Project.

The proposed park will be accessible via a total of five access points: two locations along Country Club Road south of Church Lane (North), and three locations along Church Lane. ***Figure 2-4*** shows the project's site plan for the Park.

As an alternative, the Project may also consider an option to better integrate the Library/Sheriff Substation and Park site by closing a portion of Church Lane to vehicular access between the proposed Library/Sheriff Substation and Park. This Project alternative is discussed further in ***Section 10*** of this study.

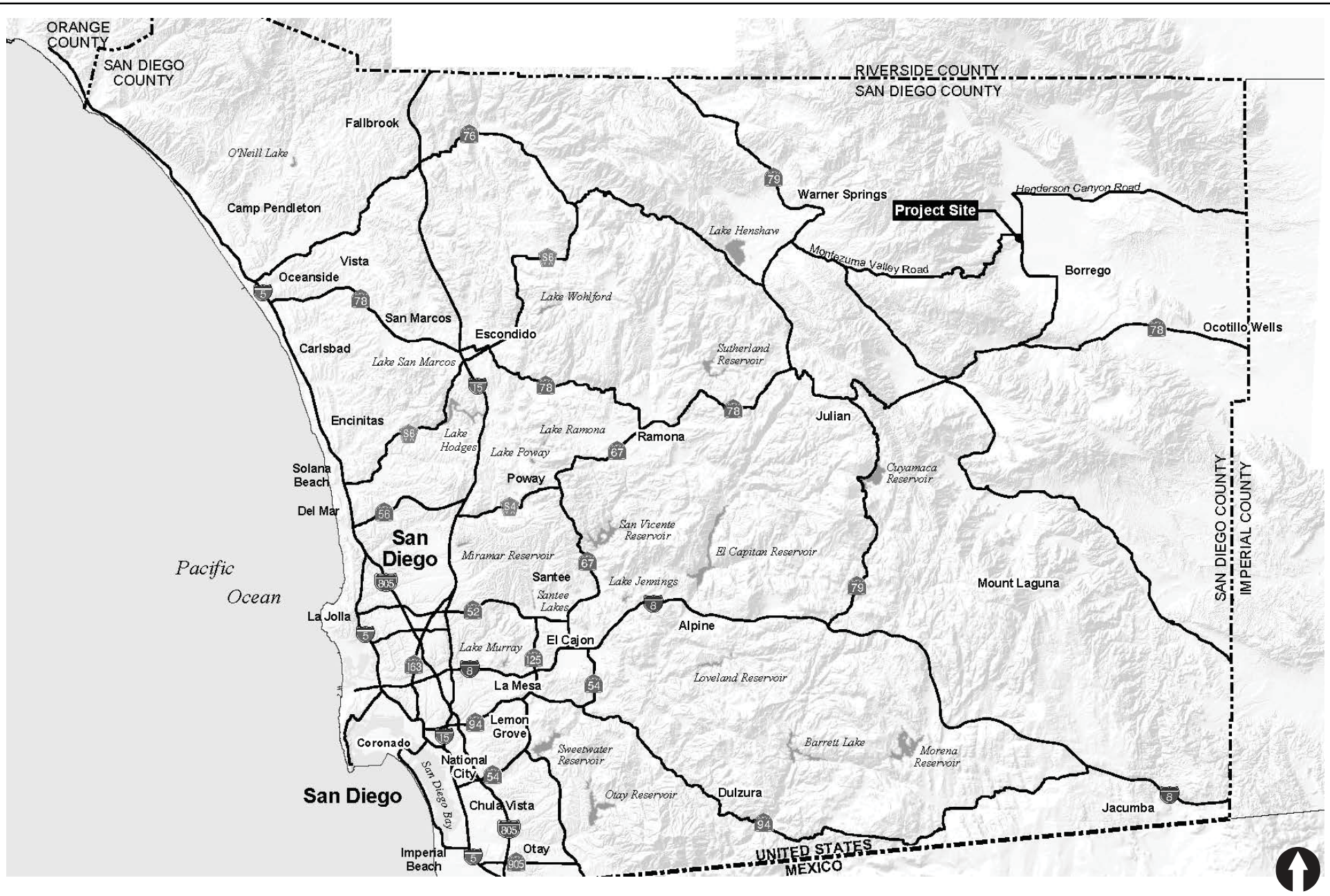

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Figure 2-1

Vicinity Map

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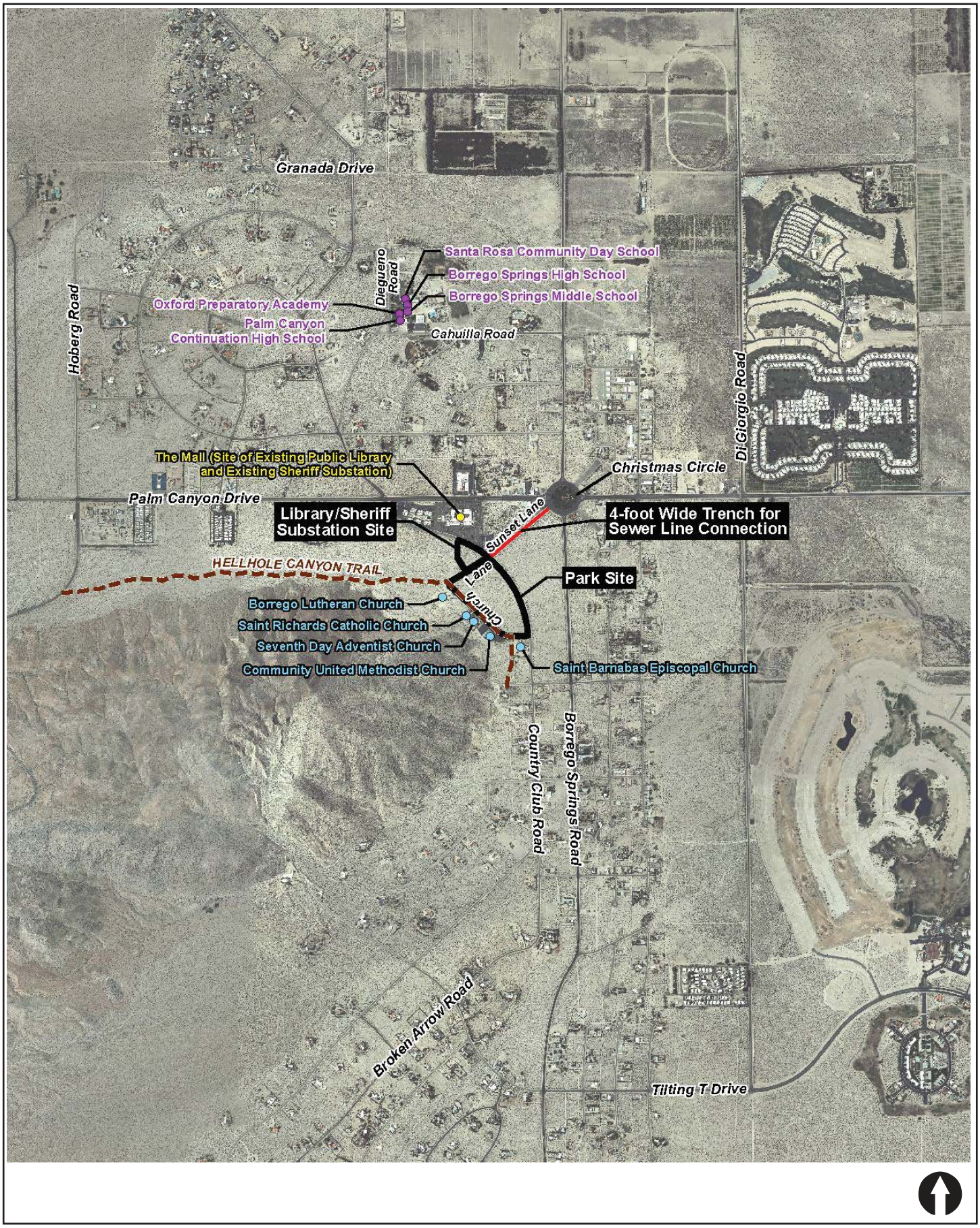

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Figure 2-2

Project Area Map

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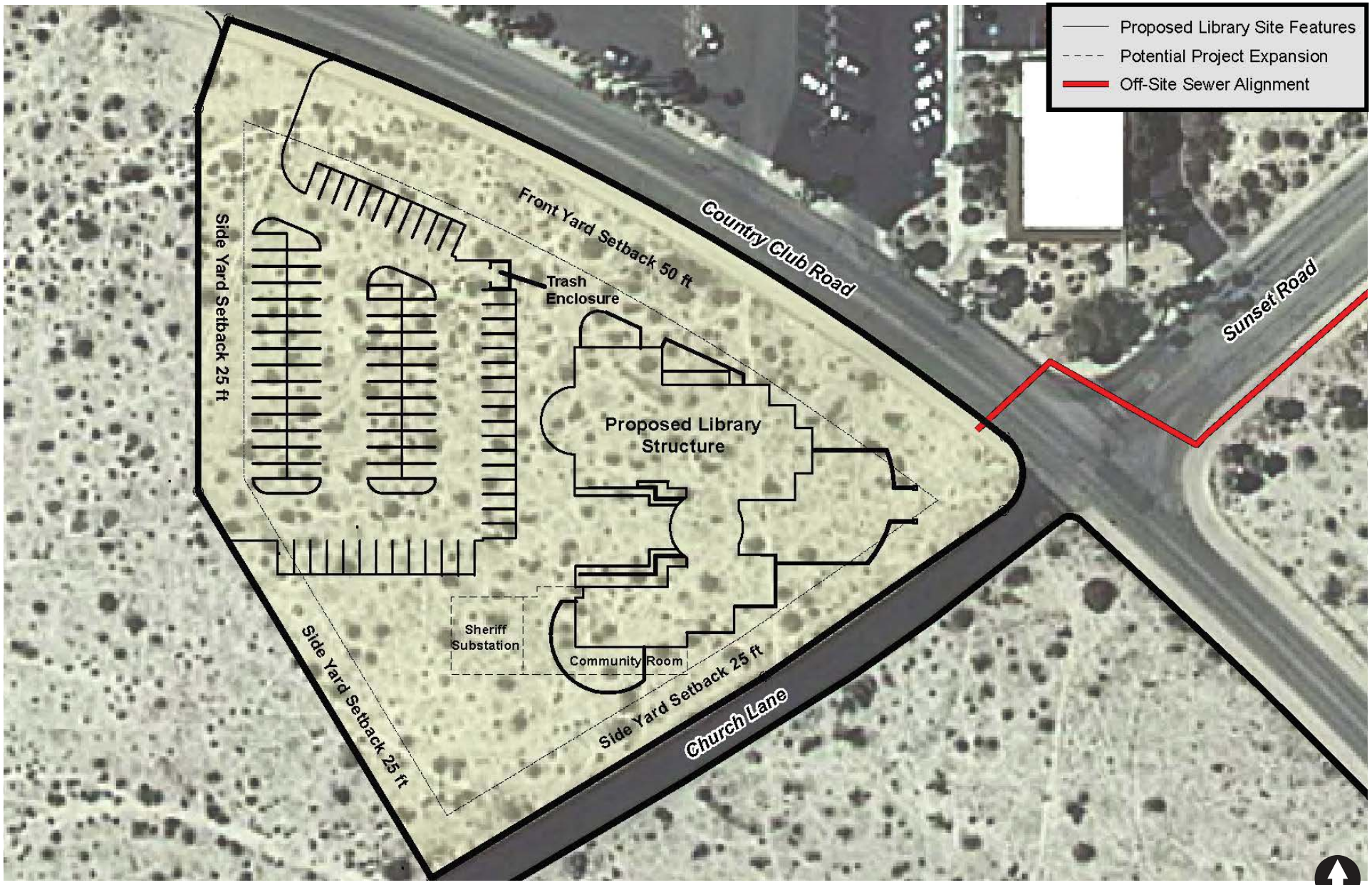

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Figure 2-3

Library / Sheriff Substation Site Plan

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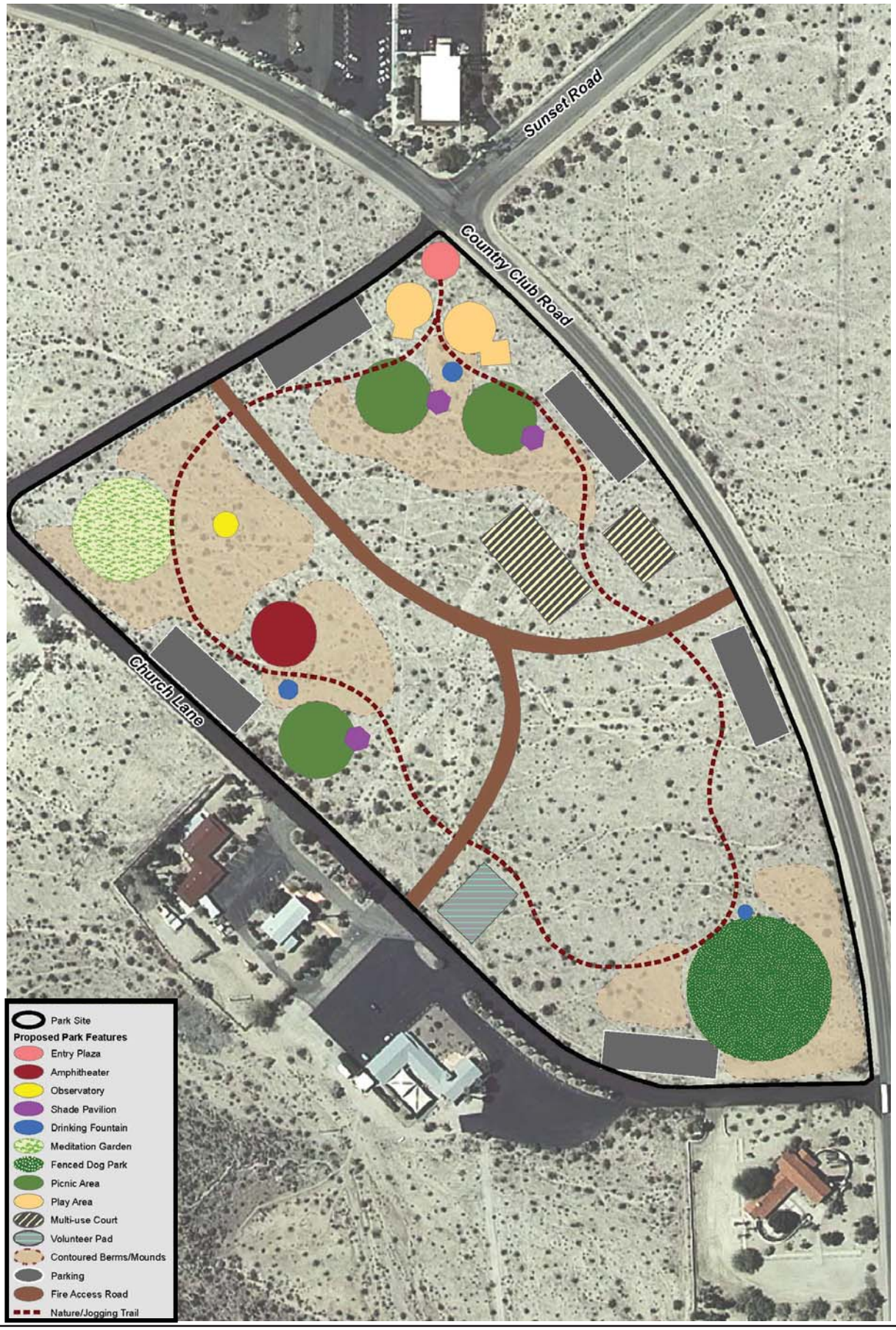

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Figure 2-4

Park Site Plan

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3.0 EXISTING CONDITIONS

3.1 Study Area

The study area for this project encompasses areas of anticipated impact related to the Project. The scope of the study area was developed based on the guidelines outlined in the *"County of San Diego Report Format and Content Requirements – Transportation and Traffic – Second Modification August 24, 2011"* Manual, existing traffic volumes, the proposed project distribution, and a working knowledge of the local transportation system based on LLG's prior work in this area.

The intersections and segments included in the study area for analysis are listed below:

Intersections:

1. Palm Canyon Drive / Ocotillo Circle / Country Club Road
2. Christmas Circle
3. Country Club Road / Church Lane / Sunset Road
4. Country Club Road / Church Lane

Segments:

Country Club Road

- Palm Canyon Drive to Church Lane / Sunset Road
- Church Lane / Sunset Road to Church Lane

Sunset Road

- Country Club Road to Christmas Circle

3.2 Existing Street Network

The following is a description of the existing street network in the study area. ***Figure 3-1*** shows an existing conditions diagram.

Palm Canyon Drive is classified as a Light Collector on the County's Desert Mobility Element Network from Country Club Road to Christmas Circle. It is currently built as a 2-lane road with a two-way left-turn lane that ends around 500 feet west of Christmas Circle. Street parking is provided on a 400 foot stretch just west of Christmas Circle. Bike lanes are provided on both sides. The posted speed limit is 35 mph.

Country Club Road is an unclassified roadway on the County's Desert Mobility Element Network. It is currently built as a 2-lane roadway without bike lanes or street parking. There is no posted speed limit.

Sunset Road / Church Lane is an unclassified roadway on the County's Desert Mobility Element Network. It is currently built as a 2-lane roadway without bike lanes or street parking. There is no posted speed limit.

3.3 Existing Traffic Volumes

Existing weekday AM and PM peak hour (7:00-9:00 AM and 4:00-6:00 PM) intersection turning movement and bi-directional daily (24-hour) traffic counts were conducted at the study area intersections and street segments on Tuesday, July 7, 2015. Since the counts were conducted during the summer when the population of Borrego Springs is much lower than during other times of the year, the observed volumes were tripled to account for peak season conditions.

Table 3–1 is a summary of the average daily traffic volumes (ADTs).

Figure 3–2 shows the Existing Traffic Volumes. ***Appendix A*** contains the manual count sheets.

TABLE 3–1
EXISTING TRAFFIC VOLUMES

Street Segment	ADT [a]	Date	Source
Country Club Road			
Palm Canyon Dr to Church Ln / Sunset Rd	2,950	July 2015	LLG
Church Ln / Sunset Rd to Church Ln	2,780	July 2015	LLG
Sunset Road			
Country Club Rd to Christmas Circle	1,250	July 2015	LLG

Footnotes:

a. Average Daily Traffic Volumes. Counted volumes tripled to account for peak season baseline conditions.

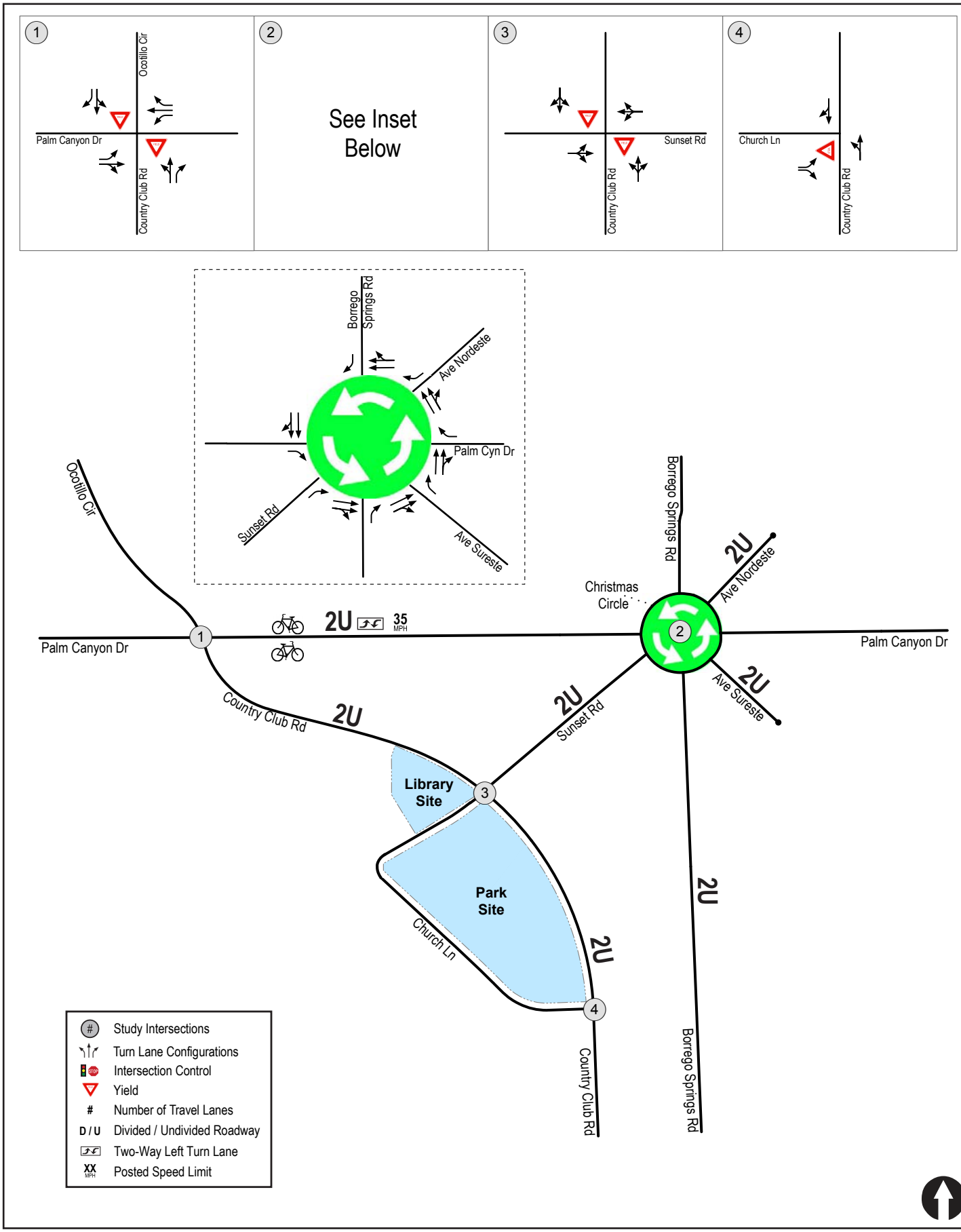

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Figure 3-1

Existing Conditions Diagram

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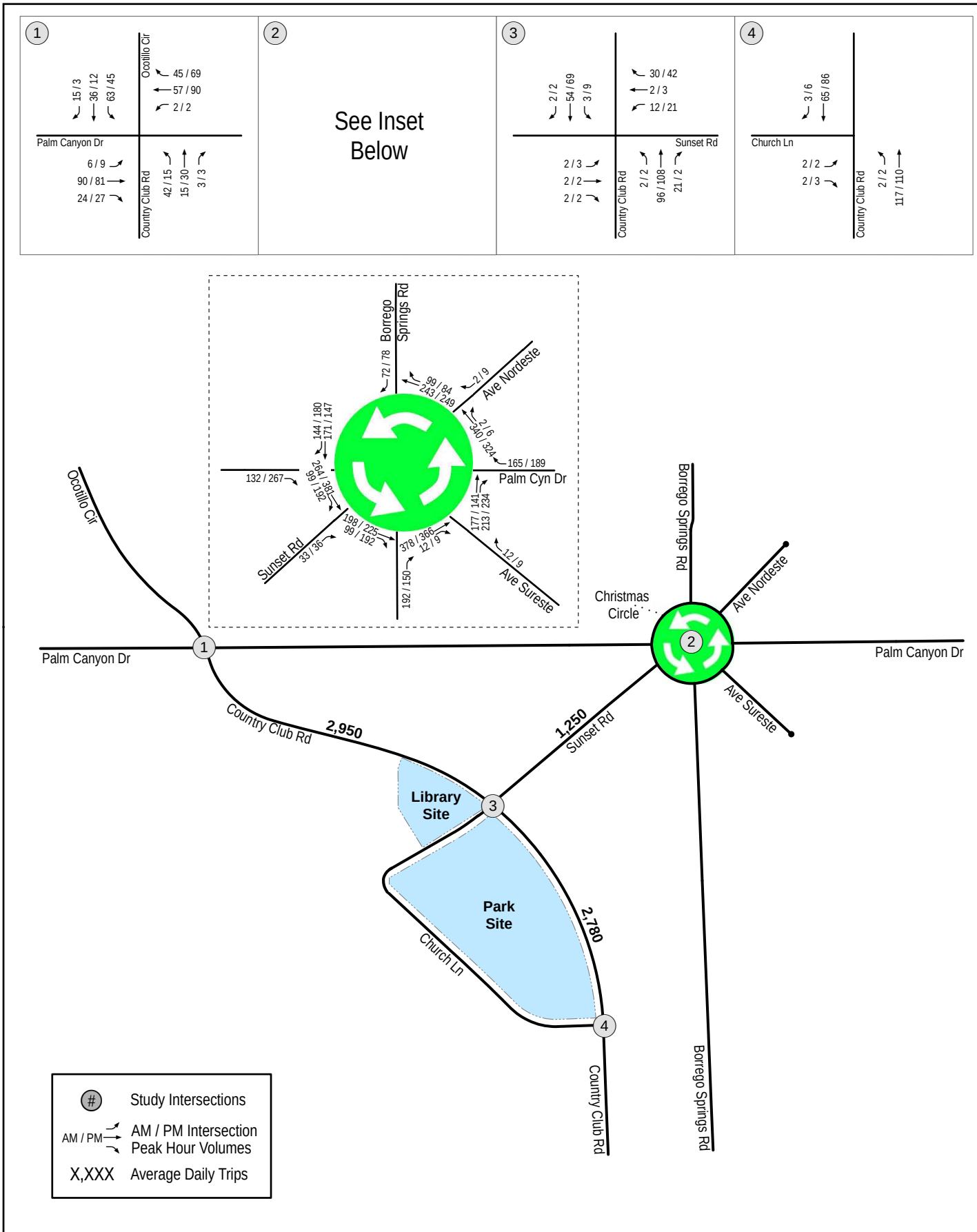

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Figure 3-2

Existing Traffic Volumes

BORREGO SPRINGS LIBRARY & PARK

4.0 ANALYSIS APPROACH AND METHODOLOGY

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and un-signalized intersections, as well as for roadway segments.

4.1 Intersections

Un-signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) was determined based upon the procedures found in Chapter 17 of the *2000 Highway Capacity Manual (HCM),* with the assistance of the *Synchro* (version 9) computer software. A more detailed explanation of the methodology is also attached in *Appendix B.*

4.2 Roundabouts (Christmas Circle)

Roundabout intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and LOS was determined based upon the procedures found in Chapter 21 of the *2010 HCM,* with the assistance of the *SIDRA INTERSECTION* (version 6.1) computer software.

4.3 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the County of San Diego's *Roadway Classification, Level of Service, and ADT Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The County of San Diego's *Roadway Classification, Level of Service, and ADT Table* is attached in ***Appendix C.***

5.0 SIGNIFICANCE CRITERIA

The following criteria was utilized to evaluate potential significant impacts, based on the *County of San Diego Guidelines for Determining Significance—Transportation and Traffic*, dated June 30, 2009 with a second modification effective August 24, 2011. The County of San Diego's General Plan Mobility Element discusses the County's Level of Service criteria under Goal M-2. It requires that development projects provide associated road improvements necessary to achieve a level of service of "D" or higher on all Mobility Element roads except for those where a failing level of service has been accepted by the County.

5.1 Road Segments

5.1.1 *Non-Circulation Element Residential Streets*

The street segments analyzed in this study are all non-circulation element roadways. Per the *County of San Diego Guidelines for Determining Significance—Transportation and Traffic*, "Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots and not to carry through traffic, however, for projects that will substantially increase traffic volumes on residential streets, a comparison of the traffic volumes on the residential streets with the recommended design capacity must be provided. Recommended design capacities for non-Circulation Element streets are provided in the San Diego County Public and Private Road Standards. Traffic volume that exceeds the design capacity on residential streets may impact residences and should be analyzed on a case-by-case basis".

5.2 Intersections

This section provides guidance for evaluating adverse environmental effects a project may have on signalized and un-signalized intersections. ***Table 5–2*** was obtained from County guidelines and summarizes the allowable increases in delay or traffic volumes at signalized and un-signalized intersections. Exceeding the thresholds in *Table 5-2* would result in a significant impact.

TABLE 5–2
MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON INTERSECTIONS
ALLOWABLE INCREASES ON CONGESTED INTERSECTIONS

Level of service	Signalized	Un-signalized
LOS E	Delay of 2 seconds or less	20 or less peak hour trips on a critical movement
LOS F	Either a Delay of 1 second, or 5 peak hour trips or less on a critical movement	5 or less peak hour trips on a critical movement

General Notes:

1. A critical movement is an intersection movement (right-turn, left-turn, through-movement) that experiences excessive queues, which typically operate at LOS F.
2. By adding proposed project trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project is responsible for mitigating its share of the cumulative impact.
3. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.
4. For determining significance at signalized intersections with LOS F conditions, the analysis must evaluate both the delay ***and*** the number of trips on a critical movement, exceedance of either criteria result in a significant impact.

Un-signalized Intersections— The intersections analyzed in this study are all un-signalized. The operating parameters and conditions for un-signalized intersections differ dramatically from those of signalized intersections. Very small volume increases on one leg or turn and/or through movement of an un-signalized intersection can substantially affect the calculated delay for the entire intersection. Significance criteria for un-signalized intersections are based upon a minimum number of trips added to a critical movement at an un-signalized intersection.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic impact on an un-signalized intersection as listed in *Table 5–1* and described as text below:

- The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an un-signalized intersection, and cause an un-signalized intersection to operate below LOS D, or
- The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an un-signalized intersection currently operating at LOS E, or
- The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an un-signalized intersection, and cause the un-signalized intersection to operate at LOS F, or
- The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an un-signalized intersection currently operating at LOS F, or
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, the project would significantly impact the operations of the intersection.

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Intersection Analysis

Table 6–1 summarizes the peak hour intersection operations under existing conditions in the study area. As shown, the study area intersections are calculated to currently operate acceptably at LOS B or better during the AM and PM peak hours

Appendix D contains the Existing analysis calculation sheets.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Delay[a]	LOS[b]
1. Palm Canyon Drive / Ocotillo Circle / Country Club Road	TWSC[c]	AM	11.0	B
		PM	11.8	B
2. Christmas Circle	Roundabout	AM	6.3	A
		PM	6.3	A
3. Country Club Road / Church Lane / Sunset Road	Yield[d]	AM	9.8	B
		PM	10.2	B
4. Country Club Road / Church Lane	Yield[e]	AM	9.2	A
		PM	9.4	A

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Two-Way Stop Controlled Intersection.
d. Eastbound and westbound movements yield. Due to limitations associated with the Synchro analysis software, the intersection was conservatively analyzed as a two-way stop controlled intersection.
e. Eastbound movement yields. Due to limitations associated with the Synchro analysis software, the intersection was conservatively analyzed as a one-way stop controlled intersection.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

6.2 Street Segment Operations

Table 6–2 summarizes the existing street segment operations along the key study area roadways. As shown, the study area street segments are calculated to currently operate acceptably.

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Existing Functional Classification [a]	Capacity[b]	ADT[c]	LOS[d]
Country Club Road				
Palm Canyon Drive to Church Lane / Sunset Road	Residential Collector	4,500	2,950	-
Church Lane / Sunset Road to Church Lane	Residential Collector	4,500	2,780	-
Sunset Road				
Country Club Road to Christmas Circle	Residential Collector	4,500	1,250	-

Footnotes:

a. The study street segments are not classified on the County's Desert Mobility Element Network. The capacities listed for the study street segments are the recommended design capacity for Non-Circulation Element Residential Streets, as shown on the County of San Diego Roadway Classification & LOS table.

b. Capacities based on County of San Diego Roadway Classification & LOS table (See Appendix C).

c. Average Daily Traffic Volumes.

d. Levels of Service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic, as discussed in Section 5 of this report.

7.0 TRIP GENERATION / DISTRIBUTION / ASSIGNMENT

The following is a discussion of the project trip generation calculations and the project traffic distribution and assignment through the local network.

7.1 Trip Generation

Trip generation estimates for the Project were calculated based on SANDAG rates provided in the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002*. The trip generation for the 13,500 square foot library component of the Project was calculated using the "Library" trip rate of 50 ADT/ 1,000 SF. The trip generation for the park component of the Project was conservatively calculated using the "City (developed w/ meeting rooms and sports facilities) Park" rate of 50 ADT / acre even though the park does not propose any meeting facilities and will provide only one multi-purpose "sport-court". These SANDAG trip rates are considered conservative (high) for the purposes of this project, since they are more applicable to more urban and suburban areas with populations greater than that of Borrego Springs.

Table 7-1 shows the Project is calculated to generate 1,560 ADT with 68 inbound / 62 outbound trips during the AM peak hour and 74 inbound / 74 outbound trips during the PM peak hour.

As previously noted, the project *may* also include an ancillary 2,000 square foot community room and a 1,600-square-foot sheriff substation attached to the library. The substation would replace the current San Diego County Sheriff's Borrego Springs Office, located directly across Country Club Road from the project site, in The Mall shopping center, and the community room will provide ancillary space for the proposed library. Both of these additional project components are not expected to generate a measurable amount of new traffic aside from the Project's trip generation summarized in *Table 7-1*.

7.2 Project Traffic Distribution /Assignment

The generated Project traffic was distributed and assigned to the street system primarily based on the existing traffic counts and other factors such as Project access, and the proximity of the Project to potential employment and retail opportunities.

Figure 7-1 presents the Project traffic distribution for the Library. ***Figure 7-2*** presents the Project traffic distribution for the Park. ***Figure 7-3*** shows the Total Project Traffic Volumes and ***Figure 7-4*** shows the Existing + Project Traffic Volumes.

TABLE 7–1
TRIP GENERATION SUMMARY

Use	Quantity	Daily Trip Ends (ADTS)[a]		AM Peak Hour				PM Peak Hour			
		Rate[b]	Volume	% of ADT	In:Out Split	Volume		% of ADT	In:Out Split	Volume	
						In	Out			In	Out
Library	13,500 SF	50 / KSF	675	2%	70:30	10	4	10%	50:50	34	34
Park [c]	17.7 Acres	50 / Acre	885	13%	50:50	58	58	9%	50:50	40	40
Total	**-**	**-**	**1,560**	**-**	**-**	**68**	**62**	**-**	**-**	**74**	**74**

Footnotes:

a. Average Daily Trips

b. Trip rates from SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

c. Trip generation for the proposed 17.7-acre park conservatively calculated using the "City (developed w/ meeting rooms and sports facilities) Park" rate of 50 ADT / acre.

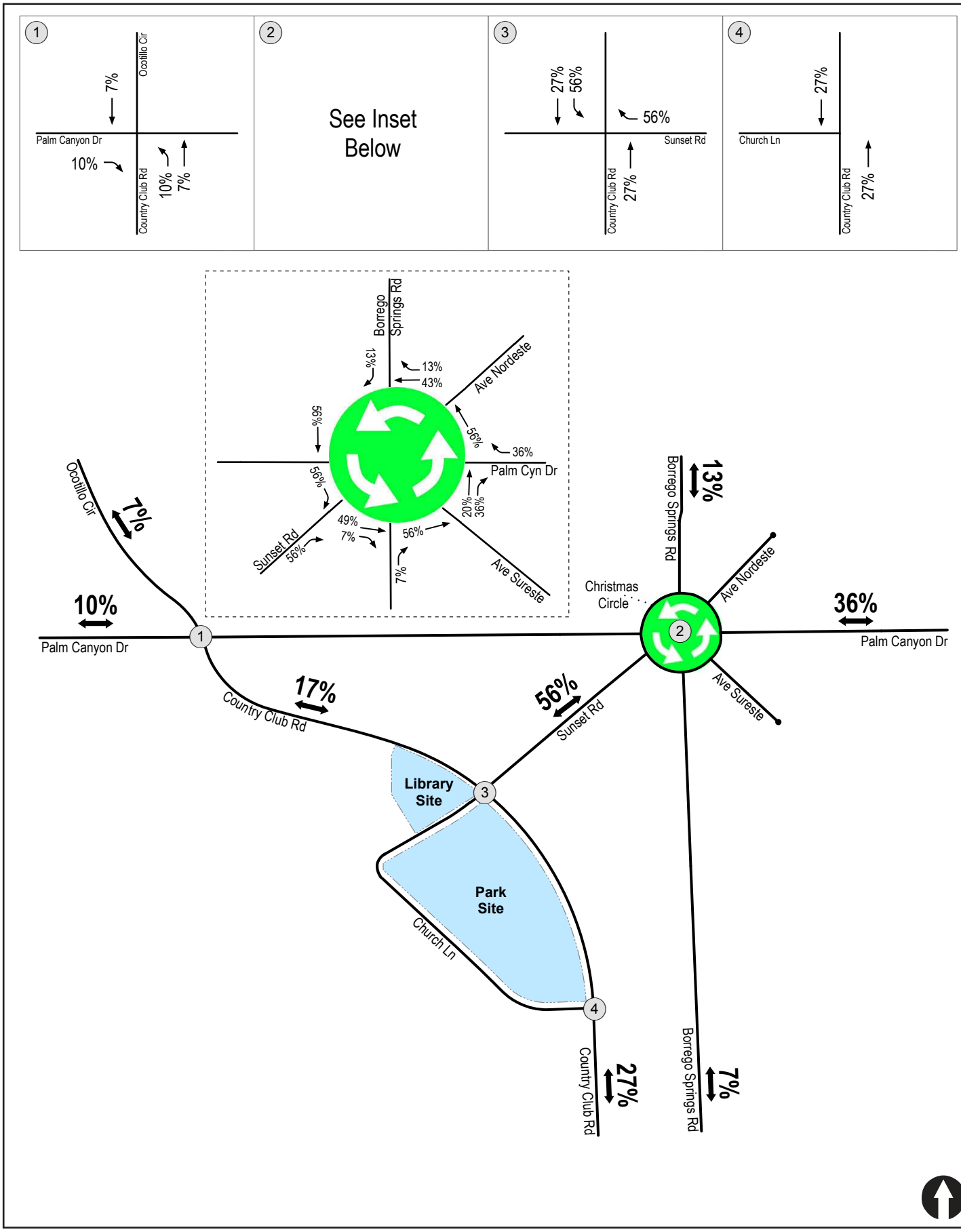

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Figure 7-1

Project Traffic Distribution

Library / Sheriff Substation

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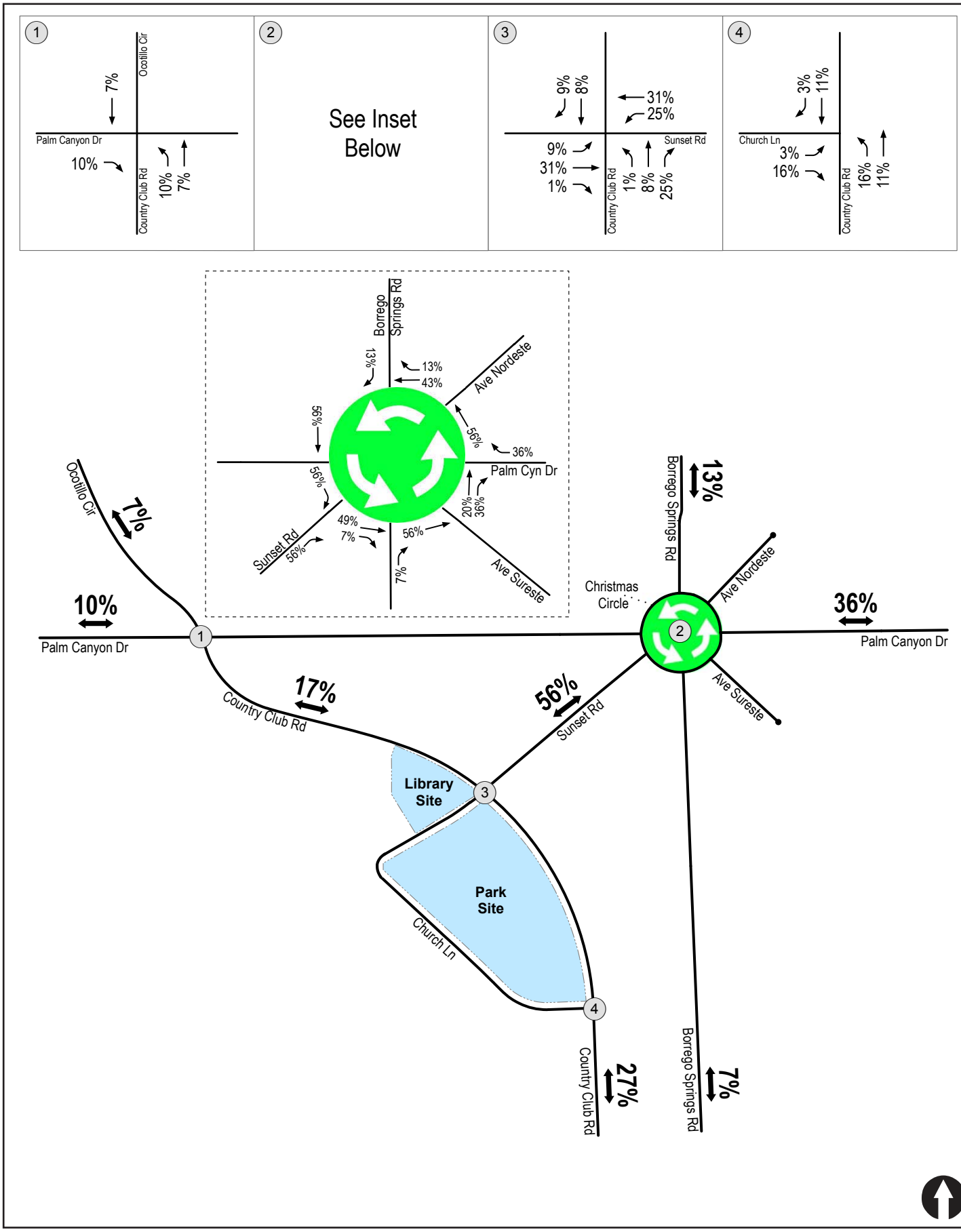

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Figure 7-2

Project Traffic Distribution

Park

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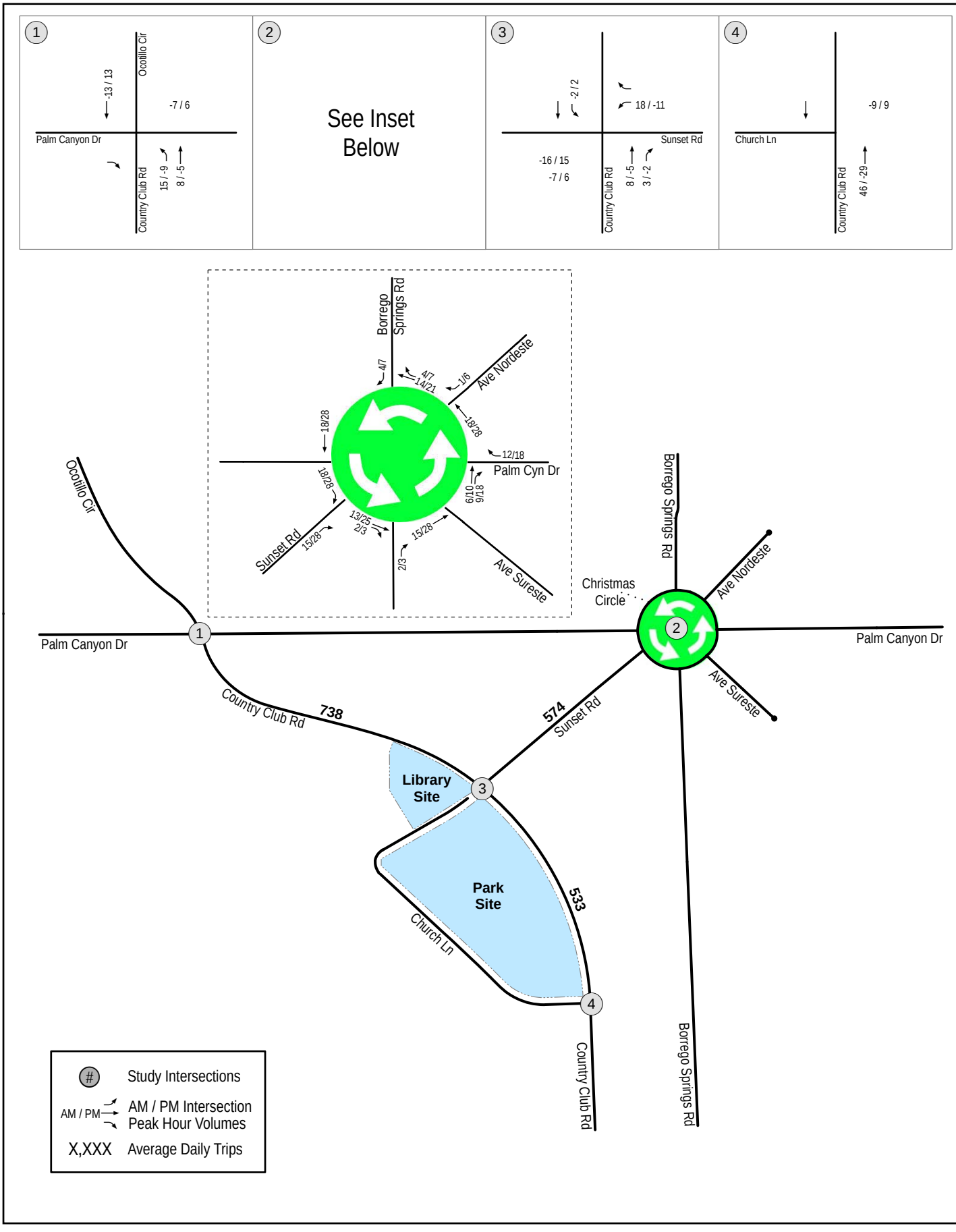

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Figure 7-3

Project Traffic Volumes

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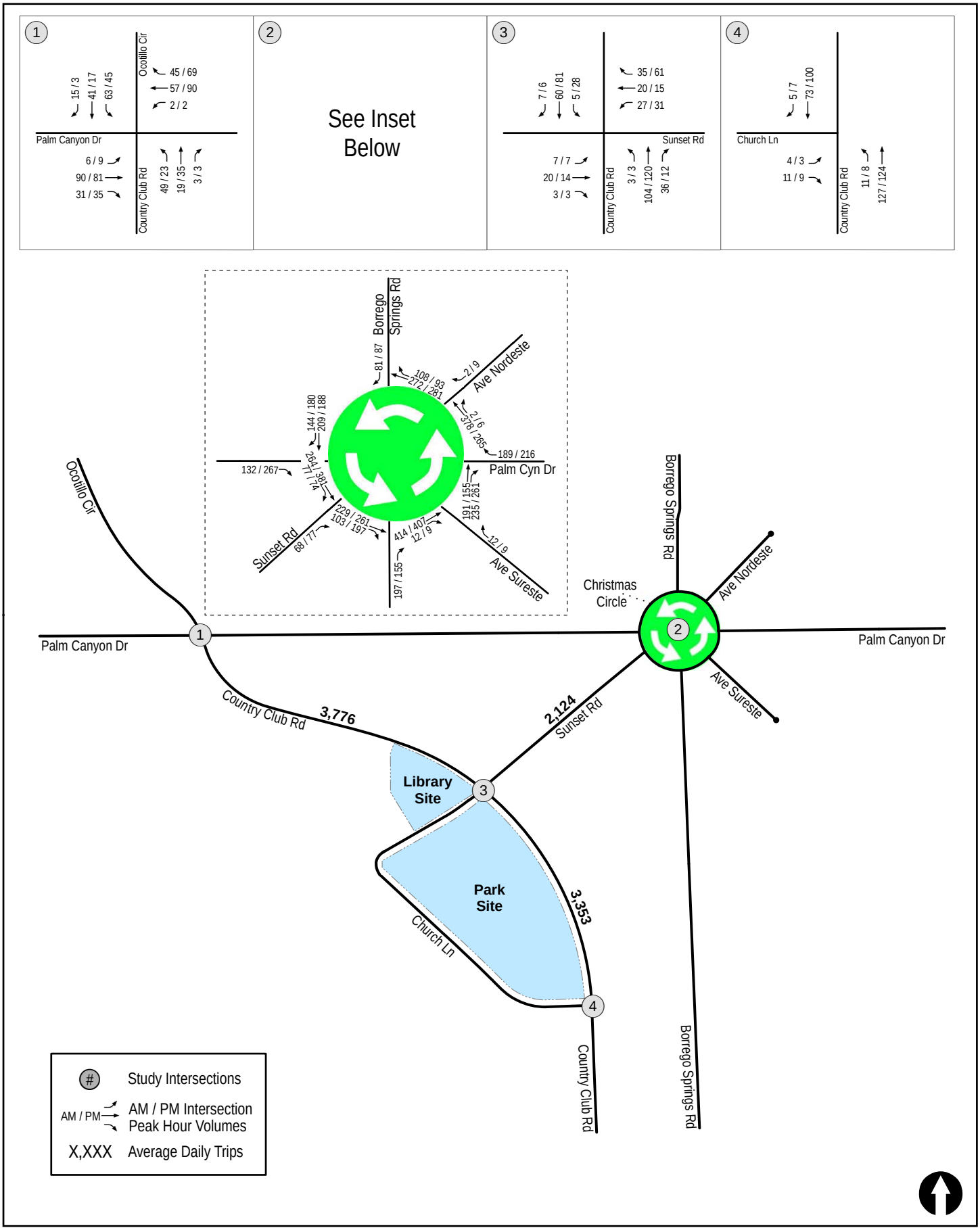

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Figure 7-4

Existing + Project Traffic Volumes

BORREGO SPRINGS LIBRARY & PARK

8.0 CUMULATIVE PROJECTS

Cumulative projects are other projects within the vicinity of the study area that will add traffic to the local circulation system in the near future. Based on coordination with County staff, there are no cumulative projects in the area to be included in the analysis. In order to account for some growth and to provide a conservative analysis, a 10% growth factor was applied to the Existing volumes to account for cumulative traffic. ***Figure 8-1*** shows the assignment of the Cumulative Project Traffic Volumes. ***Figure 8-2*** shows the Existing + Project + Cumulative Projects Traffic Volumes.

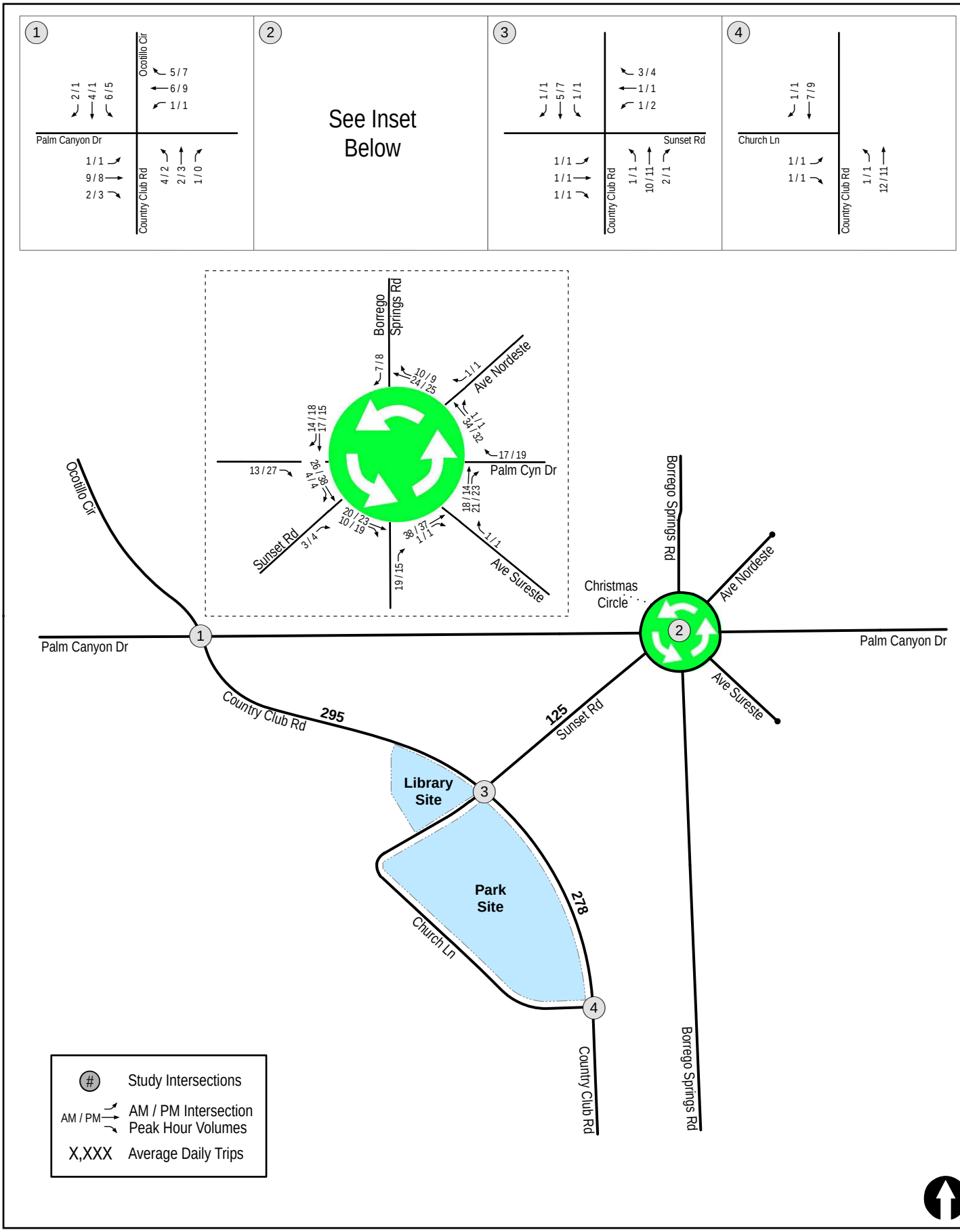

Figure 8-1

Cumulative Projects Traffic Volumes

Borrego Springs Library & Park

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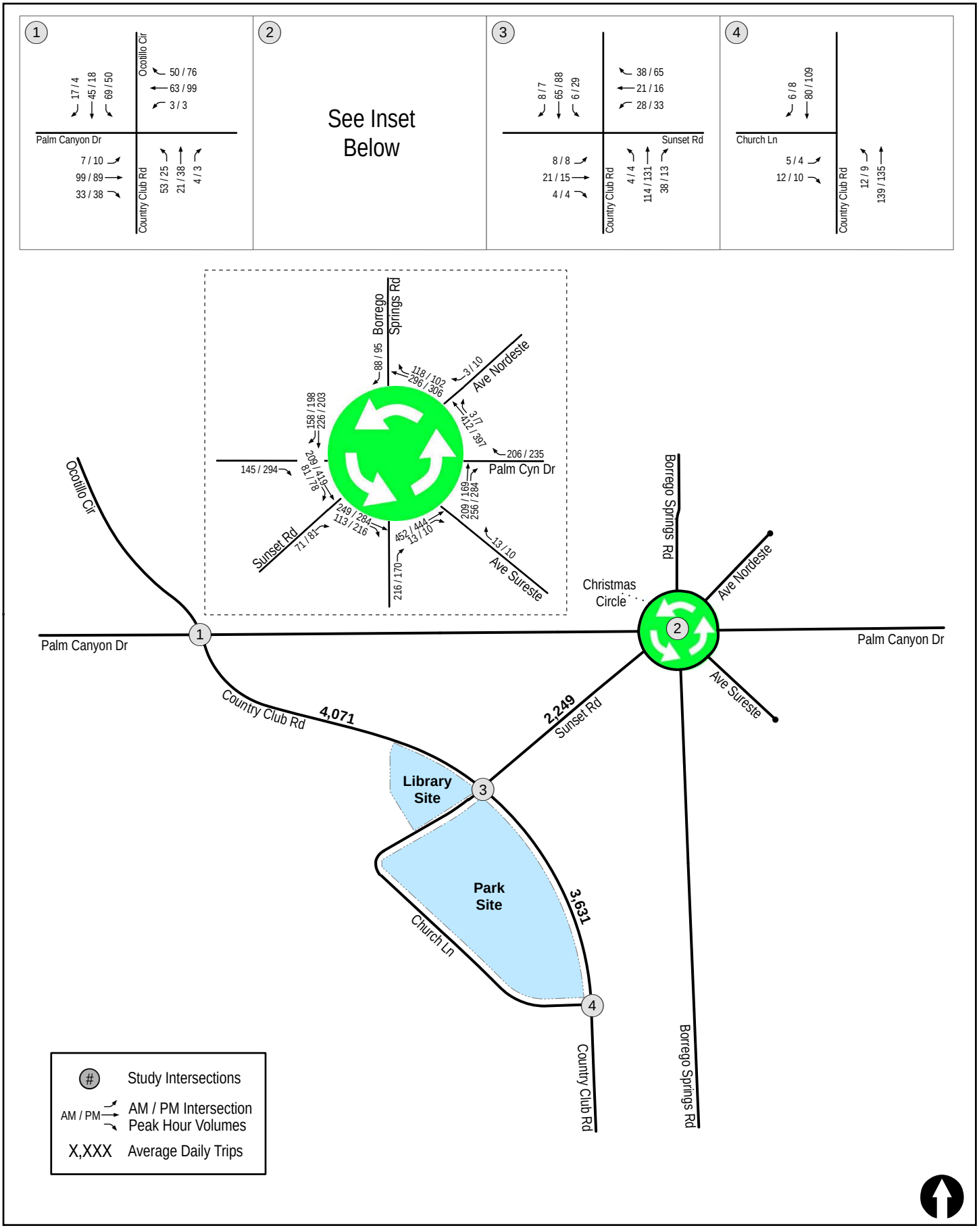

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Figure 8-2

Existing + Project + Cumulative Projects Traffic Volumes

BORREGO SPRINGS LIBRARY & PARK

9.0 ANALYSIS OF NEAR-TERM SCENARIOS

The following section discusses the intersection and street segment operations for the near-term scenarios: Existing + Project and Existing + Project + Cumulative Projects.

9.1 Existing + Project Conditions

9.1.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations under Existing + Project conditions. As seen in *Table 9–1*, with the addition of Project traffic, the study intersections are calculated to continue to operate at LOS B or better during the AM and PM peak hours.

Based on the County of San Diego's significance criteria, ***no significant direct impacts*** were identified.

Appendix E contains the Existing + Project intersection analysis worksheets.

9.1.2 *Street Segment Operations*

Table 9–2 summarizes the Existing + Project roadway segment operations. As seen in *Table 9–2*, with the addition of Project traffic, the study segments are calculated to continue to operate acceptably.

Based on the County of San Diego's significance criteria, ***no significant direct impacts*** were identified.

9.2 Existing + Project + Cumulative Projects

9.2.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations under Existing + Project +Cumulative Projects conditions. As seen in *Table 9–1*, with the addition of the proposed Project and cumulative projects traffic, the study intersections are calculated to continue to operate at LOS B or better during the AM and PM peak hours.

Based on the County of San Diego's significance criteria, ***no significant cumulative impacts*** were identified.

Appendix F contains the Existing + Project + Cumulative Projects intersection analysis worksheets.

9.2.2 *Street Segment Operations*

Table 9–2 summarizes the Existing + Project + Cumulative Projects roadway segment operations. As seen in *Table 9–2*, with the addition of Project and cumulative projects traffic, the study segments are calculated to continue to operate acceptably.

Based on the County of San Diego's significance criteria, ***no significant cumulative impacts*** were identified.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Project + Cumulative Projects			Impact Type
			Delay[a]	LOS[b]	Delay	LOS	Δ[c]	Delay	LOS	Δ[c]	
1. Palm Canyon Drive / Ocotillo Circle / Country Club Road	TWSC[d]	AM	11.0	B	11.1	B	7	11.6	B	11	None
		PM	11.8	B	12.0	B	8	12.5	B	10	
2. Christmas Circle	Roundabout	AM	6.3	A	6.7	A	0.4	7.1	A	0.8	None
		PM	6.3	A	6.6	A	0.3	7.0	A	0.7	
3. Country Club Road / Church Lane / Sunset Road	Yield[e]	AM	9.8	A	10.8	B	15	11.1	B	16	None
		PM	10.2	B	11.6	B	10	11.9	B	12	
4. Country Club Road / Church Lane	Yield[f]	AM	9.2	A	9.2	A	2	9.3	A	3	None
		PM	9.4	A	9.4	A	1	9.6	A	2	

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes a Project or Project + Cumulative Projects-induced increase in trips or delay to the critical movement based on County guidelines.
d. Two-Way Stop Controlled Intersection.
e. Eastbound and westbound movements yield. Due to limitations associated with the Synchro analysis software, the intersection was conservatively analyzed as a two-way stop controlled intersection.
f. Eastbound movement yields. Due to limitations associated with the Synchro analysis software, the intersection was conservatively analyzed as a one-way stop controlled intersection.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

TABLE 9–2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Capacity[a]	Existing		Existing + Projects			Existing + Project + Cumulative Project			Impact Type
		ADT[b]	LOS[c]	ADT	LOS	Δ[d]	ADT	LOS	Δ[d]	
Country Club Road										
Palm Canyon Drive to Church Lane / Sunset Road	4,500	2,950	-	3,776	-	826	4,071	-	1,121	None
Church Lane / Sunset Road to Church Lane	4,500	2,780	-	3,352	-	572	3,630	-	850	None
Sunset Road										
Country Club Lane to Christmas Circle	4,500	1,250	-	2,124	-	874	2,249	-	999	None

Footnotes:

a. The study street segments are not classified on the County's Desert Mobility Element Network. The capacities listed for the study street segments are the recommended design capacity for Non-Circulation Element Residential Streets, as shown on the County of San Diego Roadway Classification & LOS table.

b. Average Daily Traffic

c. Levels of Service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic, as discussed in *Section 5* of this report.

d. Δ denotes a Project or Project + Cumulative Projects induced increase in ADT based on County guidelines.

10.0 CHURCH LANE VACATION ALTERNATIVE

The Project is also considering an option to better integrate the Library and Park site by vacating (closing) a portion of Church Lane between the proposed Library and Park uses. The closure would facilitate access between the Library and the Park, making it easier for Park patrons to utilize the Library's restrooms and other amenities, and for the Library to take advantage of the Park's facilities. To accomplish this goal, Church Lane would be vacated between Country Club Road and the east end of the project site. It is anticipated that the remaining portion of Church Lane would terminate in a cul de sac near the project boundary. Under the street vacation option, the above-described design of the Park would be modified such that the proposed parking lot fronting this east-west segment of Church Lane would not be included in the Project, and the remaining parking lots for the Park along Church Lane would be resized accordingly.

Upon request from the County of San Diego, a supplementary analysis was conducted to determine how the closure of Church Lane would affect existing operations. Due to the proximity of several churches on the north-south segment of Church Lane, analysis was conducted during Weekday and Sunday conditions to determine and evaluate potential impacts due to the Project for this Alternative. It should be noted that with the vacation of the northern segment of Church Lane, the existing churches would only have access at the southern intersection of Church Lane (South) and Country Club Road.

The following analysis is covered in this alternative: Existing, Existing + Project and Existing + Project + Cumulative Projects for both weekday and Sunday scenarios.

10.1 Study Area

The study area for this alternative analysis encompasses areas of anticipated impact related specifically to the effects of the Church Lane vacation. Traffic operations at the other study locations not included in this alternative analysis are expected to remain the same with or without the vacation of Church Lane.

The intersections and segments included in the study area for analysis are listed below:

Intersections:

1. Country Club Road / Church Lane / Sunset Road
2. Country Club Road / Church Lane

Segments:

Church Lane

- West of Country Club Road / Sunset Road (North)
- West of Country Club Road (South)

Country Club Road

- Church Lane / Sunset Road to Church Lane (South)

10.2 Existing Traffic Volumes

With the vacation of Church Lane, the existing weekday peak hour volumes, as shown in *Figure 3–2*, at Church Lane (North) and Country Club Road were rerouted to the intersection of Church Lane (South) and Country Club Road according to assumed traffic patterns. The ADT volumes were derived and rerouted onto the adjacent segments, specifically to the southern portion of Church Lane and Country Club Road from Church Lane (North) to Church Lane (South). ***Figure 10–1*** shows the existing rerouted weekday traffic volumes with the vacation of Church Lane.

Research was conducted to determine an appropriate peak hour for the Sunday analysis based on church-related activity. The peak hour counts for Sunday were conducted between 8:30-10:30 AM, based on the service times of the churches.

Peak hour Sunday intersection turning movement and bi-directional daily (24-hour) traffic counts were conducted at the study area intersections and street segments on Sunday, August 16, 2015. Since the counts were conducted during the summer, the volumes were tripled to account for peak season baseline conditions. ***Figure 10–2*** shows the Existing Sunday Traffic Volumes. Similar to the Existing weekday traffic volumes for this alternative, the observed peak hour and ADT volumes associated with the vacation of Church Lane were rerouted accordingly as shown in ***Figure 10–3***.

Appendix A contains the weekend manual count sheets.

10.3 Trip Generation/ Distribution/ Assignment

Trip generation rates were assumed to remain the same for this alternative scenario for the weekday and Sunday analysis. The Project traffic was distributed and assigned to the street system based on the alternative street network assuming the vacation of the indicated portion of Church Lane. The distribution for the Library will remain the same given that the access to the site is not affected by the vacation of Church Lane. With the vacation of Church Lane, Project Traffic to the Park will no longer be able to access the eastern parking lots through the northern intersection of Country Club Road and Church Lane (North) and instead be rerouted to the southern intersection of Church Lane (South) and Country Club Road.

Figure 10–4 presents the Project traffic distribution for the Library. ***Figure 10–5*** presents the Project traffic distribution for the Park. ***Figure 10–6*** shows the Total Project Traffic Volumes under both Weekday and Sunday conditions. ***Figure 10–7*** shows the Weekday Existing + Project traffic volumes. ***Figure 10–8*** shows the Sunday Existing + Project traffic volumes under the Church Lane Vacation Alternative.

10.4 Existing + Project Conditions

10.4.1 *Intersection Analysis*

Table 10–1 summarizes the Weekday peak hour intersection operations under Existing and Existing + Project conditions. ***Table 10–2*** summarizes the Sunday peak hour intersection operations under

Existing and Existing + Project conditions. As seen in both tables, with the vacation of Church Lane and the addition of Project traffic, the study intersections are calculated to continue to operate at LOS B or better during the AM and PM peak hours.

Based on the County of San Diego's significance criteria, ***no significant direct impacts*** were identified, and excessive delays are not expected with the vacation of Church Lane.

Appendix G contains the Existing and Existing + Project (Church Lane Vacation Alternative) intersection analysis worksheets.

10.4.2 *Street Segment Operations*

Table 10–3 summarizes the Weekday Existing and Existing + Project roadway segment operations. ***Table 10–4*** summarizes the Sunday Existing and Existing + Project roadway segment operations. As seen in both tables, with the vacation of Church Lane and the addition of Project traffic, the study segments are calculated to continue to operate acceptably.

Based on the County of San Diego's significance criteria, ***no significant direct impacts*** were identified, and acceptable LOS are calculated with the vacation of Church Lane.

10.5 Cumulative Projects

Similar to the application of Cumulative Projects in the analysis of the Project without the vacation of Church Lane, a 10% growth factor was applied to the existing volumes to account for cumulative project traffic, as shown in ***Figure 10–9*** and ***Figure 10–10*** for Weekday and Sunday traffic respectively**.** Project traffic was then added to these volumes to obtain the Exiting + Project + Cumulative Projects Traffic volumes, which are shown on ***Figure 10–11*** and ***Figure 10–12*** for Weekday and Sunday respectively.

10.6 Existing + Project + Cumulative Projects

10.6.1 *Intersection Analysis*

Table 10–1 summarizes the Weekday peak hour intersection operations under Existing + Project + Cumulative Projects conditions. *Table 10–2* summarizes the Sunday peak hour intersection operations under Existing + Project + Cumulative projects conditions. As seen in both tables, with the vacation of Church Lane and the addition of the proposed Project and cumulative projects traffic, the study intersections are calculated to continue to operate at LOS B or better during the AM and PM peak hours.

Based on the County of San Diego's significance criteria, ***no significant cumulative impacts*** were identified, and excessive delays are not expected with the vacation of Church Lane.

Appendix H contains the Existing + Project + Cumulative Projects (Church Lane Vacation) intersection analysis worksheets.

10.6.2 *Street Segment Operations*

Table 10–3 summarizes the Weekday Existing + Project + Cumulative Projects roadway segment operations. *Table 10–4* summarizes the Sunday Existing + Project + Cumulative Projects roadway segment operations. As seen in both tables, with the vacation of Church Lane and the addition of Project traffic, the study segments are calculated to continue to operate acceptably.

Based on the County of San Diego's significance criteria, ***no significant cumulative impacts*** were identified, and acceptable LOS are calculated with the vacation of Church Lane.

TABLE 10–1
WEEKDAY INTERSECTION OPERATIONS – CHURCH LANE VACATION ALTERNATIVE

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Project + Cumulative Projects			Impact Type
			Delay[a]	LOS[b]	Delay	LOS	Δ[c]	Delay	LOS	Δ[c]	
1. Country Club Road / Church Lane / Sunset Road	Yield[d]	AM	9.5	A	10.4	B	32	10.6	B	34	None
		PM	9.9	A	11.0	B	22	11.3	B	24	
2. Country Club Road / Church Lane	Yield[e]	AM	9.2	A	9.9	A	21	10.1	B	23	None
		PM	9.5	A	10.2	B	14	10.4	B	15	

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes a project-induced increase in trips to the critical movement based on County guidelines.
d. Eastbound and westbound movements yield. Due to limitations associated with the Synchro analysis software, the intersection was conservatively analyzed as a two-way stop controlled intersection.
e. Eastbound movement yields. Due to limitations associated with the Synchro analysis software, the intersection was conservatively analyzed as a one-way stop controlled intersection.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

TABLE 10–2
SUNDAY INTERSECTION OPERATIONS – CHURCH LANE VACATION ALTERNATIVE

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Project + Cumulative Projects			Impact Type
			Delay[a]	LOS[b]	Delay	LOS	Δ[c]	Delay	LOS	Δ[c]	
1. Country Club Road / Church Lane / Sunset Road	Yield[d]	AM	10.6	B	12.1	B	32	12.6	B	35	None
2. Country Club Road / Church Lane	Yield[e]	AM	11.5	B	12.7	B	21	13.4	B	28	None

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes a project-induced increase in trips to the critical movement based on County guidelines.
d. Eastbound and westbound movements yield. Due to limitations associated with the Synchro analysis software, the intersection was conservatively analyzed as a two-way stop controlled intersection.
e. Eastbound movement yields. Due to limitations associated with the Synchro analysis software, the intersection was conservatively analyzed as a one-way stop controlled intersection.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

TABLE 10–3
WEEKDAY STREET SEGMENT OPERATIONS – CHURCH LANE VACATION ALTERNATIVE

Street Segment	Capacity[a]	Existing		Existing + Projects			Existing + Project + Cumulative Project			Impact Type
		ADT[b]	LOS[c]	ADT	LOS	Δ[d]	ADT	LOS	Δ[d]	
Church Lane										
West of Country Club Road	4,500	240	-	683	-	443	707	-	24	None
Country Club Road										
Sunset Road to Church Lane	4,500	2,910	-	3,854	-	944	4,145	-	291	None

Footnotes:

a. The study street segments are not classified on the County's Desert Mobility Element Network. The capacities listed for the study street segments are the recommended design capacity for Non-Circulation Element Residential Streets, as shown on the County of San Diego Roadway Classification & LOS table.

b. Average Daily Traffic

c. Levels of Service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic, as discussed in *Section 5* of this report.

d. Δ denotes a Project or Project + Cumulative Projects induced increase in ADT based on County guidelines.

TABLE 10–4
SUNDAY STREET SEGMENT OPERATIONS – CHURCH LANE VACATION ALTERNATIVE

Street Segment	Capacity[a]	Existing		Existing + Projects			Existing + Project + Cumulative Project			Impact Type
		ADT[b]	LOS[c]	ADT	LOS	Δ[d]	ADT	LOS	Δ[d]	
Church Lane										
West of Country Club Road	4,500	441	-	884	-	443	928	-	487	None
Country Club Road										
Sunset Road to Church Lane	4,500	1,872	-	2,816	-	944	3,003	-	3,190	None

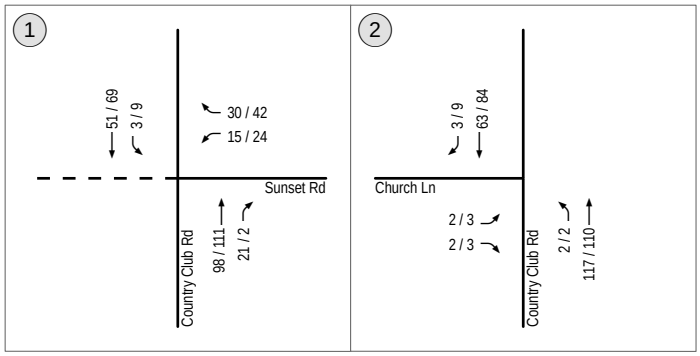
Footnotes:

a. The study street segments are not classified on the County's Desert Mobility Element Network. The capacities listed for the study street segments are the recommended design capacity for Non-Circulation Element Residential Streets, as shown on the County of San Diego Roadway Classification & LOS table.

b. Average Daily Traffic

c. Levels of Service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic, as discussed in *Section 5* of this report.

d. Δ denotes a Project or Project + Cumulative Projects induced increase in ADT based on County guidelines.



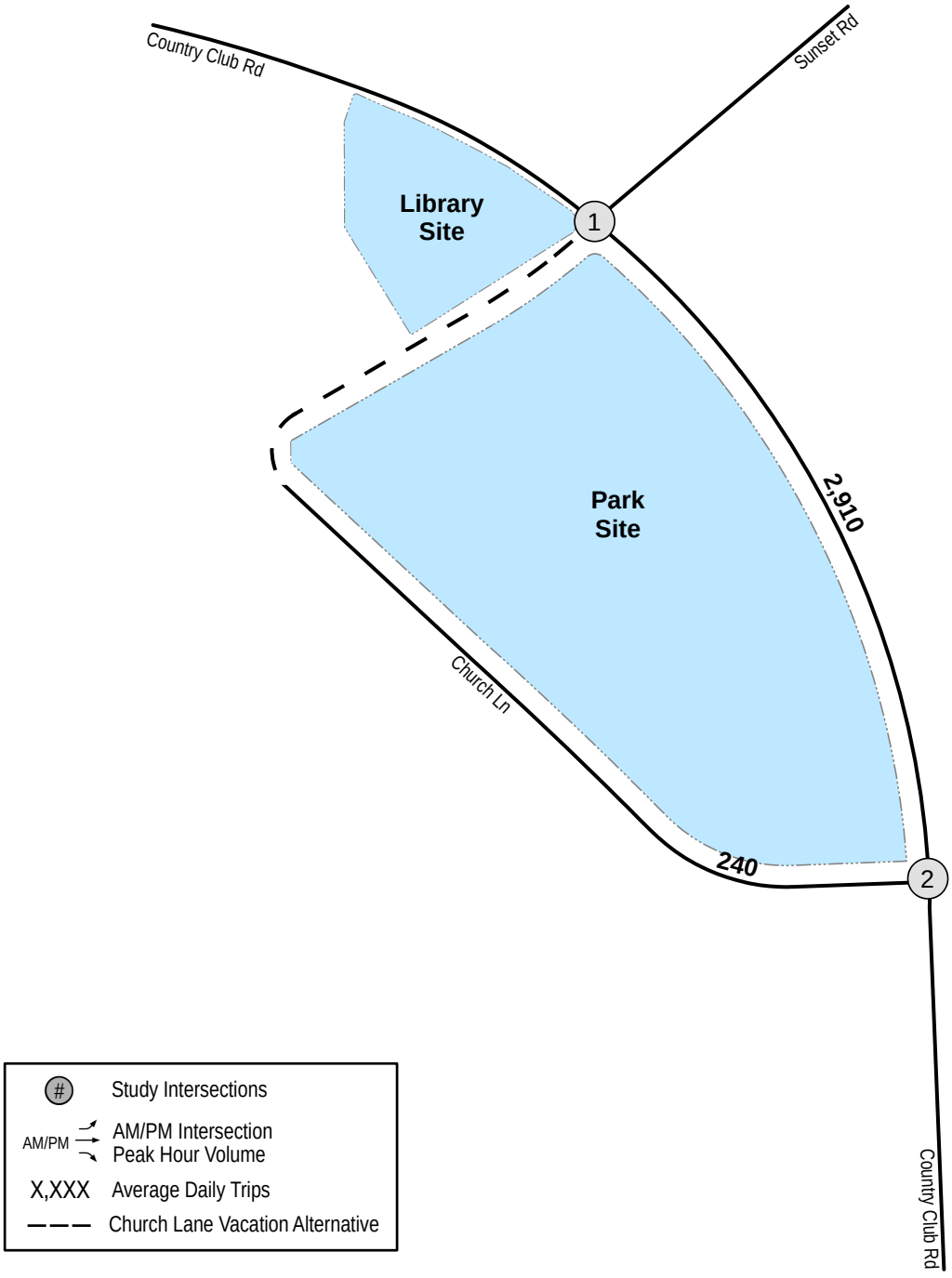


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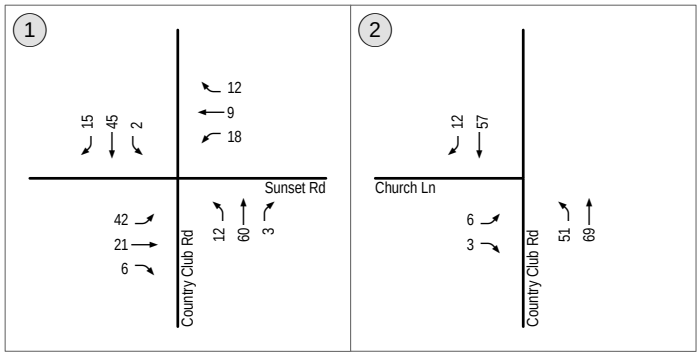
Figure 10-1

Rerouted Existing Traffic Volumes

Church Lane Vacation Alternative

BORREGO SPRINGS LIBRARY & PARK



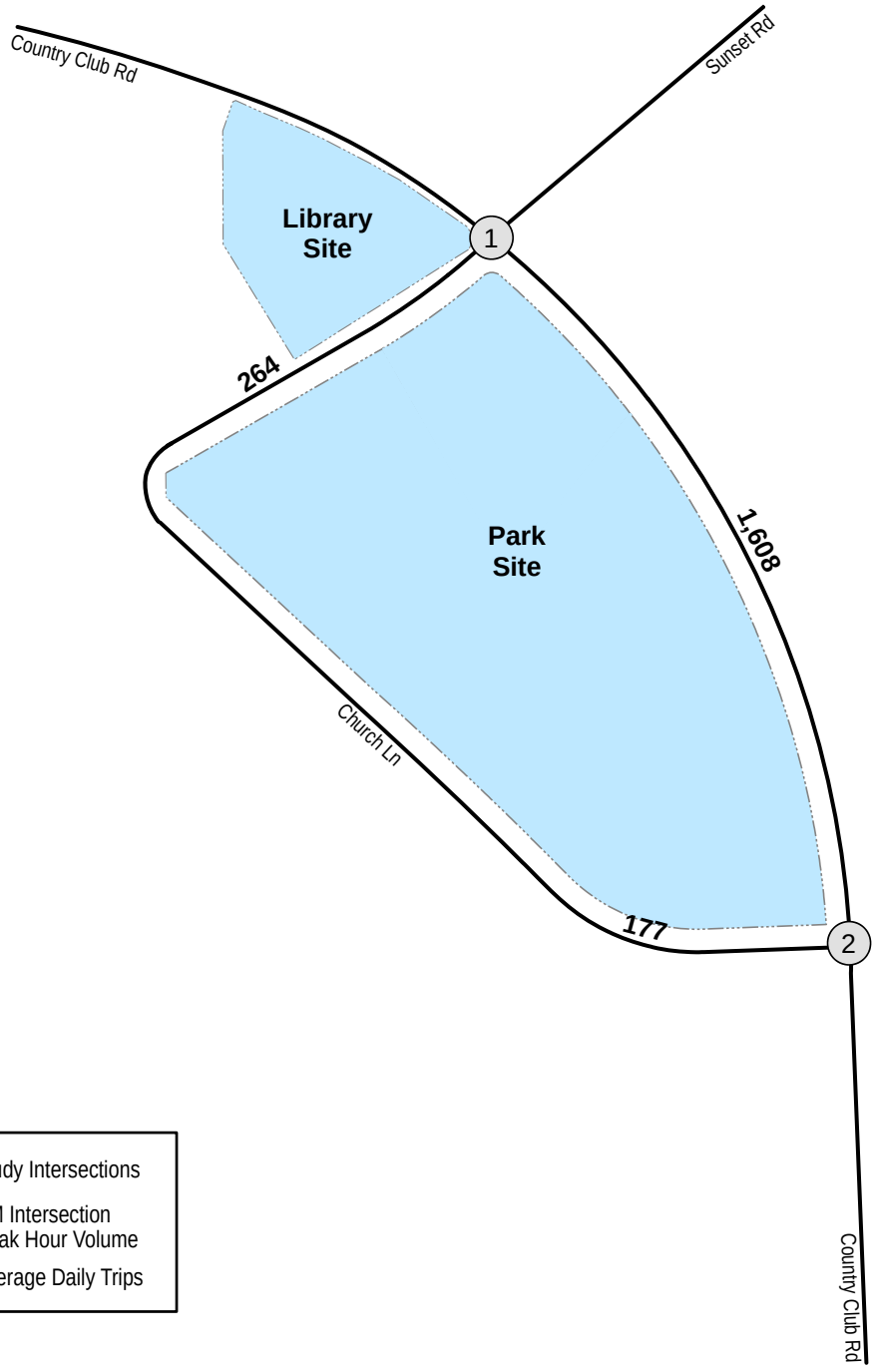


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Figure 10-2

Existing Sunday Traffic Volumes

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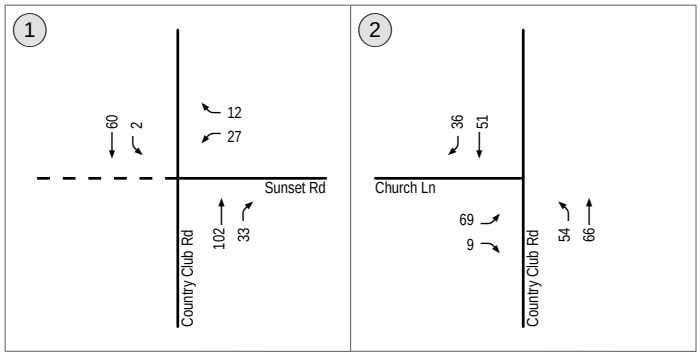

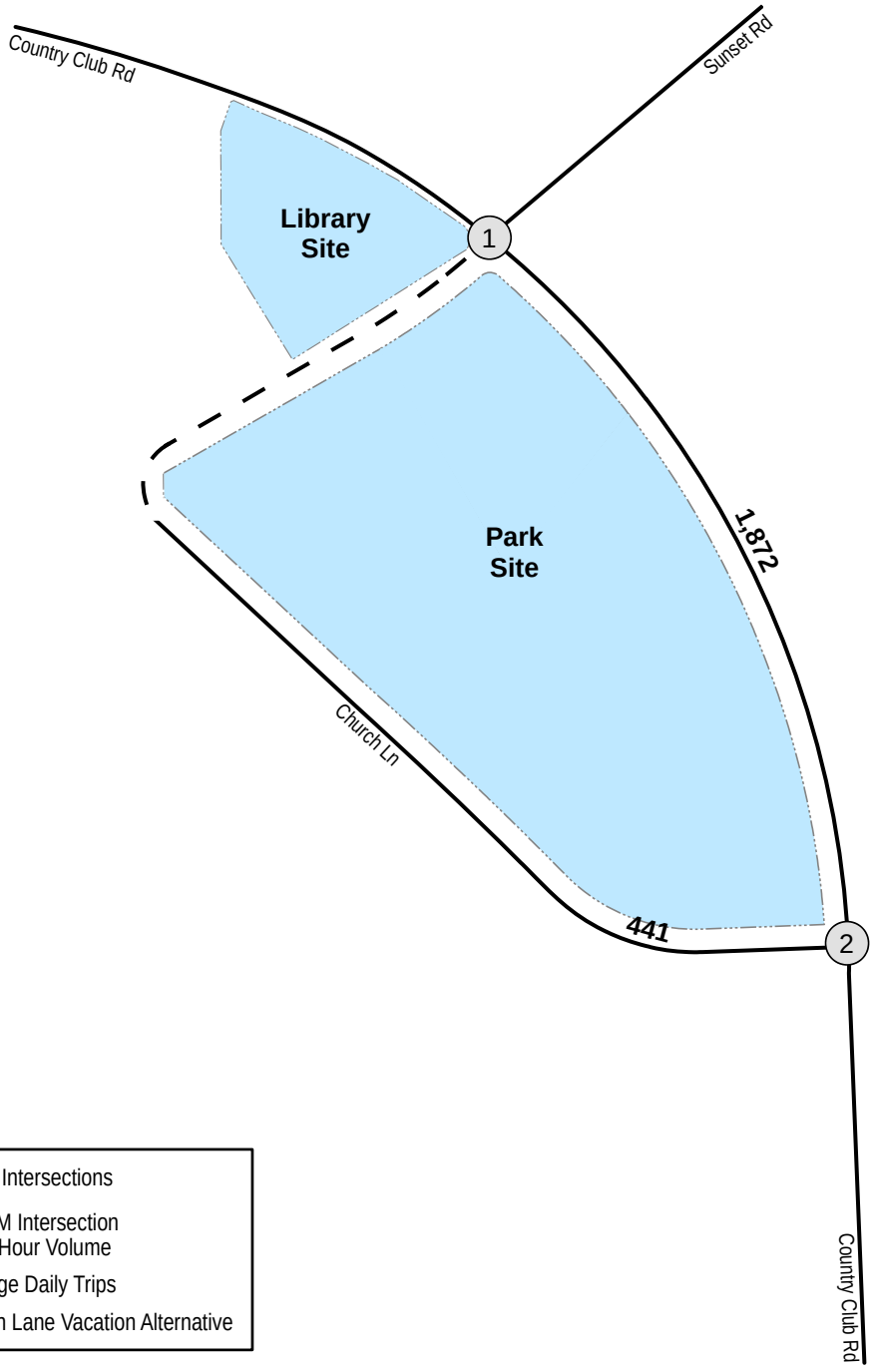

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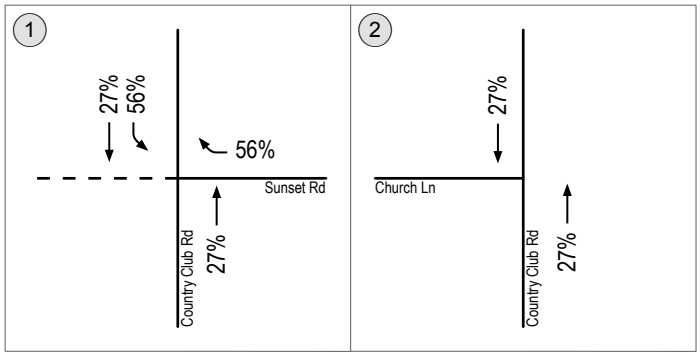
Figure 10-3

Rerouted Existing Sunday Traffic Volumes

Church Lane Vacation Alternative

BORREGO SPRINGS LIBRARY & PARK



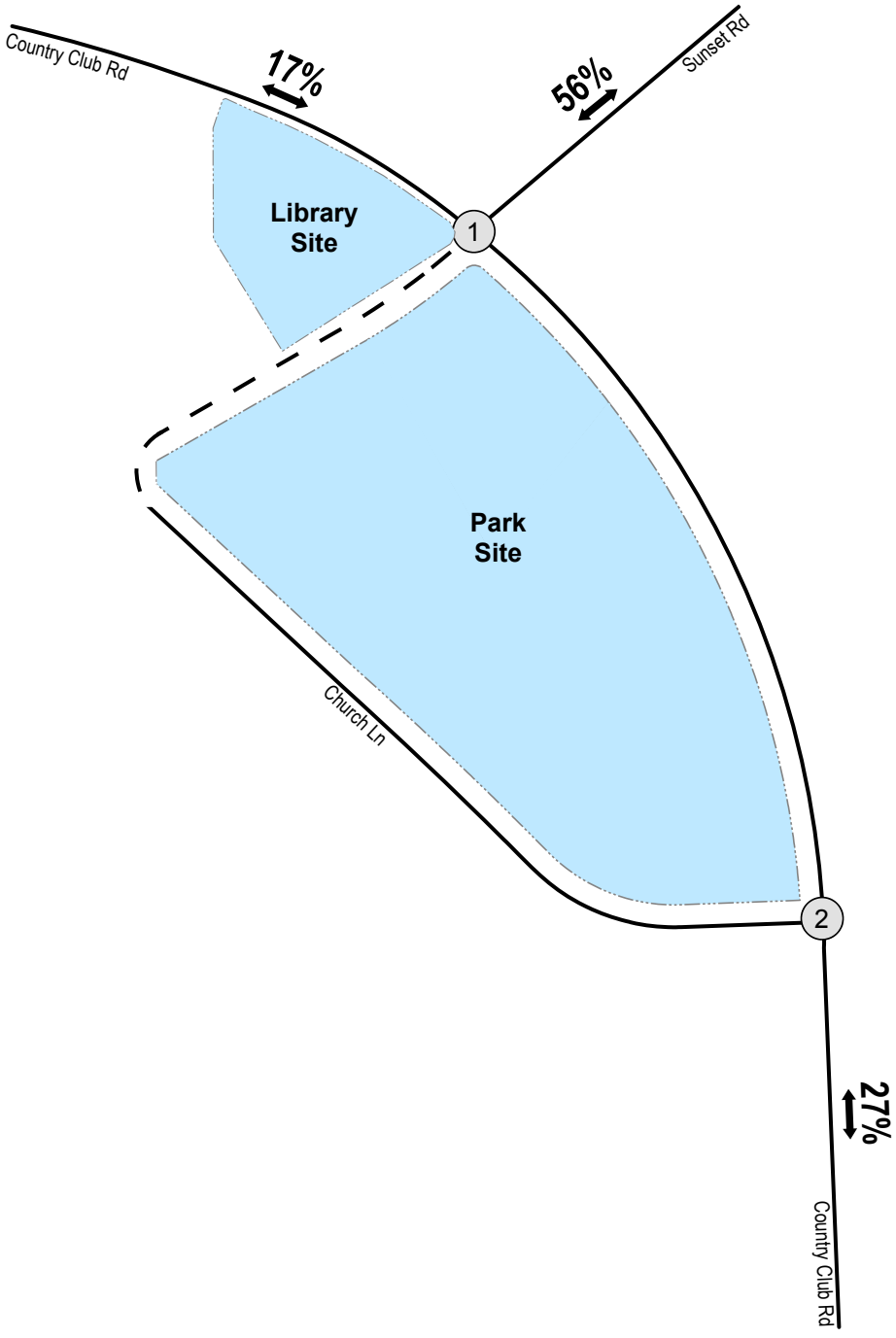


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Figure 10-4

Project Traffic Distribution

Church Lane Vacation Alternative - Library / Sheriff Substation

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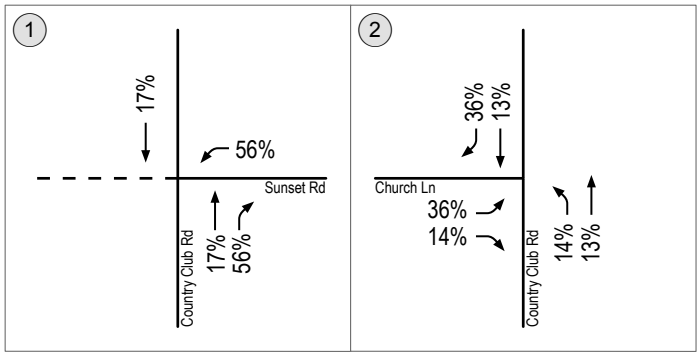

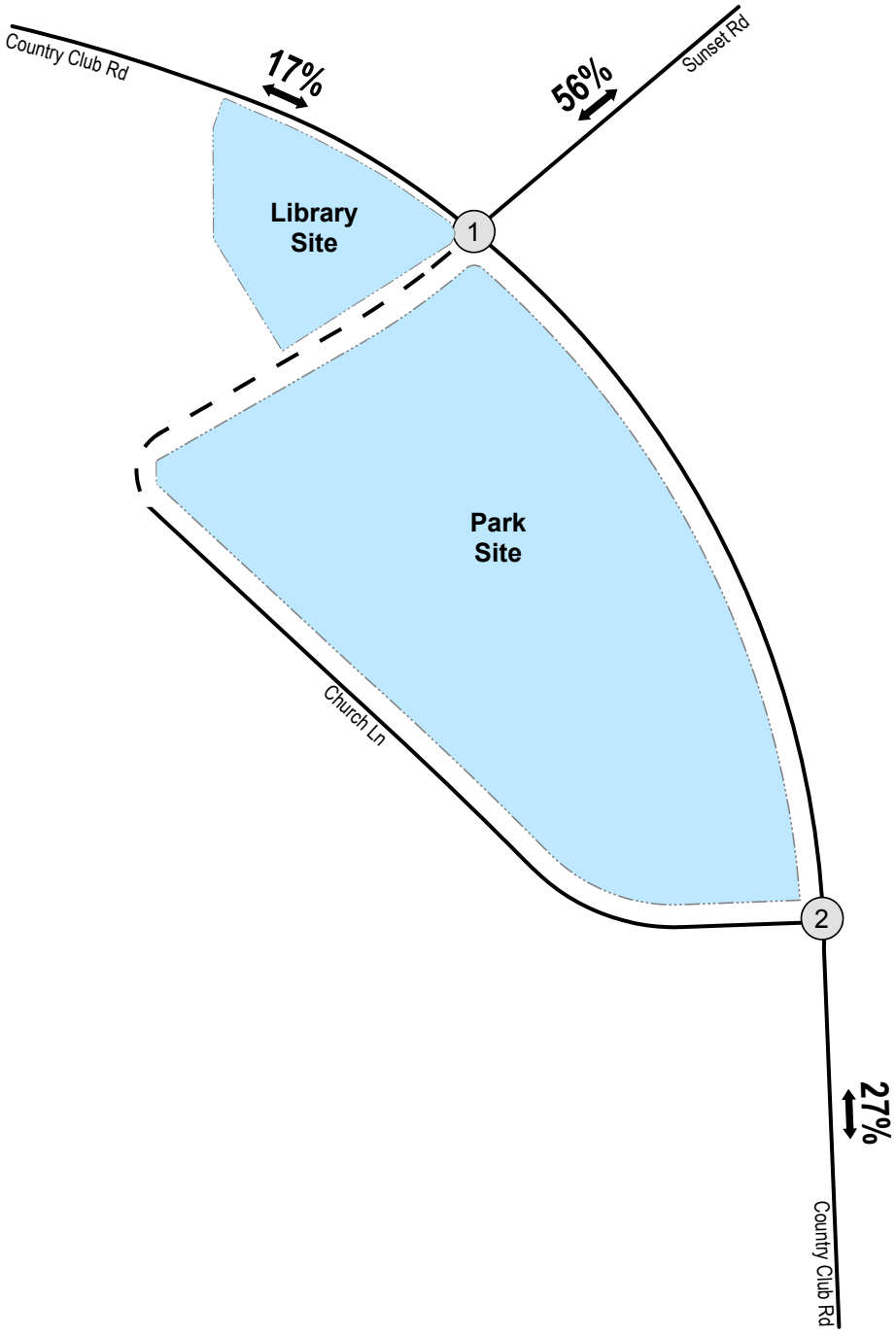

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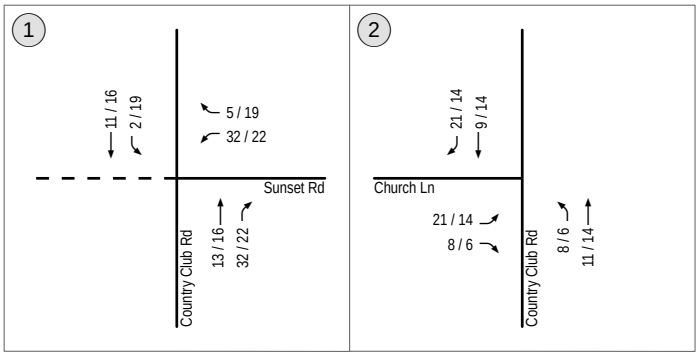
Figure 10-5

Project Traffic Distribution

Church Lane Vacation Alternative - Park

BORREGO SPRINGS LIBRARY & PARK



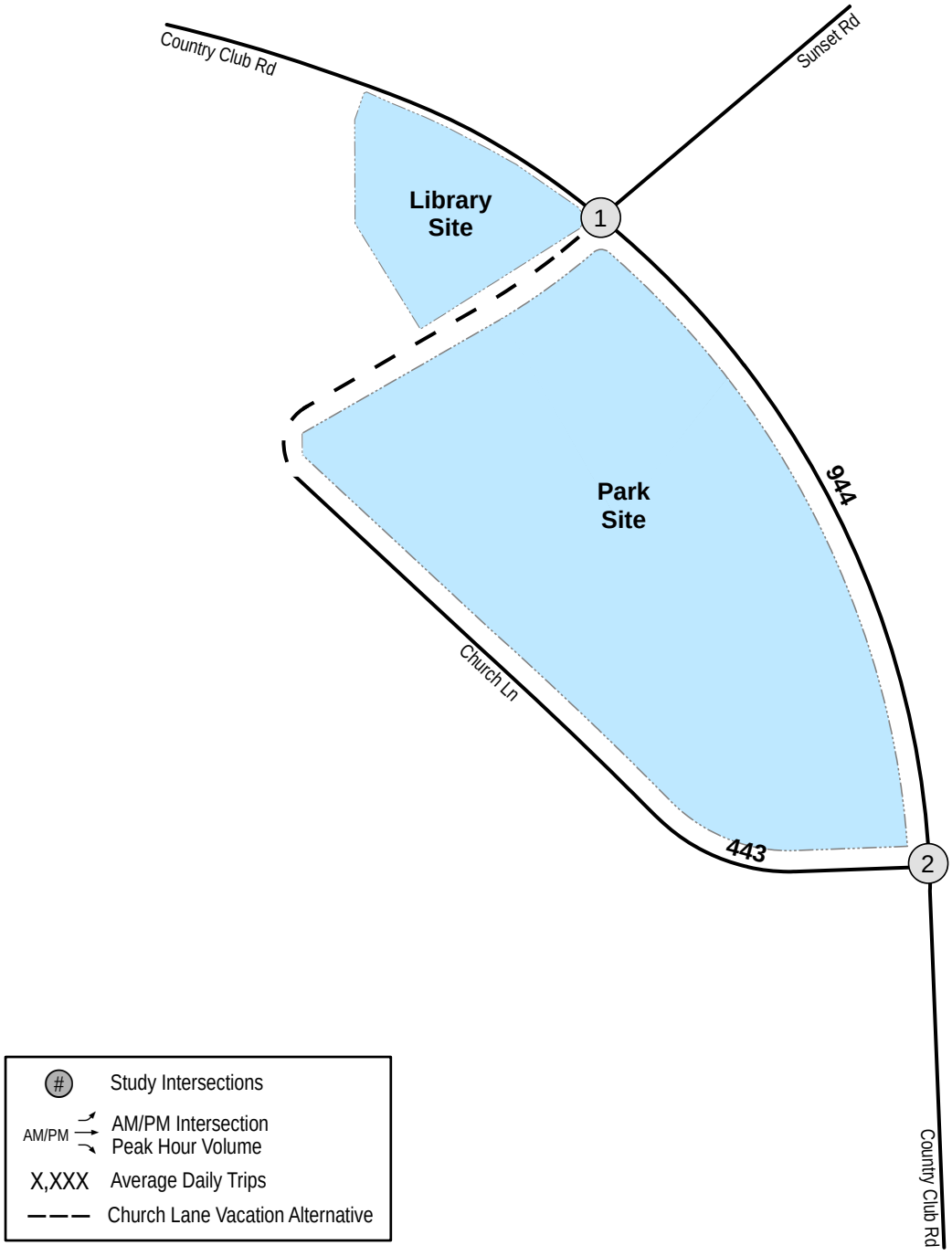


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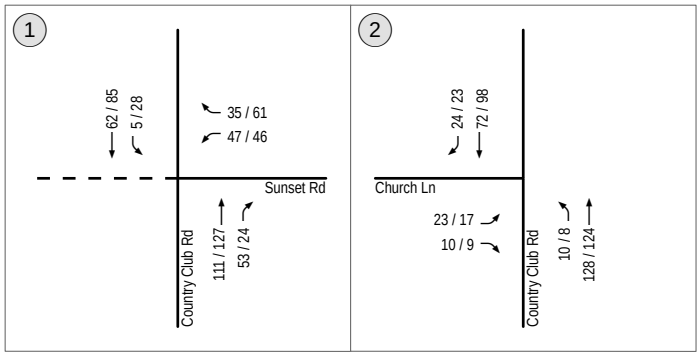
Figure 10-6

Total Project Traffic Volumes

Church Lane Vacation Alternative

BORREGO SPRINGS LIBRARY & PARK



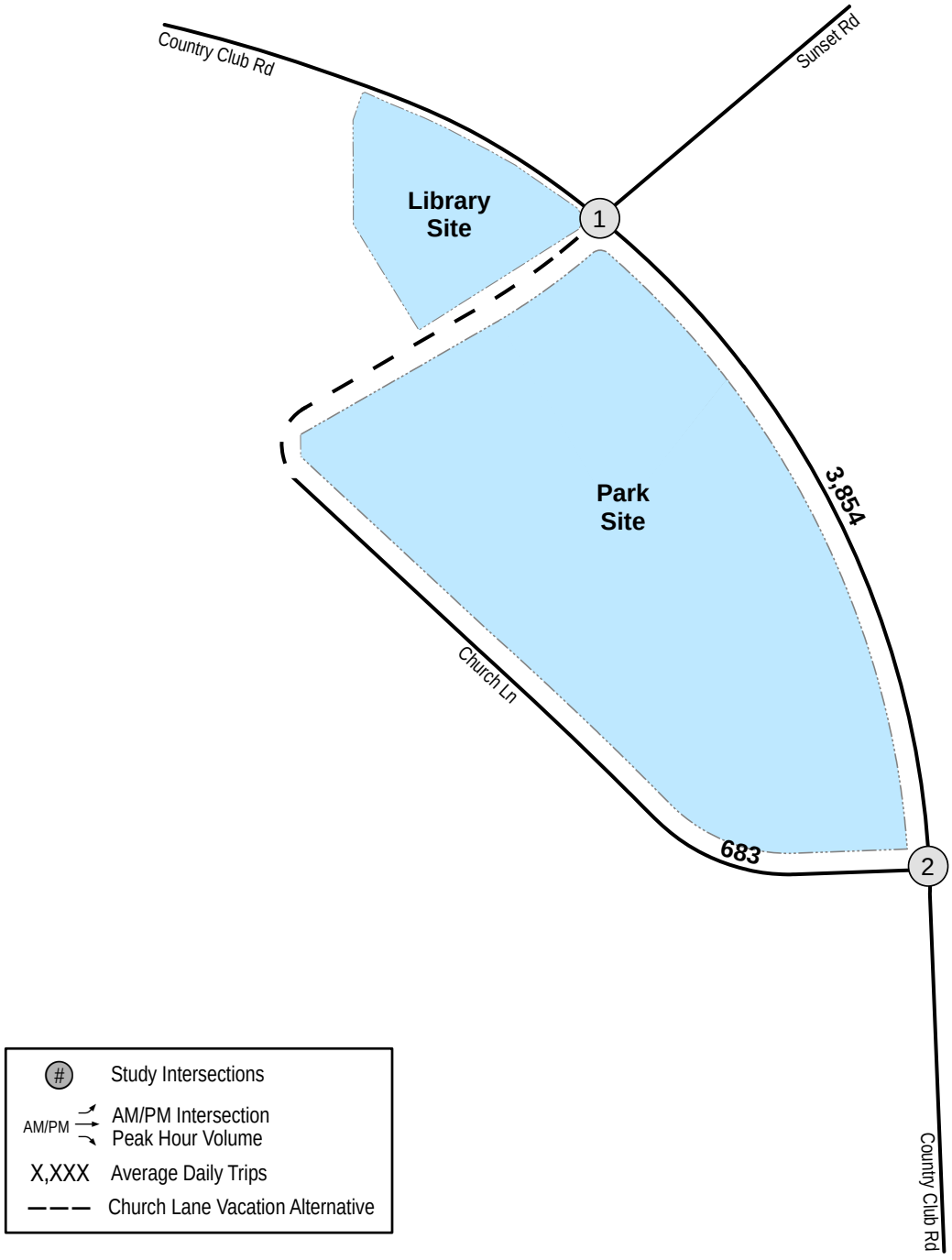


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Figure 10-7

Weekday Existing + Project Traffic Volumes

Church Lane Vacation Alternative

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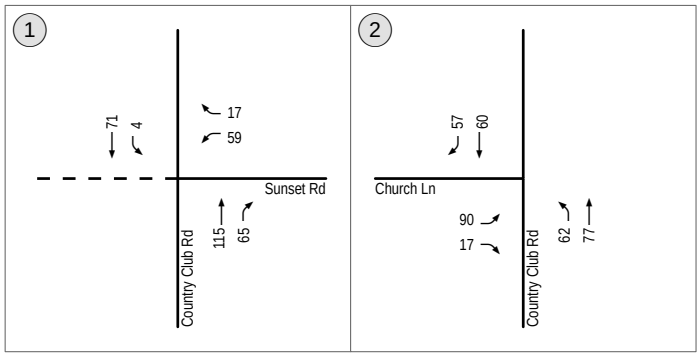

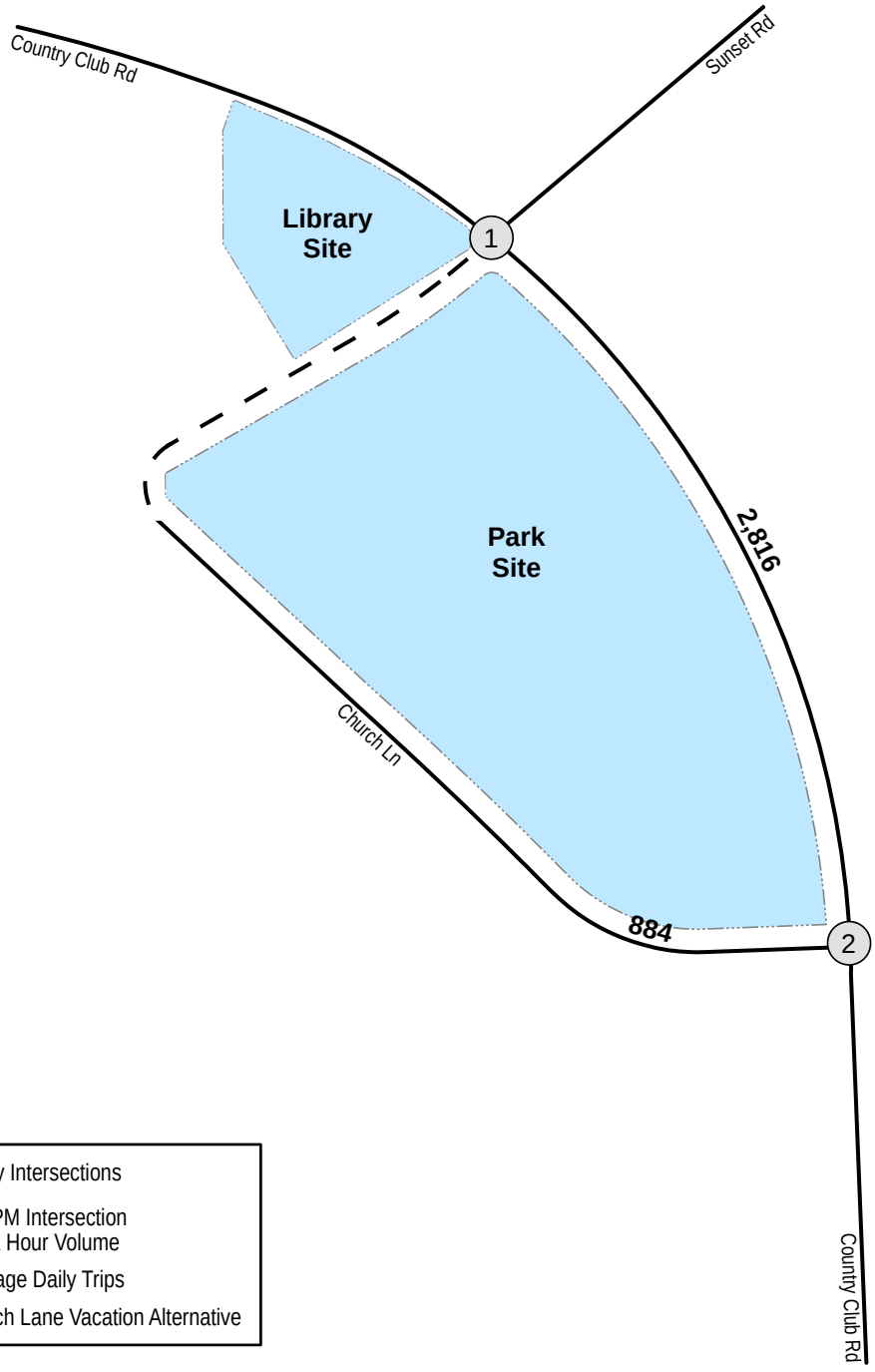

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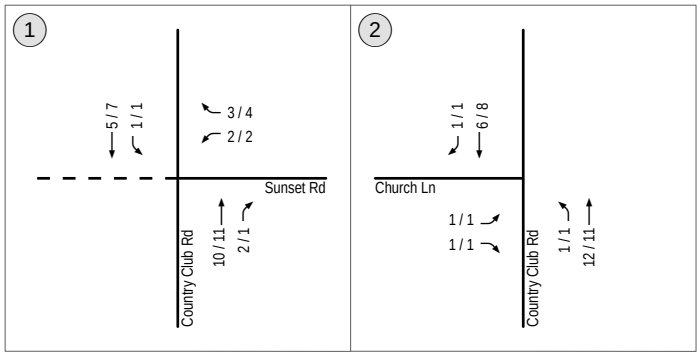
Figure 10-8

Existing Sunday + Project Traffic Volumes

Church Lane Vacation Alternative

BORREGO SPRINGS LIBRARY & PARK



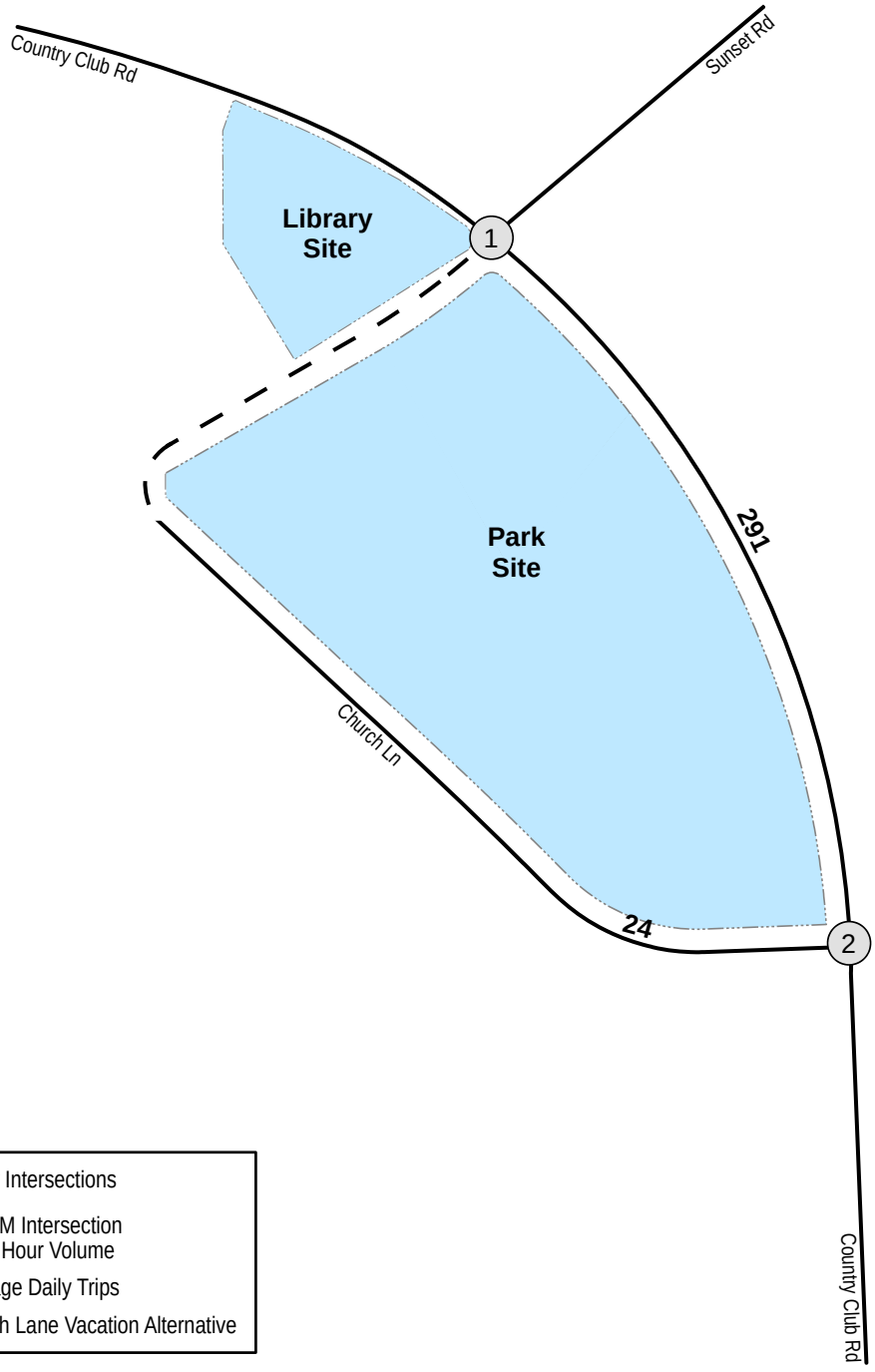


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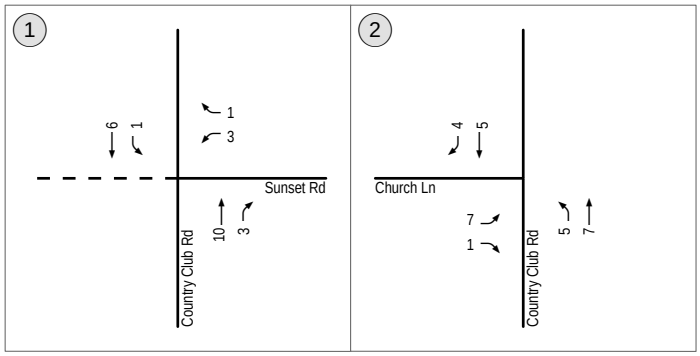
Figure 10-9

Weekday Cumulative Projects Traffic Volumes

Church Lane Vacation Alternative

BORREGO SPRINGS LIBRARY & PARK



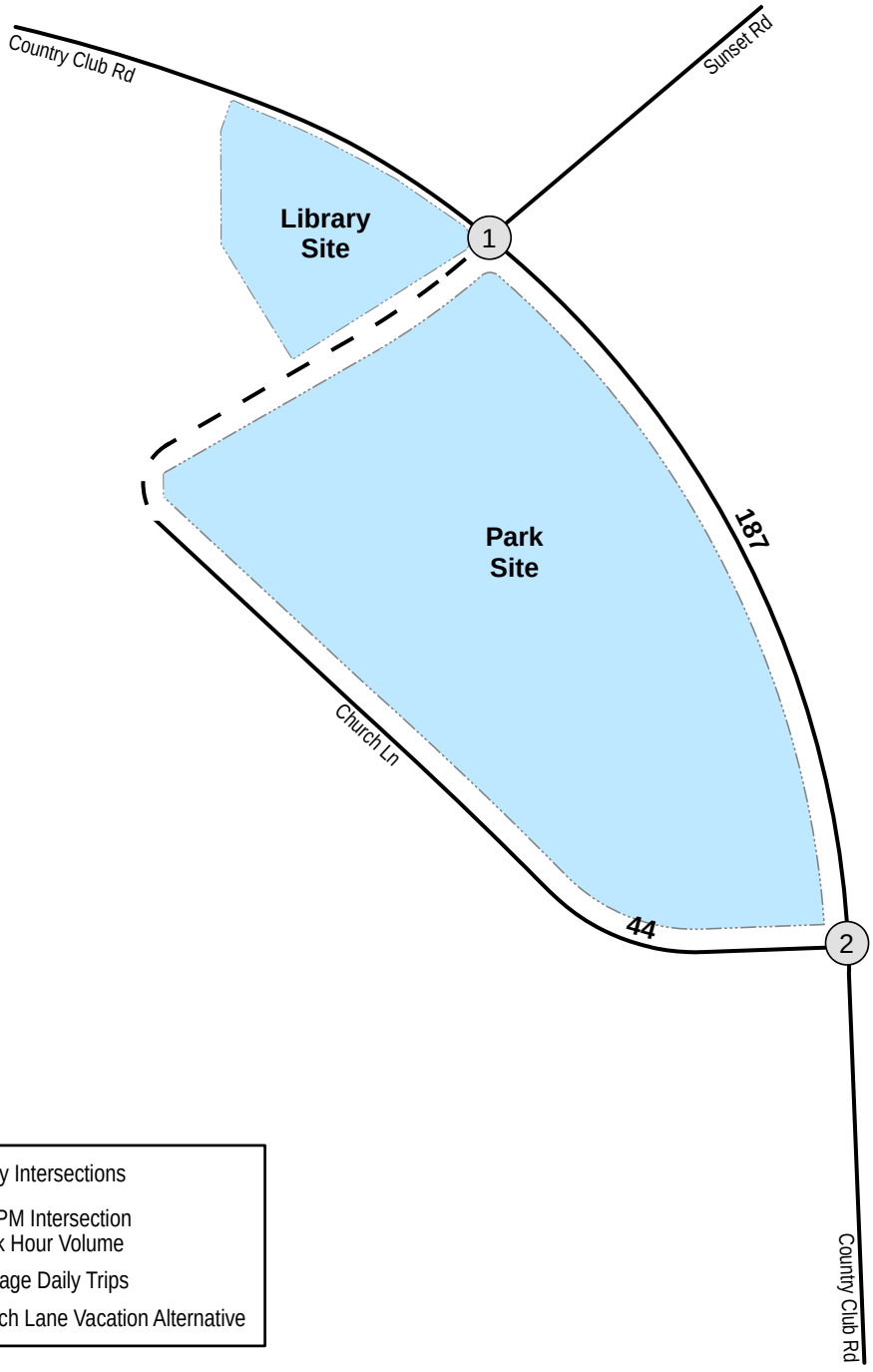


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Figure 10-10

Cumulative Sunday Projects Traffic Volumes

Church Lane Vacation Alternative

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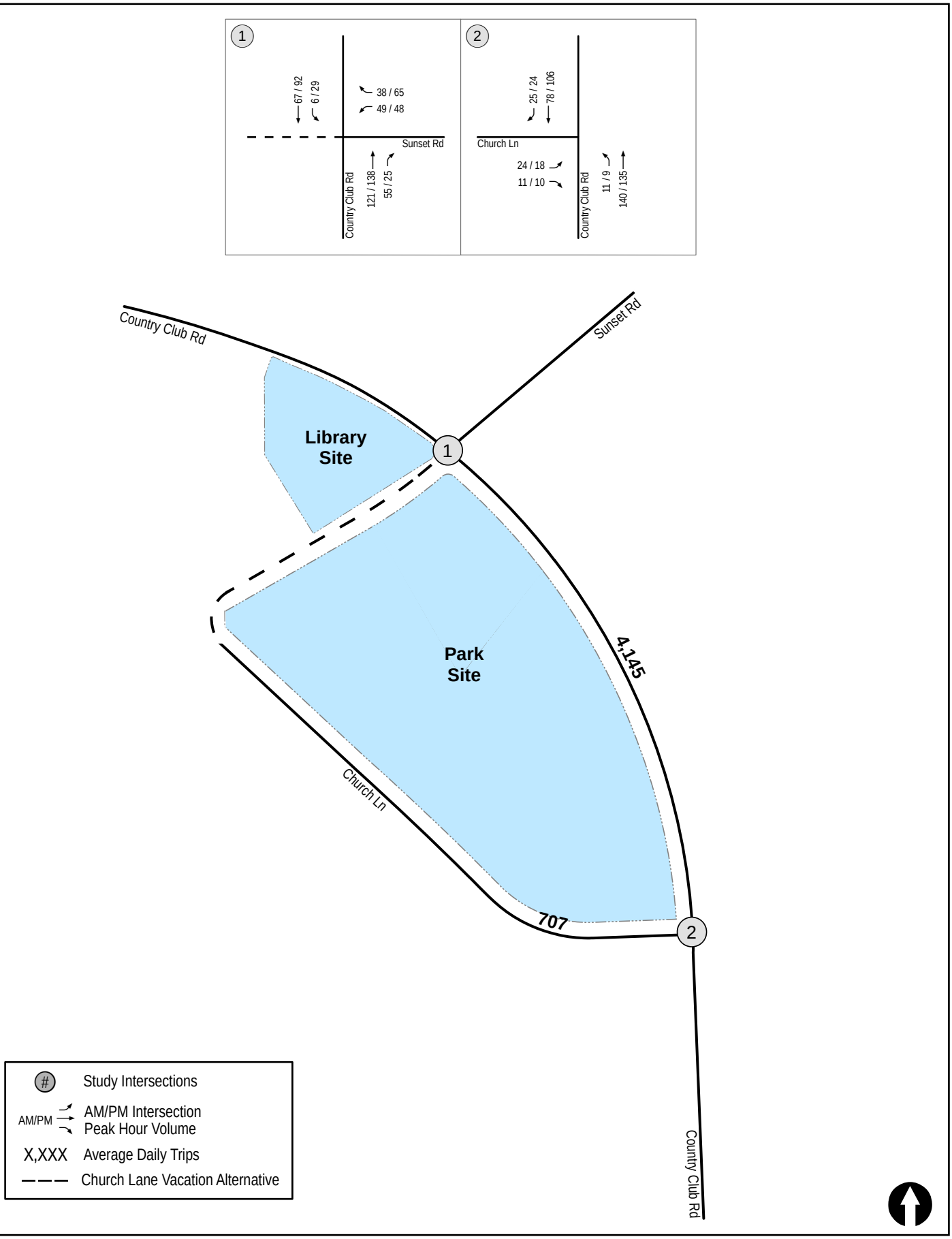

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Figure 10-11

Weekday Existing + Project + Cumulative Projects Traffic Volumes

Church Lane Vacation Alternative

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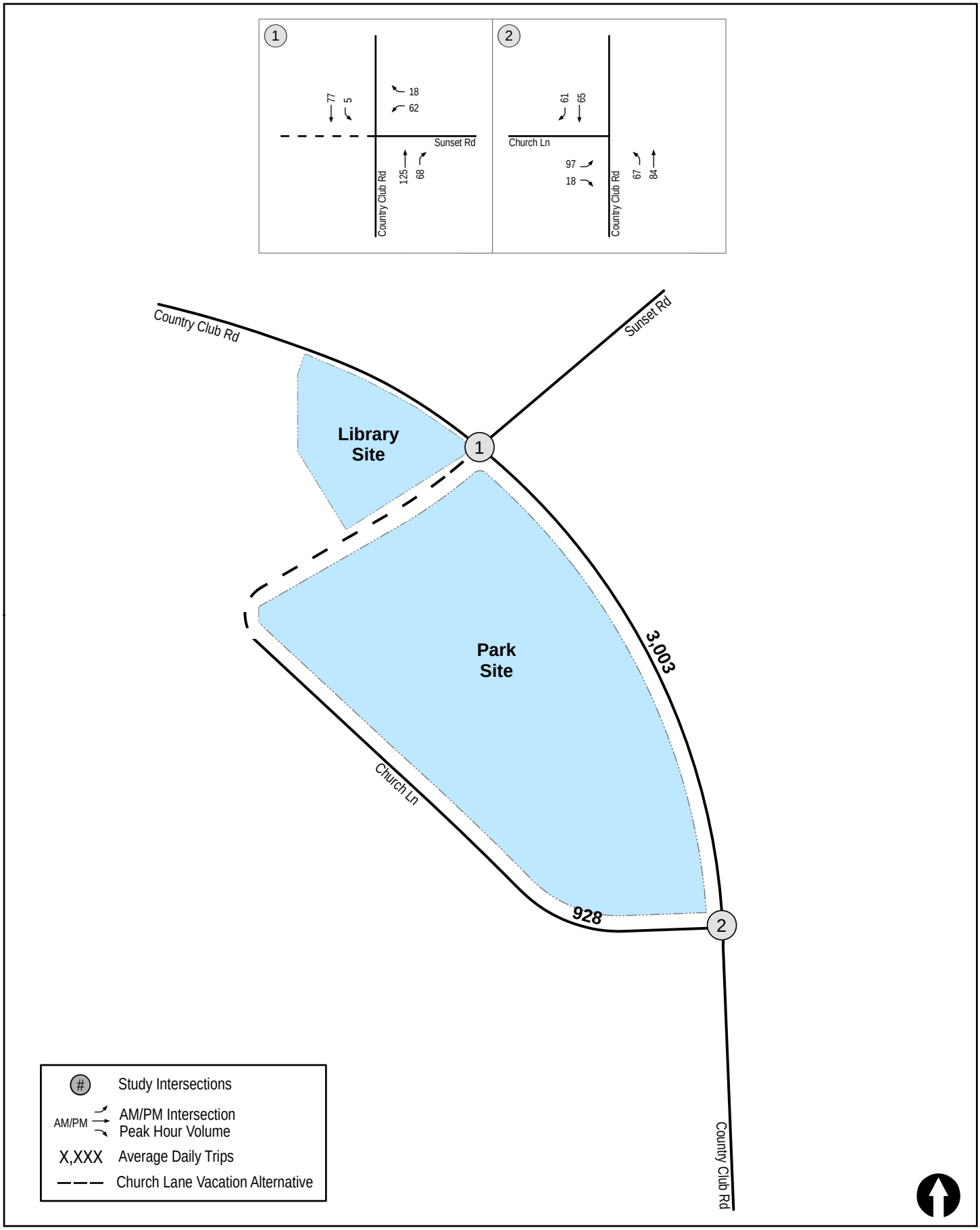

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Figure 10-12

Existing Sunday + Project + Cumulative Projects Traffic Volumes

Church Lane Vacation Alternative

BORREGO SPRINGS LIBRARY & PARK

11.0 SITE ACCESS

The proposed library/sheriff substation is currently proposed to be accessible via one access point off of Country Club Road, north of Church Lane (North), as shown on *Figure 2-3*. The proposed park is currently proposed to be accessible via a total of four or five access points: two locations along Country Club Road south of Church Lane (North), and two or three locations along Church Lane, depending on whether the vacation of Church Lane, as discussed further in *Section 10* of this study, is pursued. *Figure 2-4* shows the project's site plan for the Park.

The Project's access points are expected to operate at an acceptable level of service without the provision of left-turn lanes given the low volumes on Country Club Road and Church Lane, and that the adjacent intersections are calculated to operate at LOS B or better during the AM and PM peak hours with the addition of Project and cumulative traffic, as shown in *Table 9-1*.

The provision of adequate sight distance to meet County standards will be required at all of proposed access points.

12.0 CONCLUSIONS

The study area intersections are calculated to operate at LOS B or better and the street segments are calculated to operate acceptably under all of the analyzed scenarios. The project was calculated to have no significant impacts at any of the study area intersections or street segments under any of the scenarios analyzed in this report; therefore, no project related mitigation measures are required.

The optional vacation of Church Lane, as analyzed in *Section 10* of this study, is not expected to result in excessive delays at the study intersections. The study area segments are calculated to operate acceptably with the vacation of Church Lane as well.

The provision of adequate sight distance to meet County standards will be required at all of proposed access points.