APPENDIX K
VMT ANALYSIS

DKS 8950 CAL CENTER DRIVE, SUITE 340, SACRAMENTO, CA 95826 • 916.368.2000 • DKSASSOCIATES.COM

ROBLA ESTATES TRAFFIC STUDY MEMO

DATE: March 24, 2022

TO: Matthew Ilagan, Pelle Clarke | City of Sacramento

FROM: Brian Kellogg, Vic Maslanka | DKS Associates

SUBJECT: Robla Estates Traffic Study Project #19179-016

INTRODUCTION

The planned Robla Estates site ("Project") is expected to include 177 residential homes and a public park, to be located on the northeast side of Rio Linda Boulevard in the Robla area of the City of Sacramento. This memorandum details the traffic volumes forecasted for each scenario studied and examines the traffic operations, circulation, queuing, and safety effects resulting from a set of proposed intersection types for the future Project site driveway. For this forecasting and analysis effort, the following was included for study intersections and analysis scenarios:

Study Intersections:

- Rio Linda Boulevard & Project Site Main Driveway
- Rio Linda Boulevard & Project Site North Driveway

Scenarios:

- 2022 Existing (including traffic counts only)
- 2022 Existing + Project (including traffic counts and trips generated by the Project site)
- 2040 Cumulative (incl. grown traffic counts, background site trips and Project site trips)

For volume forecasting, this memo includes an overview of the traffic counting effort done for the project, the background site and trips considered, and the process for estimating background traffic growth and the trips generated by the project site. A signal warrant analysis was done for the intersection of Rio Linda Boulevard and the main Project site driveway and is documented in this memo. The traffic operations and safety analyses observed delays and queues for vehicles and an evaluation of conflict points and pedestrian/bicycle treatments related to the intersection treatments analyzed.

PLANNED TRANSPORTATION IMPROVEMENTS

As part of the Project site build-out, Rio Linda Boulevard is expected to be widened to two lanes going northbound through the site area and tapering back to one lane per direction to the north of the site's north driveway; southbound Rio Linda would remain one-lane. The intersection of Rio Linda Boulevard with the main (south) site driveway is desired as a roundabout, built with two lanes continuing north, one lane southbound, and connecting as a two-lane roadway to the site. The northern site entrance is expected to be a stop-controlled right-in/right-out driveway, right a turn bay provided to enter the site.

For the Cumulative 2040 scenario, a background site – called Leisure Vistas – is expected to add a fourth leg to the roundabout on its west side. Rio Linda Boulevard is also expected to add a lane southbound through the study area to become a four-lane roadway; the roundabout would likewise add a southbound lane for a true 2+1 configuration.

The site plan for the interim Project build-out (assumed 2022) is shown in Figure 1, with larger size plans and the full 2040 Cumulative build-out provided in Appendix A.

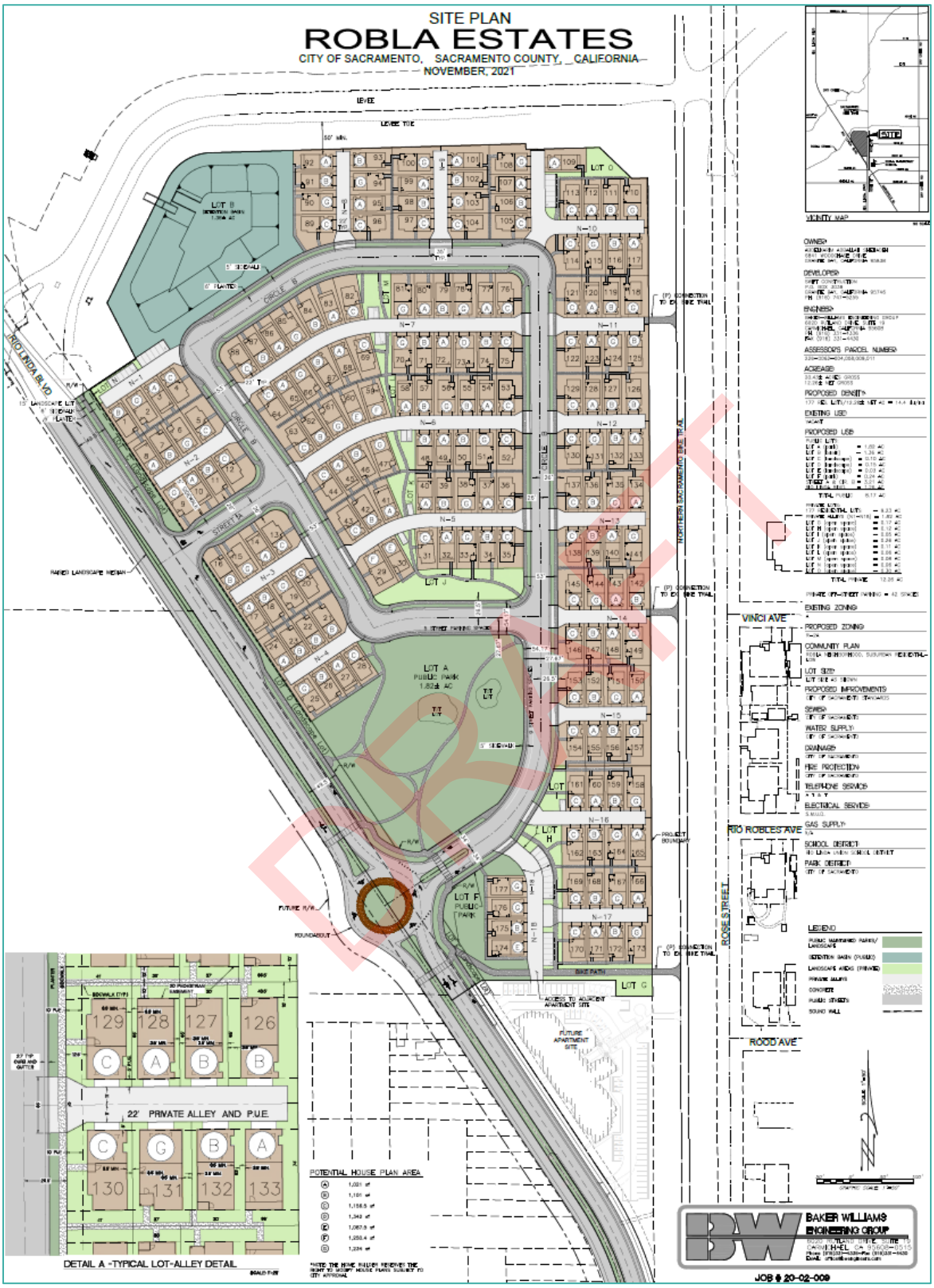


FIGURE 1. PROJECT SITE PLAN (AT BUILD-YEAR)

TRAFFIC COUNTS AND BACKGROUND GROWTH

EXISTING TRAFFIC VOLUMES

Tube counts were collected along Rio Linda Boulevard to the north of Marysville Boulevard. These counts were taken over the entire week of January 22, 2022 and were aggregated in 15-minute increments. The AM peak hour (7:00-8:00 AM) and PM peak hour (4:30-5:30 PM) volumes, averaged over those weekdays (Mon-Fri), are shown in Figure 2. The full traffic volume and speed data are provided in Appendix B.

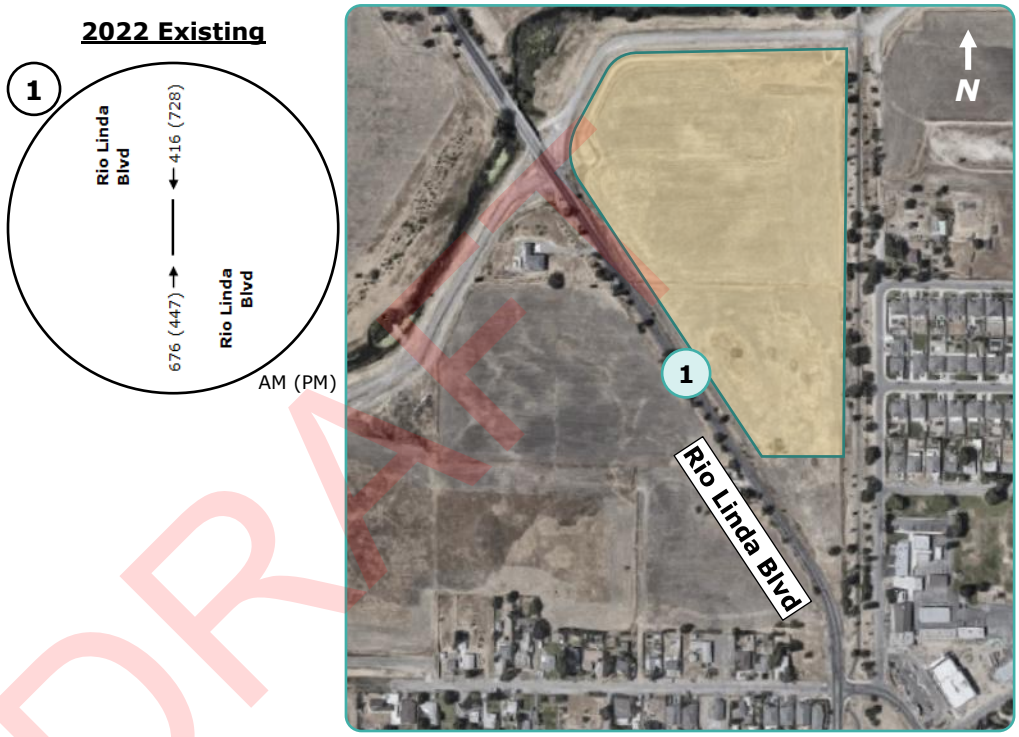


FIGURE 2. EXISTING TRAFFIC VOLUMES

A summary of the speed data collected along Rio Linda Boulevard is shown in Table 1. Both directions had an 85th-percentile speed over the posted speed limit of 45 mph. Southbound Rio Linda Boulevard showed lower speeds overall, likely due to the upcoming curve and signal at Claire Avenue/Marysville Boulevard.

TABLE 1. RIO LINDA SPEED SUMMARY

RIO LINDA DIRECTION	MEDIAN SPEED	85TH PERCENTILE SPEED	% OVER 45 MPH
NORTHBOUND	48 mph	56 mph	67%
SOUTHBOUND	42 mph	47 mph	26%

BACKGROUND TRAFFIC GROWTH

To estimate future background growth, the SACSIM travel demand model was used. The model was run for a Baseline 2016 scenario and a Cumulative 2040 scenario. Looking at the AM and PM peak hour volume projections along Rio Linda Boulevard near the Project site, growth rates in each direction ranged from 0.3%/year to 2.1%/year. For this study, an assumed growth rate of **1%/year** was applied to the collected traffic counts as part of the 2040 Cumulative scenario.

In addition to growing collected traffic counts, the 2040 Cumulative scenario includes the Leisure Vistas site, located adjacent to the Project site and on the southwest side of Rio Linda Boulevard. This background site would include 915 residential units (senior living) and a 43k square-foot neighborhood shopping center. For analysis purposes, it is assumed that roadways interior to the site would connect to Rio Linda Boulevard at the same location as the Project site's main entrance, as well as to Claire Avenue to the south and Sully Street to the southwest. Trips forecasted for this site were included in a previous traffic study for this site; this traffic study is included in Appendix C. Note that trips generated by this background site were not grown alongside the collected traffic counts.

TRIPS GENERATED BY SITE

TRIP GENERATION

Trip generation estimates for the Robla Estates site were made based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. Trip figures were estimated for the AM and PM commuter peaks based on adjacent roadway traffic. A summary of the AM and PM peak site trips is shown in Table 2; detailed trip generation reports can be found in Appendix D. While it can be presumed that much of the traffic to/from the park site would come from the surrounding homes, no specific figures for this internal site capture are available. Therefore, to make a conservative analysis, park trips were considered similarly to residential housing trips and distributed external to the site area.

TABLE 2. ROBLA ESTATES TRIP GENERATION SUMMARY

ITE TRIP GEN CLASSIFICATION			AM PEAK TRIPS (ADJ. STREET TRAFFIC)			PM PEAK TRIPS (ADJ. STREET TRAFFIC)		
#	DESCRIPTION	# OF UNITS	IN	OUT	TOTAL	IN	OUT	TOTAL
210	Single-Family Detached Housing	177 dwelling units	32	92	124	107	63	170
411	Public Park	1.82 acres	0	0	0[a]	13	10	23
TOTAL SITE			**32**	**92**	**124**	**120**	**73**	**193**

[a] Small sample size. Fitted curve equation not given.

TRIP DISTRIBUTION AND ROUTING

Trip distribution and route choice for the site was estimated based on the SACSIM travel demand model, as well as traffic counts collected along Rio Linda Boulevard in the vicinity of the proposed site. For the year 2040 Cumulative Conditions, a site on the west side of Rio Linda Boulevard and a fourth leg to the Project site's main driveway are expected. While the site is not expected to facilitate trips between Rio Linda Boulevard and Claire Avenue/Sully Street, the presence of a neighborhood grocery store would likely attract trips from the proposed Project site. Therefore, a nominal 5% distribution was included for site trips.

The inbound and outbound trip distribution for the Project site is shown in Figure 3 for both the year 2022 Existing + Project and 2040 Cumulative scenarios. Figure 4 shows the AM and PM peak volumes generated by the Project site.

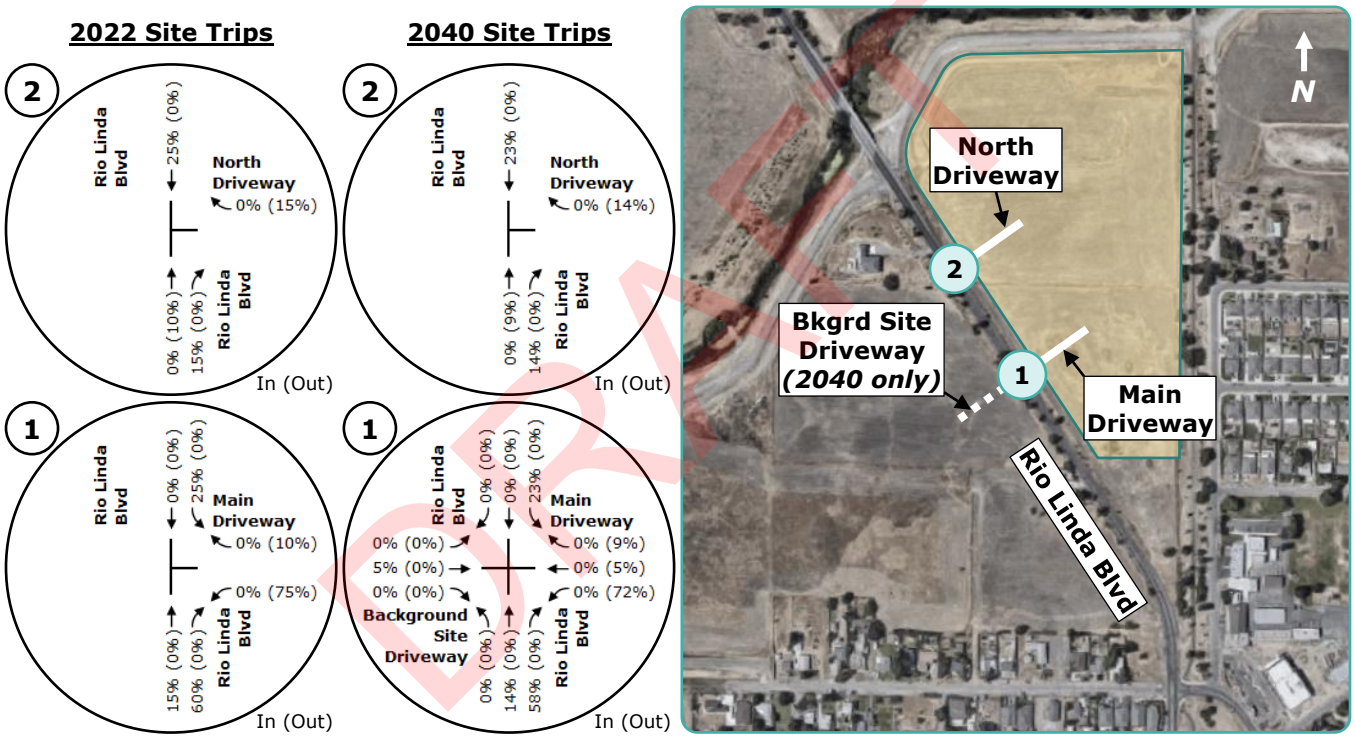


FIGURE 3. PROJECT SITE TRIP DISTRIBUTION

PROJECTED TRAFFIC VOLUMES

Figure 5 shows the total forecasted traffic volumes for both study intersections, over the 2022 Existing+Project scenario and the 2040 Cumulative scenario. These volumes include projected background traffic based on counts and the SACSIM model, the background Leisure Vistas site to the southwest of the Project site, and the projected Project site volumes. The 2040 Cumulative scenario assumes the build-out of a fourth leg to the intersection of Rio Linda Boulevard and the Project site's main driveway.

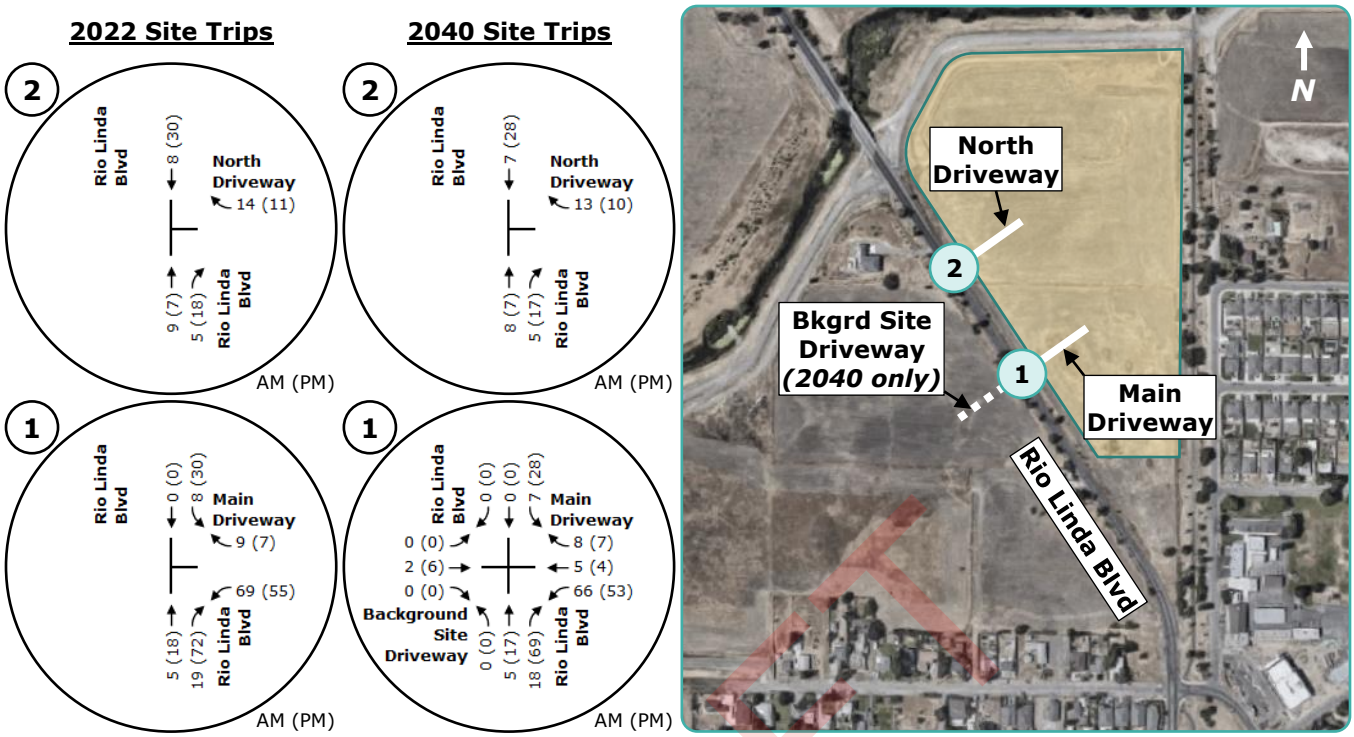


FIGURE 4. PROJECT TRAFFIC VOLUMES

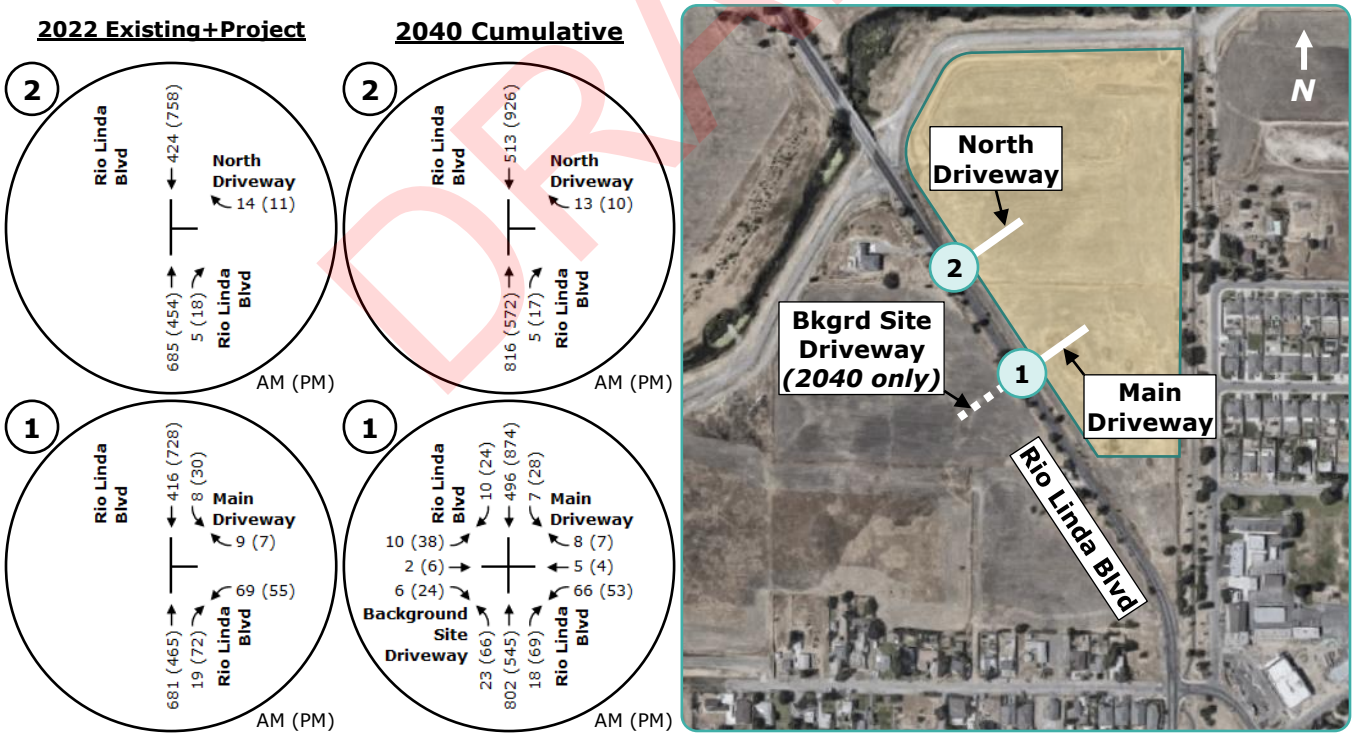


FIGURE 5. FULL PROJECT + BACKGROUND TRAFFIC VOLUMES

REGULATORY SETTING

CITY OF SACRAMENTO

The Mobility Element of the Sacramento 2035 General Plan outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The following Level of Service (LOS) policy has been used in this study, as amended on January 23, 2018:

> ***Policy M 1.2.2 Level of Service (LOS) Standard.*** *The City shall implement a flexible context sensitive Level of Service (LOS) standard, and will measure traffic operations against the vehicle LOS thresholds established in this policy. The City will measure Vehicle LOS based on the methodology contained in the latest version of the Highway Capacity Manual (HCM) published by the Transportation Research Board. The City's specific vehicle LOS thresholds have been defined based on community values with respect to modal priorities, land use context, economic development, and environmental resources and constraints. As such, the City has established variable LOS threshold appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions, including AM and PM peak hour with…exceptions…*

In accordance with City policies, the applicable operating standard for the study area intersections is **LOS D**.

CEQA GUIDELINES (THRESHOLDS OF SIGNIFICANCE)

Consistent with Appendix G of the CEQA Guidelines, thresholds of significance adopted by the governing jurisdictions in applicable general plans and previous environmental documents, and professional judgement, a significant impact would occur if the proposed project would result in the effects described below:

INTERSECTIONS – CITY OF SACRAMENTO

- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project generated traffic increases the average vehicle delay by 5 seconds or more.
- Intersections - LOS A-D is always to be maintained; provided, LOS E or F may be acceptable if improvements are made to the overall transportation system and/or non-vehicular transportation and transit are promoted as part of the project or a City initiated project.

TRANSIT

- Adversely affect public transit operations,
- Fail to adequately provide access to transit.

BICYCLE FACILITIES

- Adversely affect existing or planned bicycle facilities,
- Fail to adequately provide for access by bicycle.

PEDESTRIAN CIRCULATION

- Adversely affect existing or planned pedestrian facilities,
- Fail to adequately provide for access by pedestrians.

CONSTRUCTION-RELATED TRAFFIC IMPACTS

- Degrade an intersection or roadway to an unacceptable level,
- Cause inconveniences to motorists due to prolonged road closures, or
- Result in increased frequency of potential conflicts between vehicles, pedestrians, and bicyclists.

TRAFFIC SIGNAL WARRANTS

A traffic signal warrant analysis was done for the main site driveway planned for the Robla Estates development along Rio Linda Boulevard, per the methodology described in the California Department of Transportation Manual on Uniform Traffic Control Devices (CaMUTCD). For the proposed future intersection, the warrant study was based on volumes projected in the 2040 Cumulative scenario. For this study, the following warrants were analyzed:

- Warrant 1: Eight-Hour Vehicular Volume (**not met**)
- Warrant 2: Four-Hour Vehicular Volume (**meets warrant**)
- Warrant 3: Peak Hour Vehicular Volume (**meets warrant**)

For all vehicular volume warrants, volume thresholds are defined differently for urban and rural areas. The intersection is defined as "rural" if the speed limit or critical speed on the major street is over 40 mph or if it is in an isolated community of fewer than 10,000 people. Because the speed limit of Rio Linda Boulevard is 45 mph through the Project area, this intersection is considered "rural" for purposes of this signal warrant analysis.

Calculations for the signal warrants analyzed are shown in Appendix E.

WARRANT 1: EIGHT-HOUR VEHICULAR VOLUME

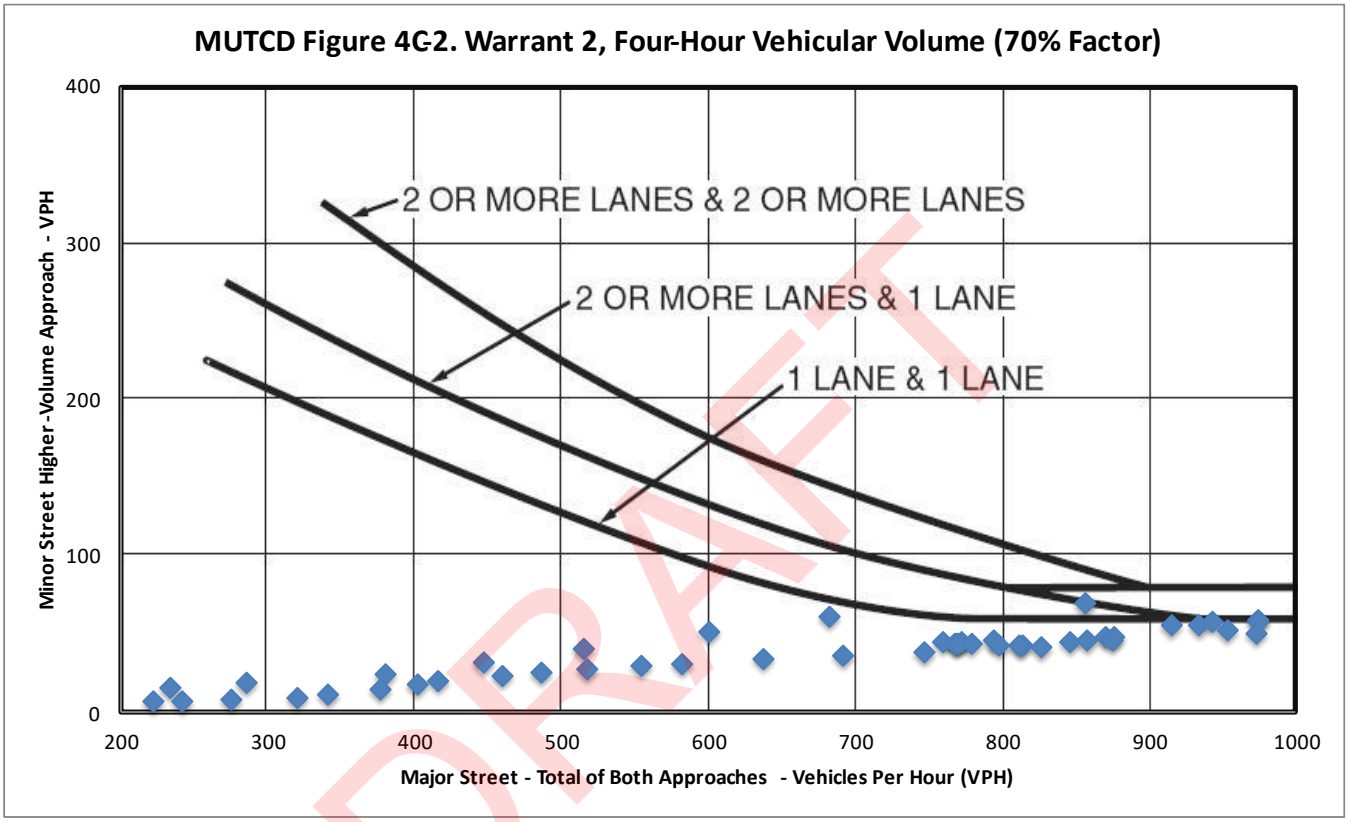
The eight-hour vehicular volume warrant analyzes volumes over 8 hours of an average day and has two conditions, either of which may be satisfied to meet the warrant (or if both are met at 80% thresholds):

- Condition A, the Minimum Vehicular Volume, is intended for application at locations with a large volume of intersecting traffic, and
- Condition B, the Interruption of Continuous Traffic, is intended where traffic volume on the major street is heavy to where minor street traffic suffers excessive delay

Based on the eight-hour threshold requirements, warrants are **not met** for the 2040 Cumulative scenario.

WARRANT 2: FOUR-HOUR VEHICULAR VOLUME

The four-hour vehicular volume warrant analyzes volumes over any 4 hours of an average day and is intended where the volume of intersecting traffic is the main reason for installing a traffic signal. The warrant is based on volume thresholds for major- and minor-street traffic. Based on expected volumes in the 2040 Cumulative scenario, the four-hour vehicular volume **warrant is met** for the main site driveway intersection.



Note: Major street volumes greater than 1000vph are not plotted here. See Appendix E for more info.

FIGURE 6. CAMUTCD WARRANT 2 RESULTS (70% FACTOR APPLIED)

WARRANT 3: PEAK HOUR VEHICULAR VOLUME

The peak hour vehicular volume warrant is intended for conditions where minor-street traffic suffers high delay when entering or crossing the major street. It is intended to be applied in cases where a site discharges a large number of vehicles over a short time. For the expected major- and minor-street volumes at Rio Linda Boulevard and the main site driveway, **this warrant is met** for the AM peak hour.

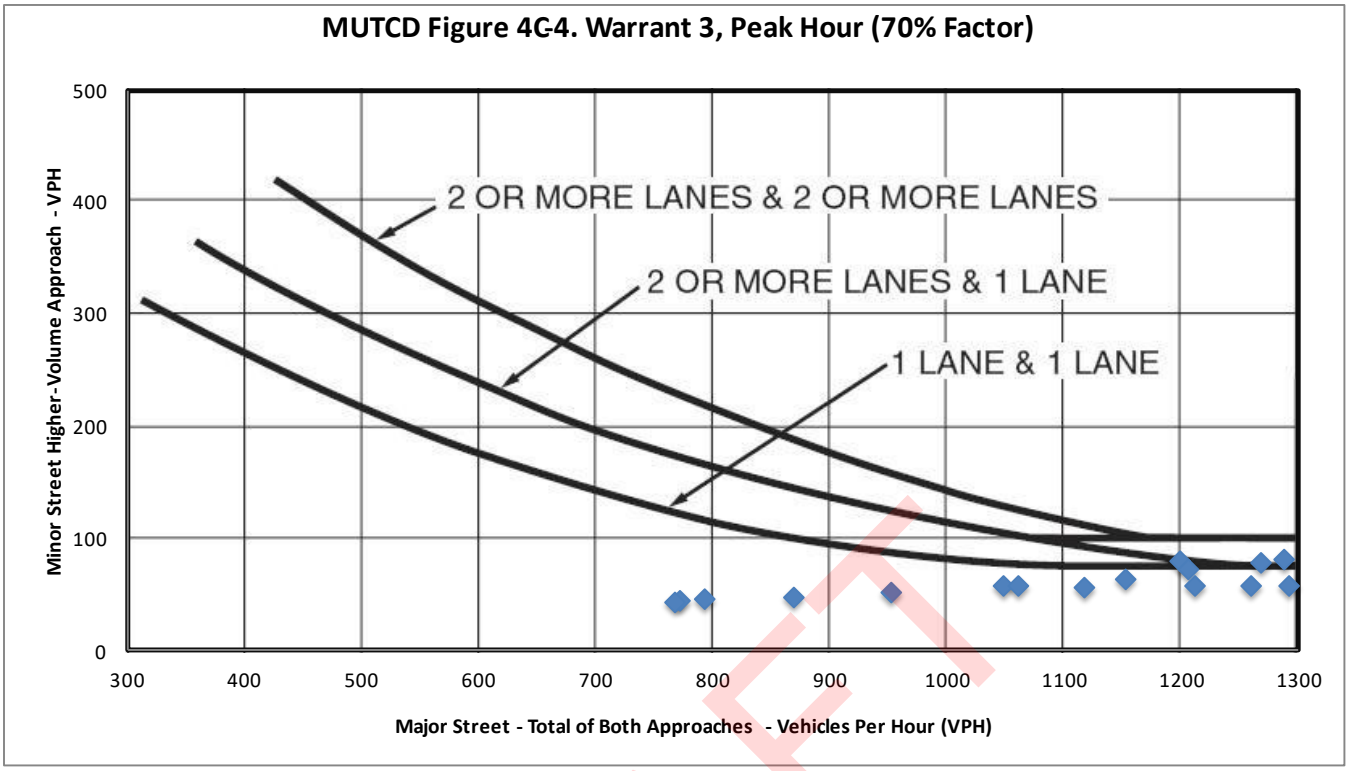


FIGURE 7. CAMUTCD WARRANT 3 RESULTS (70% FACTOR APPLIED)

ROADWAY DESIGN CONSIDERATIONS

This section documents the additional design considerations and analysis assumptions for each intersection alternative at the Project site's main driveway and taper lengths for the lane add/drop locations along Rio Linda Boulevard in the study area, based on City of Sacramento and Caltrans standards.

ROUNDABOUT

At its ultimate build-out (in the 2040 Cumulative scenario), the roundabout planned for the intersection of Rio Linda Boulevard and the Project's main driveway will include two circulating lanes along the Rio Linda Boulevard approaches and one circulating lane along the two site driveways. Cyclists traveling along Rio Linda Boulevard will exit the bike lanes and use a widened sidewalk to cross the roundabout at approach crosswalks with pedestrians.

Prior to construction of the roundabout, a Roundabout Design Concept Report must be submitted to the City for review, per Section 15.11 of the City of Sacramento Design and Procedures Manual. This traffic analysis memo does not include detailed design characteristics of the roundabout, including entry/exit radius or a fastest path analysis.

SIGNALIZATION/STOP CONTROL

With a widening of Rio Linda Boulevard from two to four lanes expected in the study area, the future intersection with the Project site's main driveway (and the Leisure Vistas driveway for the future 2040 Cumulative scenario) must follow standards for expanded intersections, per Section 15.7.6 of the City of Sacramento Design and Procedures Manual. Based on this guidance, the following was included along Rio Linda Boulevard in the traffic analysis:

- Left-turn pocket of **200 feet** into both site driveways
- Right-turn pocket of **150 feet** into both site driveways
- Dual left-turn lanes were not required at either Rio Linda Boulevard approach, as future volumes do not reach the 300 vph threshold

Based on the traffic operations analysis done in this study, projected queue lengths for left- and right-turning vehicles off of Rio Linda Boulevard would not require longer turn pockets than indicated in the design standards.

RIO LINDA BOULEVARD LANE TAPERS

Rio Linda Boulevard is currently a two-lane roadway and is expected to remain so to the north and south of the Project study area. Guidance for taper lengths at lane additions/reductions comes from the Caltrans Highway Design Manual[1] (Topic 206):

- For lane **additions**, the minimum recommended distance to transition traffic to the additional width is **250 feet** per lane.
- For lane **reductions**, the recommended taper distance is calculated as W*V, where W equals the width of the lane to be dropped and V equals the design speed. For a planned 11-foot outer lane and 45 mph design speed, this recommended taper distance is **495 feet**.

TRAFFIC OPERATIONS ANALYSIS

METHODOLOGY

The two proposed intersections along Rio Linda Boulevard were modeled for the 2022 Existing Plus Project and the 2040 Cumulative Scenarios; as there are no existing intersections along Rio Linda Boulevard in the study area, no existing scenario was analyzed.

For stop-controlled and signalized intersections, *Synchro, v11* software was used to compute delay and queues using methodology from the Highway Capacity Manual (HCM), 6th Edition. Roundabout operations were modeled using *Sidra, v8* software. Level of service thresholds were based on movement delay as specified in the HCM; those thresholds are shown in Table 3.

[1] As of this memo, the latest update to the manual is July 1, 2020

The output Synchro and Sidra reports generated for this traffic operations analysis are included in Appendix F.

TABLE 3. INTERSECTION LEVEL OF SERVICE DELAY THRESHOLDS

LEVEL OF SERVICE (LOS)	TOTAL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Source: Highway Capacity Manual 6th Edition, Transportation Research Board.

2022 EXISTING PLUS PROJECT RESULTS

The delay and level of service results for the 2022 Existing Plus Project scenario are shown in Table 4 for the AM and PM peak hours. With stop control, the main site driveway would face high delay in leaving the Project site, although relative low volumes would mean that queue lengths would not be significant. Both the signalized and roundabout options at this intersection would perform with favorable operations; none of the movements at the roundabout would be expected to near capacity.

TABLE 4. EXISTING PLUS PROJECT TRAFFIC OPERATIONS RESULTS SUMMARY

INTERSECTION	MVMT	DELAY (S/VEH) & LEVEL OF SERVICE					
		AM PEAK			PM PEAK		
		STOP-CONTROL[a]	SIGNAL	ROUND-ABOUT[b]	STOP-CONTROL[a]	SIGNAL	ROUND-ABOUT[b]
RIO LINDA BLVD & MAIN SITE DRWY	NBT	-	4 (A)	6 (A)	-	3 (A)	6 (A)
	NBR	-	4 (A)	5 (A)	-	3 (A)	5 (A)
	SBL	9 (A)	4 (A)	11 (B)	9 (A)	3 (A)	11 (B)
	SBT	-	5 (A)	6 (A)	-	6 (A)	6 (A)
	WBL	**41 (E)**	19 (B)	9 (A)	**48 (E)**	25 (C)	7 (A)
	WBR	**41 (E)**	19 (B)	5 (A)	**48 (E)**	25 (C)	3 (A)
	Total	-	5 (A)	6 (A)	-	5 (A)	6 (A)
RIO LINDA BLVD & NORTH SITE DRWY	WBR	11 (B)	-	-	10 (A)	-	-

[a] Delay for side-street stop control is not calculated for free-flowing movements or for the total intersection
[b] Includes geometric delay as well as control delay

2040 CUMULATIVE RESULTS

Traffic operations results for the 2040 Cumulative scenario – including the project site, grown background traffic and the future Leisure Vistas site to the west of the Project – are shown in Table 5 for each intersection control tested for the AM and PM peak hours. While stop-control remains an adequate option for the right-in/right-out north driveway intersection, stop-control results in severe delays for vehicles exiting either the Project site or the Leisure Vistas site onto Rio Linda Boulevard. Delay and capacity for both signalization and the roundabout at the main site driveway were acceptable for both peak hours; additional treatments, such as turn bays and/or protected phasing for left turns do not appear to be needed to improve traffic operations.

TABLE 5. 2040 CUMULATIVE TRAFFIC OPERATIONS RESULTS SUMMARY

INTERSECTION	MVMT	DELAY (S/VEH) & LEVEL OF SERVICE					
		AM PEAK			PM PEAK		
		STOP-CONTROL[a]	SIGNAL	ROUND-ABOUT[b]	STOP-CONTROL[a]	SIGNAL	ROUND-ABOUT[b]
RIO LINDA BLVD & MAIN SITE DRWY / LEISURE VISTAS DRWY	NBL	9 (A)	4 (A)	9 (A)	11 (B)	6 (A)	10 (A)
	NBT	-	5 (A)	6 (A)	-	4 (A)	6 (A)
	NBR	-	5 (A)	5 (A)	-	4 (A)	6 (A)
	SBL	10 (A)	5 (A)	11 (B)	9 (A)	4 (A)	11 (B)
	SBT	-	4 (A)	6 (A)	-	5 (A)	6 (A)
	SBR	-	4 (A)	5 (A)	-	5 (A)	5 (A)
	EBL	27 (D)	14 (B)	12 (B)	**100 (F)**	17 (B)	14 (B)
	EBT	27 (D)	14 (B)	7 (A)	**100 (F)**	17 (B)	9 (A)
	EBR	27 (D)	14 (B)	6 (A)	**100 (F)**	17 (B)	9 (A)
	WBL	**76 (F)**	15 (B)	9 (A)	**103 (F)**	17 (B)	8 (A)
	WBT	**76 (F)**	15 (B)	9 (A)	**103 (F)**	17 (B)	7 (A)
	WBR	**76 (F)**	15 (B)	6 (A)	**103 (F)**	17 (B)	4 (A)
	Total	-	5 (A)	6 (A)	-	5 (A)	7 (A)
RIO LINDA BLVD & NORTH SITE DRWY	WBR	12 (B)	-	-	10 (B)	-	-

[a] Delay for side-street stop control is not calculated for free-flowing movements or for the total intersection
[b] Includes geometric delay as well as control delay

INTERSECTION SAFETY

This study does not include a crash analysis and did not include collection of crash data along Rio Linda Boulevard. Rather, this section focuses on the differences in driver and active transportation safety between the stop-controlled, signalized, and roundabout options for the main site driveway intersection with Rio Linda Boulevard. As noted in the Project site plan (Appendix A and Figure 1), the desired treatment along Rio Linda Boulevard includes a northbound separated bike lane, a roundabout at the main site driveway (with cyclists directed to the sidewalk through the circulating roadway), and a right-in/right-out stop at the site's north driveway.

For the signalized and stop-controlled options, vehicles turning left into either the Project site or Leisure Vistas from Rio Linda Boulevard would cross free-flowing opposing traffic; following City standards for expanded intersection design, left- and right-turn bays would be included along Rio Linda Boulevard. For the stop-controlled option, vehicles exiting either site would cross oncoming traffic; with the noted high delay for the 2040 Cumulative scenario (see Table 5), those drivers may risk angle crashes as they become impatient and take smaller gaps to exit either site.

A roundabout has the benefits of naturally slowing down all vehicles approaching the intersection. With fewer – as well as lower speed – conflict points than a traditional intersection, roundabouts

typically exhibit lower rates of severe as well as angle crashes. From the operations analysis, having a 2+1 configuration roundabout at the site's main entrance would provide low delay for all movements for expected volume growth in the 2040 Cumulative scenario. To accommodate safe crossings for peds and cyclists, use of Rectangular Rapid-Flashing Beacons (RRFBs), as well as advance warning signs along Rio Linda Boulevard, would be recommended.

CONCLUSION

This memo documented the traffic analysis for the proposed Robla Estates site along Rio Linda Boulevard and included a forecast of background traffic along Rio Linda and the effect of the background Leisure Vistas site on the proposed intersection at the Project site's south entrance. Based on peak hour volume projections, either a signalized or roundabout alternative at the site's south entrance would accommodate demand at acceptable delay/capacity levels. The roundabout option would provide additional safety benefits, especially for left-turning traffic, by slowing down approaching vehicles and reducing conflict points at the intersection; the roundabout would also not require additional turn bays or slip lanes to safety accommodate vehicles turning off of Rio Linda Boulevard. Use of control devices such as RRFBs at each crosswalk and warning signs along Rio Linda Boulevard are recommended to increase driver awareness of crossing cyclists and pedestrians.

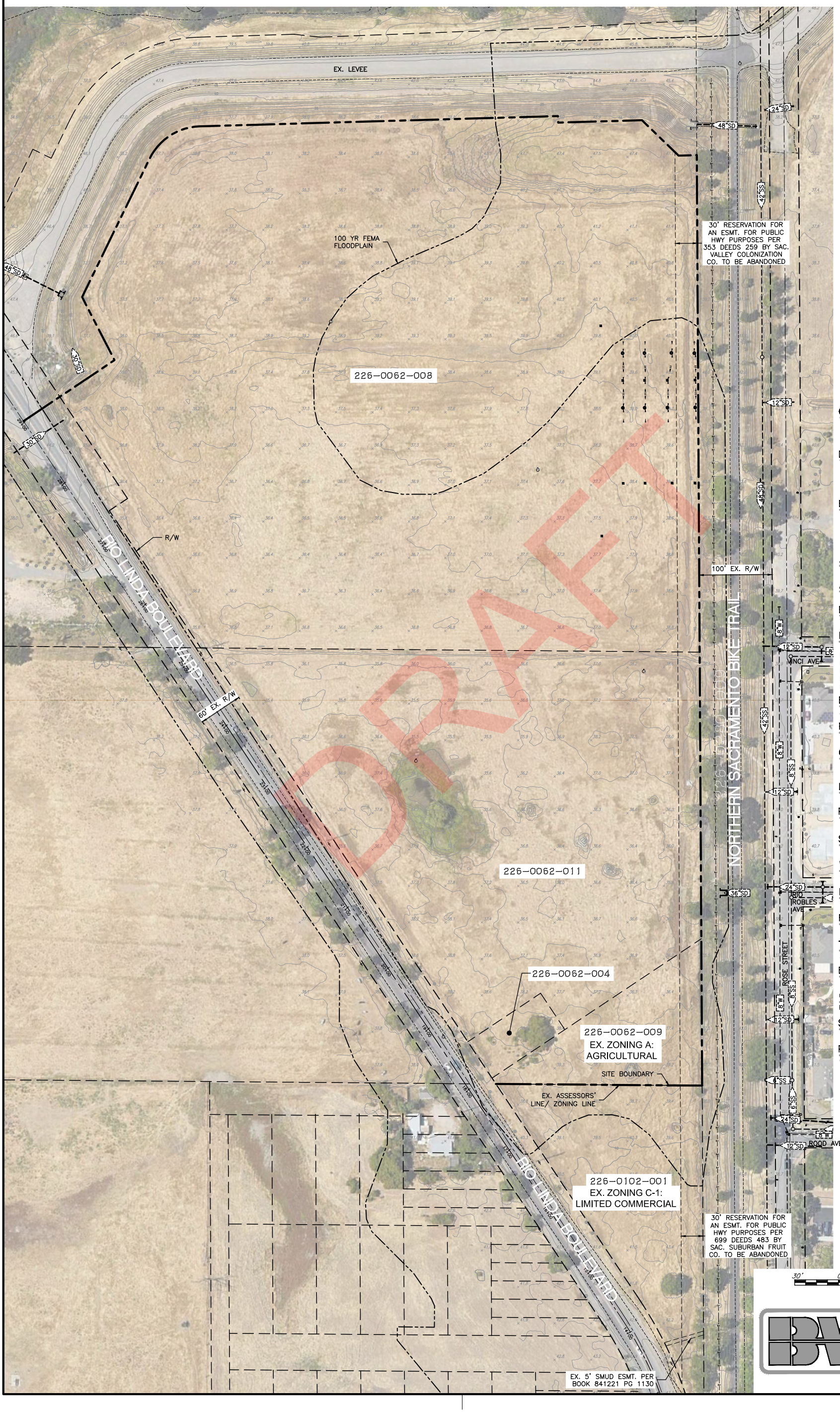
APPENDIX A: SITE PLANS

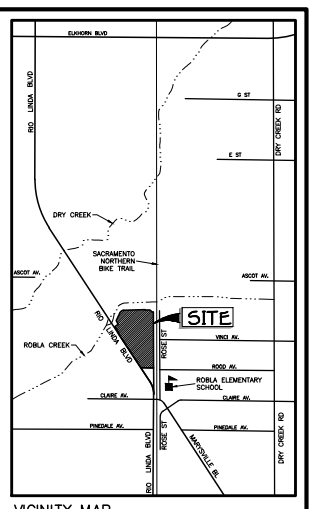
EXISTING CONDITIONS EXHIBIT

5330 RIO LINDA BOULEVARD

CITY OF SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA

MARCH, 2021





VICINITY MAP

NO SCALE

LEGEND:

- EXISTING SEWER — 8" SS
- EXISTING STORM DRAIN — 12" SD
- EXISTING WATER LINE — 8" W
- CONTOUR 4.5 38.2
- SPOT ELEVATION
- SITE BOUNDARY
- 100 YR FEMA FLOODPLAIN

OWNER:

SHEHADEH FAMILY REAL PROP. HOLDING TRUST
6841 WOODCHASE DRIVE
GRANITE BAY, CALIFORNIA 95838

DEVELOPER:

SWIFT CONSTRUCTION
P.O. BOX 3038
GRANITE BAY, CALIFORNIA 95746
PH. (916) 747-5255

ENGINEER:

BAKER-WILLIAMS ENGINEERING GROUP
6020 RUTLAND DRIVE, SUITE 19
CARMICHAEL, CALIFORNIA 95608
PH. (916) 331-4336
FAX (916) 331-4430

ASSESSOR'S PARCEL NUMBER:

226-0062-004,008,009,011

ACREAGE:

20.55± ACRES GROSS

EXISTING USE:

VACANT

PROPOSED USE:

178 SINGLE FAMILY RESIDENCES
LOTS A AND F PUBLIC PARK/OPEN SPACE
LOT B DETENTION BASIN (PUBLIC)
LOTS C THRU E PUBLIC LANDSCAPE LOTS
LOTS G THRU M PRIVATE OPEN SPACE
LOTS N-1 THRU N-17 PRIVATE ALLEYS

EXISTING ZONING:

A

PROPOSED ZONING:

R-2A

COMMUNITY PLAN:

ROBLA NEIGHBORHOOD, SUBURBAN RESIDENTIAL-LOW

LOT SIZE:

LOT SIZE AS SHOWN

PROPOSED IMPROVEMENTS:

CITY OF SACRAMENTO STANDARDS

SEWER:

CITY OF SACRAMENTO

WATER SUPPLY:

CITY OF SACRAMENTO

DRAINAGE:

CITY OF SACRAMENTO

FIRE PROTECTION:

CITY OF SACRAMENTO

TELEPHONE SERVICE:

A T & T

ELECTRICAL SERVICE:

S.M.U.D.

GAS SUPPLY:

P.G. & E.

SCHOOL DISTRICT:

RIO LINDA UNION SCHOOL DISTRICT

PARK DISTRICT:

CITY OF SACRAMENTO

SCALE: 1"=30'

30' 0' 30' 60' 90'

GRAPHIC SCALE: 1"=30'

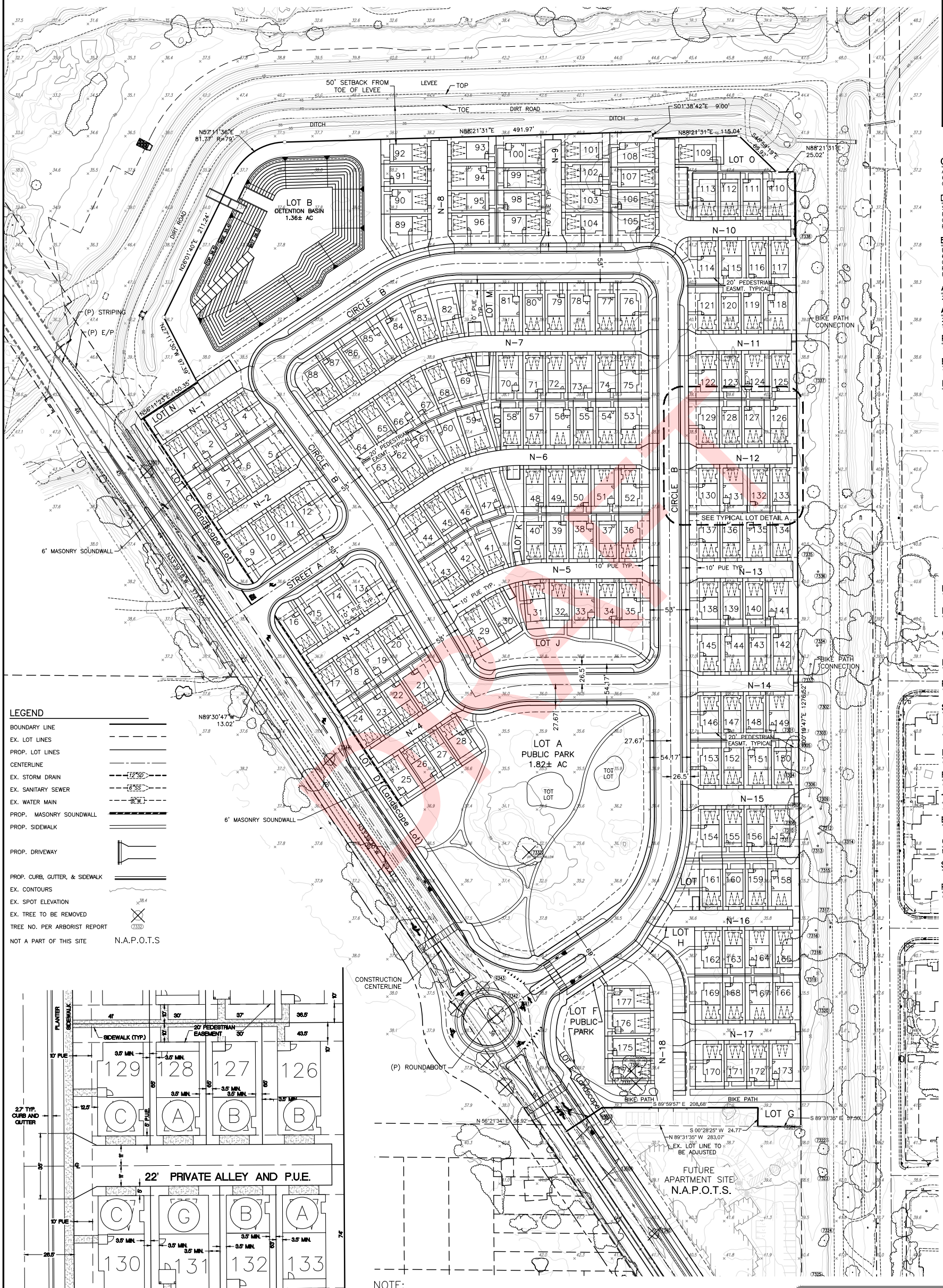
BAKER WILLIAMS ENGINEERING GROUP
6020 RUTLAND DRIVE, SUITE 19
CARMICHAEL, CA 95608-0515
Phone (916)331-4336~Fax (916)331-4430
EMAIL: office@bwengineers.com

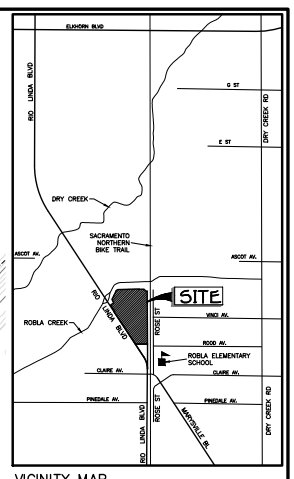
JOB # 20-02-009

TENTATIVE SUBDIVISION MAP

ROBLA ESTATES

CITY OF SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA
NOVEMBER, 2021
SHEET 1 of 2





VICINITY MAP
NO SCALE

OWNER:
ABDELKARIM ADBALLAH SHEHADEH
6841 WOODCHASE DRIVE
GRANITE BAY, CALIFORNIA 95838

DEVELOPER:
SWIFT CONSTRUCTION
P.O. BOX 3038
GRANITE BAY, CALIFORNIA 95746
PH. (916) 747-5255

ENGINEER:
BAKER-WILLIAMS ENGINEERING GROUP
6020 RUTLAND DRIVE, SUITE 19
CARMICHAEL, CALIFORNIA 95608
PH. (916) 331-4336
FAX (916) 331-4430

ASSESSOR'S PARCEL NUMBER:
226-0062-004,008,009,011

ACREAGE:
20.43± ACRES GROSS
12.26± NET GROSS

PROPOSED DENSITY:
177 RES. LOTS/12.26± NET AC = 14.4 du/na

EXISTING USE:
VACANT

PROPOSED USE:

PUBLIC LOTS:

LOT A (park)	= 1.82 AC
LOT B (basin)	= 1.36 AC
LOT C (landscape)	= 0.10 AC
LOT D (landscape)	= 0.15 AC
LOT E (landscape)	= 0.03 AC
LOT F (park)	= 0.24 AC
STREET A & CIR. B	= 3.21 AC
RIO LINDA BLVD.	= 1.26 AC
TOTAL PUBLIC	8.17 AC

PRIVATE LOTS:

177 RESIDENTIAL LOTS	= 9.23 AC
PRIVATE ALLEYS (N1-N18)	= 1.82 AC
LOT G (open space)	= 0.17 AC
LOT H (open space)	= 0.12 AC
LOT I (open space)	= 0.05 AC
LOT J (open space)	= 0.26 AC
LOT K (open space)	= 0.11 AC
LOT L (open space)	= 0.06 AC
LOT M (open space)	= 0.08 AC
LOT N (open space)	= 0.06 AC
LOT O (open space)	= 0.30 AC
TOTAL PRIVATE	12.26 AC

PRIVATE OFF-STREET PARKING = 42 SPACES

EXISTING ZONING:
A

PROPOSED ZONING:
R-2A

COMMUNITY PLAN:
ROBLA NEIGHBORHOOD, SUBURBAN RESIDENTIAL-LOW

LOT SIZE:
LOT SIZE AS SHOWN

PROPOSED IMPROVEMENTS:
CITY OF SACRAMENTO STANDARDS

SEWER:
CITY OF SACRAMENTO

WATER SUPPLY:
CITY OF SACRAMENTO

DRAINAGE:
CITY OF SACRAMENTO

FIRE PROTECTION:
CITY OF SACRAMENTO

TELEPHONE SERVICE:
A T & T

ELECTRICAL SERVICE:
S.M.U.D.

GAS SUPPLY:
N/A

SCHOOL DISTRICT:
RIO LINDA UNION SCHOOL DISTRICT

PARK DISTRICT:
CITY OF SACRAMENTO

LEGEND

- BOUNDARY LINE
- EX. LOT LINES
- PROP. LOT LINES
- CENTERLINE
- EX. STORM DRAIN (12"SD)
- EX. SANITARY SEWER (6"SS)
- EX. WATER MAIN (8"W)
- PROP. MASONRY SOUNDWALL
- PROP. SIDEWALK
- PROP. DRIVEWAY
- PROP. CURB, GUTTER, & SIDEWALK
- EX. CONTOURS
- EX. SPOT ELEVATION
- EX. TREE TO BE REMOVED
- TREE NO. PER ARBORIST REPORT (7332)
- NOT A PART OF THIS SITE — N.A.P.O.T.S

DETAIL A -TYPICAL LOT-ALLEY DETAIL
SCALE: 1"=20'

NOTE:
OWNER/DEVELOPER MAY ALTER HOME TO BE PLACED ON LOT.

SCALE: 1"=50'
50' 0' 50' 100'
GRAPHIC SCALE: 1"=50'

BAKER WILLIAMS ENGINEERING GROUP
6020 RUTLAND DRIVE, SUITE 19
CARMICHAEL, CA 95608-0515
Phone (916)331-4336~Fax (916)331-4430
EMAIL: office@bwengineers.com

JOB # 20-02-009

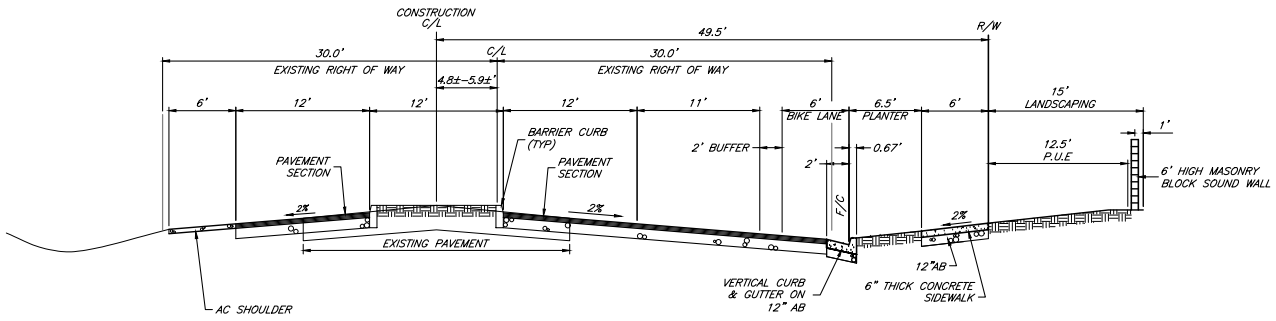
TENTATIVE SUBDIVISION MAP

ROBLA ESTATES

CITY OF SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA

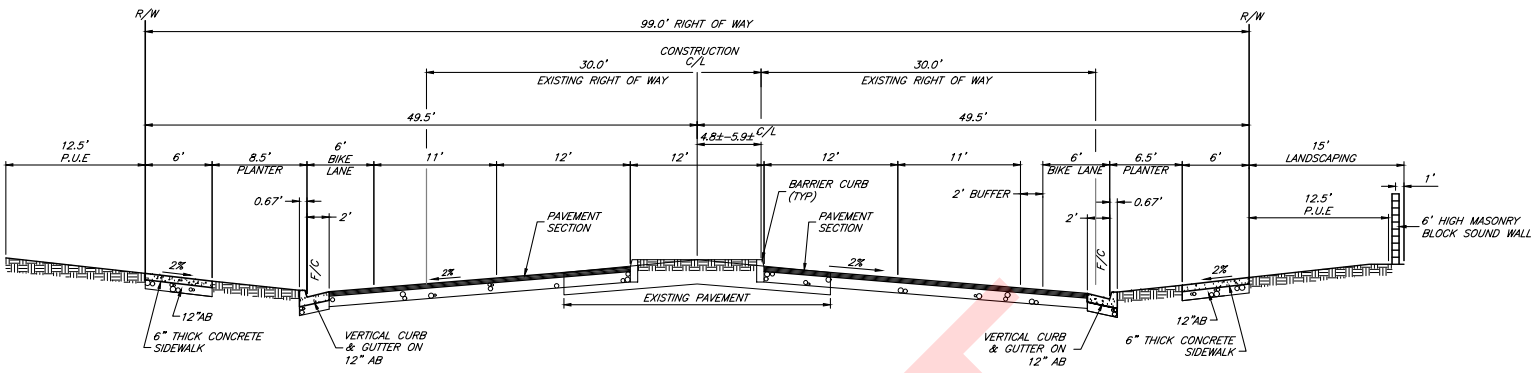
NOVEMBER, 2021

SHEET 2 of 2



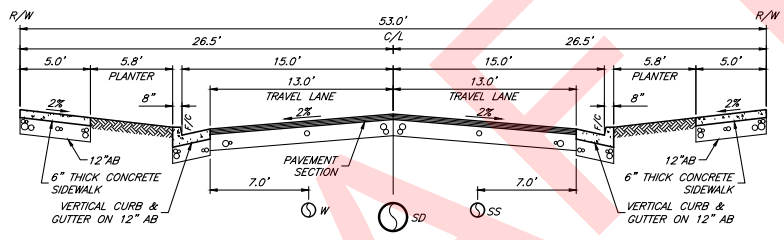
SECTION RIO LINDA BOULEVARD (INTERIM)

NO SCALE



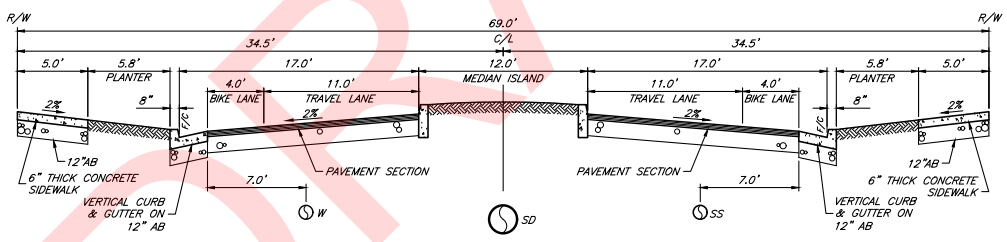
SECTION RIO LINDA BOULEVARD (ULTIMATE)

NO SCALE



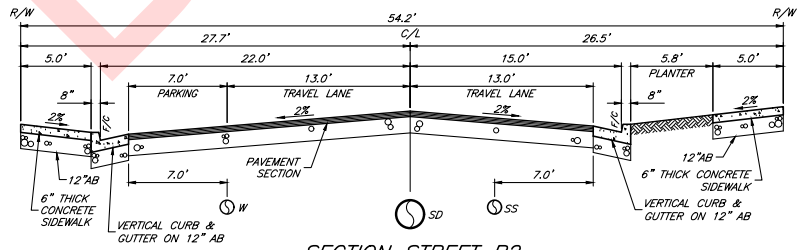
SECTION STREET A

NO SCALE



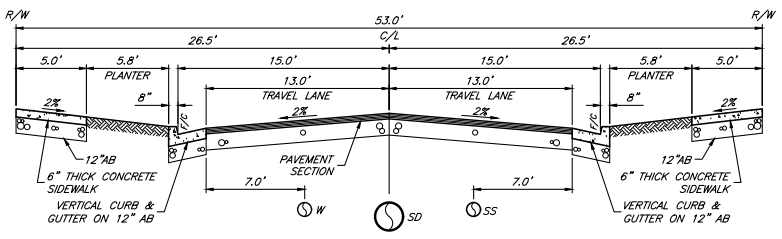
SECTION STREET B1

NO SCALE



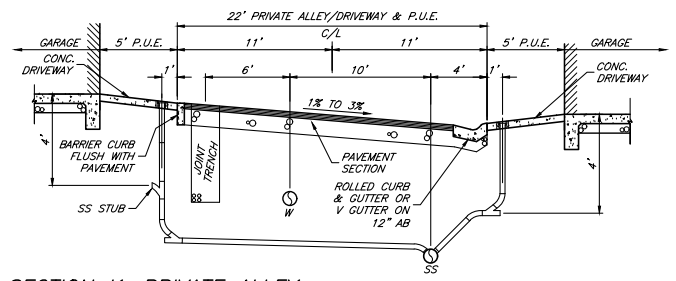
SECTION STREET B2

NO SCALE



SECTION STREET B3

NO SCALE



SECTION K: PRIVATE ALLEY

NO SCALE

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Phone (916)331-4336~Fax (916)331-4430
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JOB # 20-02-009

SITE PLAN
ROBLA ESTATES

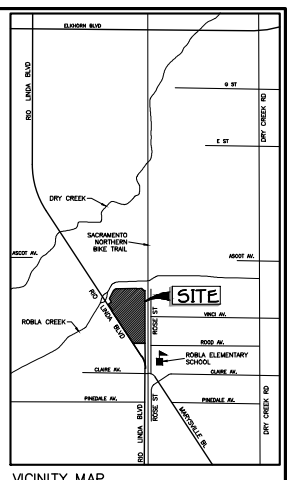
CITY OF SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA
NOVEMBER, 2021

DETAIL A -TYPICAL LOT-ALLEY DETAIL
SCALE 1"=20'

POTENTIAL HOUSE PLAN AREA

A	1,021 sf
B	1,101 sf
C	1,156.5 sf
D	1,342 sf
E	1,087.5 sf
F	1,250.4 sf
G	1,234 sf

*NOTE: THE HOME BUILDER RESERVES THE RIGHT TO MODIFY HOUSE PLANS SUBJECT TO CITY APPROVAL



VICINITY MAP
NO SCALE

OWNER:
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DEVELOPER:
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ASSESSOR'S PARCEL NUMBER:
226-0062-004,008,009,011

ACREAGE:
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12.26± NET GROSS

PROPOSED DENSITY:
177 RES. LOTS/12.26± NET AC = 14.4 du/na

EXISTING USE:
VACANT

PROPOSED USE:

PUBLIC LOTS:

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EXISTING ZONING:
A

PROPOSED ZONING:
R-2A

COMMUNITY PLAN:
ROBLA NEIGHBORHOOD, SUBURBAN RESIDENTIAL-LOW

LOT SIZE:
LOT SIZE AS SHOWN

PROPOSED IMPROVEMENTS:
CITY OF SACRAMENTO STANDARDS

SEWER:
CITY OF SACRAMENTO

WATER SUPPLY:
CITY OF SACRAMENTO

DRAINAGE:
CITY OF SACRAMENTO

FIRE PROTECTION:
CITY OF SACRAMENTO

TELEPHONE SERVICE:
A T & T

ELECTRICAL SERVICE:
S.M.U.D.

GAS SUPPLY:
N/A

SCHOOL DISTRICT:
RIO LINDA UNION SCHOOL DISTRICT

PARK DISTRICT:
CITY OF SACRAMENTO

LEGEND

- PUBLIC MAINTAINED PARKS/ LANDSCAPE
- DETENTION BASIN (PUBLIC)
- LANDSCAPE AREAS (PRIVATE)
- PRIVATE ALLEYS
- CONCRETE
- PUBLIC STREETS
- SOUND WALL

SCALE: 1"=50'

50' 0' 50' 100'
GRAPHIC SCALE: 1"=50'

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JOB # 20-02-009

LEGEND

	EXISTING	PROPOSED
DROP INLET	□	■
MANHOLE	○	●
SEWER SERVICE	⊳	⊳
STORM DRAIN	12"SD	12"SD
SANITARY SEWER	12"SS	12"SS
WATER MAIN	8"W	8"W
WATER SERVICE	□	■
BLOW-OFF		
POWER POLE	PP	
JOINT POLE	JP	
FENCE	— x — x — x —	x x x x
FLOW LINE		
EDGE OF PAVEMENT		
CURB, GUTTER & SIDEWALK		
CENTER LINE		
PROPERTY LINE		
DRAINAGE FLOW DIRECTION		

SECTION K: PRIVATE ALLEY
NO SCALE

POTENTIAL RESIDENTIAL UTILITY DETAIL
SCALE: 1"=20'

SCALE: 1"=50'

50' 0' 50' 100' 150'
GRAPHIC SCALE: 1"=50'

PRELIMINARY UTILITY PLAN
ROBLA ESTATES

CITY OF SACRAMENTO,
SACRAMENTO COUNTY, CALIFORNIA
NOVEMBER, 2021

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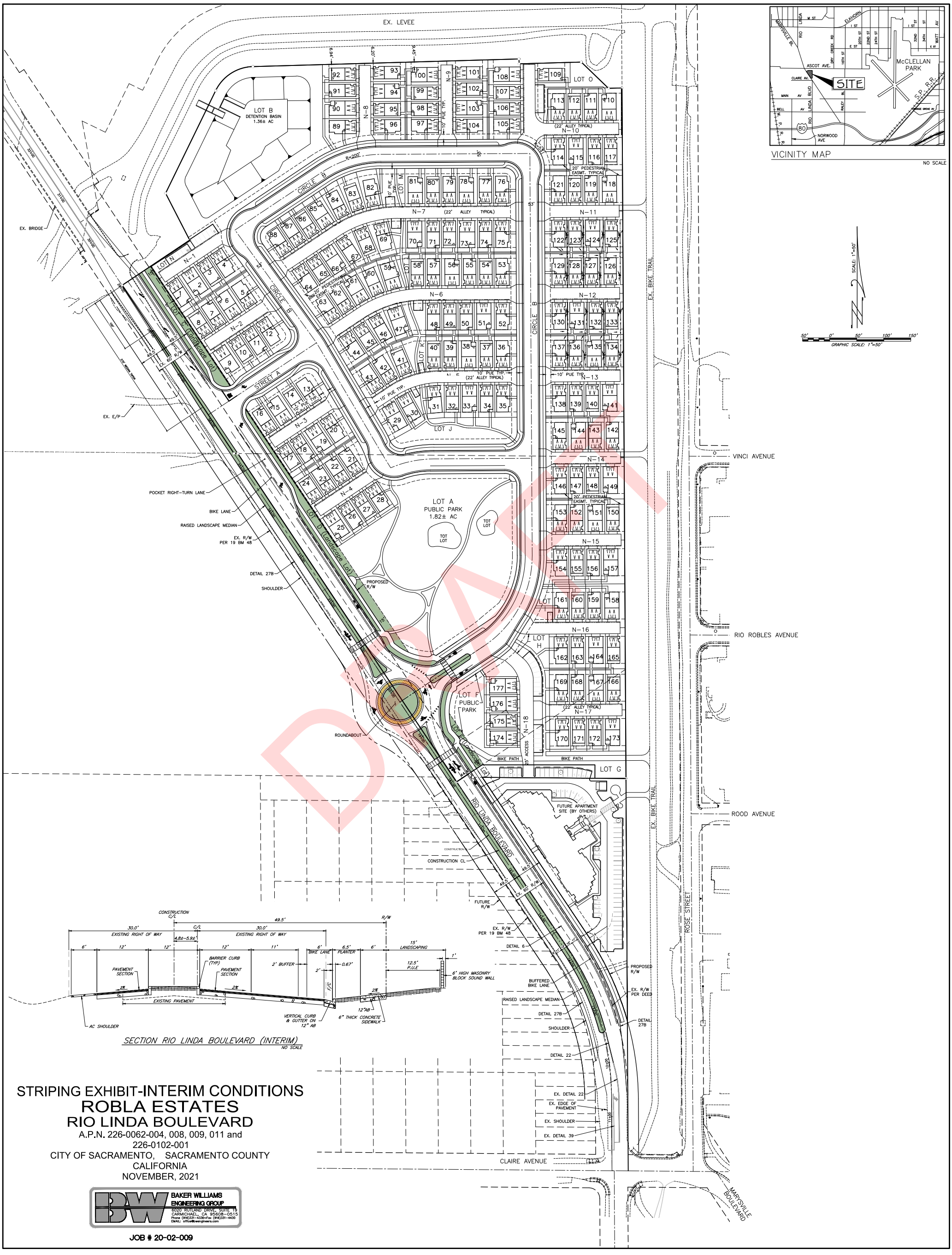

VICINITY MAP

NO SCALE

SECTION RIO LINDA BOULEVARD (INTERIM)

NO SCALE

STRIPING EXHIBIT-INTERIM CONDITIONS

ROBLA ESTATES

RIO LINDA BOULEVARD

A.P.N. 226-0062-004, 008, 009, 011 and
226-0102-001

CITY OF SACRAMENTO, SACRAMENTO COUNTY
CALIFORNIA

NOVEMBER, 2021

BAKER WILLIAMS ENGINEERING GROUP
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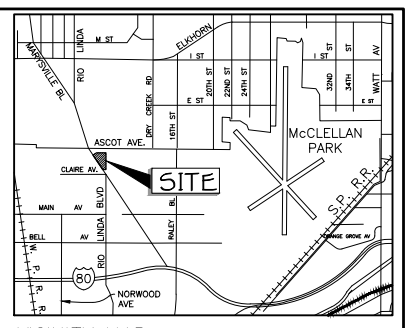

VICINITY MAP

NO SCALE

SCALE: 1"=50'

GRAPHIC SCALE: 1"=50'

STRIPING EXHIBIT-ULTIMATE CONDITIONS

ROBLA ESTATES

RIO LINDA BOULEVARD

A.P.N. 226-0062-004, 008, 009, 011 and
226-0102-001

CITY OF SACRAMENTO, SACRAMENTO COUNTY
CALIFORNIA
MARCH, 2021

BAKER WILLIAMS ENGINEERING GROUP
6020 RUTLAND DRIVE, SUITE 19
CARMICHAEL, CA 95608-0515
Phone (916)331-4336-Fax (916)331-4430
EMAIL: office@bwengineers.com

JOB # 20-02-009

APPENDIX B: TRAFFIC VOLUME AND SPEED COUNTS

All Traffic Data Services, LLC

www.alltrafficdata.net

Site Code: 1

RIO LINDA BLVD N.O MARYSVILLE BLVD

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/22/22	4	0	0	0	0	4	8	11	13	7	2	1	1	0	51	46-55	24
01:00	3	0	0	0	0	3	3	3	12	11	1	1	0	0	37	51-60	23
02:00	2	0	0	0	0	3	1	9	9	3	5	0	1	0	33	46-55	18
03:00	2	0	0	0	0	3	5	5	8	4	5	5	1	0	38	46-55	13
04:00	2	0	**1**	0	0	1	1	6	6	10	4	2	0	0	33	51-60	16
05:00	2	0	0	0	0	3	2	10	11	16	16	7	2	**1**	70	56-65	32
06:00	7	0	0	**1**	1	1	12	18	17	13	4	**12**	**4**	1	91	46-55	35
07:00	3	0	1	0	0	1	12	39	45	47	25	7	1	1	182	51-60	92
08:00	12	0	0	0	0	**12**	26	48	48	53	31	10	3	1	244	51-60	101
09:00	12	0	0	1	2	11	29	76	111	**79**	**35**	7	4	1	368	51-60	190
10:00	12	0	1	0	**9**	11	40	91	**141**	62	21	10	3	1	402	46-55	232
11:00	**22**	0	0	0	3	9	**77**	**116**	116	74	19	4	2	0	**442**	46-55	232
12 PM	**26**	0	0	0	3	5	63	**127**	**133**	**52**	**21**	4	0	0	**434**	46-55	260
13:00	17	0	0	4	8	37	59	112	92	51	14	2	**2**	**2**	400	46-55	204
14:00	21	0	2	2	12	19	44	126	99	47	8	4	1	0	385	46-55	225
15:00	24	**2**	1	0	0	21	50	112	112	40	15	**5**	0	1	383	46-55	224
16:00	21	1	1	0	3	25	90	115	77	30	11	4	0	1	379	41-50	205
17:00	16	2	**7**	1	3	51	**105**	120	73	27	8	5	1	0	419	41-50	225
18:00	19	0	2	**7**	**27**	**68**	97	78	31	14	8	1	2	0	354	41-50	175
19:00	11	0	0	0	2	22	59	67	53	17	7	3	0	0	241	41-50	126
20:00	4	0	0	0	6	23	51	43	46	14	5	4	0	0	196	41-50	94
21:00	5	0	0	1	2	7	46	55	39	13	1	0	0	0	169	41-50	101
22:00	7	0	0	1	5	13	40	34	30	11	8	1	1	0	151	41-50	74
23:00	2	0	0	0	1	3	26	24	26	14	6	1	0	1	104	46-55	50
Total	256	5	16	18	87	356	946	1445	1348	709	280	100	29	11	5606		
Percent	4.6%	0.1%	0.3%	0.3%	1.6%	6.4%	16.9%	25.8%	24.0%	12.6%	5.0%	1.8%	0.5%	0.2%			
AM Peak	11:00		04:00	06:00	10:00	08:00	11:00	11:00	10:00	09:00	09:00	06:00	06:00	05:00	11:00		
Vol.	22		1	1	9	12	77	116	141	79	35	12	4	1	442		
PM Peak	12:00	15:00	17:00	18:00	18:00	18:00	17:00	12:00	12:00	12:00	12:00	15:00	13:00	13:00	12:00		
Vol.	26	2	7	7	27	68	105	127	133	52	21	5	2	2	434		

All Traffic Data Services, LLC

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Site Code: 1

RIO LINDA BLVD N.O MARYSVILLE BLVD

NB

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01/23/22	0	0	0	0	1	6	14	17	7	6	0	1	2	0	54	41-50	31
01:00	1	0	0	0	0	6	17	13	12	2	1	2	0	0	54	41-50	30
02:00	3	**1**	0	0	1	3	3	12	9	3	1	2	0	0	38	46-55	21
03:00	2	0	0	**1**	1	4	4	8	5	2	1	0	0	**1**	29	44-53	13
04:00	1	0	0	0	0	2	2	7	3	5	2	1	0	0	23	44-53	10
05:00	1	0	0	0	0	6	4	11	11	3	1	0	0	1	38	46-55	22
06:00	3	0	0	0	1	4	13	13	12	7	7	1	0	0	61	41-50	26
07:00	1	0	0	0	0	3	11	14	23	20	13	3	0	1	89	51-60	43
08:00	7	0	0	1	**2**	6	14	30	47	65	25	**15**	3	1	216	51-60	112
09:00	**14**	0	0	0	0	2	22	**79**	106	86	**37**	9	**4**	0	359	51-60	192
10:00	9	0	0	1	0	2	32	76	118	91	33	10	3	0	375	51-60	209
11:00	7	0	0	0	2	**7**	**37**	75	**120**	**98**	29	8	0	0	**383**	51-60	218
12 PM	**22**	0	0	0	1	4	28	73	91	66	**32**	4	1	0	322	46-55	164
13:00	18	0	0	0	0	14	56	95	**114**	69	20	6	4	0	396	46-55	209
14:00	13	0	**1**	1	6	16	31	65	111	**78**	28	**8**	1	0	359	51-60	189
15:00	15	0	0	0	0	6	39	77	110	78	28	5	1	**1**	360	49-58	188
16:00	14	0	0	0	**8**	9	36	114	87	63	25	3	**5**	0	364	46-55	201
17:00	14	0	1	**12**	8	**46**	**80**	**137**	75	42	10	3	1	1	**430**	41-50	217
18:00	12	0	0	3	4	39	64	85	56	21	7	2	0	0	293	41-50	149
19:00	12	0	0	0	3	16	61	70	55	21	9	2	2	0	251	41-50	131
20:00	8	0	0	0	5	6	34	52	42	23	15	2	0	0	187	46-55	94
21:00	0	0	0	0	0	8	25	28	40	16	7	2	0	0	126	46-55	68
22:00	3	0	0	0	2	7	16	19	24	18	6	1	0	0	96	46-55	43
23:00	2	0	0	0	0	0	6	16	20	13	2	6	1	0	66	46-55	36
Total	182	1	2	19	45	222	649	1186	1298	896	339	96	28	6	4969		
Percent	3.7%	0.0%	0.0%	0.4%	0.9%	4.5%	13.1%	23.9%	26.1%	18.0%	6.8%	1.9%	0.6%	0.1%			
AM Peak	09:00	02:00		03:00	08:00	11:00	11:00	09:00	11:00	11:00	09:00	08:00	09:00	03:00	11:00		
Vol.	14	1		1	2	7	37	79	120	98	37	15	4	1	383		
PM Peak	12:00		14:00	17:00	16:00	17:00	17:00	17:00	13:00	14:00	12:00	14:00	16:00	15:00	17:00		
Vol.	22		1	12	8	46	80	137	114	78	32	8	5	1	430		

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Site Code: 1

RIO LINDA BLVD N.O MARYSVILLE BLVD

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Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/24/22	0	0	0	0	0	3	6	7	12	7	4	3	1	0	43	50-59	19
01:00	2	0	0	0	2	0	2	5	8	4	2	2	2	0	29	46-55	13
02:00	2	0	0	1	0	2	2	3	5	7	1	2	0	0	25	51-60	12
03:00	0	0	0	0	0	1	3	5	16	10	4	3	1	0	43	51-60	26
04:00	0	0	0	0	0	0	1	20	14	20	10	6	2	0	73	51-60	34
05:00	4	0	0	1	6	19	32	43	60	40	22	3	2	1	233	46-55	103
06:00	11	0	0	0	10	13	64	107	84	30	17	**9**	0	**2**	347	46-55	191
07:00	**63**	**22**	**69**	**50**	**47**	**59**	**102**	**144**	90	27	9	2	0	0	**684**	41-50	246
08:00	28	6	5	13	19	27	95	103	**122**	57	**28**	9	0	0	512	46-55	225
09:00	13	0	0	0	3	13	25	77	105	**66**	13	8	**3**	0	326	46-55	182
10:00	14	0	1	0	3	10	34	91	103	61	18	4	1	0	340	46-55	194
11:00	12	0	0	0	2	6	45	85	96	66	19	9	2	0	342	46-55	181
12 PM	17	1	0	3	7	24	44	83	83	59	17	4	1	0	343	46-55	166
13:00	11	0	0	0	13	24	63	100	101	**62**	**22**	**6**	0	0	402	46-55	201
14:00	40	**5**	**16**	**17**	**29**	**52**	70	118	78	34	10	2	1	**1**	473	46-55	196
15:00	37	1	4	6	12	44	94	124	100	47	11	4	0	0	**484**	46-55	224
16:00	**51**	1	3	5	8	21	80	**135**	**104**	40	12	2	**2**	0	464	46-55	239
17:00	41	0	0	5	14	48	**99**	117	66	36	12	2	1	1	442	41-50	216
18:00	11	0	1	7	10	31	67	114	58	26	12	6	1	0	344	41-50	181
19:00	8	0	0	1	11	14	55	66	48	25	7	4	0	1	240	41-50	121
20:00	4	0	0	0	2	17	31	35	29	32	10	3	1	1	165	41-50	66
21:00	2	0	0	0	2	6	15	50	39	22	8	5	2	0	151	46-55	89
22:00	3	0	0	0	3	4	16	24	33	19	8	3	2	0	115	46-55	57
23:00	2	0	0	0	0	2	9	21	12	12	4	1	0	0	63	46-55	33
Total	376	36	99	109	203	440	1054	1677	1466	809	280	102	25	7	6683		
Percent	5.6%	0.5%	1.5%	1.6%	3.0%	6.6%	15.8%	25.1%	21.9%	12.1%	4.2%	1.5%	0.4%	0.1%			
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	08:00	09:00	08:00	06:00	09:00	06:00	07:00		
Vol.	63	22	69	50	47	59	102	144	122	66	28	9	3	2	684		
PM Peak	16:00	14:00	14:00	14:00	14:00	14:00	17:00	16:00	16:00	13:00	13:00	13:00	16:00	14:00	15:00		
Vol.	51	5	16	17	29	52	99	135	104	62	22	6	2	1	484		

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NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/25/22	1	0	0	0	1	1	5	5	12	3	4	3	1	0	36	46-55	17
01:00	1	0	0	0	0	0	4	6	5	3	4	5	0	0	28	46-55	11
02:00	1	0	0	1	0	4	8	2	7	4	3	1	0	0	31	36-45	12
03:00	1	0	0	0	1	3	5	17	7	9	3	6	0	0	52	46-55	24
04:00	0	0	0	0	1	5	3	25	22	12	10	2	1	0	81	46-55	47
05:00	4	0	0	7	3	19	28	50	56	45	17	5	**2**	0	236	46-55	106
06:00	9	0	0	0	9	34	86	93	86	39	10	2	1	0	369	41-50	179
07:00	**51**	**35**	**57**	**43**	**42**	**82**	**132**	116	61	15	8	0	0	**3**	**645**	41-50	248
08:00	30	13	7	15	26	46	85	**134**	108	52	17	4	0	0	537	46-55	242
09:00	10	0	0	0	1	9	39	83	**115**	**69**	**24**	8	2	0	360	46-55	198
10:00	16	0	0	0	3	11	33	98	104	57	14	**9**	1	2	348	46-55	202
11:00	15	0	0	0	3	7	38	78	100	53	17	7	0	0	318	46-55	178
12 PM	15	0	0	1	7	13	27	75	**119**	**55**	**23**	1	0	2	338	46-55	194
13:00	15	0	0	10	15	19	66	114	88	40	11	0	2	0	380	46-55	202
14:00	35	**5**	**5**	11	17	42	99	131	101	34	12	3	1	2	**498**	45-54	232
15:00	**39**	2	3	**15**	**28**	34	79	121	110	39	9	2	**3**	1	485	46-55	231
16:00	39	0	0	3	5	40	**104**	**135**	77	52	22	4	2	0	483	41-50	239
17:00	30	0	1	11	22	40	95	114	82	25	11	2	1	0	434	41-50	209
18:00	14	0	1	3	13	**48**	91	108	56	35	9	1	1	0	380	41-50	199
19:00	8	0	0	0	7	7	49	53	83	28	13	**6**	3	0	257	46-55	136
20:00	1	1	0	1	4	13	39	50	43	20	7	4	1	0	184	46-55	93
21:00	5	0	0	0	0	5	20	38	42	18	10	3	1	0	142	46-55	80
22:00	4	0	0	0	0	5	6	21	26	15	5	6	1	**3**	92	46-55	47
23:00	2	0	0	0	0	3	7	9	12	17	8	5	0	1	64	51-60	29
Total	346	56	74	121	208	490	1148	1676	1522	739	271	89	24	14	6778		
Percent	5.1%	0.8%	1.1%	1.8%	3.1%	7.2%	16.9%	24.7%	22.5%	10.9%	4.0%	1.3%	0.4%	0.2%			
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	07:00	08:00	09:00	09:00	09:00	10:00	05:00	07:00	07:00		
Vol.	51	35	57	43	42	82	132	134	115	69	24	9	2	3	645		
PM Peak	15:00	14:00	14:00	15:00	15:00	18:00	16:00	16:00	12:00	12:00	12:00	19:00	15:00	22:00	14:00		
Vol.	39	5	5	15	28	48	104	135	119	55	23	6	3	3	498		

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NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/26/22	1	0	0	0	1	2	4	6	10	5	6	1	0	0	36	46-55	16
01:00	0	0	0	0	2	1	2	5	8	5	2	3	2	1	31	47-56	13
02:00	0	0	0	0	0	1	3	7	7	5	1	1	1	0	26	46-55	14
03:00	1	0	1	1	0	3	3	3	9	16	1	8	1	0	47	51-60	25
04:00	4	0	0	0	0	0	6	14	19	18	8	2	3	0	74	51-60	37
05:00	3	0	0	0	1	1	33	54	64	54	18	11	**4**	0	243	46-55	118
06:00	11	0	0	4	4	20	49	112	111	62	8	4	0	0	385	46-55	223
07:00	**38**	**13**	**25**	**34**	**55**	**97**	**164**	**158**	96	40	6	6	0	0	**732**	41-50	322
08:00	20	0	3	4	9	22	60	133	**152**	**93**	29	9	1	1	536	46-55	285
09:00	5	0	0	0	4	18	31	75	107	85	**32**	**13**	2	0	372	51-60	192
10:00	7	0	2	4	6	15	57	86	75	51	28	4	2	**2**	339	46-55	161
11:00	15	0	0	0	0	3	40	85	78	64	26	4	0	1	316	46-55	163
12 PM	32	**1**	0	**17**	**31**	48	78	90	84	51	12	0	**2**	**1**	447	46-55	174
13:00	23	0	0	2	14	24	80	100	**123**	**65**	**23**	**5**	1	1	461	46-55	223
14:00	26	0	**3**	8	7	23	54	102	102	61	20	4	2	0	412	46-55	204
15:00	**37**	0	1	8	8	35	78	**116**	116	44	15	4	2	1	**465**	46-55	232
16:00	34	1	0	2	8	30	56	93	102	53	20	5	2	0	406	46-55	195
17:00	25	0	2	7	24	**73**	90	115	86	31	8	1	1	0	463	41-50	205
18:00	16	0	0	1	12	47	**93**	101	72	21	10	3	0	0	376	41-50	194
19:00	10	0	1	2	10	34	73	85	50	23	3	1	0	0	292	41-50	158
20:00	2	0	1	2	8	15	48	70	57	24	3	2	0	0	232	46-55	127
21:00	2	0	0	1	3	7	23	41	25	20	16	1	1	0	140	46-55	66
22:00	0	0	0	1	1	5	12	19	26	14	8	4	2	1	93	46-55	45
23:00	2	0	0	1	0	2	5	12	17	10	2	3	1	0	55	46-55	29
Total	314	15	39	99	208	526	1142	1682	1596	915	305	99	30	9	6979		
Percent	4.5%	0.2%	0.6%	1.4%	3.0%	7.5%	16.4%	24.1%	22.9%	13.1%	4.4%	1.4%	0.4%	0.1%			
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	08:00	08:00	09:00	09:00	05:00	10:00	07:00		
Vol.	38	13	25	34	55	97	164	158	152	93	32	13	4	2	732		
PM Peak	15:00	12:00	14:00	12:00	12:00	17:00	18:00	15:00	13:00	13:00	13:00	13:00	12:00	12:00	15:00		
Vol.	37	1	3	17	31	73	93	116	123	65	23	5	2	1	465		

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NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/27/22	0	0	0	0	1	3	7	11	10	9	1	4	1	0	47	46-55	21
01:00	0	0	0	0	0	1	5	8	8	3	3	2	0	0	30	46-55	16
02:00	1	0	0	1	0	2	9	5	6	4	3	0	0	**1**	32	41-50	14
03:00	2	0	0	1	1	0	7	6	8	9	3	3	0	0	40	51-60	17
04:00	2	0	0	0	2	1	2	17	25	13	10	1	0	0	73	46-55	42
05:00	1	0	0	0	0	4	25	58	68	44	20	**10**	**3**	0	233	46-55	126
06:00	10	0	0	2	7	36	59	88	102	47	16	4	1	0	372	46-55	190
07:00	**54**	**28**	**34**	**51**	**47**	**60**	**126**	134	86	30	5	1	0	0	**656**	41-50	260
08:00	23	3	4	9	12	20	69	**166**	**152**	75	12	4	0	1	550	46-55	318
09:00	19	0	1	0	0	13	40	108	95	**79**	18	9	0	1	383	46-55	203
10:00	14	2	1	2	7	13	37	75	71	58	**28**	3	2	0	313	46-55	146
11:00	14	0	0	0	1	4	44	102	101	55	17	2	0	0	340	46-55	203
12 PM	19	0	0	0	6	18	64	109	**99**	42	12	**5**	1	**3**	378	46-55	208
13:00	16	0	0	1	5	18	64	108	99	**57**	**19**	1	**4**	0	392	46-55	207
14:00	26	0	**7**	6	31	47	76	110	71	48	9	3	0	1	435	41-50	186
15:00	**54**	**6**	6	**16**	**34**	**56**	108	124	80	35	8	3	2	1	**533**	41-50	232
16:00	41	0	0	0	2	41	79	**133**	96	39	13	1	1	0	446	46-55	229
17:00	41	0	0	8	20	34	102	125	72	34	12	3	0	0	451	41-50	227
18:00	10	0	0	1	18	54	**112**	106	57	28	4	3	0	0	393	41-50	218
19:00	13	1	0	0	9	23	55	80	47	30	12	3	0	0	273	41-50	135
20:00	8	0	0	4	0	16	34	63	51	19	8	5	1	0	209	46-55	114
21:00	9	0	0	0	1	9	23	33	31	21	6	2	1	0	136	46-55	64
22:00	4	0	0	0	1	6	10	29	26	18	9	2	1	0	106	46-55	55
23:00	2	0	0	0	1	4	11	12	16	14	8	0	1	2	71	51-60	30
Total	383	40	53	102	206	483	1168	1810	1477	811	256	74	19	10	6892		
Percent	5.6%	0.6%	0.8%	1.5%	3.0%	7.0%	16.9%	26.3%	21.4%	11.8%	3.7%	1.1%	0.3%	0.1%			
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	07:00	08:00	08:00	09:00	10:00	05:00	05:00	02:00	07:00		
Vol.	54	28	34	51	47	60	126	166	152	79	28	10	3	1	656		
PM Peak	15:00	15:00	14:00	15:00	15:00	15:00	18:00	16:00	12:00	13:00	13:00	12:00	13:00	12:00	15:00		
Vol.	54	6	7	16	34	56	112	133	99	57	19	5	4	3	533		

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NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/28/22	2	0	0	0	1	3	5	12	12	5	6	0	0	0	46	46-55	24
01:00	1	0	0	0	0	2	5	3	5	3	6	2	0	0	27	54-63	9
02:00	1	0	0	1	1	1	3	8	9	5	2	2	0	0	33	46-55	17
03:00	1	0	0	0	0	2	4	13	8	7	6	2	1	0	44	46-55	21
04:00	1	0	0	0	0	4	8	14	22	26	13	0	0	**1**	89	51-60	48
05:00	2	0	0	0	1	3	17	45	66	63	19	3	2	0	221	51-60	129
06:00	7	0	2	3	7	17	55	90	109	55	16	**7**	**4**	1	373	46-55	199
07:00	**52**	**13**	**14**	**28**	**38**	**70**	**100**	**175**	110	50	7	3	1	1	**662**	46-55	285
08:00	15	5	5	12	13	22	88	154	**127**	**70**	20	7	2	0	540	46-55	281
09:00	18	0	0	0	2	16	40	88	97	62	**22**	7	0	0	352	46-55	185
10:00	16	0	0	1	0	17	64	102	89	52	14	4	1	0	360	46-55	191
11:00	16	0	3	2	0	20	58	97	85	57	17	4	1	0	360	46-55	182
12 PM	8	0	0	1	4	20	68	119	108	**43**	20	4	1	0	396	46-55	227
13:00	22	0	0	0	7	26	87	107	105	43	16	4	1	0	418	46-55	212
14:00	28	**3**	**5**	10	13	31	69	**153**	**111**	31	14	6	0	0	474	46-55	264
15:00	**59**	1	3	7	20	60	**143**	114	86	27	10	5	0	1	**536**	41-50	257
16:00	39	2	5	10	**21**	40	85	111	89	36	**21**	5	0	0	464	46-55	200
17:00	49	2	3	**15**	19	**79**	117	99	51	27	6	3	0	1	471	41-50	216
18:00	16	0	0	2	18	58	129	103	59	21	8	4	0	1	419	41-50	232
19:00	14	0	0	0	3	32	73	87	62	29	12	6	1	**2**	321	41-50	160
20:00	10	0	0	0	6	17	43	43	44	33	12	2	1	1	212	46-55	87
21:00	8	0	0	1	10	16	33	61	49	14	9	**7**	1	0	209	46-55	110
22:00	3	0	0	0	1	5	12	23	31	24	13	4	**2**	1	119	49-58	55
23:00	1	0	0	0	0	4	19	21	35	10	5	4	0	0	99	46-55	56
Total	389	26	40	93	185	565	1325	1842	1569	793	294	95	19	10	7245		
Percent	5.4%	0.4%	0.6%	1.3%	2.6%	7.8%	18.3%	25.4%	21.7%	10.9%	4.1%	1.3%	0.3%	0.1%			
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	08:00	08:00	09:00	06:00	06:00	04:00	07:00		
Vol.	52	13	14	28	38	70	100	175	127	70	22	7	4	1	662		
PM Peak	15:00	14:00	14:00	17:00	16:00	17:00	15:00	14:00	14:00	12:00	16:00	21:00	22:00	19:00	15:00		
Vol.	59	3	5	15	21	79	143	153	111	43	21	7	2	2	536		
Total	2246	179	323	561	1142	3082	7432	11318	10276	5672	2025	655	174	67	45152		
Percent	5.0%	0.4%	0.7%	1.2%	2.5%	6.8%	16.5%	25.1%	22.8%	12.6%	4.5%	1.5%	0.4%	0.1%			

15th Percentile :	38 MPH
50th Percentile :	48 MPH
85th Percentile :	56 MPH
95th Percentile :	61 MPH

Stats

10 MPH Pace Speed :	46-55 MPH
Number in Pace :	21594
Percent in Pace :	47.8%
Number of Vehicles > 45 MPH :	30187
Percent of Vehicles > 45 MPH :	66.9%
Mean Speed(Average) :	47 MPH

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SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/22/22	2	0	0	1	2	9	22	11	6	1	0	0	0	0	54	40-49	33
01:00	3	0	0	0	3	9	32	12	4	1	0	0	0	0	64	41-50	44
02:00	0	0	0	0	1	6	9	3	1	0	0	0	0	0	20	36-45	15
03:00	0	0	0	0	2	7	14	13	1	0	0	0	0	0	37	41-50	27
04:00	0	0	0	1	3	3	8	5	2	1	0	0	0	0	23	40-49	13
05:00	2	0	0	0	2	8	14	11	4	1	0	0	0	0	42	41-50	25
06:00	4	0	0	2	9	26	35	20	6	1	0	0	0	0	103	36-45	61
07:00	7	0	0	0	13	37	50	23	4	1	1	0	0	0	136	36-45	87
08:00	9	0	0	1	17	59	93	29	7	1	0	0	0	0	216	36-45	152
09:00	13	0	0	**5**	11	86	113	51	5	0	0	0	**1**	0	285	36-45	199
10:00	16	0	0	1	**29**	85	125	**70**	6	1	0	0	0	0	333	36-45	210
11:00	**17**	0	0	2	25	**127**	**158**	48	**9**	**4**	**2**	0	0	0	**392**	36-45	285
12 PM	24	3	1	6	22	114	181	71	11	2	0	0	0	**1**	436	36-45	295
13:00	24	**5**	1	4	18	105	181	**93**	12	1	0	0	0	0	444	36-45	286
14:00	18	0	0	0	13	111	**224**	82	**19**	1	0	0	0	0	468	36-45	335
15:00	**29**	0	1	9	17	116	183	69	12	**3**	**1**	0	0	0	440	36-45	299
16:00	27	0	0	1	34	**164**	168	75	15	2	0	0	0	0	**486**	36-45	332
17:00	19	0	1	**10**	**48**	143	157	42	8	1	0	0	0	0	429	36-45	300
18:00	13	0	1	3	34	112	117	28	5	1	1	0	0	0	315	36-45	229
19:00	10	1	**3**	0	27	80	92	38	6	1	0	0	0	0	258	36-45	172
20:00	3	0	0	1	19	80	87	25	13	1	0	0	0	0	229	36-45	167
21:00	5	0	0	0	16	65	76	30	7	1	1	0	0	0	201	36-45	141
22:00	7	0	0	0	11	49	70	30	6	1	0	0	0	0	174	36-45	119
23:00	1	0	0	0	4	25	39	21	3	0	0	0	0	0	93	36-45	64
Total	253	9	8	47	380	1626	2248	900	172	27	6	0	1	1	5678		
Percent	4.5%	0.2%	0.1%	0.8%	6.7%	28.6%	39.6%	15.9%	3.0%	0.5%	0.1%	0.0%	0.0%	0.0%			
AM Peak	11:00			09:00	10:00	11:00	11:00	10:00	11:00	11:00	11:00		09:00		11:00		
Vol.	17			5	29	127	158	70	9	4	2		1		392		
PM Peak	15:00	13:00	19:00	17:00	17:00	16:00	14:00	13:00	14:00	15:00	15:00			12:00	16:00		
Vol.	29	5	3	10	48	164	224	93	19	3	1			1	486		

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RIO LINDA BLVD N.O MARYSVILLE BLVD

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/23/22	1	0	0	0	2	13	17	20	5	0	0	0	0	0	58	41-50	37
01:00	0	0	0	0	2	7	17	4	0	1	0	0	0	0	31	36-45	24
02:00	1	0	0	0	1	5	13	10	2	2	0	0	0	0	34	41-50	23
03:00	0	0	0	0	1	4	4	7	0	1	0	0	0	0	17	41-50	11
04:00	0	0	0	1	1	9	11	2	4	1	0	0	0	0	29	36-45	20
05:00	1	0	0	**3**	1	7	7	3	1	1	0	0	0	0	24	36-45	14
06:00	2	0	0	1	2	7	23	12	5	2	0	0	0	0	54	41-50	35
07:00	2	0	0	0	2	15	33	24	4	0	0	**1**	0	0	81	41-50	57
08:00	3	0	0	1	3	34	73	47	13	2	**1**	0	0	0	177	41-50	120
09:00	**16**	0	0	0	**9**	31	122	80	**30**	2	0	0	0	0	290	41-50	202
10:00	13	0	0	0	0	55	139	80	14	4	1	0	0	0	306	41-50	219
11:00	13	0	0	0	3	**67**	**158**	**83**	22	**5**	0	0	**1**	0	**352**	41-50	241
12 PM	17	0	0	0	5	**106**	**206**	99	24	2	0	0	0	0	**459**	36-45	312
13:00	12	0	0	1	15	74	195	96	21	2	0	0	0	0	416	41-50	291
14:00	12	0	0	0	6	50	158	**134**	**28**	4	0	0	0	0	392	41-50	292
15:00	**18**	0	0	0	1	52	155	109	23	**8**	**1**	0	0	0	367	41-50	264
16:00	16	0	0	1	8	77	182	101	17	4	0	0	0	0	406	41-50	283
17:00	17	0	0	**3**	**32**	99	121	64	12	0	1	0	0	0	349	36-45	220
18:00	18	0	0	0	10	60	126	77	13	3	0	0	0	0	307	41-50	203
19:00	11	0	0	0	7	54	92	67	19	1	0	0	0	0	251	41-50	159
20:00	6	0	**1**	0	6	52	70	61	22	1	0	0	0	0	219	41-50	131
21:00	2	0	0	2	2	24	56	31	16	3	0	0	0	0	136	41-50	87
22:00	1	0	0	0	2	17	39	37	9	2	0	0	0	0	107	41-50	76
23:00	4	**1**	0	0	1	10	26	20	8	3	1	0	0	0	74	41-50	46
Total	186	1	1	13	122	929	2043	1268	312	54	5	1	1	0	4936		
Percent	3.8%	0.0%	0.0%	0.3%	2.5%	18.8%	41.4%	25.7%	6.3%	1.1%	0.1%	0.0%	0.0%	0.0%			
AM Peak	09:00			05:00	09:00	11:00	11:00	11:00	09:00	11:00	08:00	07:00	11:00		11:00		
Vol.	16			3	9	67	158	83	30	5	1	1	1		352		
PM Peak	15:00	23:00	20:00	17:00	17:00	12:00	12:00	14:00	14:00	15:00	15:00				12:00		
Vol.	18	1	1	3	32	106	206	134	28	8	1				459		

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RIO LINDA BLVD N.O MARYSVILLE BLVD

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/24/22	0	0	0	1	2	2	8	18	7	1	0	0	0	0	39	41-50	26
01:00	0	0	0	1	2	2	7	12	2	2	0	0	0	0	28	41-50	19
02:00	0	0	0	1	0	1	4	4	0	0	0	0	0	0	10	41-50	8
03:00	1	0	0	0	4	2	7	3	2	0	0	0	0	0	19	41-50	10
04:00	1	0	0	0	1	6	11	13	6	0	0	0	0	0	38	41-50	24
05:00	2	0	0	0	0	24	39	18	9	0	0	0	0	0	92	36-45	63
06:00	6	0	0	0	9	65	69	49	8	0	0	0	0	0	206	36-45	134
07:00	**68**	0	0	**8**	**23**	**90**	142	81	9	2	0	0	0	0	**423**	36-45	232
08:00	23	0	0	8	15	57	**159**	82	15	3	**2**	0	0	**1**	365	41-50	241
09:00	12	0	0	0	8	63	135	68	14	**7**	0	0	0	0	307	41-50	203
10:00	20	**1**	0	0	12	75	139	57	10	1	0	0	0	0	315	36-45	214
11:00	14	0	0	1	6	77	147	**93**	**18**	2	1	0	0	1	360	41-50	240
12 PM	11	0	0	1	18	79	171	71	19	**7**	0	0	0	0	377	36-45	250
13:00	18	0	**4**	2	12	109	157	69	10	1	0	0	0	0	382	36-45	266
14:00	23	0	1	0	15	117	244	98	**20**	0	0	0	0	0	518	36-45	361
15:00	34	0	0	0	28	191	277	100	17	3	0	0	0	0	650	36-45	468
16:00	31	0	0	**7**	17	**197**	**319**	**102**	15	4	0	0	0	**1**	**693**	36-45	516
17:00	**37**	0	0	2	**45**	193	269	84	9	1	**1**	**1**	0	0	642	36-45	462
18:00	12	0	2	0	26	125	157	66	8	2	0	0	0	0	398	36-45	282
19:00	7	0	0	0	8	88	141	53	12	2	0	1	0	0	312	36-45	229
20:00	10	0	0	0	5	29	95	54	11	5	0	0	0	0	209	41-50	149
21:00	6	0	0	1	9	22	57	29	10	1	0	0	0	0	135	41-50	86
22:00	3	0	0	0	2	27	47	21	9	3	0	0	0	0	112	36-45	74
23:00	1	**1**	0	0	3	8	26	23	8	2	1	0	0	0	73	41-50	49
Total	340	2	7	33	270	1649	2827	1268	248	49	5	2	0	3	6703		
Percent	5.1%	0.0%	0.1%	0.5%	4.0%	24.6%	42.2%	18.9%	3.7%	0.7%	0.1%	0.0%	0.0%	0.0%			
AM Peak	07:00	10:00		07:00	07:00	07:00	08:00	11:00	11:00	09:00	08:00			08:00	07:00		
Vol.	68	1		8	23	90	159	93	18	7	2			1	423		
PM Peak	17:00	23:00	13:00	16:00	17:00	16:00	16:00	16:00	14:00	12:00	17:00	17:00		16:00	16:00		
Vol.	37	1	4	7	45	197	319	102	20	7	1	1		1	693		

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SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/25/22	0	0	0	2	4	9	12	6	7	**4**	0	**1**	0	0	45	36-45	21
01:00	1	0	0	0	0	3	10	6	2	1	0	0	0	0	23	41-50	16
02:00	0	0	0	1	2	1	5	5	2	0	0	0	0	0	16	41-50	10
03:00	1	0	0	0	1	9	9	4	2	0	0	0	0	0	26	36-45	18
04:00	1	0	0	0	2	12	10	7	3	0	0	0	0	0	35	36-45	22
05:00	2	0	0	0	7	18	27	21	10	0	0	0	0	0	85	41-50	48
06:00	5	0	0	1	24	77	75	23	6	2	0	0	0	0	213	36-45	152
07:00	**54**	0	0	**21**	**53**	**131**	100	34	11	0	0	0	0	0	**404**	36-45	231
08:00	34	0	0	2	30	90	151	49	10	3	0	0	0	0	369	36-45	241
09:00	16	0	0	0	10	63	119	69	18	1	0	0	0	0	296	41-50	188
10:00	15	0	0	8	16	51	137	**76**	**19**	2	0	0	0	0	324	41-50	213
11:00	10	0	0	0	10	83	**154**	75	19	3	0	0	0	0	354	36-45	237
12 PM	13	0	0	1	5	63	107	108	20	0	0	0	0	0	317	41-50	215
13:00	9	0	0	0	8	103	183	71	23	3	0	0	0	0	400	36-45	286
14:00	30	0	0	4	8	102	234	152	**40**	3	0	0	0	0	573	41-50	386
15:00	**36**	**2**	0	3	24	120	265	156	29	**10**	1	0	0	0	646	41-50	421
16:00	33	0	**10**	**6**	17	118	289	**172**	38	5	0	0	0	0	688	41-50	461
17:00	36	0	0	5	**36**	**186**	**300**	124	16	1	0	0	0	0	**704**	36-45	486
18:00	19	0	1	4	10	110	156	98	22	6	0	0	0	0	426	36-45	266
19:00	6	0	0	3	5	60	132	65	28	3	**2**	0	0	0	304	41-50	197
20:00	3	1	0	0	10	28	85	73	21	0	1	0	0	0	222	41-50	158
21:00	6	0	0	0	3	30	59	53	19	2	1	0	0	0	173	41-50	112
22:00	4	0	0	0	2	11	44	40	16	2	0	0	0	0	119	41-50	84
23:00	1	0	0	1	2	8	23	24	14	3	1	0	0	0	77	41-50	47
Total	335	3	11	62	289	1486	2686	1511	395	54	6	1	0	0	6839		
Percent	4.9%	0.0%	0.2%	0.9%	4.2%	21.7%	39.3%	22.1%	5.8%	0.8%	0.1%	0.0%	0.0%	0.0%			
AM Peak	07:00			07:00	07:00	07:00	11:00	10:00	10:00	00:00		00:00			07:00		
Vol.	54			21	53	131	154	76	19	4		1			404		
PM Peak	15:00	15:00	16:00	16:00	17:00	17:00	17:00	16:00	14:00	15:00	19:00				17:00		
Vol.	36	2	10	6	36	186	300	172	40	10	2				704		

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SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/26/22	1	0	0	1	2	2	15	15	5	0	**1**	0	0	0	42	41-50	30
01:00	1	0	0	0	1	1	11	9	4	3	0	0	0	0	30	41-50	20
02:00	0	0	0	0	0	3	9	9	4	1	0	0	0	0	26	41-50	18
03:00	0	0	0	0	1	1	2	9	2	0	0	0	0	0	15	43-52	11
04:00	4	0	0	0	4	7	16	7	4	3	0	0	0	0	45	40-49	23
05:00	3	0	0	1	5	13	29	22	6	4	1	0	0	0	84	41-50	51
06:00	9	0	0	0	6	48	76	67	13	2	0	0	0	0	221	41-50	143
07:00	**27**	0	0	1	**18**	**82**	**169**	82	**29**	**6**	0	0	0	0	**414**	37-46	251
08:00	27	0	0	1	9	61	142	**93**	13	2	1	0	0	0	349	41-50	235
09:00	10	0	0	0	4	55	129	80	14	4	0	0	0	0	296	41-50	209
10:00	19	0	**1**	**5**	9	57	142	72	10	0	0	0	0	0	315	41-50	214
11:00	12	0	0	1	9	80	137	86	16	3	1	**1**	0	0	346	41-50	223
12 PM	23	0	0	0	9	116	218	115	14	0	0	0	0	0	495	36-45	334
13:00	24	0	0	0	17	89	155	109	27	**6**	1	0	0	0	428	41-50	264
14:00	29	0	0	0	6	86	239	136	30	6	1	0	0	0	533	41-50	375
15:00	42	0	0	0	25	119	290	138	26	3	0	0	0	0	643	41-50	428
16:00	23	0	0	**6**	19	116	**309**	**191**	**32**	4	**2**	0	0	**2**	704	41-50	500
17:00	**54**	**11**	**12**	6	**49**	**170**	289	109	17	2	0	0	0	0	**719**	36-45	459
18:00	16	0	0	0	15	107	194	95	9	1	1	0	0	0	438	36-45	301
19:00	8	0	0	1	11	54	124	82	15	2	0	0	0	0	297	41-50	206
20:00	4	0	0	0	6	46	108	67	17	0	1	0	0	0	249	41-50	175
21:00	6	0	0	0	3	23	81	54	9	4	0	0	0	0	180	41-50	135
22:00	4	0	0	0	4	25	43	33	8	2	0	0	0	0	119	41-50	76
23:00	4	0	1	1	0	4	20	21	8	0	0	0	0	0	59	41-50	41
Total	350	11	14	24	232	1365	2947	1701	332	58	10	1	0	2	7047		
Percent	5.0%	0.2%	0.2%	0.3%	3.3%	19.4%	41.8%	24.1%	4.7%	0.8%	0.1%	0.0%	0.0%	0.0%			
AM Peak	07:00		10:00	10:00	07:00	07:00	07:00	08:00	07:00	07:00	00:00	11:00			07:00		
Vol.	27		1	5	18	82	169	93	29	6	1	1			414		
PM Peak	17:00	17:00	17:00	16:00	17:00	17:00	16:00	16:00	16:00	13:00	16:00			16:00	17:00		
Vol.	54	11	12	6	49	170	309	191	32	6	2			2	719		

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SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/27/22	1	0	0	0	0	10	18	11	10	0	0	0	0	0	50	39-48	29
01:00	0	0	0	0	0	4	11	11	2	1	1	0	0	0	30	41-50	22
02:00	0	0	0	0	1	2	6	5	0	0	0	0	0	0	14	41-50	11
03:00	0	**1**	0	0	0	4	3	14	2	1	0	0	0	0	25	41-50	17
04:00	1	0	0	0	2	4	12	9	5	2	0	0	0	0	35	41-50	21
05:00	3	0	0	**2**	5	19	42	21	6	1	0	0	0	0	99	41-50	63
06:00	11	0	0	0	10	46	84	33	11	1	1	0	0	0	197	36-45	130
07:00	**45**	0	0	0	15	**114**	**157**	70	8	**3**	1	0	0	0	**413**	36-45	271
08:00	30	0	0	0	13	82	125	77	18	3	0	0	0	0	348	36-45	207
09:00	17	0	0	0	10	57	133	59	16	1	**2**	0	0	0	295	40-49	192
10:00	8	0	0	0	4	66	121	70	17	2	1	0	0	0	289	41-50	191
11:00	19	0	0	0	**17**	69	151	**78**	**19**	2	0	0	0	0	355	41-50	229
12 PM	22	0	0	1	17	87	164	85	13	4	**2**	0	0	0	395	36-45	251
13:00	16	0	0	0	12	67	155	119	**24**	2	0	0	0	0	395	41-50	274
14:00	39	0	0	2	17	156	281	95	18	4	0	0	0	0	612	36-45	437
15:00	**53**	**3**	2	3	21	142	270	112	12	4	0	0	0	0	622	36-45	412
16:00	41	0	3	9	28	167	**303**	**145**	22	3	0	0	0	0	**721**	36-45	470
17:00	42	0	1	8	**38**	**201**	291	90	16	0	0	0	0	0	687	36-45	492
18:00	21	0	**4**	**12**	27	139	178	66	11	0	1	0	0	0	459	36-45	317
19:00	7	0	0	0	9	62	131	67	9	4	0	0	0	0	289	41-50	198
20:00	8	0	0	0	1	42	117	69	8	0	0	0	0	0	245	41-50	186
21:00	8	0	0	0	0	36	84	56	13	**5**	0	0	0	0	202	41-50	140
22:00	2	0	0	0	0	4	45	39	13	4	0	0	0	0	107	41-50	84
23:00	1	0	0	0	2	10	33	20	7	4	0	0	0	0	77	41-50	53
Total	395	4	10	37	249	1590	2915	1421	280	51	9	0	0	0	6961		
Percent	5.7%	0.1%	0.1%	0.5%	3.6%	22.8%	41.9%	20.4%	4.0%	0.7%	0.1%	0.0%	0.0%	0.0%			
AM Peak	07:00	03:00		05:00	11:00	07:00	07:00	11:00	11:00	07:00	09:00				07:00		
Vol.	45	1		2	17	114	157	78	19	3	2				413		
PM Peak	15:00	15:00	18:00	18:00	17:00	17:00	16:00	16:00	13:00	21:00	12:00				16:00		
Vol.	53	3	4	12	38	201	303	145	24	5	2				721		

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SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
01/28/22	2	0	0	**1**	1	4	14	13	2	0	0	0	0	0	37	41-50	27
01:00	1	0	0	0	1	3	9	6	4	0	0	0	0	0	24	41-50	15
02:00	0	0	0	0	0	1	3	4	1	2	0	0	0	0	11	41-50	7
03:00	2	0	1	0	0	4	15	7	3	3	0	0	0	0	35	41-50	22
04:00	1	0	0	0	0	9	12	18	4	2	0	0	0	0	46	41-50	30
05:00	5	0	0	0	1	23	25	18	8	1	0	0	0	0	81	36-45	48
06:00	5	0	0	1	8	50	93	44	6	2	0	0	0	0	209	36-45	143
07:00	**35**	0	0	0	16	**106**	**178**	79	11	2	0	0	0	0	**427**	36-45	284
08:00	21	0	0	0	8	59	145	**90**	13	**5**	0	0	0	0	341	41-50	235
09:00	18	0	0	0	**18**	63	116	60	10	2	0	0	0	0	287	36-45	179
10:00	17	0	0	1	11	78	132	66	13	3	0	0	0	0	321	36-45	210
11:00	15	0	**2**	1	12	91	171	87	**28**	1	**1**	0	0	0	409	36-45	262
12 PM	13	0	0	0	13	89	165	90	17	5	0	0	0	0	392	41-50	255
13:00	28	0	0	1	8	101	204	102	**23**	2	0	0	0	0	469	39-48	306
14:00	24	0	0	0	19	131	**298**	116	20	4	**1**	0	0	**1**	614	36-45	429
15:00	**50**	0	1	3	25	161	270	**118**	18	3	1	0	0	0	650	36-45	431
16:00	38	0	0	**8**	31	203	295	111	21	7	0	0	0	0	**714**	36-45	498
17:00	38	0	**2**	4	**40**	**231**	235	81	14	4	1	0	0	1	651	36-45	466
18:00	21	0	0	2	33	185	184	53	8	4	1	0	0	0	491	36-45	369
19:00	17	0	0	0	14	79	145	61	20	8	0	0	0	0	344	36-45	224
20:00	14	0	0	2	5	41	111	72	16	3	0	0	0	1	265	41-50	183
21:00	6	0	0	0	1	39	76	78	22	**9**	1	0	0	0	232	41-50	154
22:00	10	0	0	0	5	28	73	50	12	5	0	0	0	0	183	41-50	123
23:00	2	0	0	0	4	12	41	35	11	1	0	0	0	0	106	41-50	76
Total	383	0	6	24	274	1791	3010	1459	305	78	6	0	0	3	7339		
Percent	5.2%	0.0%	0.1%	0.3%	3.7%	24.4%	41.0%	19.9%	4.2%	1.1%	0.1%	0.0%	0.0%	0.0%			
AM Peak	07:00		11:00	00:00	09:00	07:00	07:00	08:00	11:00	08:00	11:00				07:00		
Vol.	35		2	1	18	106	178	90	28	5	1				427		
PM Peak	15:00		17:00	16:00	17:00	17:00	14:00	15:00	13:00	21:00	14:00			14:00	16:00		
Vol.	50		2	8	40	231	298	118	23	9	1			1	714		
Total	2242	30	57	240	1816	10436	18676	9528	2044	371	47	5	2	9	45503		
Percent	4.9%	0.1%	0.1%	0.5%	4.0%	22.9%	41.0%	20.9%	4.5%	0.8%	0.1%	0.0%	0.0%	0.0%			

15th Percentile :	36 MPH
50th Percentile :	42 MPH
85th Percentile :	47 MPH
95th Percentile :	50 MPH

Stats

10 MPH Pace Speed :	36-45 MPH
Number in Pace :	29112
Percent in Pace :	64.0%
Number of Vehicles > 45 MPH :	12006
Percent of Vehicles > 45 MPH :	26.4%
Mean Speed(Average) :	41 MPH

All Traffic Data Services, LLC

www.alltrafficdata.net

Site Code: 1

RIO LINDA BLVD N.O MARYSVILLE BLVD

Start	22-Jan-22		23-Jan-22		24-Jan-22		25-Jan-22		26-Jan-22		27-Jan-22		28-Jan-22		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	51	54	54	58	43	39	36	45	36	42	47	50	46	37	45	46
01:00	37	64	54	31	29	28	28	23	31	30	30	30	27	24	34	33
02:00	33	20	38	34	25	10	31	16	26	26	32	14	33	11	31	19
03:00	38	37	29	17	43	19	52	26	47	15	40	25	44	35	42	25
04:00	33	23	23	29	73	38	81	35	74	45	73	35	89	46	64	36
05:00	70	42	38	24	233	92	236	85	243	84	233	99	221	81	182	72
06:00	91	103	61	54	347	206	369	213	385	221	372	197	373	209	285	172
07:00	182	136	89	81	**684**	**423**	**645**	**404**	**732**	**414**	**656**	**413**	**662**	**427**	**521**	328
08:00	244	216	216	177	512	365	537	369	536	349	550	348	540	341	448	309
09:00	368	285	359	290	326	307	360	296	372	296	383	295	352	287	360	294
10:00	402	333	375	306	340	315	348	324	339	315	313	289	360	321	354	315
11:00	**442**	**392**	**383**	**352**	342	360	318	354	316	346	340	355	360	409	357	**367**
12:00 PM	**434**	436	322	**459**	343	377	338	317	447	495	378	395	396	392	380	410
01:00	400	444	396	416	402	382	380	400	461	428	392	395	418	469	407	419
02:00	385	468	359	392	473	518	**498**	573	412	533	435	612	474	614	434	530
03:00	383	440	360	367	**484**	650	485	646	**465**	643	**533**	622	**536**	650	**464**	574
04:00	379	**486**	364	406	464	**693**	483	688	406	704	446	**721**	464	**714**	429	**630**
05:00	419	429	**430**	349	442	642	434	**704**	463	**719**	451	687	471	651	444	597
06:00	354	315	293	307	344	398	380	426	376	438	393	459	419	491	366	405
07:00	241	258	251	251	240	312	257	304	292	297	273	289	321	344	268	294
08:00	196	229	187	219	165	209	184	222	232	249	209	245	212	265	198	234
09:00	169	201	126	136	151	135	142	173	140	180	136	202	209	232	153	180
10:00	151	174	96	107	115	112	92	119	93	119	106	107	119	183	110	132
11:00	104	93	66	74	63	73	64	77	55	59	71	77	99	106	75	80
Total	5606	5678	4969	4936	6683	6703	6778	6839	6979	7047	6892	6961	7245	7339	6451	6501
Day	11284		9905		13386		13617		14026		13853		14584		12952	
AM Peak	11:00	11:00	11:00	11:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	11:00
Vol.	442	392	383	352	684	423	645	404	732	414	656	413	662	427	521	367
PM Peak	12:00	16:00	17:00	12:00	15:00	16:00	14:00	17:00	15:00	17:00	15:00	16:00	15:00	16:00	15:00	16:00
Vol.	434	486	430	459	484	693	498	704	465	719	533	721	536	714	464	630

Comb. Total	11284	9905	13386	13617	14026	13853	14584	12952

ADT ADT 12,951 AADT 12,951

APPENDIX C: "LEISURE VISTAS" BACKGROUND TRAFFIC STUDY

INTRODUCTION

This Transportation and Circulation section discusses existing (2004) and future (2025) transportation and circulation conditions associated with the Leisure Vistas development. The analysis includes consideration of automobile traffic impacts on roadway capacity, transit impacts, bicycle impacts, and pedestrian impacts. Quantitative analyses of a.m. and p.m. peak hour conditions have been conducted for the following scenarios:

- Existing Without Project
- Existing With Project
- Future Without Project
- Future With Project

PROPOSED PROJECT

As illustrated in Figure 1, the project site is located north of Claire Avenue and west of Rio Linda Boulevard in the Robla area of the City of Sacramento. Figure 2 illustrates the proposed site plan.

A total of 915 residential units are proposed, consisting of courtyard units (congregate care facility), assisted living units, and cottage units (attached senior housing). The residential units are proposed to be located on parcels 1, 2, and 3 (see Figure 2). A neighborhood shopping center of 43,000 square feet is proposed on parcel 4 adjacent to Rio Linda Boulevard. Parcel 5 is proposed for development as 3.8 net acres of park.

The proposed site roadway system is illustrated on Figure 2. Access is provided to Rio Linda Boulevard, to Sully Street at the intersection with Claire Avenue, and to Claire Avenue about midway between Sully Street and Rio Linda Boulevard. The site roadway system will provide an indirect connection through the site between Sully Street (at Claire Avenue) and Rio Linda Boulevard. For analysis purposes, it is assumed that Claire Avenue will be completed between Rio Linda Boulevard and Sully Street.

The site roadway system described above is planned with design elements to provide an environment that results in appropriate speeds for a residential development and to minimize through traffic.

ENVIRONMENTAL SETTING

Figure 1 illustrates the roadway system near the project site.

ROADWAY SYSTEM - REGIONAL ACCESS

Regional automobile access to the site is provided primarily by the **I-80** freeway located about 1.4 miles south of the site. I-80 is an east-west interstate freeway extending from San Francisco to the west to New Jersey to the east. I-80 is a six-lane freeway in the site vicinity. To the west, it

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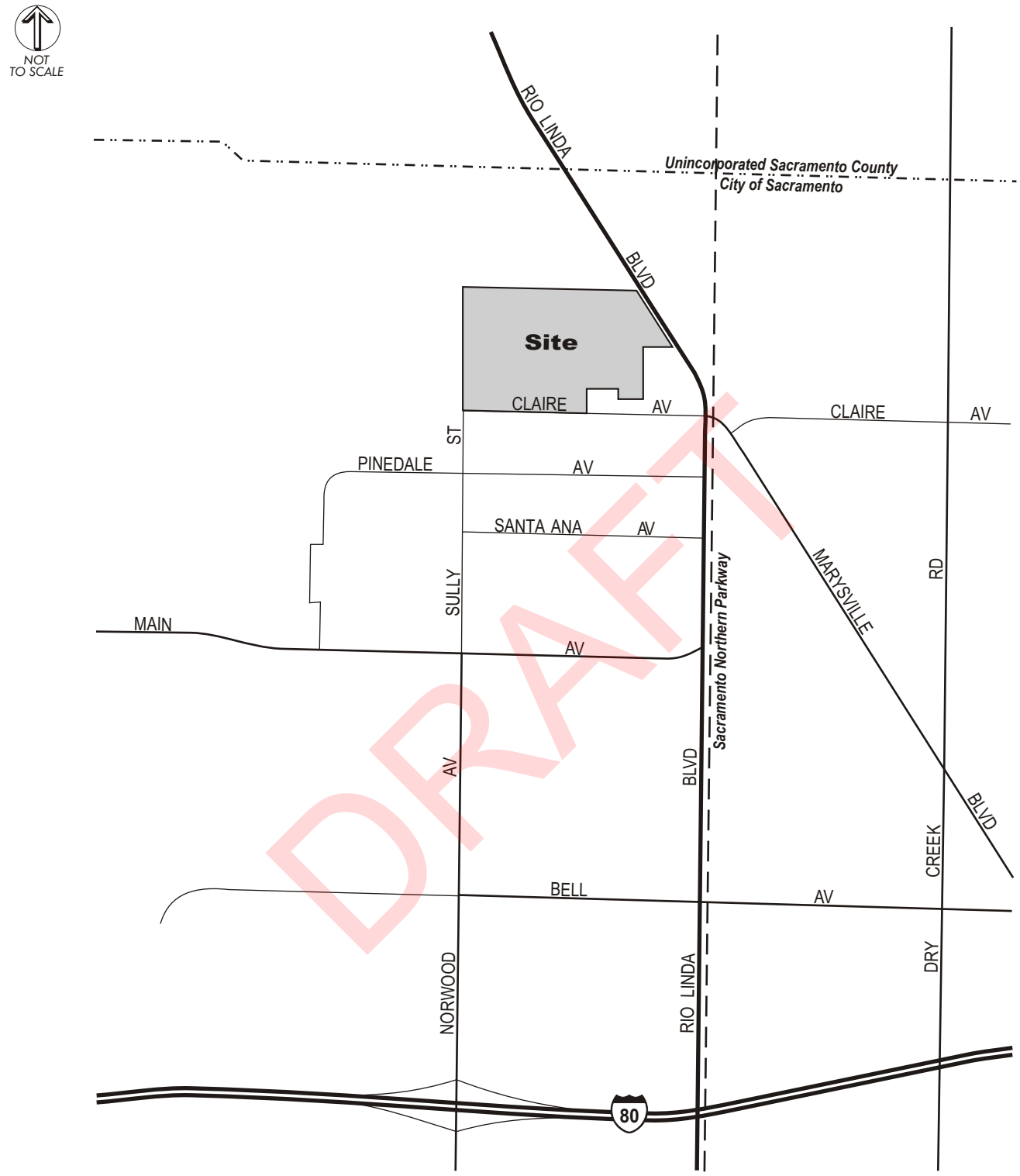

LEGEND

— — — - Off-Street Bikeway/Pedestrian System

Figure 1
LOCATION MAP

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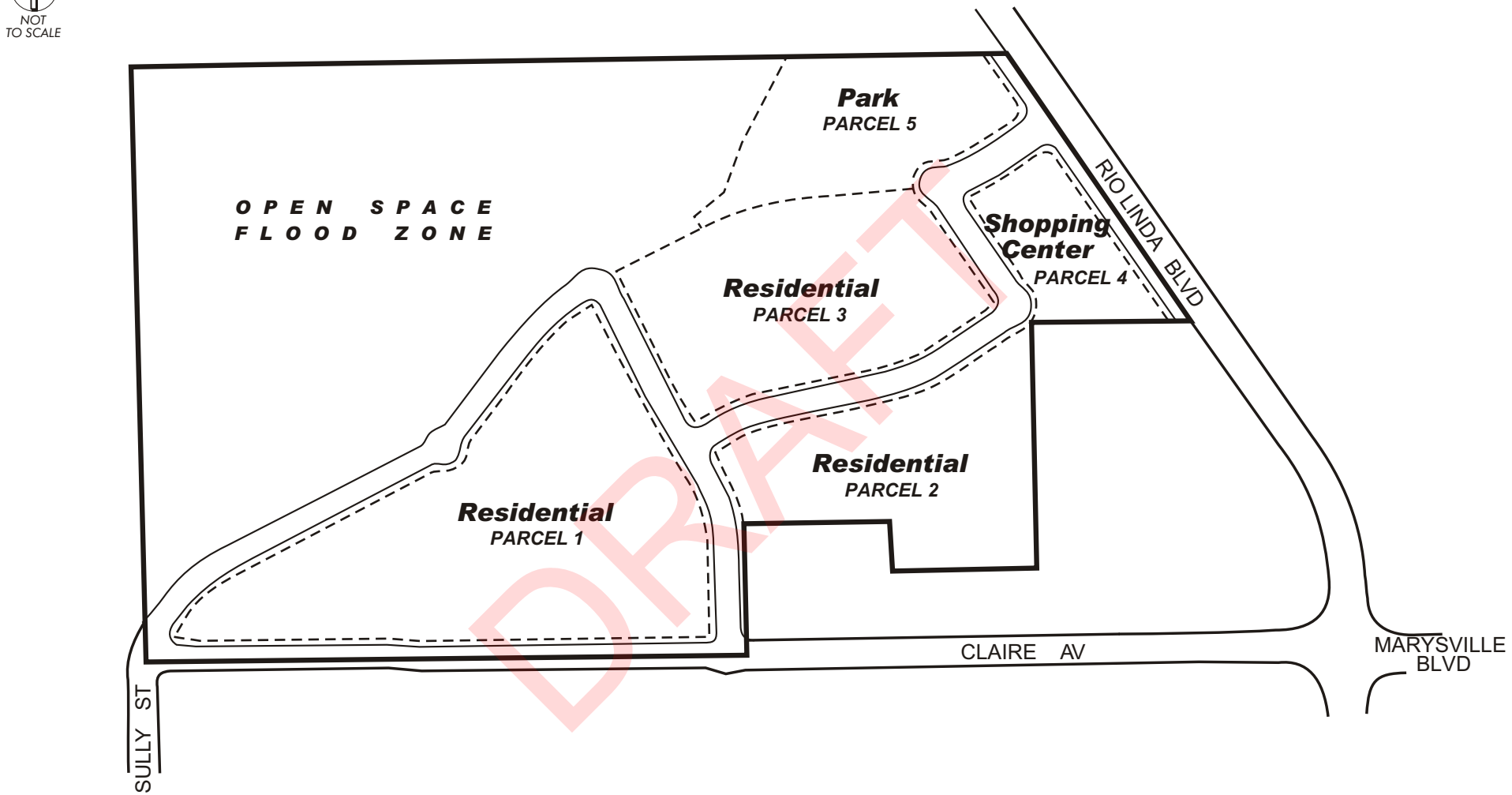

Figure 2
SITE PLAN

provides access to I-5. Near the site, I-80 has full interchanges at Norwood Avenue and at Raley Boulevard.

ROADWAY SYSTEM - LOCAL ACCESS

Direct access to the site is provided via Rio Linda Boulevard, Claire Avenue, and Sully Street. Other roadways providing site access include Norwood Avenue, Main Avenue, Bell Avenue, and Marysville Boulevard.

Rio Linda Boulevard is a north-south roadway that forms the eastern boundary of the site. To the south, Rio Linda Boulevard extends to El Camino Avenue and Del Paso Boulevard in the North Sacramento area of the City of Sacramento. To the north, Rio Linda Boulevard extends to the Rio Linda and Elverta areas of unincorporated Sacramento County. In the site vicinity, Rio Linda Boulevard has one travel lane in each direction. Rio Linda Boulevard has signalized intersections at Claire Avenue / Marysville Boulevard and at Bell Avenue.

Claire Avenue is a two-lane east-west local street. Claire Avenue extends westerly from Rio Linda Boulevard about 1500 feet toward Sully Street. The easterly leg of its intersection with Rio Linda Boulevard is Marysville Boulevard. Claire Avenue also extends easterly from Marysville Boulevard southeast of the intersection of Rio Linda Boulevard.

Sully Street is a two-lane north-south local street. It begins at Main Avenue and extends northerly to the site. The southerly leg of its signalized intersection with Main Avenue is Norwood Avenue.

Norwood Avenue is a north-south roadway that begins at Main Avenue and extends southerly to Grove Avenue in the North Sacramento area of the City of Sacramento. Norwood Avenue provides direct access from the site to I-80. Norwood Avenue has signalized intersections at Main Avenue / Sully Street and at Bell Avenue. North of Bell Avenue, Norwood Avenue has one travel lane in each direction.

Main Avenue is an east-west roadway located about 0.5 miles south of the site. To the west, it becomes Del Paso Road and provides access to the North Natomas area and I-5. To the east, it extends to McClellan Park (the former Air Force Base), interrupted by Magpie Creek immediately east of Rio Linda Boulevard. Main Avenue has one travel lane in each direction between Sully Street / Norwood Avenue and Rio Linda Boulevard. West of Sully Street / Norwood Avenue, it has two travel lanes in each direction.

Bell Avenue is an east-west roadway located about one mile south of the site. To the west, it terminates about 0.6 miles west of Norwood Avenue in a residential area. To the east, it extends to McClellan Park. In the site vicinity, Bell Avenue has one travel lane in each direction.

PEDESTRIAN SYSTEM

Sidewalks are not provided on the roadways immediately adjacent to the site. The Sacramento Northern Parkway, located east of and generally parallel to Rio Linda Boulevard,

follows the former Sacramento Northern Electric Railway right-of-way and provides a pedestrian and bicycle path (see Figure 1).

BICYCLE SYSTEM

A Sacramento City / County Bicycle Task Force developed a 2010 Bikeway Master Plan for the region. The Master Plan is a policy document that was prepared to coordinate and develop a bikeway system that will benefit and serve the recreational and transportation needs of the public. Officially designated bicycle facilities are classified as follows:

Class I: Off-street bike trails or paths which are physically separated from streets or roads used by motorized vehicles.

Class II: On street bike lanes with signs, striped lane markings, and pavement legends.

Class III: On-street bike routes marked by signs and shared with motor vehicles and pedestrians. Optional four-inch edge lines painted on the pavement.

Figure 3 illustrates the bikeway master plan in the site vicinity. The primary existing bikeway near the site is the Sacramento Northern Parkway. The Parkway provides a continuous north-south off-street facility from Rio Linda in unincorporated Sacramento County to north to the American River Parkway to the south. The only other existing bikeway in the immediate site vicinity is an on-street facility on Bell Avenue from Rio Linda Boulevard westerly to Taylor Street.

Both on-street and off-street bikeways are proposed in many locations near the site. The following bikeways would be adjacent to or extend through the project site:

- Claire Avenue – On-street bikeway from Sully Street to Raley Boulevard.
- Rio Linda Boulevard – On-street bikeway northerly from Claire Avenue into unincorporated Sacramento County.
- Rio Linda / Robla Creek - Off-street bikeway from the Natomas East Main Drainage Canal to the Sacramento Northern Parkway.
- Northerly extension of Sully Street – Off-Street bikeway across the Rio Linda / Robla Creek extending into unincorporated Sacramento County.

TRANSIT SYSTEM

The Sacramento Regional Transit District (RT) operates 80 bus routes and 26.9 miles of light rail covering a 418 square-mile service area. Buses and light rail run 365 days a year using 76 light rail vehicles, 258 buses powered by compressed natural gas (CNG) and 17 shuttle vans. Buses operate daily from 5:00 a.m. to 11:30 p.m. every 15 to 60 minutes, depending on the route.

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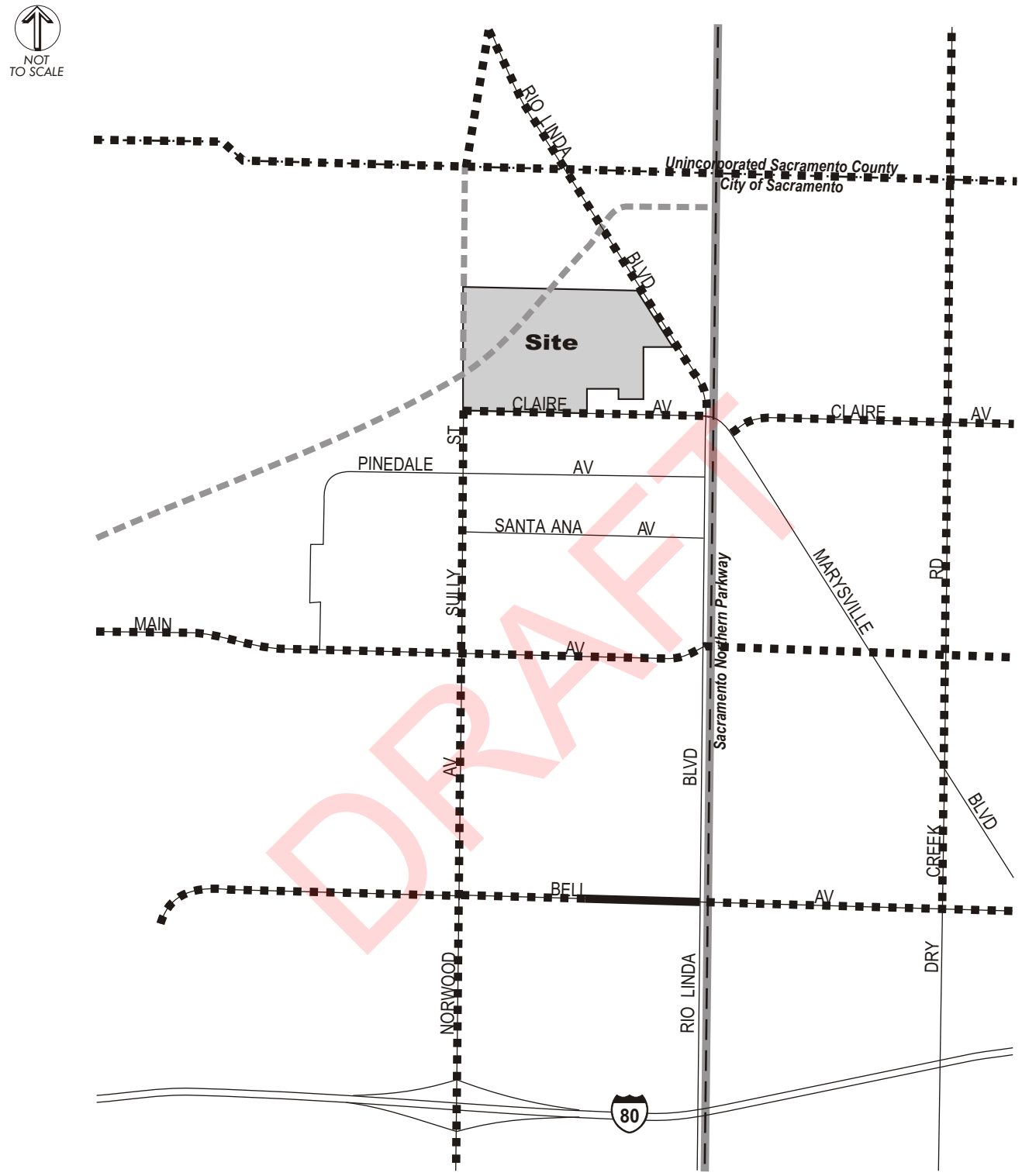

LEGEND

- Existing Off-Street
- Existing On-Street
- Proposed Off-Street
- Proposed On-Street

Figure 3
BIKEWAY MASTER PLAN

Light rail trains operate from 4:30 a.m. to 1:00 a.m. daily with service every 15 minutes during the day and every 30 minutes in the evening.

Figure 4 illustrates transit services in the site vicinity. The two RT bus routes operating closest to the site are Routes 14 and 19. Near the site, Route 14 operates on Main Avenue west of Norwood Avenue and Norwood Avenue south of Main Avenue. Route 14 serves North Natomas to the west and North Sacramento to the south. It provides access to the Arden / Del Paso Light Rail Station. Route 19 operates on Claire Avenue east of Marysville Boulevard and Rio Linda Boulevard south of Claire Avenue. Route 19 serves North Sacramento, Rio Linda, Elverta, North Highlands, and McClellan Park. It provides access to the Arden / Del Paso and Watt / I-80 Light Rail Stations.

STUDY AREA

For traffic analysis purposes, a set of intersections and roadway segments were selected based upon the anticipated volume of project traffic, the distributional patterns of project traffic, and known locations of operational difficulty. The following locations, illustrated in Figure 5, were identified:

- Intersections

  1. Norwood Avenue and Bell Avenue (signalized)
  2. Rio Linda Boulevard and Bell Avenue (signalized)
  3. Norwood Avenue / Sully Street and Main Avenue (signalized)
  4. Rio Linda Boulevard and Main Avenue (unsignalized)
  5. Rio Linda Boulevard and Claire Avenue / Marysville Boulevard (signalized)
  6. Sully Street / Site Roadway and Claire Avenue (unsignalized)
  7. Rio Linda Boulevard and Site Roadway (unsignalized)

- Roadway Segments

  1. Bell Avenue West of Rio Linda Boulevard
  2. Main Avenue West of Rio Linda Boulevard
  3. Marysville Boulevard North of Main Avenue
  4. Norwood Avenue North of Bell Avenue
  5. Norwood Avenue South of Bell Avenue
  6. Rio Linda Boulevard North of Ascot Avenue
  7. Rio Linda Boulevard North of Bell Avenue
  8. Rio Linda Boulevard North of Claire Avenue
  9. Rio Linda Boulevard North of Main Avenue

REGULATORY SETTING

Roadway operations are regulated by agencies with jurisdiction of the particular roadway. All study area roadways are under the jurisdiction of the City of Sacramento.

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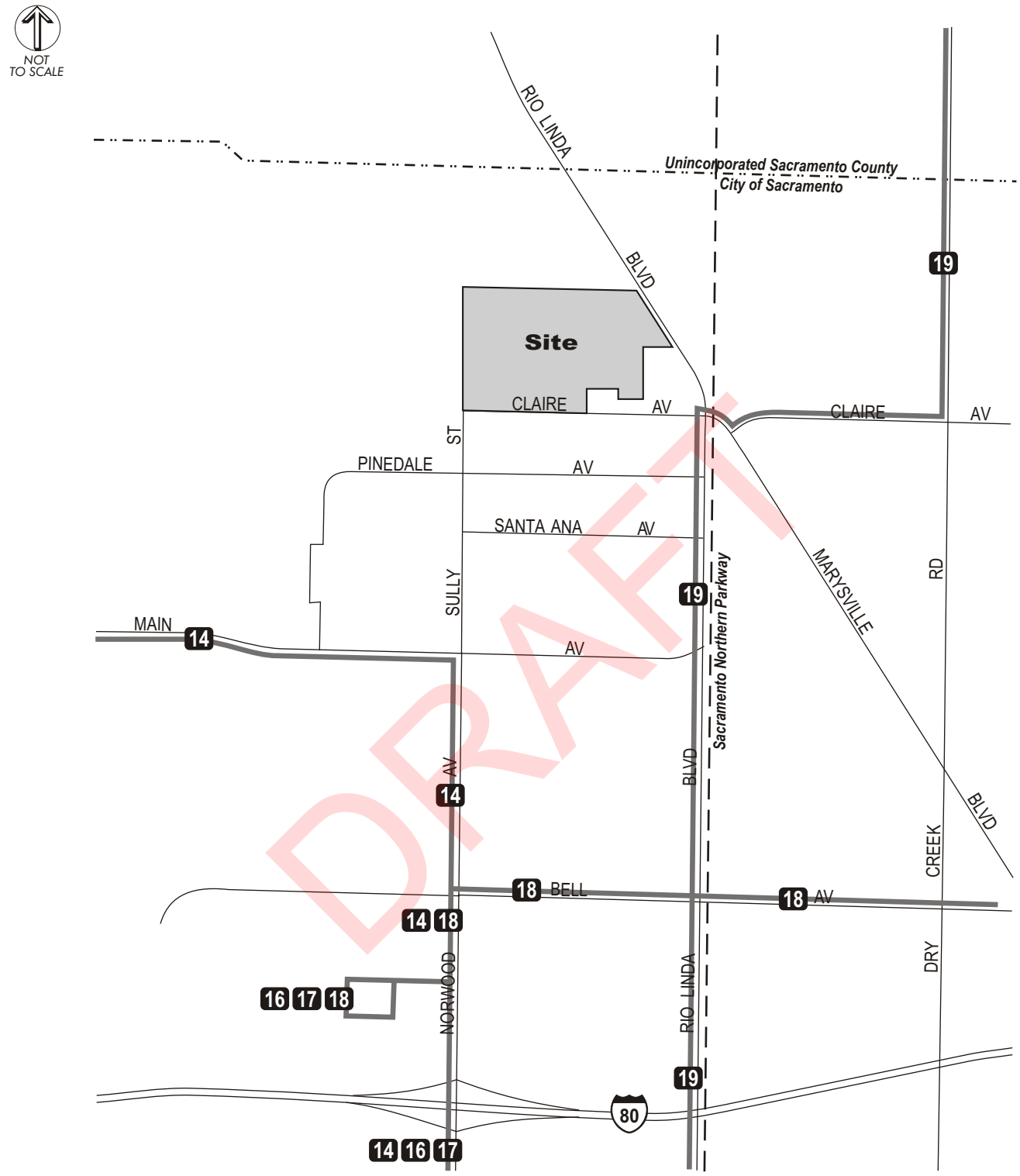

LEGEND

00 - Regional Transit Bus Route

Figure 4
EXISTING TRANSIT ROUTES

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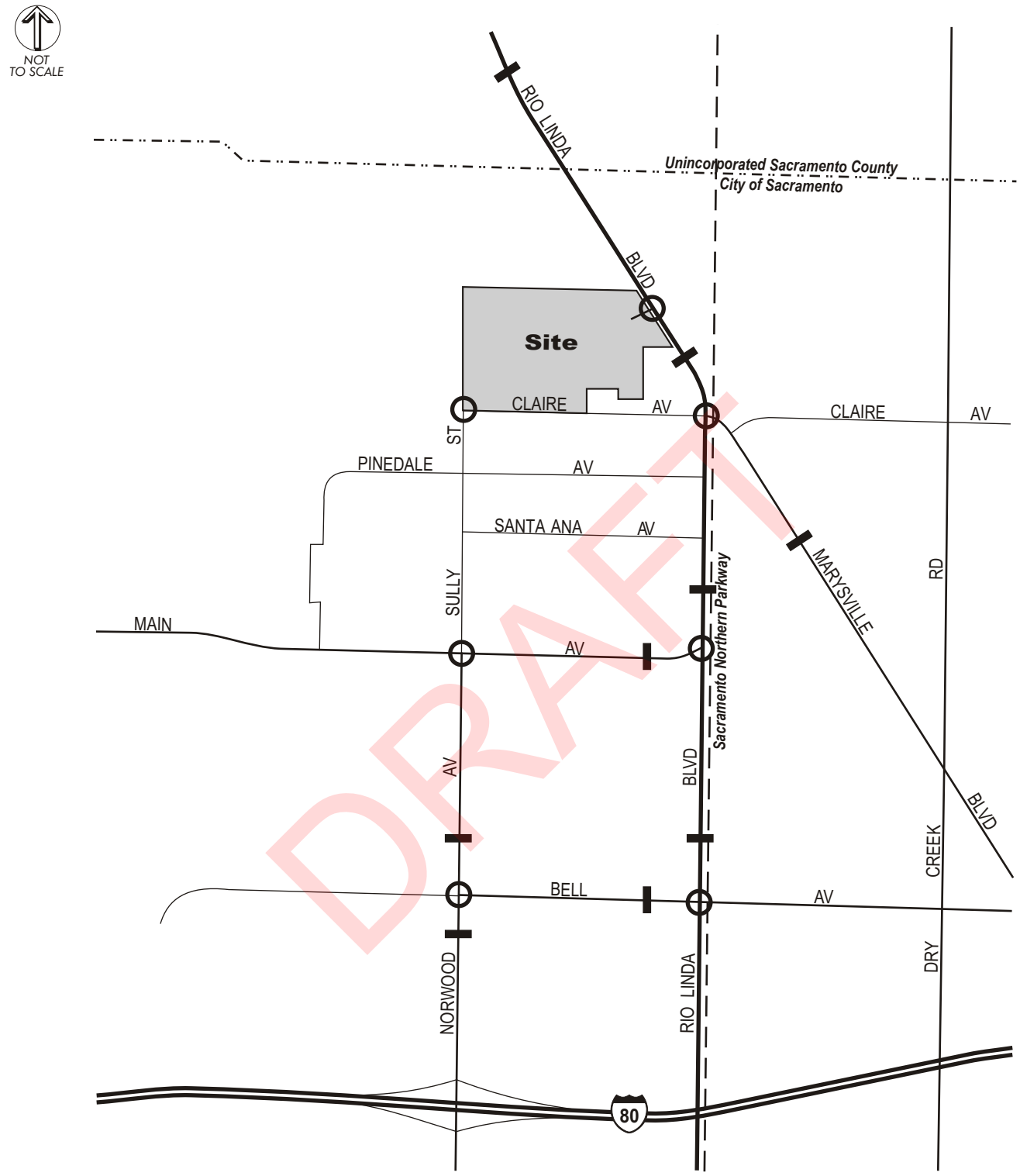

LEGEND

- O - Study Intersection
- ▬ - Roadway Segment

Figure 5
STUDY AREA

EXISTING TRAFFIC CONDITIONS

EXISTING PEAK-HOUR TRAFFIC VOLUMES

The existing traffic volumes at the study area intersections were counted during the a.m. and p.m. commuter periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.) on Wednesday June 9, 2004. Peak hour intersection traffic volume data is illustrated in Figures 6 and 7.

EXISTING DAILY TRAFFIC VOLUMES

Daily traffic volumes were recorded on the nine study area roadway segments on Wednesday June 9 or Tuesday June 15, 2004. Daily traffic volume data is summarized in Figure 8 and Table 1.

METHODOLOGY

Field reconnaissance was undertaken to ascertain the traffic control characteristics of each of the study area intersections and roadway segments. Figure 9 illustrates existing intersection geometry. Determination of roadway operating conditions is based upon comparison of known or projected traffic volumes during peak hours to roadway capacity. In an urban setting, roadway capacity is generally governed by intersection characteristics, and intersection delay is used to determine "levels of service." Levels of service describe roadway operating conditions. Level of service is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, delay, and operating costs. Levels of service are designated "A" through "F" from best to worst, which cover the entire range of traffic operations that might occur. Levels of Service (LOS) "A" through "E" generally represent traffic volumes at less than roadway capacity, while LOS "F" represents over capacity and / or forced flow conditions.

The City of Sacramento General Plan includes a goal of maintaining LOS "C" throughout the roadway network. Because of the constraints of existing development in the City, and because of other environmental concerns, this goal cannot always be met.

Intersection Analysis

Intersection analyses were conducted using a methodology outlined in the Transportation Research Board's Special Report 209, *Highway Capacity Manual*, 2000. The methodology utilized is known as "operational analysis." This procedure calculates an average control delay per vehicle at an intersection, and assigns a level of service designation based upon the delay. The method also provides a calculation of the volume-to-capacity (v/c) ratio of the critical movements at signalized intersections. Tables 2 and 3 present the level of service criteria for signalized and unsignalized intersections, respectively.

Traffic Signal Warrant Analysis

Study area unsignalized intersections were evaluated to determine if traffic signals are appropriate under year 2004 or 2025 conditions, with or without the project. The investigation of the need for a

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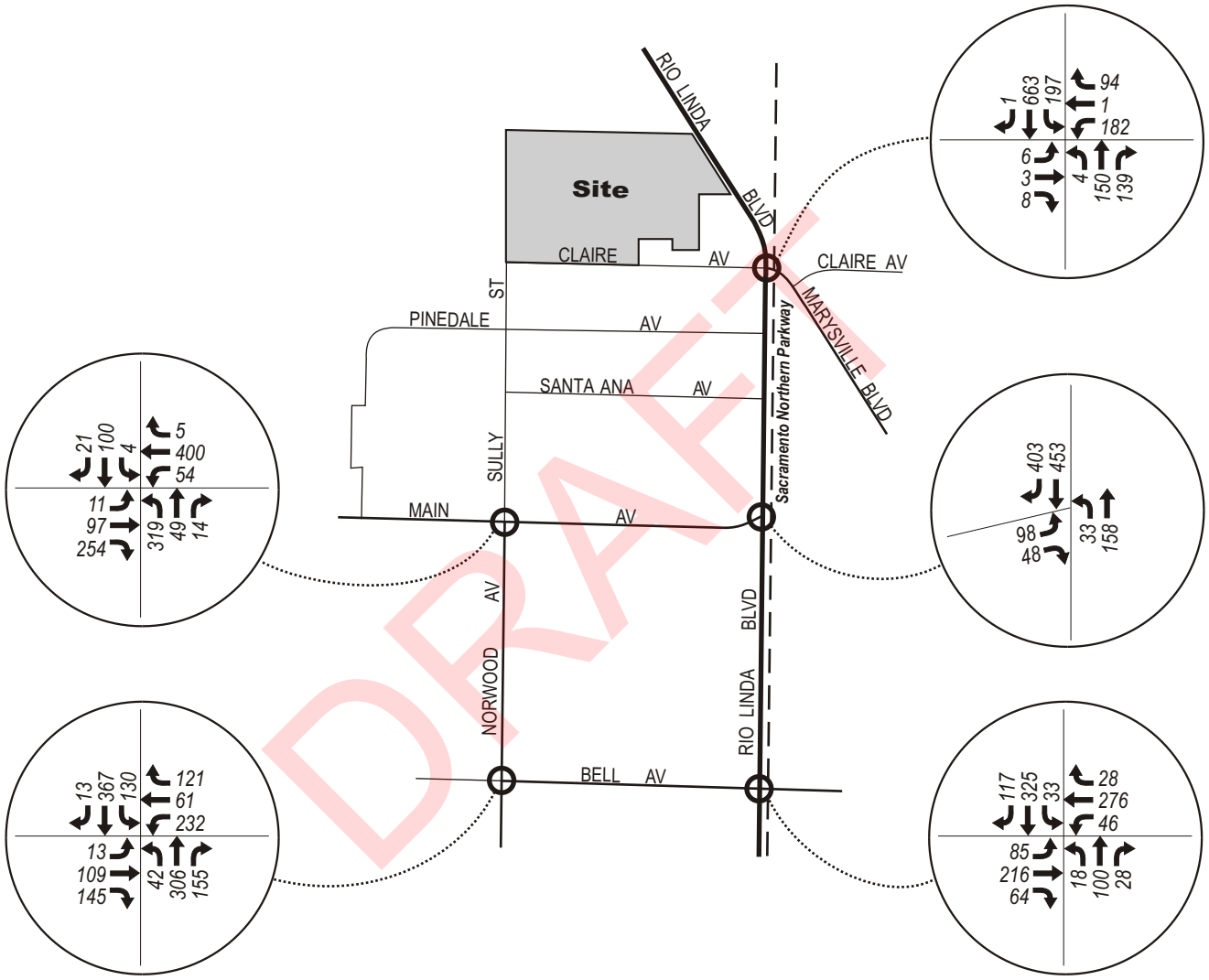
NOT TO SCALE



LEGEND

- Study Intersection
- *00* - Peak Hour Traffic Volume

Figure 6
EXISTING AM PEAK HOUR INTERSECTION VOLUMES

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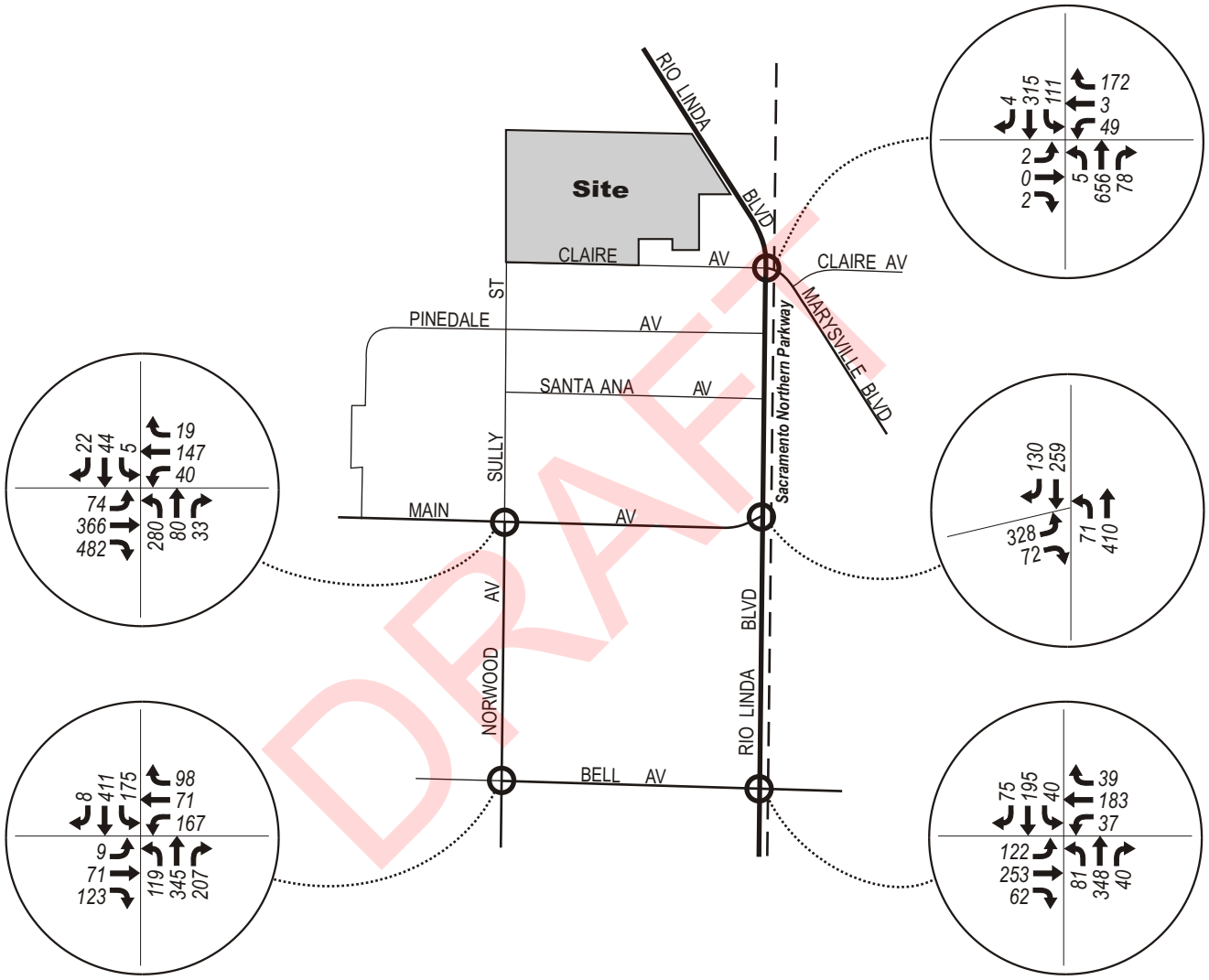

LEGEND
- Study Intersection
- *00* - Peak Hour Traffic Volume

Figure 7
EXISTING PM PEAK HOUR INTERSECTION VOLUMES

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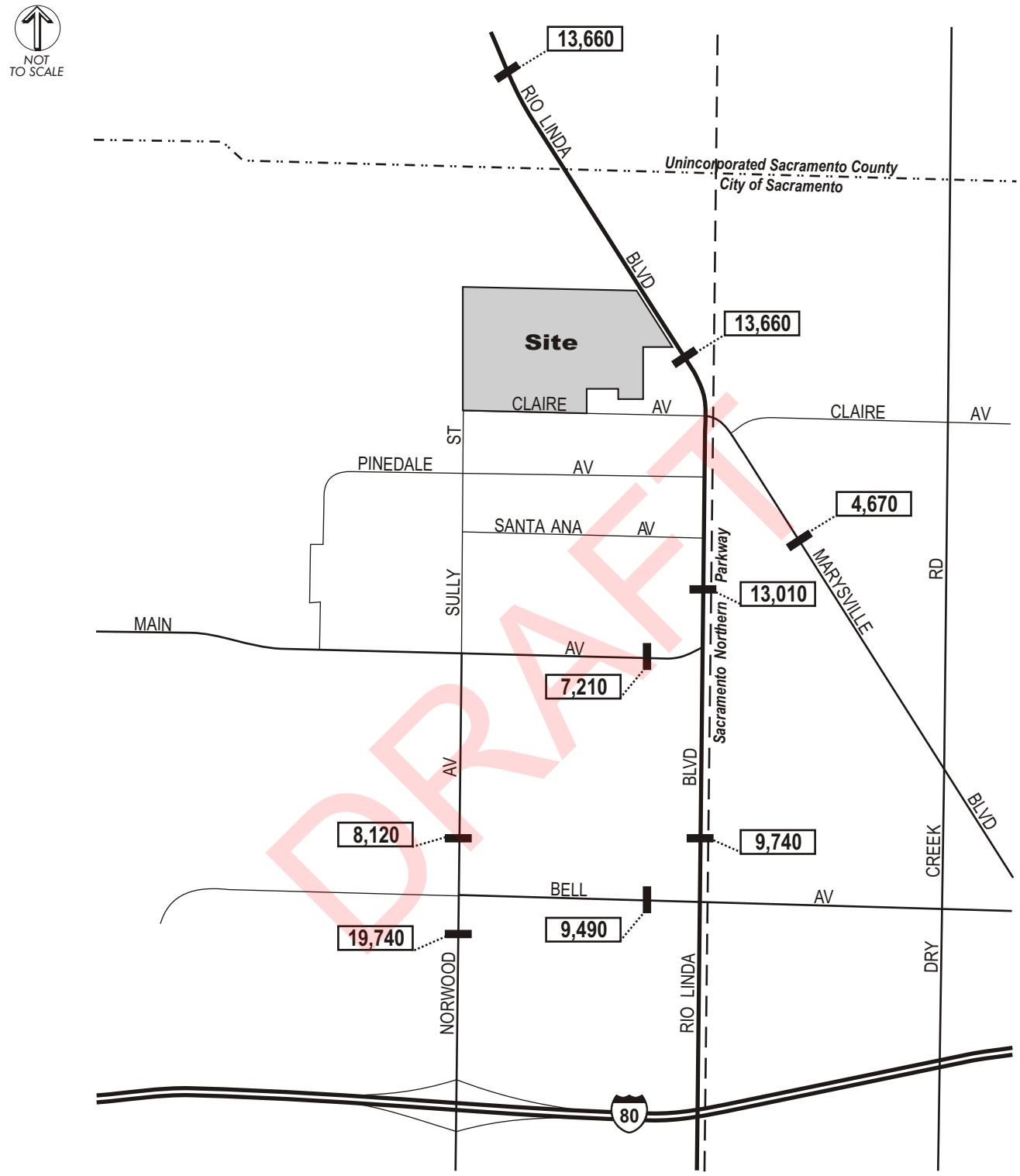

LEGEND

- Roadway Segment
- 1,000 - 2004 Existing

Figure 8
EXISTING DAILY TRAFFIC VOLUMES

TABLE 1
EXISTING DAILY TRAFFIC VOLUMES

Roadway	Location	Volume
Bell Avenue	West of Rio Linda Boulevard	9,490
Main Avenue	West of Rio Linda Boulevard	7,210
Marysville Boulevard	North of Main Avenue	4,670
Norwood Avenue	North of Bell Avenue	8,120
	South of Bell Avenue	19,740
Rio Linda Boulevard	North of Ascot Avenue	13,660
	North of Bell Avenue	9,740
	North of Claire Avenue	13,660
	North of Main Avenue	13,010

Source: *DKS Associates, 2005.*

traffic signal is commonly referred to as "warrant analysis." This study specifically considered Warrant 3, Peak Hour, as defined by the Federal Highway Administration's *Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways, 2003 Edition*, and as modified by Caltrans' *MUTCD 2003 California Supplement*. Warrant 3 includes two parts – A and B. Part A considers side street delay, number of traffic lanes, number of intersection approaches, and peak hour traffic volumes. Part B considers community size, major street travel speed, number of traffic lanes, and peak hour traffic volumes. If the criteria of either Part A or Part B are met, then a traffic signal is warranted.

RESULTS OF PEAK HOUR ANALYSIS

Intersection Operations

Table 4 summarizes the existing a.m. and p.m. peak hour operating conditions at the study area intersections. At unsignalized intersections, the average intersection level of service is utilized to determine conformity with the City's goal. Individual movements may operate at worse levels service. All of the intersections currently meet the City's level of service "C" goal with the exception of the unsignalized intersection of Rio Linda Boulevard and Main Avenue. This intersection operates at LOS "E" in the a.m. peak hour.

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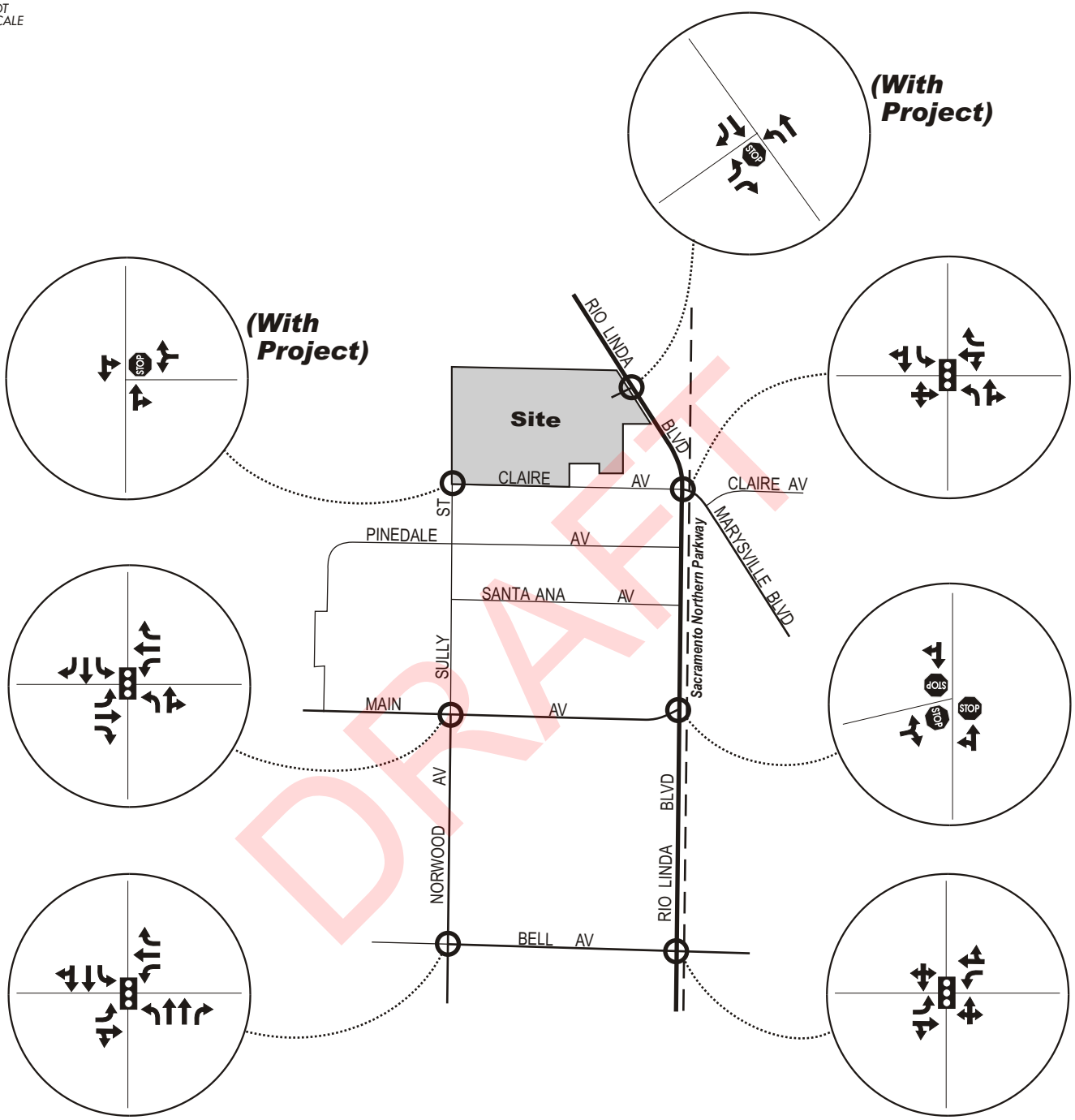
TRANSPORTATION SOLUTIONS

NOT TO SCALE



LEGEND

- Study Intersection
- Traffic Lanes (Approach)
- Traffic Signal
- Stop Control

Figure 9
EXISTING
INTERSECTION GEOMETRY

TABLE 2
LEVEL OF SERVICE CRITERIA
SIGNALIZED INTERSECTIONS

Level of Service (LOS)	Control Delay Per Vehicle (seconds)	Description
A	≤ 10.0	Very low control delay. Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤ 20.0	Generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS "A," causing higher levels of average delay.
C	> 20.0 and ≤ 35.0	These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	> 80.0	This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: *Highway Capacity Manual, Transportation Research Board, Special Report No. 209, Washington, D.C., 2000.*

Traffic Signal Warrant Analysis

Traffic signal warrant analysis was conducted at the unsignalized intersection of Rio Linda Boulevard and Main Avenue. Traffic signal warrants are a series of criteria that should be met before a traffic signal is installed. Utilizing the peak hour warrant, this intersection warrants a traffic signal.

TABLE 3
LEVEL OF SERVICE CRITERIA
UNSIGNALIZED INTERSECTIONS

Level of Service (LOS)	Total Delay Per Vehicle (seconds)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: *Highway Capacity Manual, Transportation Research Board, Special Report No. 209, Washington, D.C., 2000.*

TABLE 4
EXISTING INTERSECTION OPERATING CONDITIONS

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (Seconds)	LOS	Delay (Seconds)
Norwood Avenue and Bell Avenue (signalized)	B	19.5	B	18.5
Rio Linda Boulevard and Bell Avenue (signalized)	B	10.5	B	10.2
Norwood Ave. / Sully St. and Main Ave. (signalized)	B	17.8	B	14.0
Rio Linda Boulevard & Main Avenue (all-way stop)	E	44.4	C	22.2
Rio Linda Boulevard & Claire Avenue / Marysville Boulevard (signalized)	A	8.1	A	7.2

Source: DKS Associates, 2005.

IMPACTS AND MITIGATION

METHOD OF ANALYSIS

This analysis assumes that the traffic associated with the project is fully additive to other traffic on the roadway system. For the existing with project scenario, full development of the project is assumed to occur "instantaneously." In this manner, the traffic and impacts associated with the project can be directly compared to known and measured existing conditions. For the future scenarios, traffic associated with full development of the project has been added to year 2025 traffic

on the roadway system. The year 2025 forecasts were developed through use of the regional SACMET travel model. The regional travel model encompasses the entire Sacramento region, and forecasts peak hour and daily traffic volumes based upon projections of future land use and transportation networks throughout the region.

Trip Generation

Trip generation of the proposed project is based upon information on trip generation compiled by the Institute of Transportation Engineers (*Trip Generation, Seventh Edition*).

Residential Uses

As shown in Table 5, 915 residential units are proposed, consisting of courtyard units (congregate care facility), assisted living units, and cottage units (attached senior adult housing). The residential uses are proposed to be located on parcels 1, 2, and 3 (see Figure 2). These uses are anticipated to generate 65 vehicle trips during the a.m. peak commuter hour, 159 trips during the p.m. peak commuter hour, and 1,873 trips daily.

TABLE 5
RESIDENTIAL USES VEHICULAR TRIP GENERATION

Land Use	ITE Land Use (Code)	Units	Vehicle Trips						
			A.M. Peak Hour			P.M. Peak Hour			
			Entering	Exiting	Total	Entering	Exiting	Total	Daily
Courtyard Units	Congregate Care Facility (253)	753	27	19	45	70	58	128	1,521
Assisted Living	Assisted Living (254)	122	11	6	17	12	15	27	212
Cottage Units	Senior Adult Housing – Attached (252)	40	1	2	3	3	2	4	139
Residential Uses Subtotal		*915*	*39*	*26*	*65*	*85*	*74*	*159*	*1,873*

Source: DKS Associates, 2005, based on Trip Generation, Seventh Edition.

Neighborhood Shopping Center

A neighborhood shopping center of 43,000 square feet is proposed on parcel 4 adjacent to Rio Linda Boulevard. As shown in Table 6, the project is anticipated to generate 94 vehicular trips during the a.m. peak hour, 359 vehicular trips during the p.m. peak hour, and 3,959 trips daily.

TABLE 6
NEIGHBORHOOD SHOPPING CENTER VEHICULAR TRIP GENERATION

Trip Type	Percentage	Vehicle Trips						
		A.M. Peak Hour			P.M. Peak Hour			
		Entering	Exiting	Total	Entering	Exiting	Total	Daily
New Trips	66%	38	24	62	114	123	237	2,613
Pass-By Trips	34%	20	13	32	59	63	122	1,346
Shopping Center Subtotal	*100%*	*58*	*37*	*94*	*172*	*187*	*359*	*3,959*

Source: DKS Associates, 2005, based on Trip Generation, Seventh Edition, ITE Land Use Code 820.

Typically, the total vehicular trips recorded at shopping centers are based on counts taken at the driveways to a center. Studies have found that a significant number of the vehicles entering the driveways of a shopping center would already be on the adjacent roadway, making a different trip. "Pass-by trips" are vehicle trips already traveling on the adjacent roadway system that are diverted into and out of the driveways serving the shopping center. Based upon data collected by ITE, the average number of pass-by trips at a shopping center is 34 percent during the p.m. peak hour. Data is not available for the a.m. peak hour or on a daily basis. The 34 percent factor was applied to the shopping center's trip generation for all time periods. In the traffic analysis, new (not pass-by) trips are assigned to the roadway network in accordance with the trip distribution. Pass-by trips are assigned at the driveway locations together with the new trips.

Summary

Table 7 summarizes the total trip generation associated with the project. The proposed park use on Parcel 5 is expected to generate a minimal number of trips.

No reduction in trip generation has been made for "internal" trips between the residential and retail portions of the project. Of the total number of shopping center vehicular trips, it is anticipated that a very small percentage would be generated by the residential portion of the project.

Baseline Project Traffic Volumes

Traffic impact studies often consider the traffic of other development projects in the site vicinity if such projects have been approved and are under construction or have a high probability of implementation. There were no known baseline projects within the study area at the time this analysis commenced.

TABLE 7
LEISURE VISTAS VEHICULAR TRIP GENERATION

Land Use	Vehicle Trips						
	A.M. Peak Hour			P.M. Peak Hour			
	Entering	Exiting	Total	Entering	Exiting	Total	Daily
Residential	39	26	65	85	74	159	1,873
Shopping Center (new trips only)	38	24	62	114	123	237	2,613
Project Total	*77*	*50*	*127*	*199*	*197*	*396*	*4,486*

Source: DKS Associates, 2005, based on Trip Generation, Seventh Edition.

Trip Distribution and Assignment

The distribution of trips associated with the project was derived utilizing the regional SACMET travel model, observations of travel patterns near the site, and knowledge of the proposed access locations associated with the project. Separate distributions were developed for residential and retail uses, and for existing (2004) and future (2025) conditions. The difference in the project trip distribution for existing and future conditions is due to changes in land use, transportation networks, and roadway travel times over time. Figures 10 and 11 illustrate the traffic distributions for the residential and shopping center uses, respectively. The shopping center trip distribution illustrated in Figure 11 is for new trips only; shopping center pass-by trips are re-routed from through traffic volumes on Rio Linda Boulevard and added to the new-trips for development of total trips to be assigned to the site roadways.

The retail component of the project has frontage along Rio Linda Boulevard. For analysis purposes, it was assumed that direct retail parcel access to Rio Linda Boulevard would be limited to right-in / right-out movements. Full access to all project components is provided via the intersection of Rio Linda Boulevard and the Site Roadway.

The project trip generation volumes and trip distribution patterns are utilized to assign vehicle trips to the study area roadway network. Figures 12 and 13 show the project only traffic volumes on study area roadways for the existing (2004) and future (2025) scenarios respectively.

Future (Year 2025) Traffic Volume Forecasts

Year 2025 traffic volume forecasts without the project were developed through utilization of SACOG's regional SACMET travel model. Figures 14 and 15 illustrate future peak hour volumes at the study area intersections. Figure 16 and Table 8 show future daily traffic volumes.

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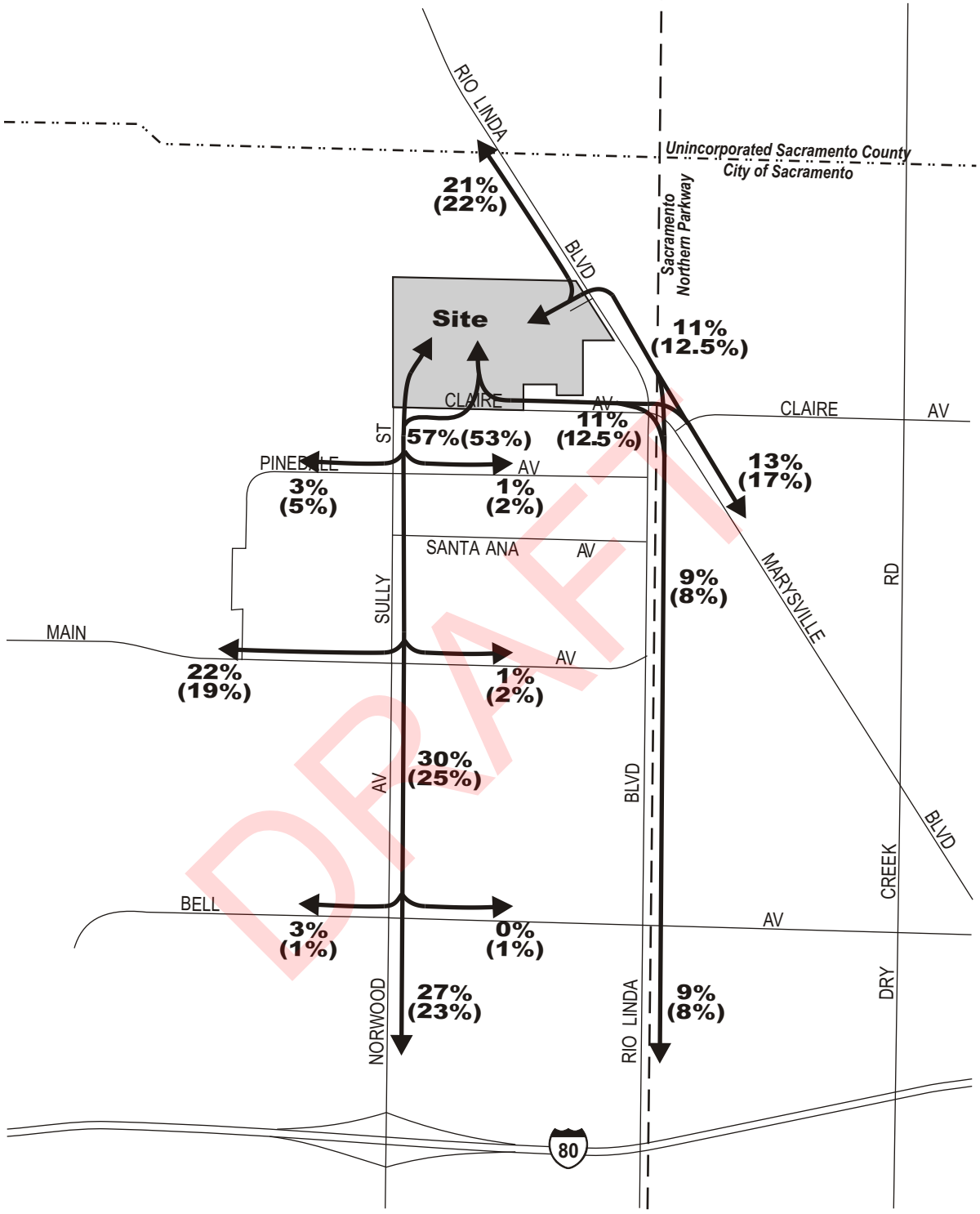
NOT TO SCALE



LEGEND

00% - 2004
(00%) - 2025

Figure 10
TRIP DISTRIBUTION
RESIDENTIAL

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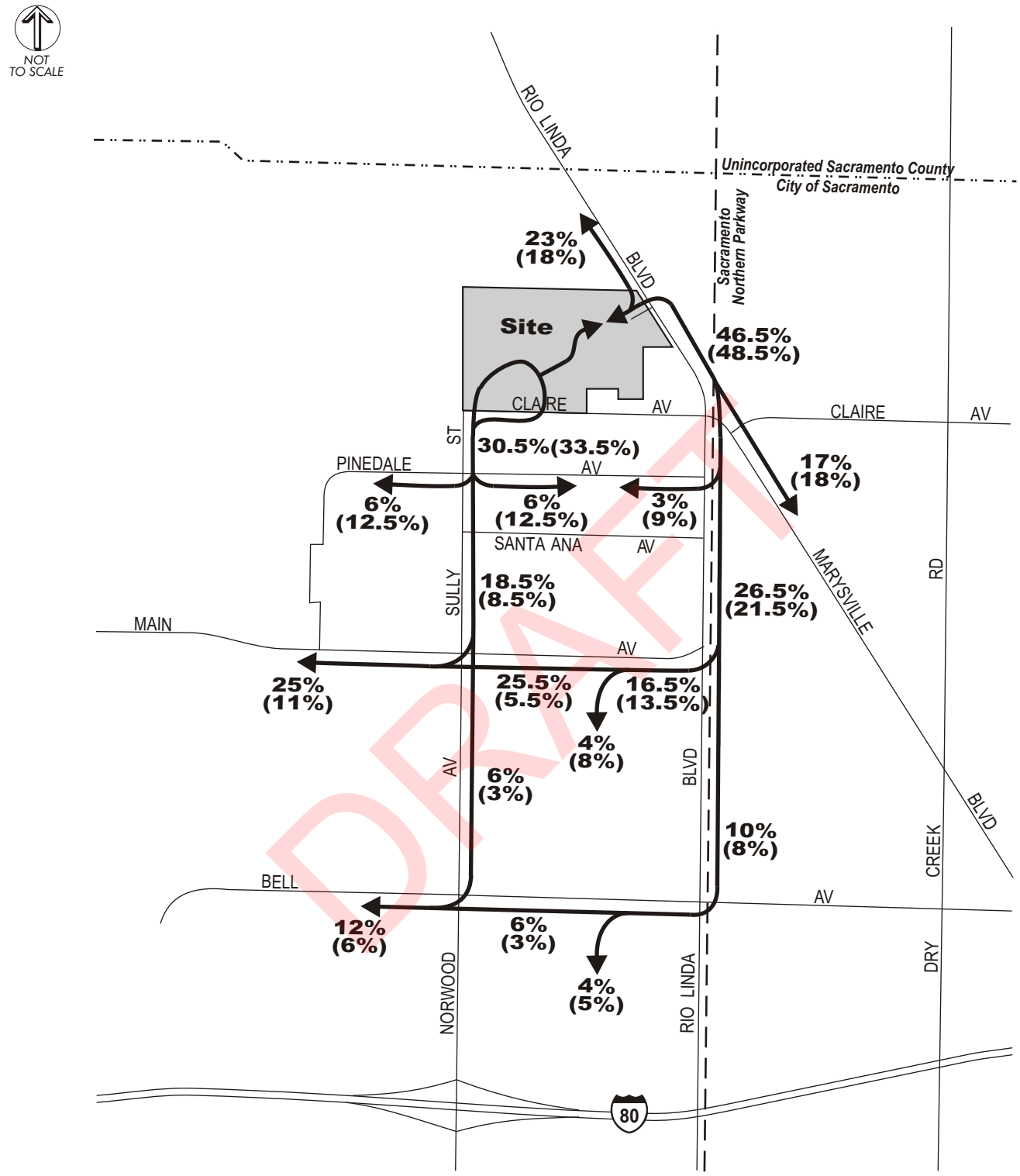

LEGEND

00% - 2004
(00%) - 2025

Note: New Trips Only.
Does Not Include Diverted Pass-by Trips.

Figure 11
TRIP DISTRIBUTION
NEIGHBORHOOD SHOPPING CENTER

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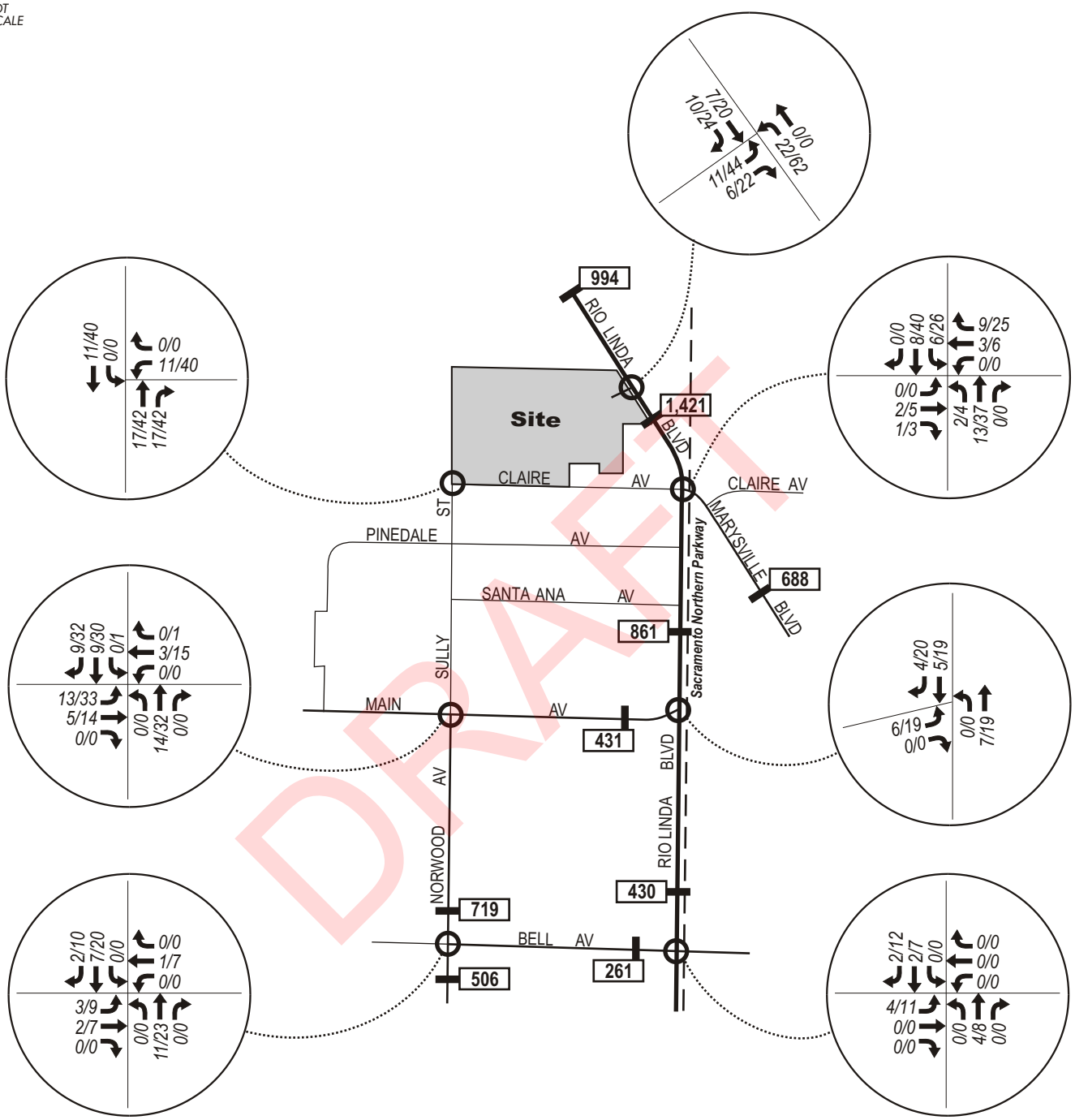
NOT TO SCALE



LEGEND

- ○ - Study Intersection
- ← *AM/PM* - Peak Hour Traffic Volume
- 0,000 - Daily Segment Volume

Figure 12
YEAR 2004
PROJECT TRAFFIC VOLUMES

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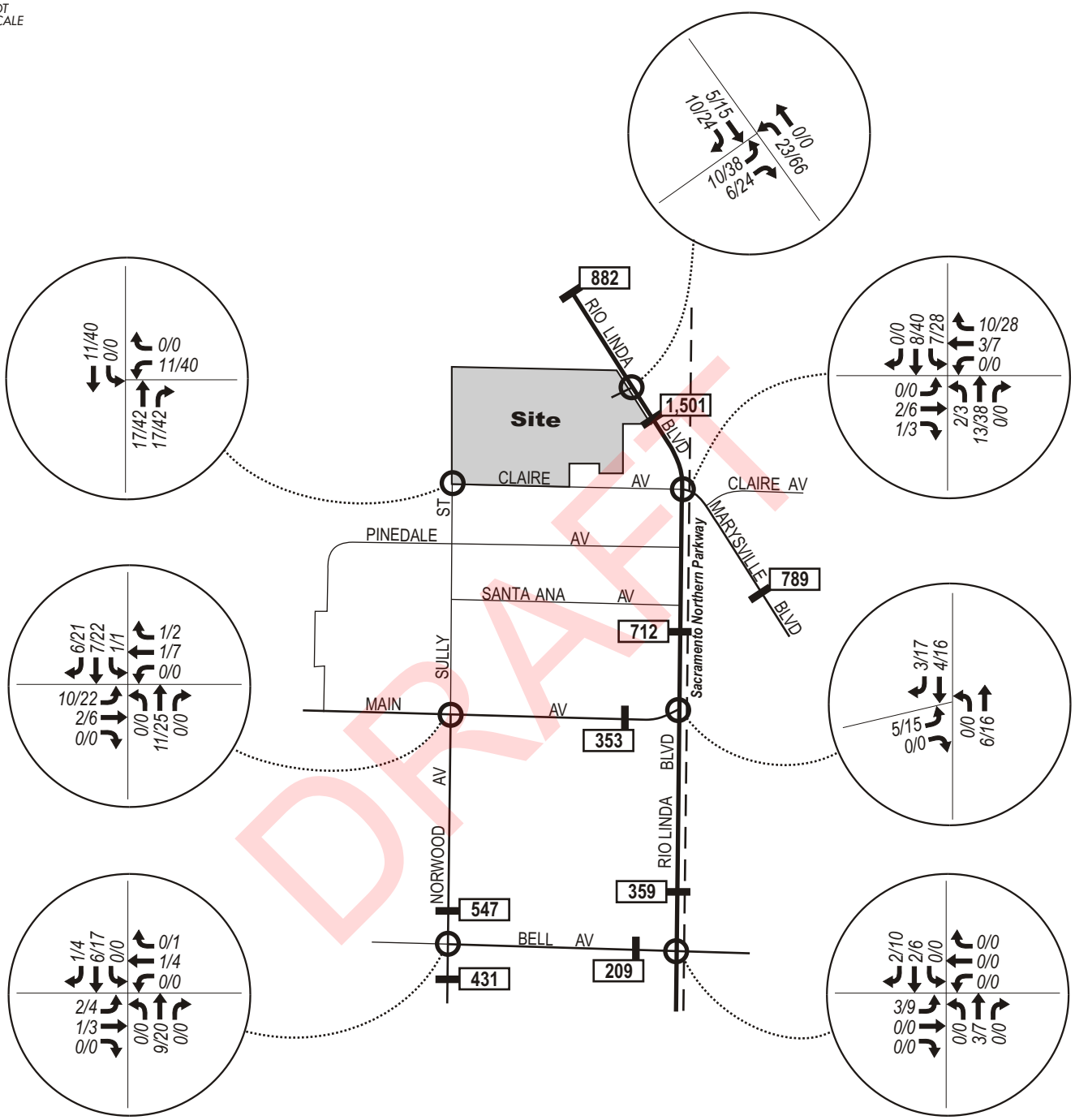
TRANSPORTATION SOLUTIONS

NOT TO SCALE



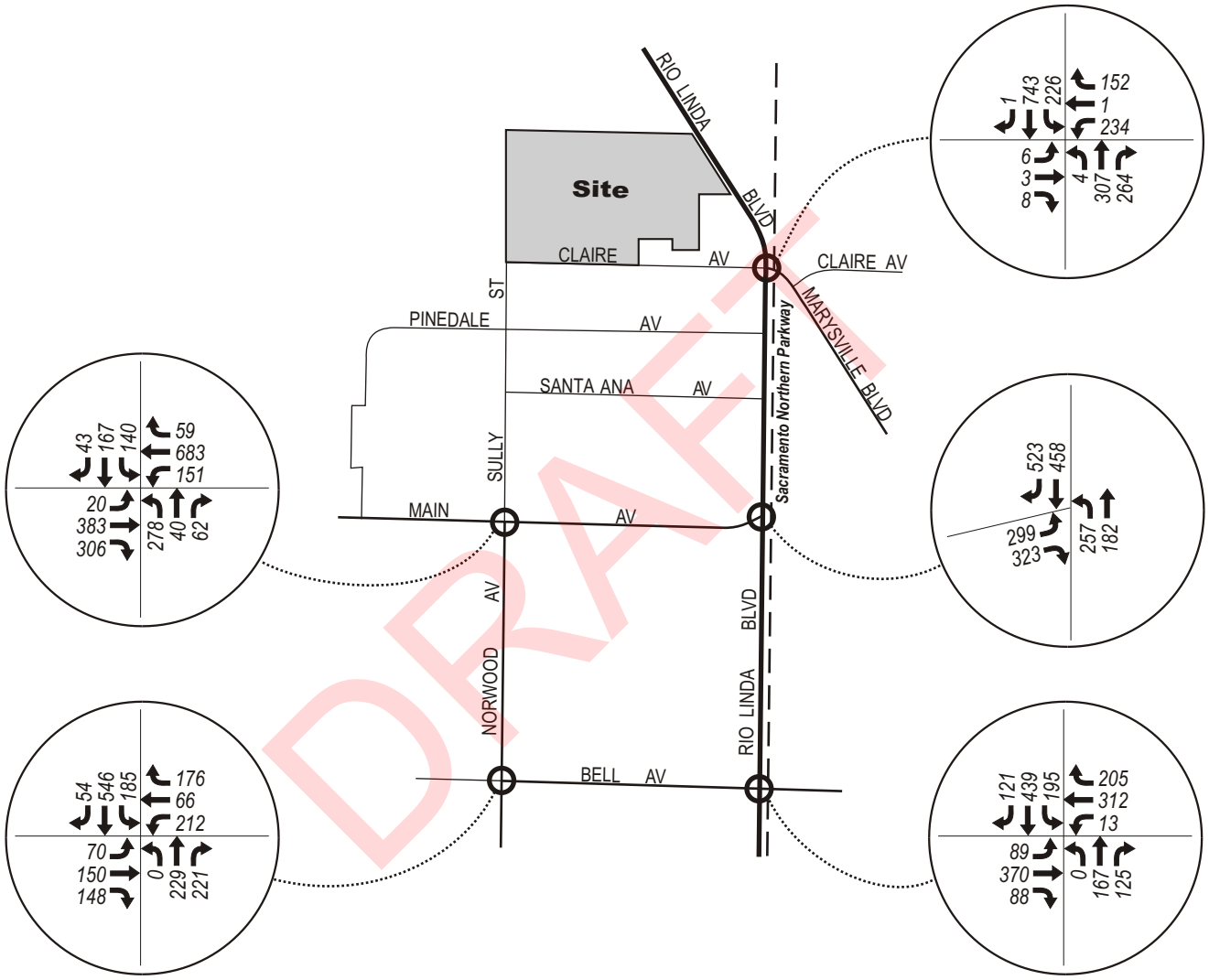
LEGEND

- ○ - Study Intersection
- ← *AM/PM* - Peak Hour Traffic Volume
- 0,000 - Daily Segment Volume

Figure 13
YEAR 2025
PROJECT TRAFFIC VOLUMES

DKS *Associates*
TRANSPORTATION SOLUTIONS

NOT TO SCALE



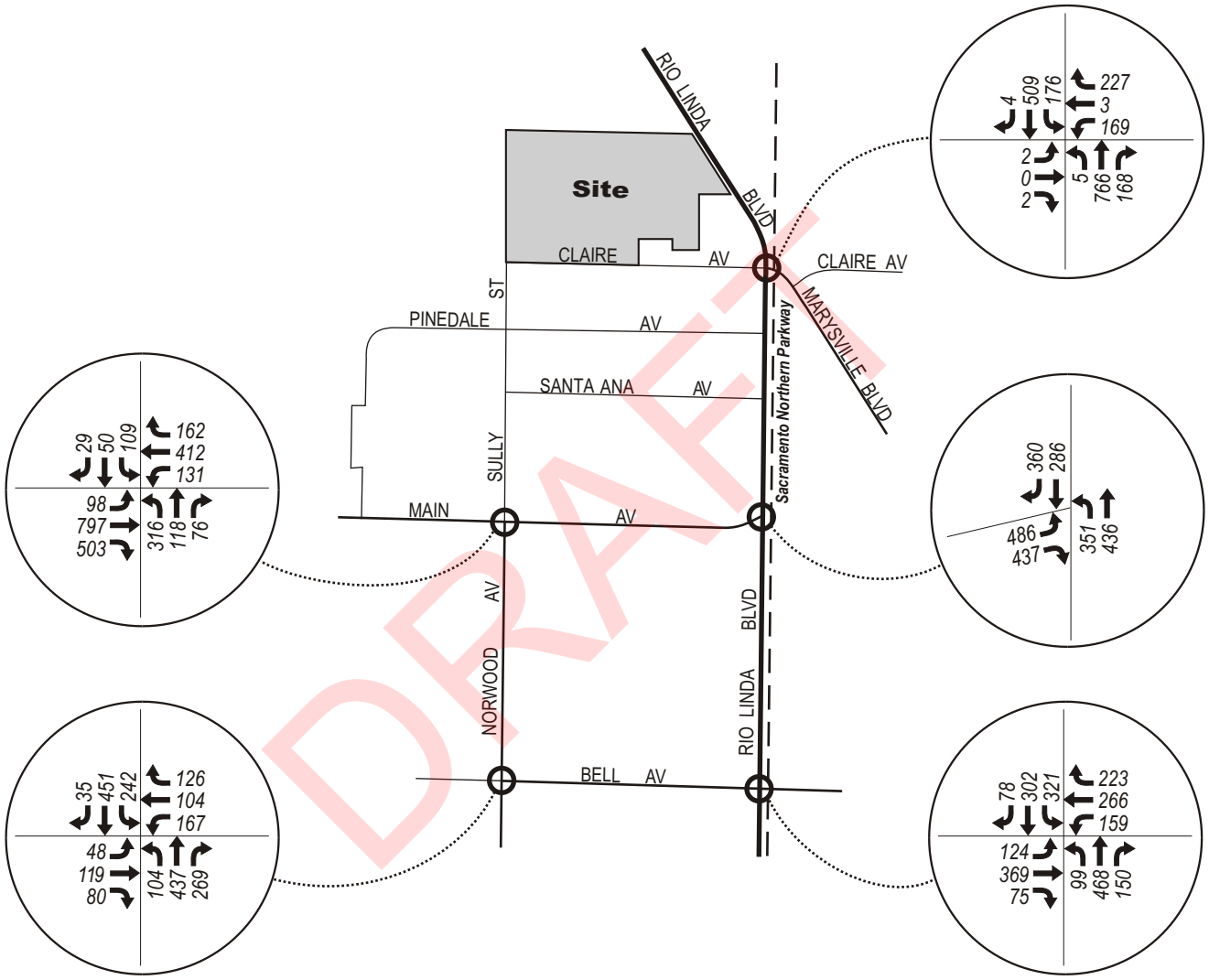
LEGEND

- Study Intersection
- *00* - Peak Hour Traffic Volume

Figure 14
YEAR 2025 WITHOUT PROJECT
AM PEAK HOUR INTERSECTION VOLUMES

DKS Associates
TRANSPORTATION SOLUTIONS

NOT TO SCALE

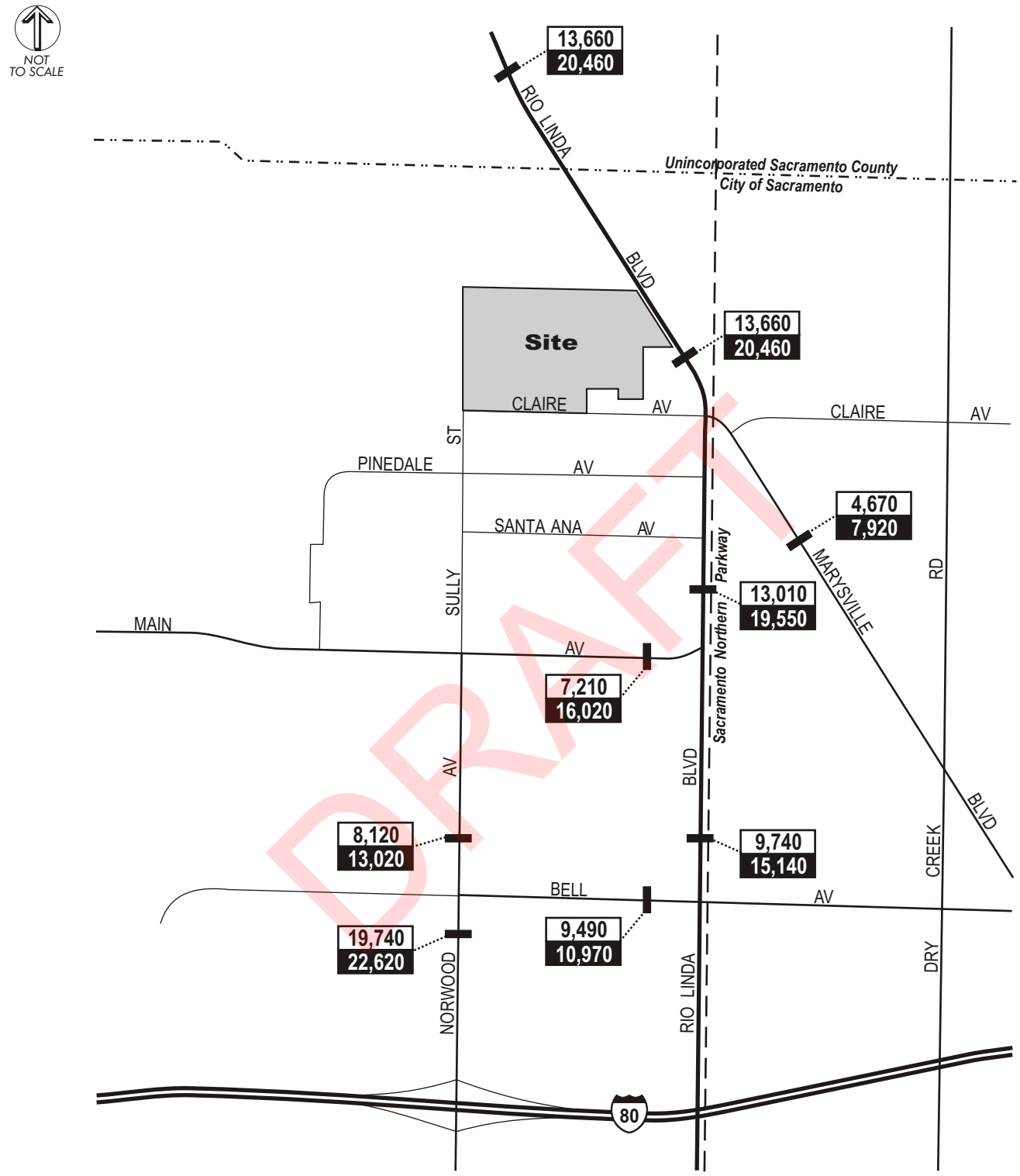


LEGEND

- Study Intersection
- *00* - Peak Hour Traffic Volume

Figure 15
YEAR 2025 WITHOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES

DKS Associates
TRANSPORTATION SOLUTIONS



LEGEND

- Roadway Segment
- 1,000 - 2004 Existing
- 1,000 - 2025 Without Project

Figure 16
YEAR 2025 WITHOUT PROJECT DAILY TRAFFIC VOLUMES

TABLE 8
EXISTING AND FUTURE NO PROJECT DAILY TRAFFIC VOLUMES

		Volume	
Roadway	**Location**	**2004**	**2025**
Bell Avenue	West of Rio Linda Boulevard	9,490	10,970
Main Avenue	West of Rio Linda Boulevard	7,210	16,020
Marysville Boulevard	North of Main Avenue	4,670	7,920
Norwood Avenue	North of Bell Avenue	8,120	13,020
	South of Bell Avenue	19,740	22,620
Rio Linda Boulevard	North of Ascot Avenue	13,660	20,460
	North of Bell Avenue	9,740	15,140
	North of Claire Avenue	13,660	20,460
	North of Main Avenue	13,010	19,550

Source: *DKS Associates, 2005.*

The year 2025 forecasts assume regional changes in land use and transportation systems in accordance with the Metropolitan Transportation Plan adopted by SACOG. In the study area, the following roadway improvements are anticipated to be implemented by the year 2025:

- Widen Main Avenue from 2 lanes to 4 lanes between Norwood Avenue and Rio Linda Boulevard.
- Widen Bell Avenue from 2 lanes to 4 lanes between Norwood Avenue and Raley Boulevard.

Figure 17 illustrates year 2025 intersection geometry. It was assumed that the intersection of Main Avenue and Rio Linda Boulevard would be signalized in conjunction with the planned Main Avenue roadway widening. As noted earlier, this intersection currently warrants a traffic signal.

STANDARDS OF SIGNIFICANCE

The standards of significance in this analysis are based upon the current practice of the appropriate regulatory agencies.

Intersections

In the City of Sacramento, a significant traffic impact (intersection) occurs when:

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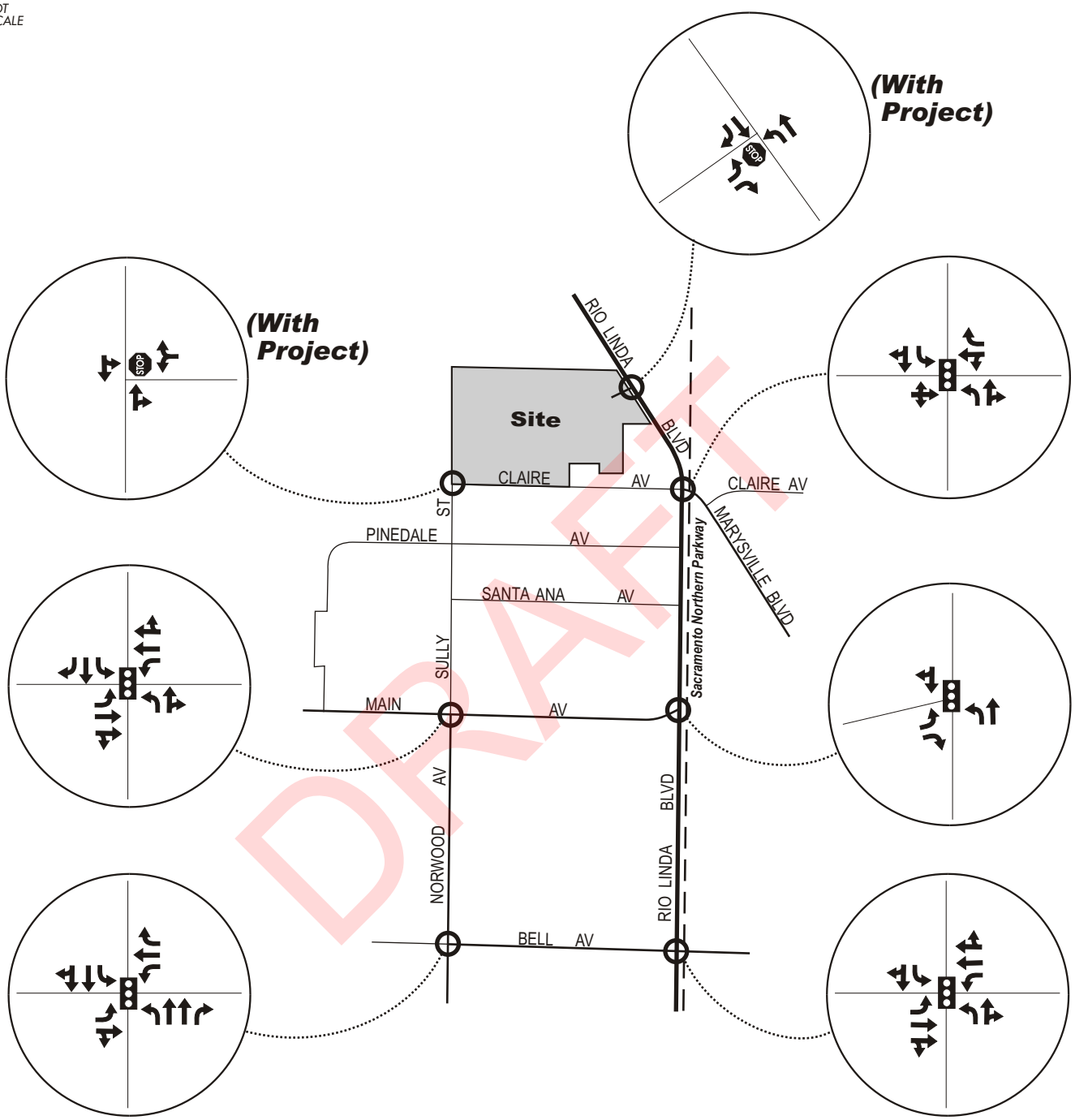

LEGEND

- Study Intersection
- Traffic Lanes (Approach)
- Traffic Signal
- Stop Control

Figure 17
YEAR 2025
INTERSECTION GEOMETRY

1. the traffic generated by a project degrades peak period level of service from A, B, or C (without project) to D, E, or F (with project); or,

2. the LOS (without project) is D, E, or F, and project generated traffic increases the peak period average vehicle delay by five seconds or more.

Bikeways

A significant bikeway impact would occur if the project hindered or eliminated an existing designated bikeway, or if the project interfered with implementation of a proposed bikeway.

A significant bikeway impact could occur if the project were to result in unsafe conditions for bicyclists, including unsafe bicycle/pedestrian or bicycle/motor vehicle conflicts.

Pedestrian Facilities

A significant pedestrian circulation impact would occur if the project were to result in unsafe conditions for pedestrians, including unsafe increase pedestrian / bicycle or pedestrian / motor vehicle conflicts.

Transit System

A significant impact to the transit system would occur where project generated ridership, when added to existing or future ridership, exceeds available or planned system capacity. Capacity is defined as the total number of passengers the system of busses and light rail vehicles can carry during the peak hours of operation.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES (EXISTING 2004)

Impact 1 Intersections

The project would increase traffic volumes at study area intersections. As discussed below, the changes in intersection operating conditions with the addition of project-generated traffic do not exceed the City's standards of significance for impacts to intersections. Therefore, the impacts of existing plus proposed project conditions at study intersections are ***less than significant.***

Discussion Figures 18 and 19 illustrate peak hour traffic volumes associated with the existing plus project scenario. Intersection operating conditions associated with the existing plus project scenario are summarized in Tables 9 and 10.

Changes in intersection operating conditions do not exceed the intersection standards of significance. The new intersections associated with the project operate at LOS "C" or better.

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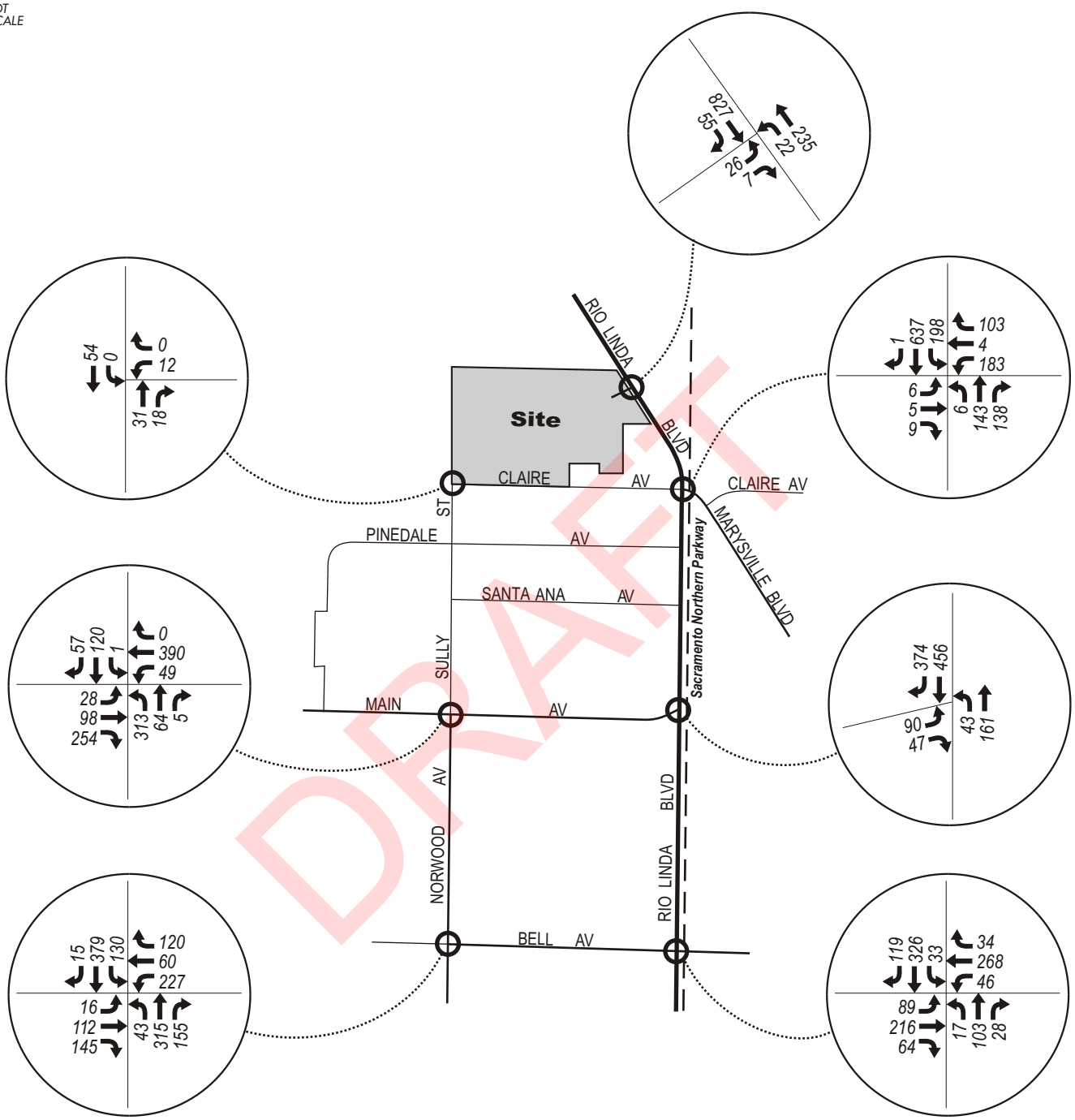

LEGEND

O - Study Intersection

← *00* - Peak Hour Traffic Volume

Figure 18
EXISTING WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES

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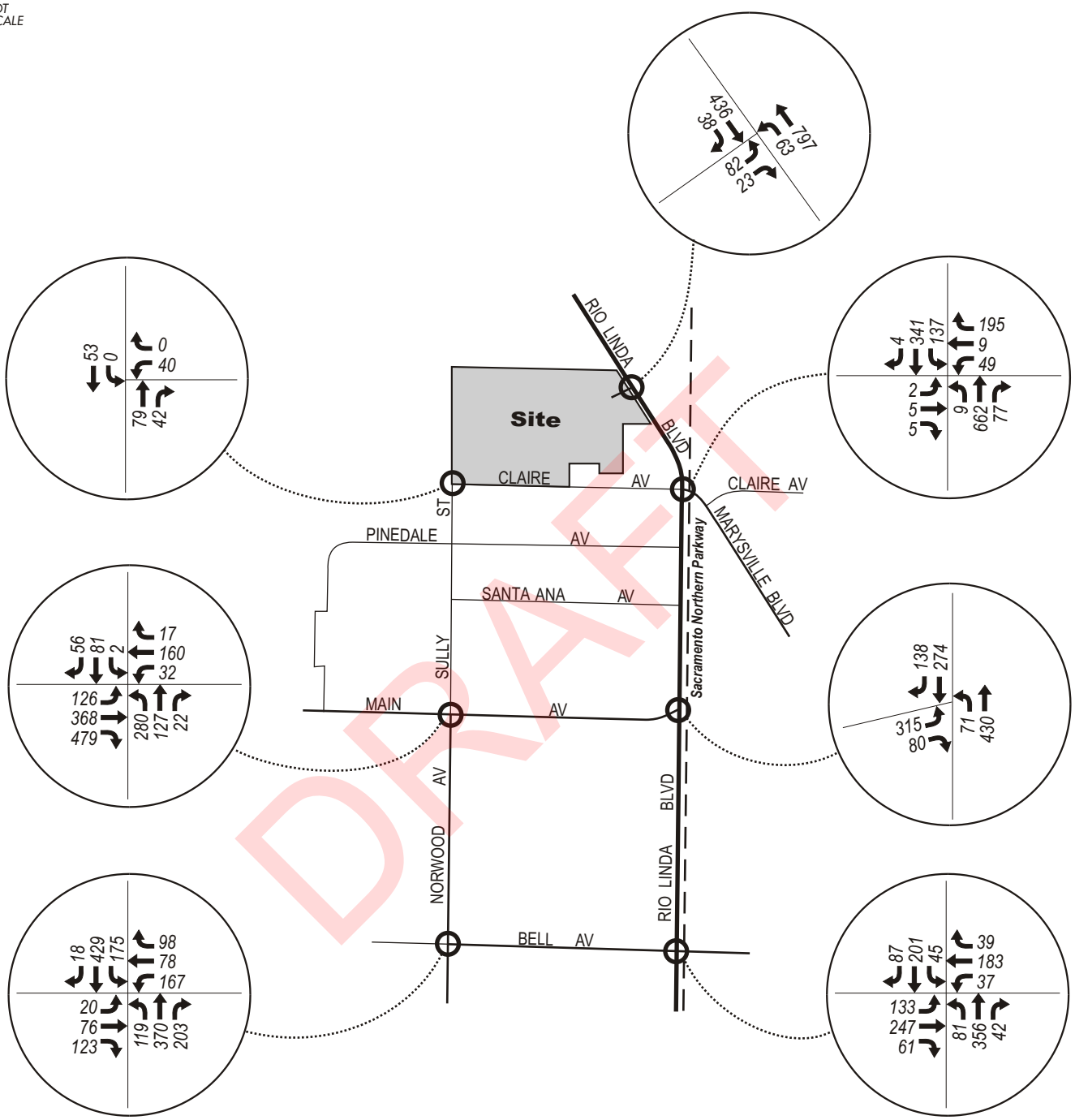
NOT TO SCALE



LEGEND

- Study Intersection
- *00* - Peak Hour Traffic Volume

Figure 19
EXISTING WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES

TABLE 9
EXISTING PLUS PROJECT A.M. PEAK HOUR
INTERSECTION OPERATING CONDITIONS

Intersection	Without Project		With Project	
	LOS	Delay (Seconds)	LOS	Delay (Seconds)
Norwood Avenue and Bell Avenue (signalized)	B	19.5	B	19.7
Rio Linda Boulevard and Bell Avenue (signalized)	B	10.5	B	10.5
Norwood Ave. / Sully St. and Main Ave. (signalized)	B	17.8	B	18.8
Rio Linda Boulevard & Main Avenue (all-way stop)	E	44.4	E	38.2
Rio Linda Boulevard & Claire Avenue / Marysville Boulevard (signalized)	A	8.1	A	8.2
Sully St. / Site Roadway & Claire Ave. (unsignalized)				
- Intersection average			A	0.9
- Westbound approach			A	9.0
Rio Linda Boulevard & Site Roadway (unsignalized)				
- Intersection average			A	0.8
- Northbound left turn			A	9.8
- Eastbound left turn			C	22.6
- Eastbound right turn			B	14.8

Source: DKS Associates, 2005.

For informational purposes only, Figure 20 and Table 11 show existing plus project daily traffic volumes. Figure 12 illustrates the assignment of project traffic on the roadway network.

Mitigation Measures

None required.

Signal Warrant Analysis

Traffic signal warrant analysis was conducted at the three unsignalized study area intersections. Utilizing the peak hour warrant, the intersection of Rio Linda Boulevard and Main Avenue warrants a traffic signal under existing without and with project conditions in both a.m. and p.m. peak hour analysis periods. The intersection of Rio Linda Boulevard and the Site Roadway also warrants a

traffic signal under existing with project conditions in the p.m. peak hour. The intersection of Sully Street / Site Roadway and Claire Avenue does not warrant a traffic signal under existing with project conditions.

TABLE 10
EXISTING PLUS PROJECT P.M. PEAK HOUR
INTERSECTION OPERATING CONDITIONS

Intersection	Without Project		With Project	
	LOS	Delay (Seconds)	LOS	Delay (Seconds)
Norwood Avenue and Bell Avenue (signalized)	B	18.5	B	19.0
Rio Linda Boulevard and Bell Avenue (signalized)	B	10.2	B	10.3
Norwood Ave. / Sully St. and Main Ave. (signalized)	B	14.0	B	15.1
Rio Linda Boulevard & Main Avenue (all-way stop)	C	22.2	C	24.1
Rio Linda Boulevard & Claire Avenue / Marysville Boulevard (signalized)	A	7.2	A	7.9
Sully St. / Site Roadway & Claire Ave. (unsignalized)				
- Intersection average			A	1.8
- Westbound approach			A	9.5
Rio Linda Boulevard & Site Roadway (unsignalized)				
- Intersection average			A	3.4
- Northbound left turn			A	8.5
- Eastbound left turn			E	50.0
- Eastbound right turn			B	11.0

Source: DKS Associates, 2005.

Impact 2 Bikeways

The proposed project would result in the addition of employees, residents, patrons, and visitors to the site, some of whom would travel by bicycle. The proposed project would not result in any changes to the existing or future bikeway system. Bicycle impacts are considered ***less than significant.***

Discussion The proposed project is not anticipated to hinder or eliminate an existing designated bikeway, or interfere with implementation of a proposed bikeway. The project is not anticipated to result in unsafe conditions for bicyclists, including unsafe bicycle / pedestrian or bicycle / motor vehicle conflicts.

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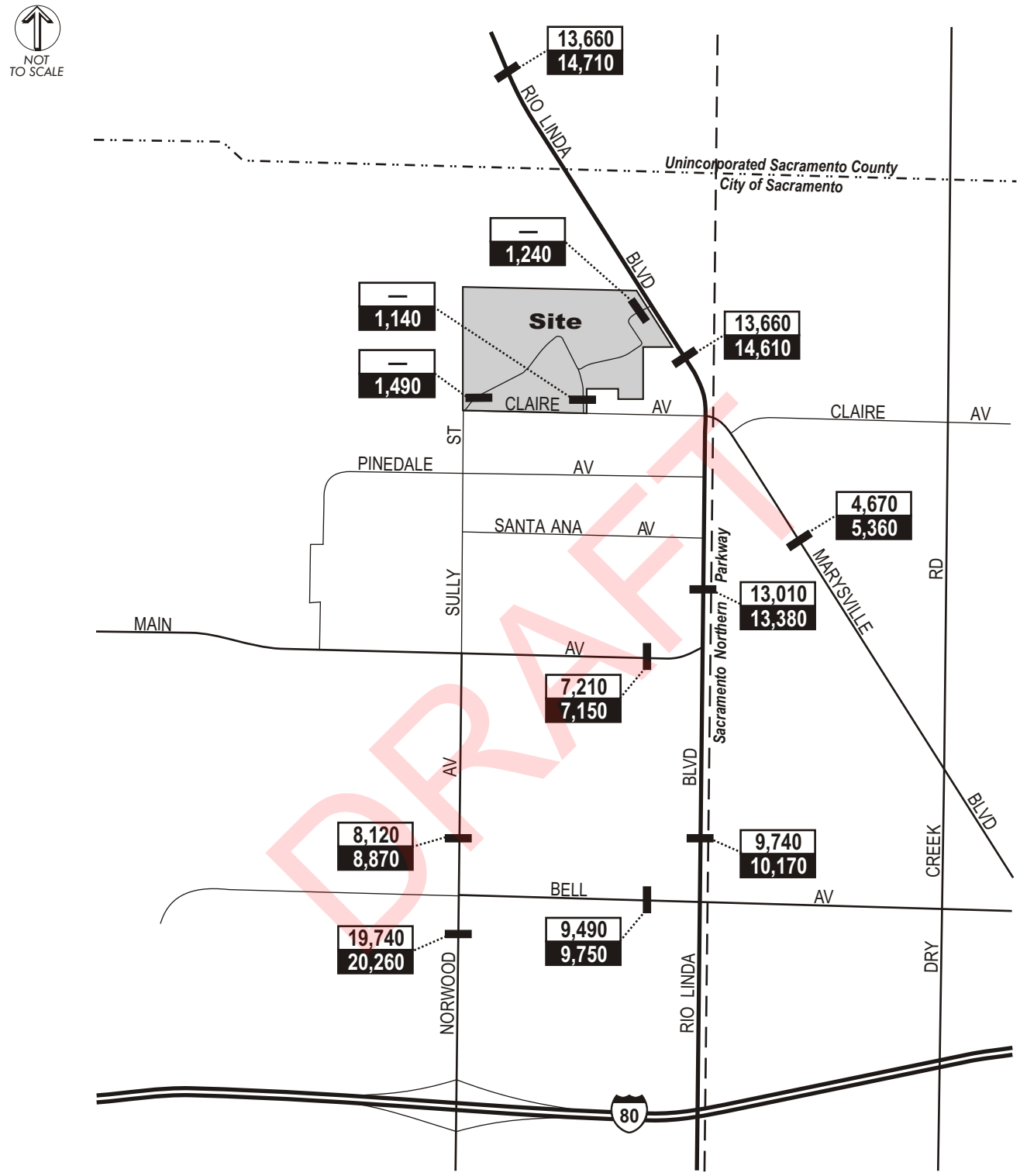

LEGEND

- Roadway Segment
- 1,000 - 2004 Existing
- 1,000 - 2004 Existing With Project

Figure 20
EXISTING WITH PROJECT DAILY TRAFFIC VOLUMES

TABLE 11
YEAR 2004 WITHOUT AND WITH PROJECT DAILY TRAFFIC VOLUMES

		Volume	
Roadway	**Location**	**Without Project**	**With Project**
Bell Avenue	West of Rio Linda Boulevard	9,490	9,750
Main Avenue	West of Rio Linda Boulevard	7,210	7,150
Marysville Boulevard	North of Main Avenue	4,670	5,360
Norwood Avenue	North of Bell Avenue	8,120	8,870
	South of Bell Avenue	19,740	20,260
Rio Linda Boulevard	North of Ascot Avenue	13,660	14,710
	North of Bell Avenue	9,740	10,170
	North of Claire Avenue	13,660	14,610
	North of Main Avenue	13,010	13,380
Site Roadway	At Rio Linda Boulevard	-	1,240
	At Sully Street	-	1,490
	At Claire Avenue	-	1,140

Source: *DKS Associates, 2005.*

Mitigation Measures

None required.

Impact 3 Pedestrian Facilities

The proposed project would result in the addition of employees, residents, patrons, and visitors to the site. Pedestrian impacts are considered ***less than significant.***

Discussion The project is not anticipated to result in unsafe conditions for pedestrians, including unsafe bicycle / pedestrian or pedestrian / motor vehicle conflicts.

Mitigation Measures

None required.

Impact 4 Transit System

The project would increase demand for transit services. As discussed below, the impact of the proposed project on the transit system is ***less than significant.***

Discussion The proposed project would result in the addition of employees, residents, patrons, and visitors to the site, some of whom would travel by transit. Although particular transit vehicles operate at or near capacity during the peak commuter periods, a review of existing transit operations and plans for future transit services indicate that there is ample capacity on the Regional Transit system to support the anticipated increase in trips. Because the existing and future transit system capacity is sufficient to accommodate the increased project generated transit ridership, the impact of the proposed project is considered *less than significant.*

Mitigation Measures

None required.

FUTURE IMPACTS AND MITIGATION MEASURES (YEAR 2025)

The analysis of transportation and circulation impacts under future conditions focuses on year 2025 conditions.

Impact 5 Intersections - Future

The project would increase traffic volumes at study area intersections. As discussed below, the changes in intersection operating conditions with the addition of project-generated traffic do not exceed the City's standards of significance for impacts to intersections. Therefore, the impacts of future plus proposed project conditions at study intersections are ***less than significant.***

Discussion Figures 21 and 22 illustrate future plus project peak hour volumes. Intersection operating conditions associated with the future plus project scenario are summarized in Tables 12 and 13.

Changes in intersection operating conditions with the proposed project do not exceed the City's intersection standards of significance. As shown in Tables 12 and 13, all of the study area intersections including the new intersections associated with the project operate at LOS "C" or better.

For informational purposes only, Figure 23 and Table 14 show future plus project daily traffic volumes. Figure 13 illustrates the assignment of project traffic on the roadway network.

Mitigation Measures

None required.

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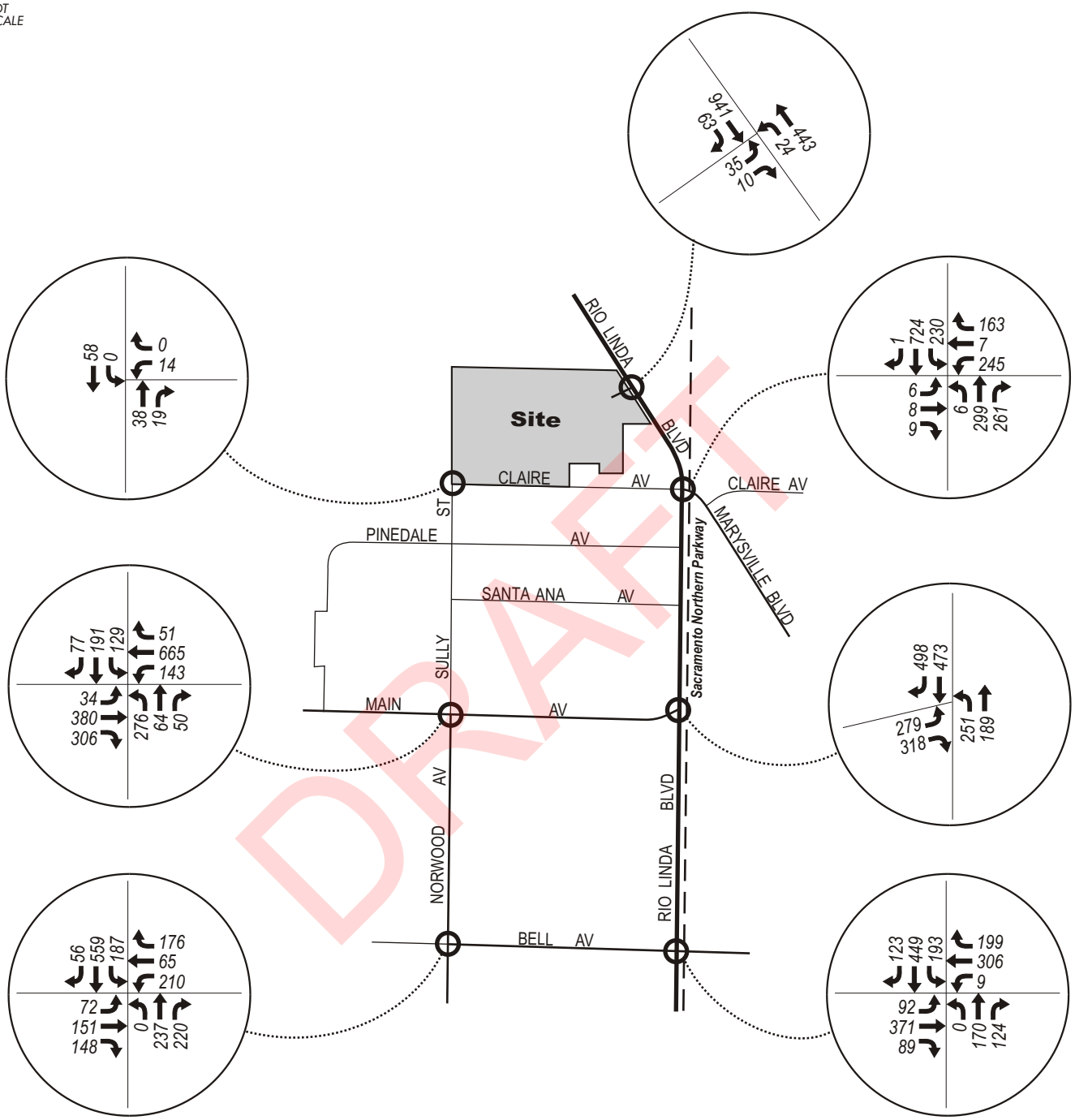
TRANSPORTATION SOLUTIONS

NOT TO SCALE



LEGEND

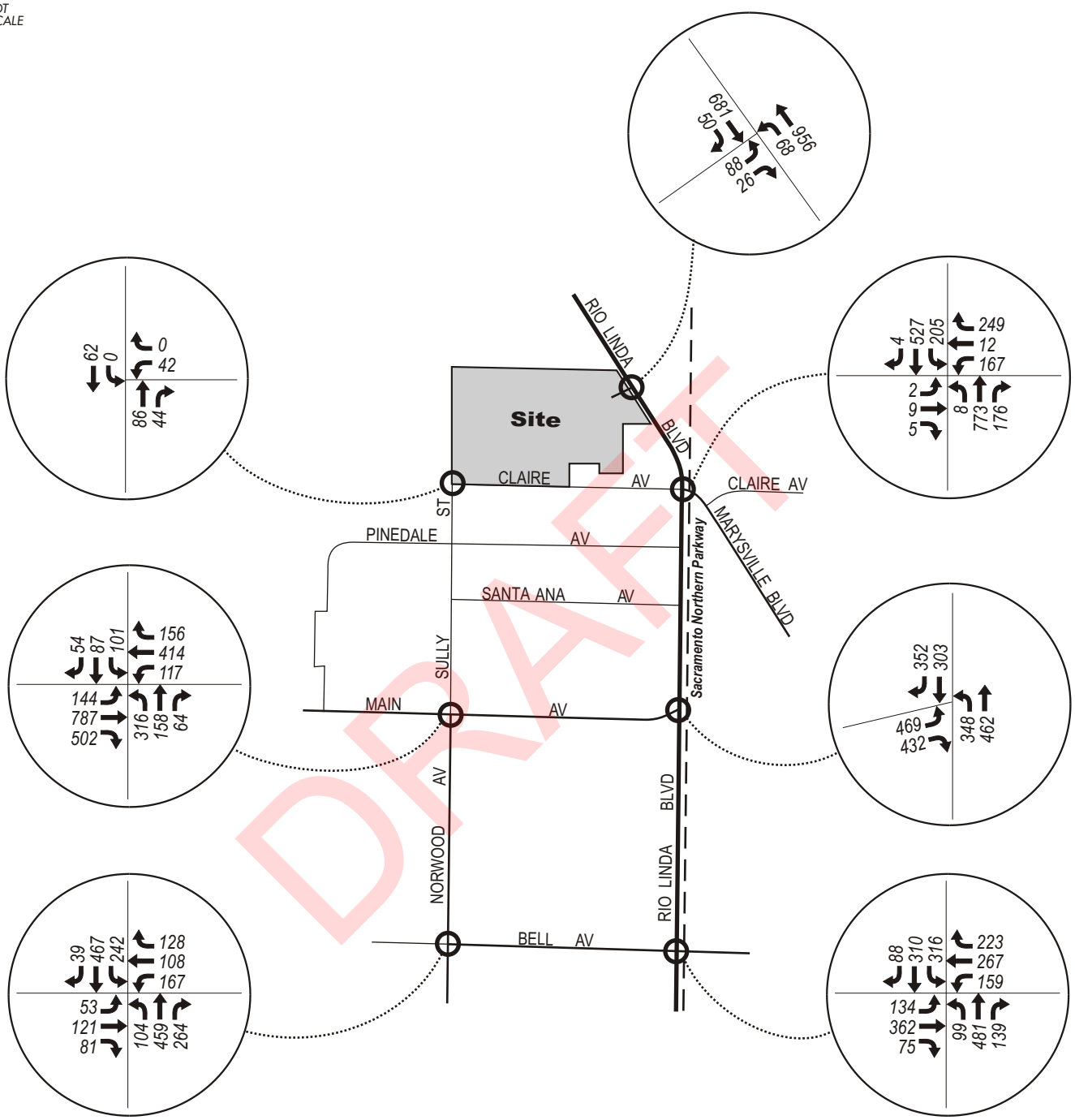
O - Study Intersection

← *00* - Peak Hour Traffic Volume

Figure 21
YEAR 2025 WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES

DKS *Associates*
TRANSPORTATION SOLUTIONS

NOT TO SCALE



LEGEND

O - Study Intersection

← *00* - Peak Hour Traffic Volume

Figure 22
YEAR 2025 WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES

TABLE 12
FUTURE PLUS PROJECT A.M. PEAK HOUR
INTERSECTION OPERATING CONDITIONS

Intersection	Without Project		With Project	
	LOS	Delay (Seconds)	LOS	Delay (Seconds)
Norwood Avenue and Bell Avenue (signalized)	C	20.3	C	20.5
Rio Linda Boulevard and Bell Avenue (signalized)	B	10.6	B	10.6
Norwood Ave. / Sully St. and Main Ave. (signalized)	C	23.0	C	23.9
Rio Linda Boulevard & Main Avenue (signalized)	C	20.1	B	18.9
Rio Linda Boulevard & Claire Avenue / Marysville Boulevard (signalized)	B	10.2	B	10.7
Sully St. / Site Roadway & Claire Ave. (unsignalized)				
- Intersection average			A	1.0
- Westbound approach			B	9.1
Rio Linda Boulevard & Site Roadway (unsignalized)				
- Intersection average			A	1.1
- Northbound left turn			B	10.3
- Eastbound left turn			E	37.4
- Eastbound right turn			C	16.5

Source: DKS Associates, 2005.

Signal Warrant Analysis

Traffic signal warrant analysis was conducted at the two unsignalized study area site intersections. The intersection of Rio Linda Boulevard and the Site Roadway warrants a traffic signal under future plus project conditions in the p.m. peak hour. The intersection of Sully Street / Site Roadway and Claire Avenue does not warrant a traffic signal under future plus project conditions.

Impact 6 Bikeways

The proposed project would result in the addition of employees, residents, patrons, and visitors to the site, some of whom would travel by bicycle. The proposed project would not result in any changes to the existing or future bikeway system. Bicycle impacts are considered ***less than significant.***

TABLE 13
FUTURE PLUS PROJECT P.M. PEAK HOUR
INTERSECTION OPERATING CONDITIONS

Intersection	Without Project		With Project	
	LOS	Delay (Seconds)	LOS	Delay (Seconds)
Norwood Avenue and Bell Avenue (signalized)	C	20.3	C	20.4
Rio Linda Boulevard and Bell Avenue (signalized)	B	17.0	B	16.8
Norwood Ave. / Sully St. and Main Ave. (signalized)	C	29.3	C	30.9
Rio Linda Boulevard & Main Avenue (signalized)	B	14.8	B	14.6
Rio Linda Boulevard & Claire Avenue / Marysville Boulevard (signalized)	B	12.8	B	13.8
Sully St. / Site Roadway & Claire Ave. (unsignalized)				
- Intersection average			A	1.7
- Westbound approach			A	9.6
Rio Linda Boulevard & Site Roadway (unsignalized)				
- Intersection average			A	7.3
- Northbound left turn			A	9.4
- Eastbound left turn			F	136.1
- Eastbound right turn			B	13.4

Source: DKS Associates, 2005.

Discussion The proposed project is not anticipated to hinder or eliminate an existing designated bikeway, or interfere with implementation of a proposed bikeway. The project is not anticipated to result in unsafe conditions for bicyclists, including unsafe bicycle / pedestrian or bicycle / motor vehicle conflicts.

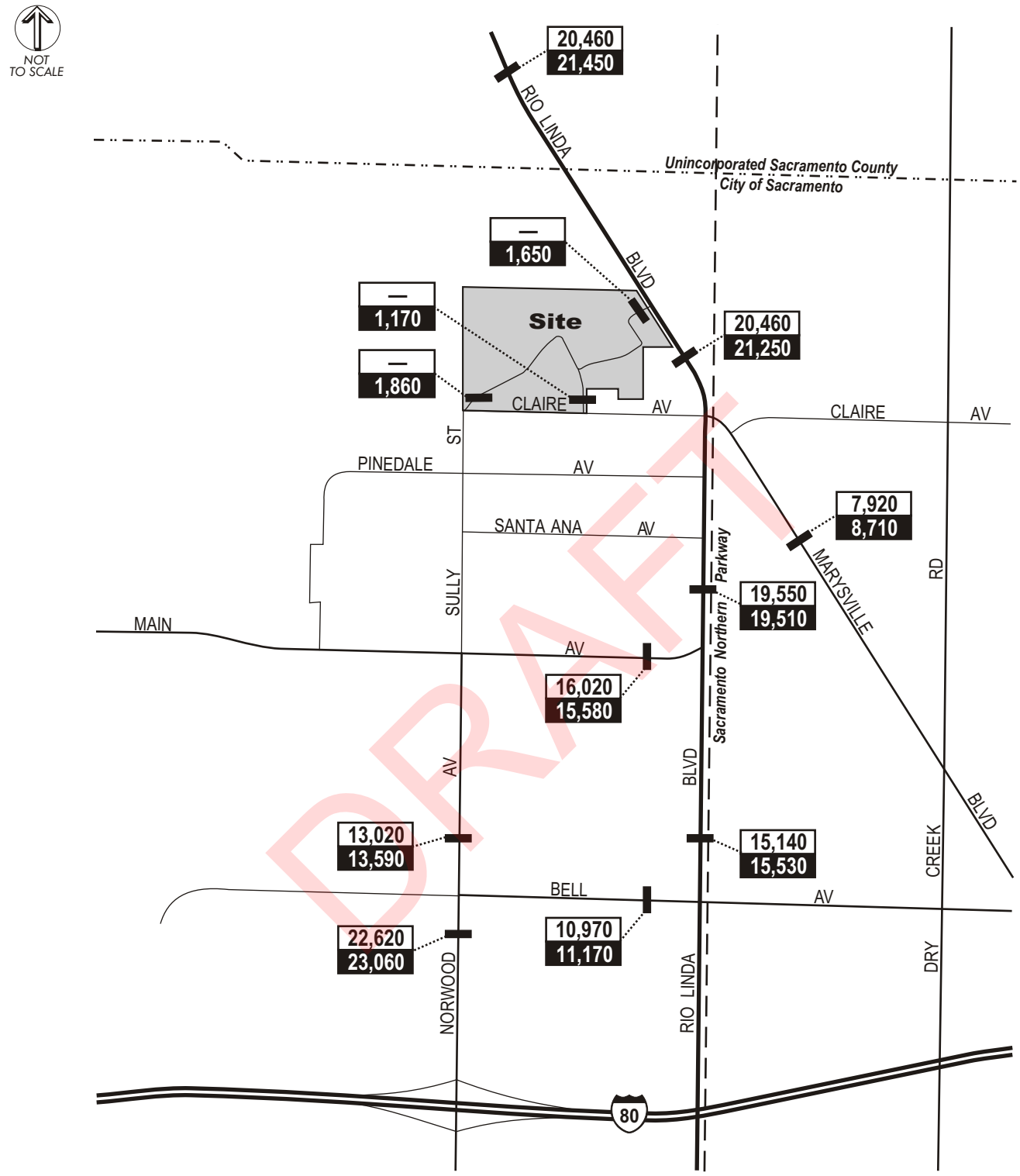
Mitigation Measures

None required.

Impact 7 Pedestrian Facilities

The proposed project would result in the addition of employees, residents, patrons, and visitors to the site. Pedestrian impacts are considered ***less than significant.***

DKS Associates
TRANSPORTATION SOLUTIONS



LEGEND

- Roadway Segment
- 1,000 / 1,000 - 2025 Without Project / 2025 With Project

Figure 23
YEAR 2025 WITH PROJECT DAILY TRAFFIC VOLUMES

TABLE 14
YEAR 2025 WITHOUT AND WITH PROJECT DAILY TRAFFIC VOLUMES

		Volume	
Roadway	**Location**	**Without Project**	**With Project**
Bell Avenue	West of Rio Linda Boulevard	10,970	11,170
Main Avenue	West of Rio Linda Boulevard	16,020	15,580
Marysville Boulevard	North of Main Avenue	7,920	8,710
Norwood Avenue	North of Bell Avenue	13,020	13,590
	South of Bell Avenue	22,620	23,060
Rio Linda Boulevard	North of Ascot Avenue	20,460	21,450
	North of Bell Avenue	15,140	15,530
	North of Claire Avenue	20,460	21,250
	North of Main Avenue	19,550	19,510
Site Roadway	At Rio Linda Boulevard	-	1,650
	At Sully Street	-	1,860
	At Claire Avenue	-	1,170

Source: *DKS Associates, 2005.*

Discussion The project is not anticipated to result in unsafe conditions for pedestrians, including unsafe bicycle / pedestrian or pedestrian / motor vehicle conflicts.

Mitigation Measures

None required.

Impact 8 Transit System

The project would increase demand for transit services. As discussed below, the impact of the proposed project on the transit system is ***less than significant.***

Discussion The proposed project would result in the addition of employees, residents, patrons, and visitors to the site, some of whom would travel by transit. Although particular transit vehicles operate at or near capacity during the peak commuter periods, a review of existing transit operations and plans for future transit services indicate that there is ample capacity on the Regional Transit system to support the anticipated increase in trips. Because the existing and future transit system capacity is sufficient

to accommodate the increased project generated transit ridership, the impact of the proposed project is considered *less than significant.*

Mitigation Measures

None required.

SITE ACCESS AND VEHICULAR CIRCULATION

In addition to the analysis of project impacts in conjunction with the City's standards of significance for CEQA review, an analysis of site access and vehicular circulation was also conducted. This analysis focuses on the project's access to Rio Linda Boulevard. Currently, Rio Linda Boulevard north of Marysville Boulevard operates as a high-speed two-lane roadway with uninterrupted flow through a rural area. The project proposes site access to Rio Linda Boulevard via a site roadway, as illustrated in Figure 2. In addition, Parcel 4, located along Rio Linda Boulevard, would accommodate a proposed neighborhood shopping center.

At this time, detailed plans for the proposed shopping center are not available. This analysis anticipates that access to Rio Linda Boulevard via a separate driveway will be requested during development within the PUD. Based upon direction from City staff, this analysis assumes that a separate driveway on Rio Linda Boulevard with right-in and right-out movements only might be considered for evaluation with a future development proposal.

ACCESS RECOMMENDATIONS

Rio Linda Boulevard and Site Roadway

1. The intersection was analyzed with all movements permitted; that is, with permitted right turns and left turns both entering and exiting the site.

2. Based upon the high speed operations of Rio Linda Boulevard and the anticipated delay for the left turn movement from the Site Roadway onto northbound Rio Linda Boulevard (see Tables 10, 12, and 13), a traffic signal should be installed at this location. Based upon full development of the project (both residential and retail components), a traffic signal is warranted at this location.

   With the installation of a traffic signal, this intersection would exhibit the following operating conditions:

   - Existing Plus Project, a.m. peak hour – Level of Service "A", 6.0 seconds average delay

   - Existing Plus Project, p.m. peak hour – Level of Service "B", 18.0 seconds average delay

- Future Plus Project, a.m. peak hour – Level of Service "A", 7.2 seconds average delay

- Future Plus Project, p.m. peak hour – Level of Service "C", 32.0 seconds average delay

3. The site roadway eastbound approach to the intersection should consist of separate right and left turn lanes. These lanes should be a minimum of 150 feet long.

4. The site roadway westbound departure from the intersection should have one travel lane.

5. Center channelization on the site roadway is optional from a traffic operations perspective.

6. A northbound left turn lane should be constructed on Rio Linda Boulevard. The lane is necessitated by the high through volumes on Rio Linda Boulevard as well as the high-speed operations. The storage length of the left turn lane should be at least 150 feet, with appropriate lane tapers north and south of the intersection.

7. Center channelization is desirable on Rio Linda Boulevard, particularly if right-in / right-out access is provided to the retail parcel.

8. A southbound separate right turn lane on Rio Linda Boulevard should be provided to separate decelerating traffic from the high-speed Rio Linda Boulevard through traffic.

9. Sight distance at the subject intersection was reviewed by City staff. For a City standard design speed of 50 miles per hour, a clear sight distance of 427 feet is required. The nearest impediment to sight distance is a bridge over a watercourse located about 555 feet north of the proposed intersection location. This distance exceeds the required sight distance for a 55 mile per hour design speed (525 feet).

APPENDIX D: PROJECT SITE TRIP GENERATION WORKSHEETS

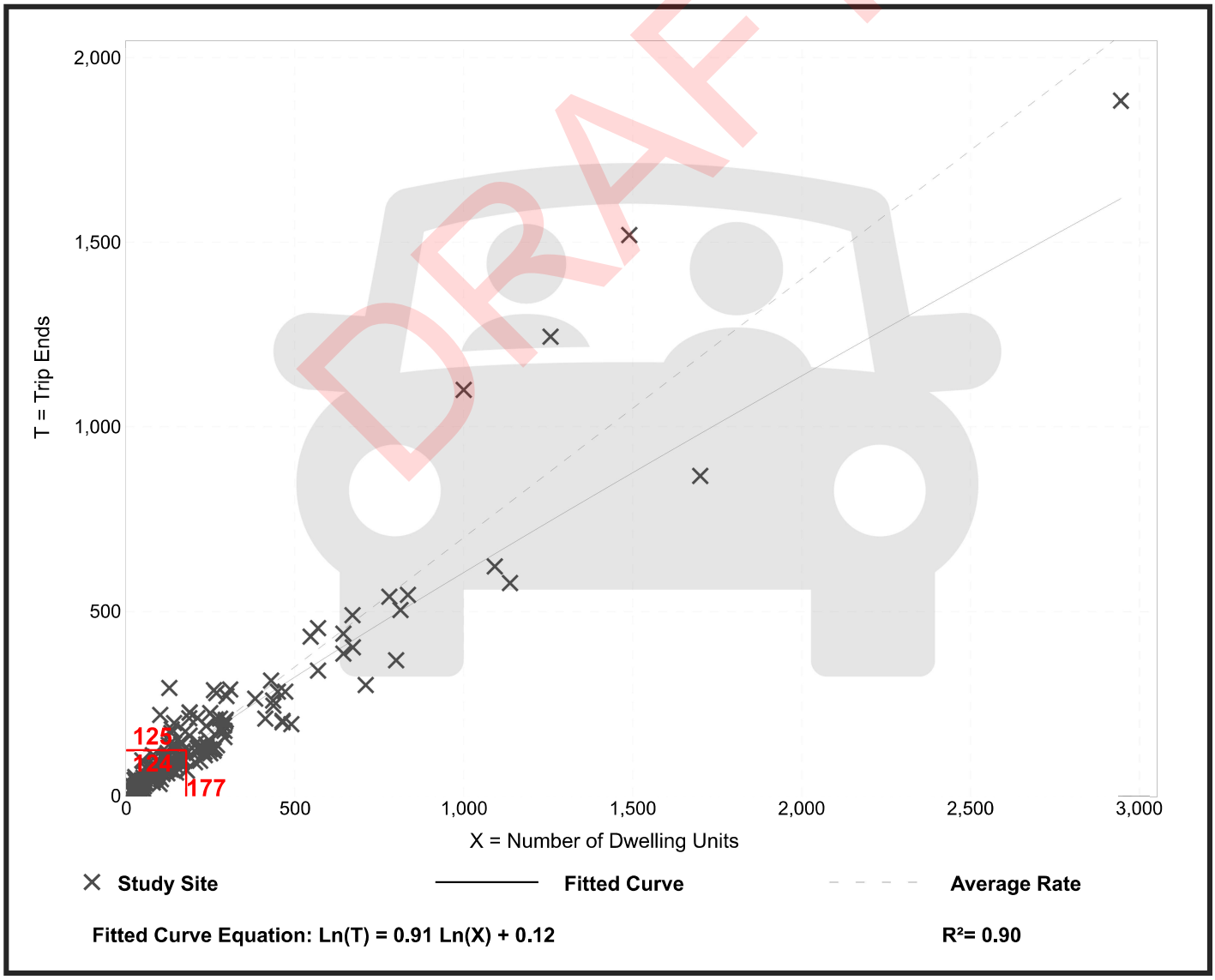
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	192
Avg. Num. of Dwelling Units:	226
Directional Distribution:	26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



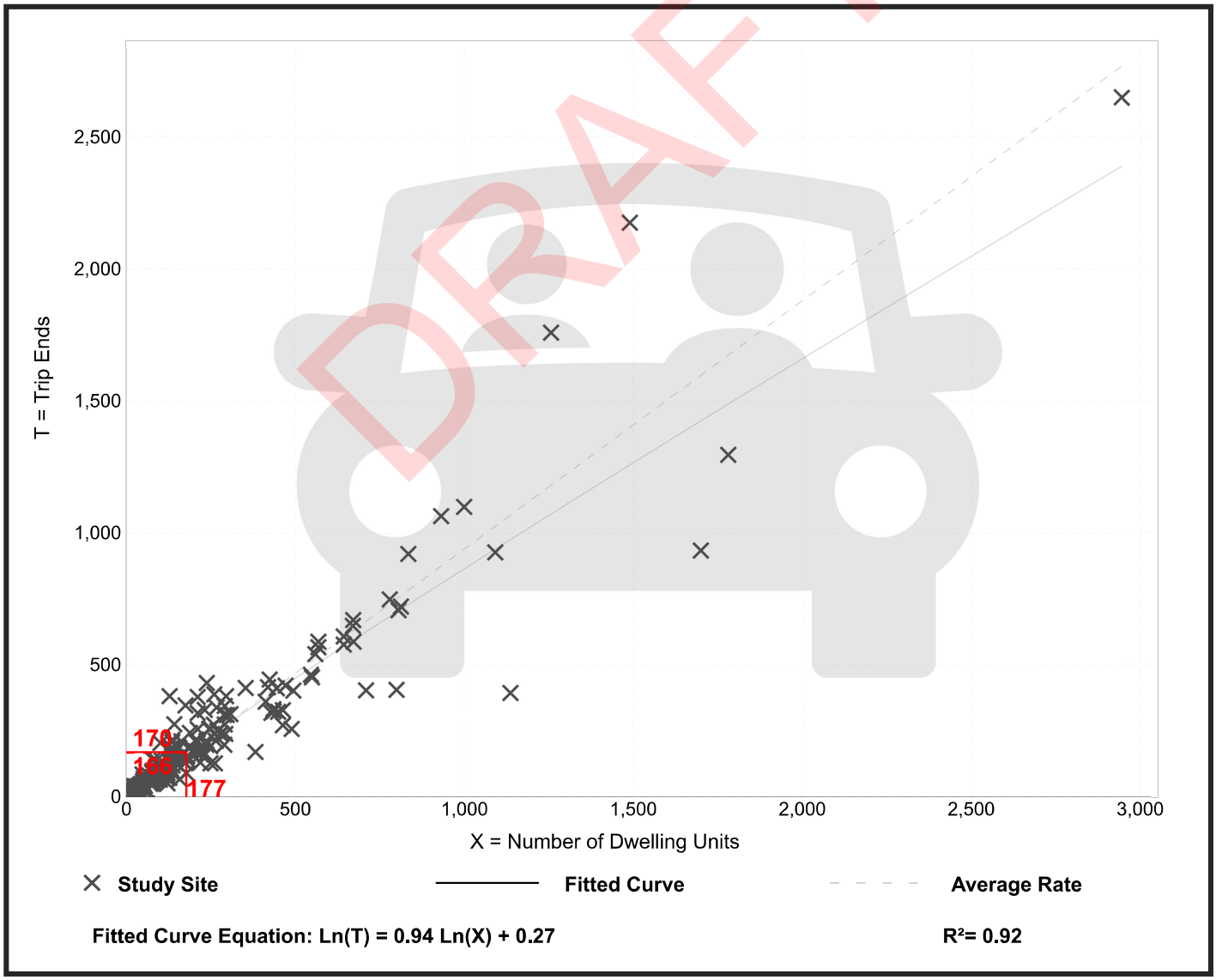
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	208
Avg. Num. of Dwelling Units:	248
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



Public Park
(411)

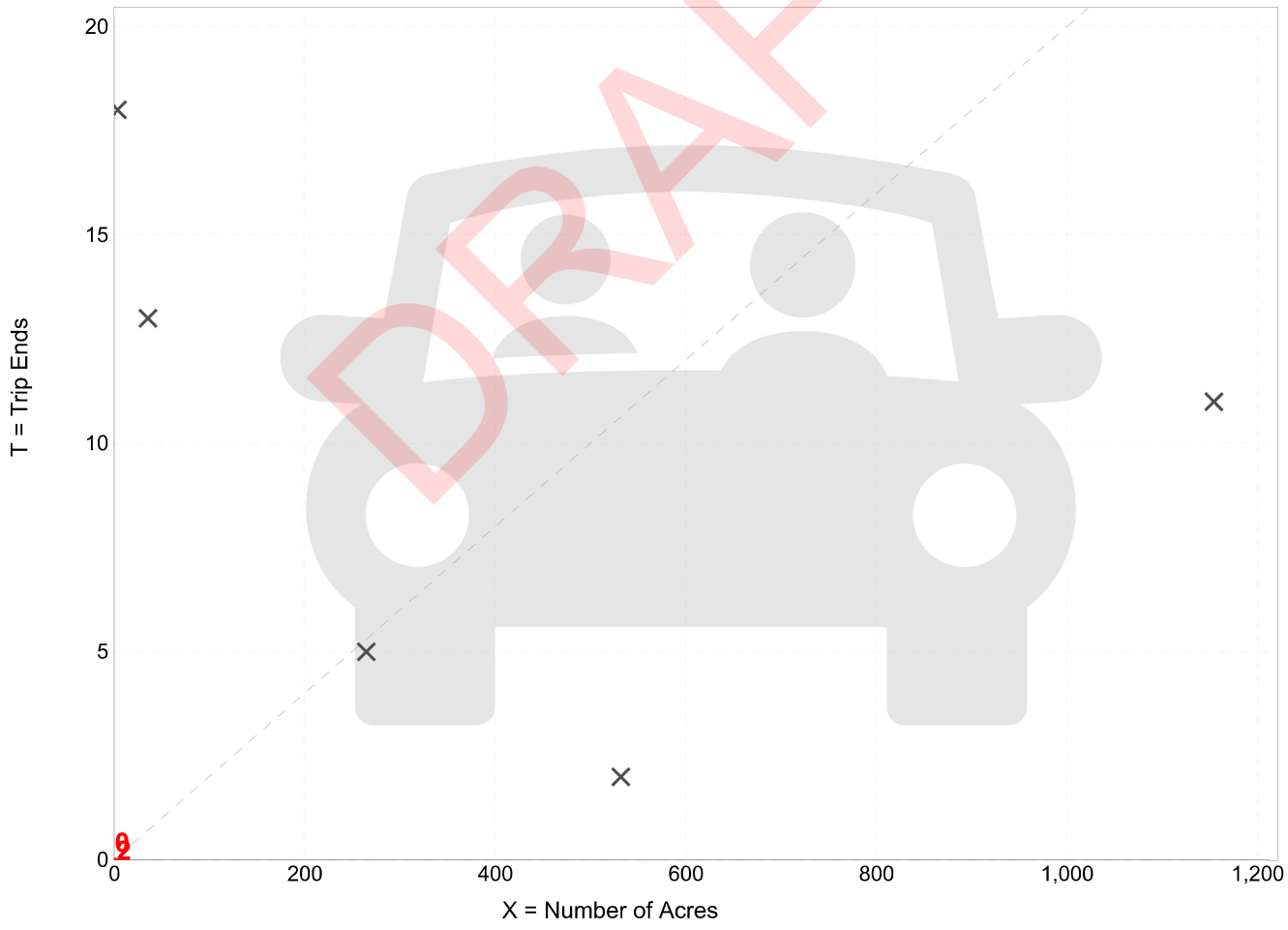
Vehicle Trip Ends vs: **Acres**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 5
Avg. Num. of Acres: 398
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per Acre

Average Rate	Range of Rates	Standard Deviation
0.02	0.00 - 4.50	0.23

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

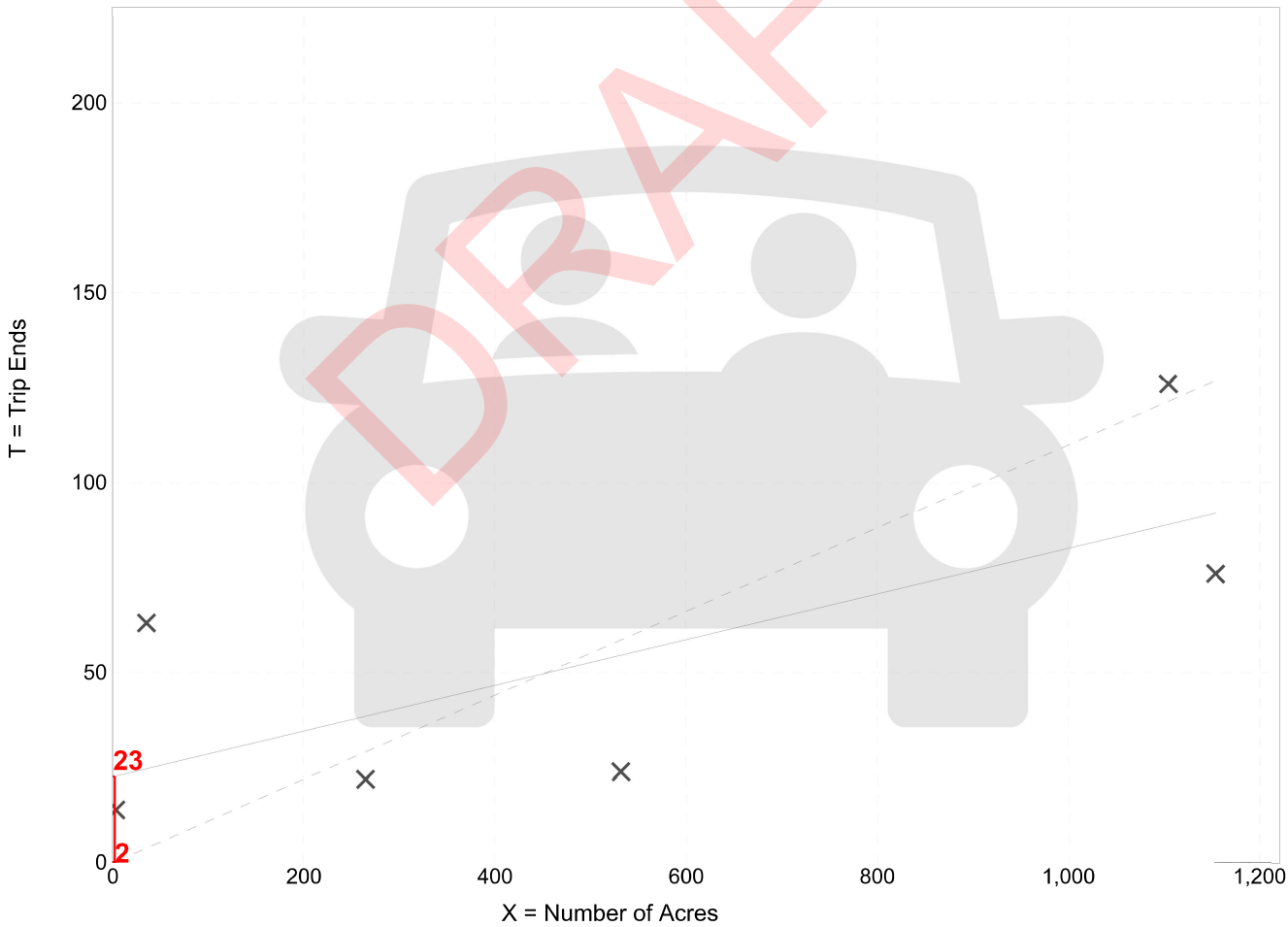
Public Park
(411)

Vehicle Trip Ends vs: **Acres**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. Num. of Acres: 516
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per Acre

Average Rate	Range of Rates	Standard Deviation
0.11	0.05 - 3.50	0.24

Data Plot and Equation



Fitted Curve Equation: T = 0.06(X) + 22.60

R^2= 0.53

APPENDIX E: CAMUTCD SIGNAL WARRANTS

MUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	2 or More Lanes
Minor Street:	1 Lane

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	Yes

Combination of Conditions A and B Necessary?*: Yes

**Only applicable for Warrant 1 if after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. See Section 4C.02 of the 2014 MUTCD for application.*

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	**Minor Street**	**100%**	**80%**	**70%**	**56%**	**100%**	**80%**	**70%**	**56%**
1	**1**	500	400	350	280	150	120	105	84
2 or More	**1**	600	480	420	336	150	120	105	84
2 or More	**2 or More**	600	480	420	336	200	160	140	112
1	**2 or More**	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	**Minor Street**	**100%**	**80%**	**70%**	**56%**	**100%**	**80%**	**70%**	**56%**
1	**1**	750	600	525	420	75	60	53	42
2 or More	**1**	900	720	630	504	75	60	53	42
2 or More	**2 or More**	900	720	630	504	100	80	70	56
1	**2 or More**	750	600	525	420	100	80	70	56

Condition A Evaluation

Number of Unique Hours Met: N/A **Condition A Satisfied?** N/A

Condition B Evaluation

Number of Unique Hours Met: N/A **Condition B Satisfied?** N/A

Combination of Condition A and Condition B Evaluation

Number of Unique Hours Met for Condition A: 0

Number of Unique Hours Met for Condition B: 13

Combination of Condition A and Condition B Satisfied? No

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	2 or More Lanes
Minor Street:	1 Lane

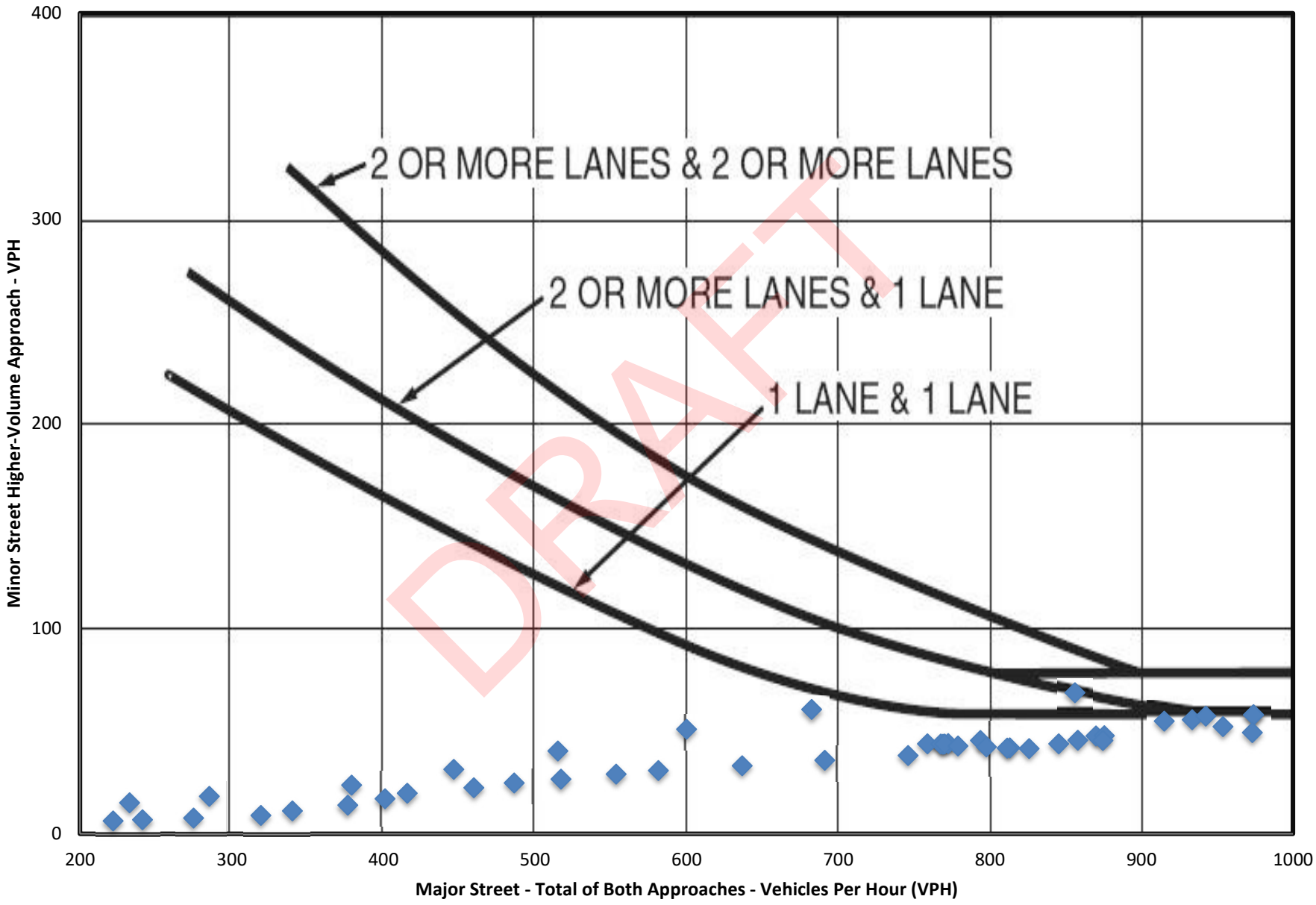
Total Number of Unique Hours Met On Figure 4C-2
5

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	Yes

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	99	1	
12:15 AM	88	1	
12:30 AM	80	1	
12:45 AM	71	1	
1:00 AM	66	1	
1:15 AM	63	1	
1:30 AM	57	1	
1:45 AM	54	1	
2:00 AM	53	1	
2:15 AM	57	1	
2:30 AM	63	1	
2:45 AM	73	2	
3:00 AM	82	3	
3:15 AM	88	4	
3:30 AM	94	6	
3:45 AM	113	8	
4:00 AM	139	10	
4:15 AM	182	12	
4:30 AM	233	15	
4:45 AM	285	18	
5:00 AM	379	24	
5:15 AM	447	31	
5:30 AM	515	40	
5:45 AM	600	51	
6:00 AM	683	61	
6:15 AM	856	69	
6:30 AM	1061	76	Met
6:45 AM	1200	80	Met
7:00 AM	1289	81	Met
7:15 AM	1269	78	Met
7:30 AM	1208	72	Met
7:45 AM	1153	64	Met
8:00 AM	1049	58	
8:15 AM	954	52	
8:30 AM	870	48	
8:45 AM	794	45	
9:00 AM	773	44	
9:15 AM	769	44	
9:30 AM	759	44	
9:45 AM	768	44	
10:00 AM	770	44	
10:15 AM	779	43	
10:30 AM	798	42	
10:45 AM	813	42	
11:00 AM	826	42	
11:15 AM	846	44	
11:30 AM	858	46	
11:45 AM	876	48	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	915	55	
12:15 PM	934	56	
12:30 PM	943	57	
12:45 PM	974	58	
1:00 PM	974	58	
1:15 PM	1006	58	
1:30 PM	1062	57	
1:45 PM	1118	57	
2:00 PM	1214	57	
2:15 PM	1261	57	
2:30 PM	1293	58	
2:45 PM	1328	60	Met
3:00 PM	1349	63	Met
3:15 PM	1370	65	Met
3:30 PM	1392	68	Met
3:45 PM	1385	69	Met
4:00 PM	1365	70	Met
4:15 PM	1363	69	Met
4:30 PM	1387	68	Met
4:45 PM	1374	68	Met
5:00 PM	1337	67	Met
5:15 PM	1294	63	Met
5:30 PM	1178	60	
5:45 PM	1073	55	
6:00 PM	973	49	
6:15 PM	875	45	
6:30 PM	812	42	
6:45 PM	746	38	
7:00 PM	691	36	
7:15 PM	637	33	
7:30 PM	582	31	
7:45 PM	554	29	
8:00 PM	517	27	
8:15 PM	486	25	
8:30 PM	460	22	
8:45 PM	416	20	
9:00 PM	401	17	
9:15 PM	377	14	
9:30 PM	340	11	
9:45 PM	319	9	
10:00 PM	275	8	
10:15 PM	241	7	
10:30 PM	222	6	
10:45 PM	190	6	
11:00 PM	176	4	

MUTCD Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)



MUTCD WARRANT 3, PEAK HOUR

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	2 or More Lanes
Minor Street:	1 Lane

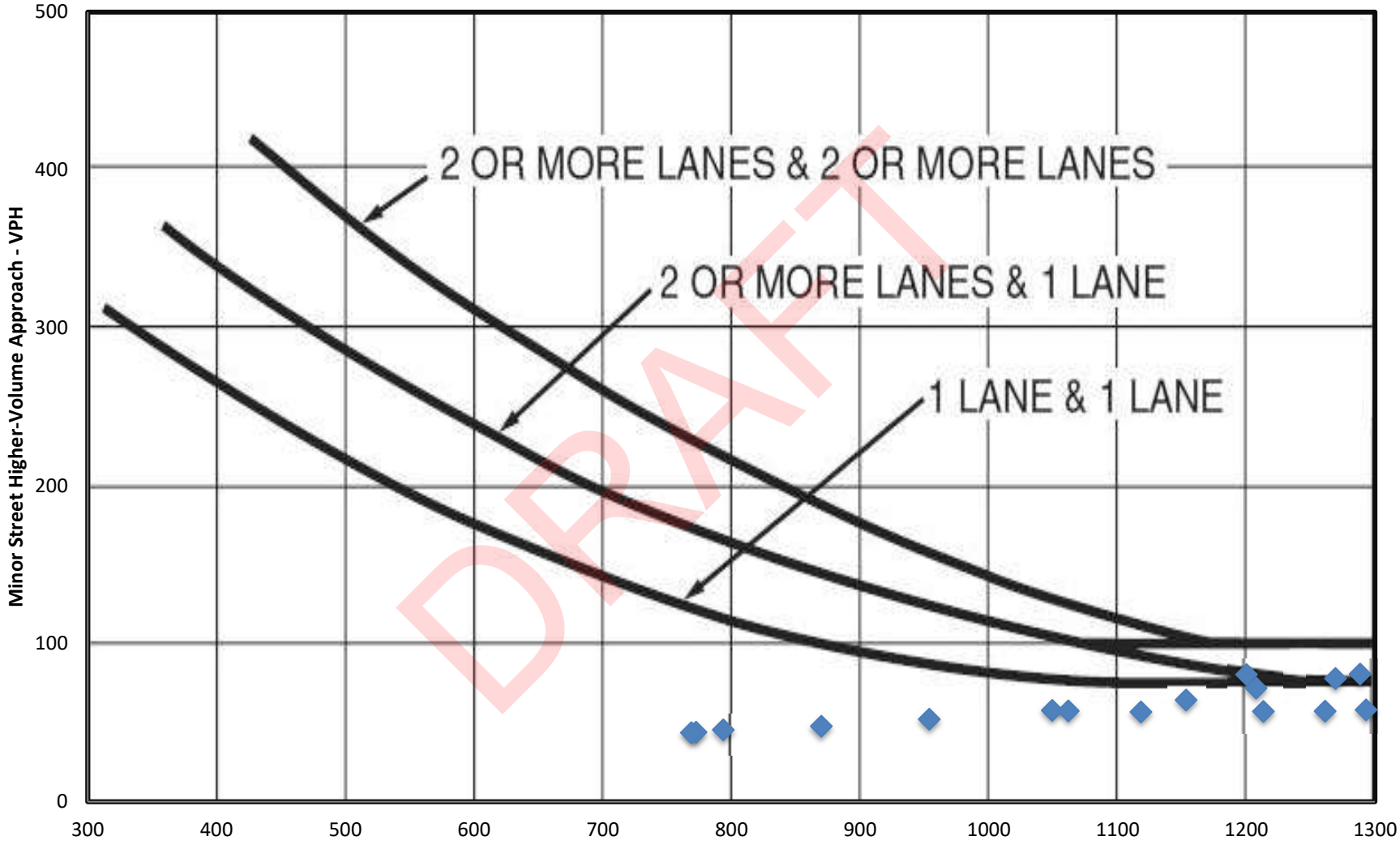
Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	Yes
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	No

Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	Yes
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	No
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	Yes
**If applicable, attach all supporting calculations and documentation.*	

Total Number of Unique Hours Met On Figure 4C-4
1

Hourly Vehicular Volume			
Hour Interval Beginning At	**Major Street Combined Vehicles Per Hour (VPH)**	**Highest Minor Street Approach Vehicles Per Hour (VPH)**	**Hour Met?**
6:45 AM	1200	80	Met
7:00 AM	1289	81	Met
7:15 AM	1269	78	Met
7:30 AM	1208	72	
7:45 AM	1153	64	
8:00 AM	1049	58	
8:15 AM	954	52	
8:30 AM	870	48	
8:45 AM	794	45	
9:00 AM	773	44	
9:15 AM	769	44	
1:30 PM	1062	57	
1:45 PM	1118	57	
2:00 PM	1214	57	
2:15 PM	1261	57	
2:30 PM	1293	58	
2:45 PM	1328	60	
3:00 PM	1349	63	
3:15 PM	1370	65	
3:30 PM	1392	68	
3:45 PM	1385	69	
4:00 PM	1365	70	

MUTCD Figure 4C-4. Warrant 3, Peak Hour (70% Factor)



APPENDIX F: SYNCHRO & SIDRA REPORTS

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	69	9	681	19	8	416
Future Vol, veh/h	69	9	681	19	8	416
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	91	92	92	80
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	75	10	748	21	9	520

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1286	374	0	0	769	0
Stage 1	748	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	171	629	-	-	854	-
Stage 1	434	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	169	629	-	-	854	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	583	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	39.9	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	185	854	-
HCM Lane V/C Ratio	-	-	0.458	0.01	-
HCM Control Delay (s)	-	-	39.9	9.3	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	2.2	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	14	685	5	0	424
Future Vol, veh/h	0	14	685	5	0	424
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	91	92	92	80
Heavy Vehicles, %	2	0	2	0	2	2
Mvmt Flow	0	15	753	5	0	530

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	377	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	626	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	626	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	626	-
HCM Lane V/C Ratio	-	-	0.024	-
HCM Control Delay (s)	-	-	10.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	7	465	72	30	728
Future Vol, veh/h	55	7	465	72	30	728
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	89
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	60	8	505	78	33	818

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1389	253	0	0	583	0
Stage 1	505	-	-	-	-	-
Stage 2	884	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	147	753	-	-	1001	-
Stage 1	577	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	142	753	-	-	1001	-
Mov Cap-2 Maneuver	142	-	-	-	-	-
Stage 1	577	-	-	-	-	-
Stage 2	394	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	44.6	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	156	1001	-
HCM Lane V/C Ratio	-	-	0.432	0.033	-
HCM Control Delay (s)	-	-	44.6	8.7	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	1.9	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	11	454	18	0	758
Future Vol, veh/h	0	11	454	18	0	758
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	89
Heavy Vehicles, %	2	0	2	0	2	2
Mvmt Flow	0	12	493	20	0	852

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	247	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	759	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	759	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	759	-
HCM Lane V/C Ratio	-	-	0.016	-
HCM Control Delay (s)	-	-	9.8	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	69	9	681	19	8	416
Future Volume (veh/h)	69	9	681	19	8	416
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1870
Adj Flow Rate, veh/h	75	10	748	21	9	520
Peak Hour Factor	0.92	0.92	0.91	0.92	0.92	0.80
Percent Heavy Veh, %	0	0	2	0	0	2
Cap, veh/h	128	17	2210	1001	584	1163
Arrive On Green	0.08	0.08	0.62	0.62	0.62	0.62
Sat Flow, veh/h	1557	208	3647	1610	711	1870
Grp Volume(v), veh/h	86	0	748	21	9	520
Grp Sat Flow(s),veh/h/ln	1785	0	1777	1610	711	1870
Q Serve(g_s), s	1.6	0.0	3.4	0.2	0.2	4.9
Cycle Q Clear(g_c), s	1.6	0.0	3.4	0.2	3.6	4.9
Prop In Lane	0.87	0.12		1.00	1.00	
Lane Grp Cap(c), veh/h	146	0	2210	1001	584	1163
V/C Ratio(X)	0.59	0.00	0.34	0.02	0.02	0.45
Avail Cap(c_a), veh/h	1269	0	2210	1001	584	1163
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	3.1	2.4	3.9	3.3
Incr Delay (d2), s/veh	3.7	0.0	0.4	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.1	0.0	0.0	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.7	0.0	3.5	2.5	4.0	4.6
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h	86		769			529
Approach Delay, s/veh	18.7		3.4			4.6
Approach LOS	B		A			A

Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		26.0			26.0	7.8
Change Period (Y+Rc), s		5.0			5.0	5.0
Max Green Setting (Gmax), s		21.0			21.0	24.0
Max Q Clear Time (g_c+I1), s		5.4			6.9	3.6
Green Ext Time (p_c), s		4.2			2.6	0.2

Intersection Summary	
HCM 6th Ctrl Delay	4.8
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	14	685	5	0	424
Future Vol, veh/h	0	14	685	5	0	424
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	91	92	92	80
Heavy Vehicles, %	2	0	2	0	2	2
Mvmt Flow	0	15	753	5	0	530

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	377	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	626	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	626	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	626	-
HCM Lane V/C Ratio	-	-	0.024	-
HCM Control Delay (s)	-	-	10.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	55	7	465	72	30	728
Future Volume (veh/h)	55	7	465	72	30	728
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1870
Adj Flow Rate, veh/h	60	8	505	78	33	818
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.89
Percent Heavy Veh, %	0	0	2	0	0	2
Cap, veh/h	101	13	2513	1139	721	1322
Arrive On Green	0.06	0.06	0.71	0.71	0.71	0.71
Sat Flow, veh/h	1552	207	3647	1610	845	1870
Grp Volume(v), veh/h	69	0	505	78	33	818
Grp Sat Flow(s),veh/h/ln	1785	0	1777	1610	845	1870
Q Serve(g_s), s	1.6	0.0	2.1	0.7	0.6	10.0
Cycle Q Clear(g_c), s	1.6	0.0	2.1	0.7	2.7	10.0
Prop In Lane	0.87	0.12		1.00	1.00	
Lane Grp Cap(c), veh/h	116	0	2513	1139	721	1322
V/C Ratio(X)	0.60	0.00	0.20	0.07	0.05	0.62
Avail Cap(c_a), veh/h	977	0	2513	1139	721	1322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	0.0	2.2	2.0	2.7	3.3
Incr Delay (d2), s/veh	4.8	0.0	0.2	0.1	0.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.1	0.0	0.0	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.8	0.0	2.4	2.1	2.8	5.5
LnGrp LOS	C	A	A	A	A	A
Approach Vol, veh/h	69		583			851
Approach Delay, s/veh	24.8		2.3			5.4
Approach LOS	C		A			A

Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		36.0			36.0	7.8
Change Period (Y+Rc), s		5.0			5.0	5.0
Max Green Setting (Gmax), s		31.0			31.0	24.0
Max Q Clear Time (g_c+I1), s		4.1			12.0	3.6
Green Ext Time (p_c), s		3.4			5.5	0.1

Intersection Summary	
HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	11	454	18	0	758
Future Vol, veh/h	0	11	454	18	0	758
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	89
Heavy Vehicles, %	2	0	2	0	2	2
Mvmt Flow	0	12	493	20	0	852

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	247	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	759	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	759	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

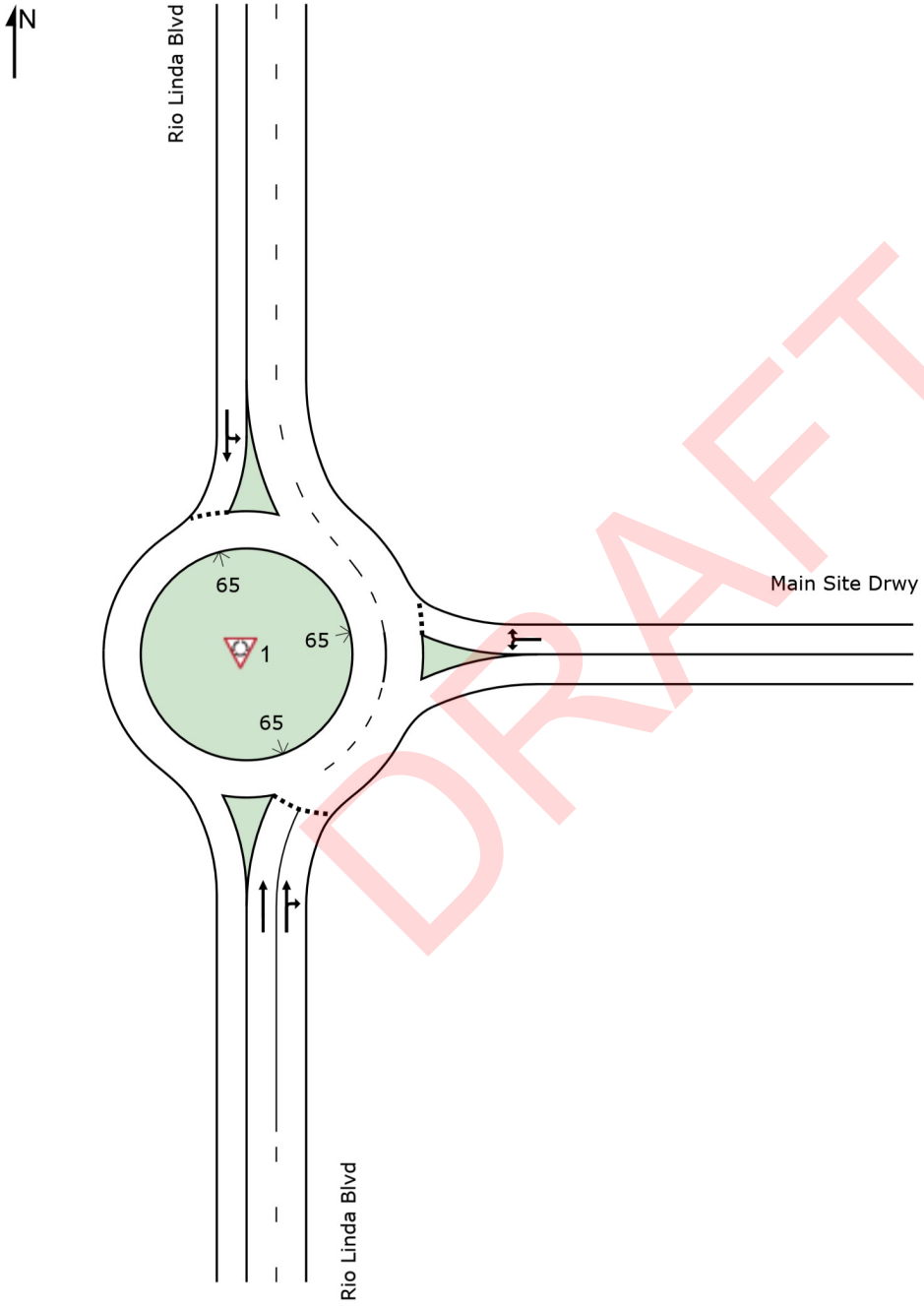
Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	759	-
HCM Lane V/C Ratio	-	-	0.016	-
HCM Control Delay (s)	-	-	9.8	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

SITE LAYOUT

Site: 1 [Rio Linda Blvd & Main Site Drwy]

Existing Plus Project - AM Peak
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

Site: 1 [Rio Linda Blvd & Main Site Drwy]

Existing Plus Project - AM Peak
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Rio Linda Blvd												
8	T1	748	2.0	0.278	5.6	LOS A	1.4	36.6	0.06	0.46	0.06	39.6
18	R2	21	0.0	0.278	5.3	LOS A	1.4	36.6	0.06	0.47	0.06	30.3
Approach		769	1.9	0.278	5.6	LOS A	1.4	36.6	0.06	0.46	0.06	39.3
East: Main Site Drwy												
1	L2	75	0.0	0.114	8.5	LOS A	0.4	10.2	0.56	0.78	0.56	28.3
16	R2	10	0.0	0.114	4.6	LOS A	0.4	10.2	0.56	0.78	0.56	27.9
Approach		85	0.0	0.114	8.0	LOS A	0.4	10.2	0.56	0.78	0.56	28.2
North: Rio Linda Blvd												
7	L2	9	0.0	0.422	10.7	LOS B	2.8	70.7	0.30	0.49	0.30	30.9
4	T1	520	2.0	0.422	6.1	LOS A	2.8	70.7	0.30	0.49	0.30	38.6
Approach		529	2.0	0.422	6.2	LOS A	2.8	70.7	0.30	0.49	0.30	38.5
All Vehicles		1382	1.8	0.422	6.0	LOS A	2.8	70.7	0.19	0.49	0.19	38.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Rio Linda Blvd & Main Site Drwy]

Existing Plus Project - PM Peak
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Rio Linda Blvd												
8	T1	505	2.0	0.215	5.7	LOS A	1.0	26.0	0.13	0.47	0.13	39.4
18	R2	78	0.0	0.215	5.4	LOS A	1.0	26.0	0.13	0.48	0.13	30.1
Approach		584	1.7	0.215	5.7	LOS A	1.0	26.0	0.13	0.47	0.13	37.8
East: Main Site Drwy												
1	L2	60	0.0	0.074	7.3	LOS A	0.3	6.6	0.47	0.67	0.47	28.6
16	R2	8	0.0	0.074	3.4	LOS A	0.3	6.6	0.47	0.67	0.47	28.2
Approach		67	0.0	0.074	6.9	LOS A	0.3	6.6	0.47	0.67	0.47	28.6
North: Rio Linda Blvd												
7	L2	33	0.0	0.668	10.9	LOS B	7.1	180.4	0.43	0.48	0.43	30.6
4	T1	818	2.0	0.668	6.2	LOS A	7.1	180.4	0.43	0.48	0.43	38.1
Approach		851	1.9	0.668	6.4	LOS A	7.1	180.4	0.43	0.48	0.43	37.7
All Vehicles		1502	1.8	0.668	6.1	LOS A	7.1	180.4	0.31	0.49	0.31	37.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	2	6	66	5	8	23	802	18	7	496	10
Future Vol, veh/h	10	2	6	66	5	8	23	802	18	7	496	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	150	200	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	91	92	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	2	0
Mvmt Flow	11	2	7	72	5	9	25	881	20	8	620	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1129	1587	310	1258	1578	441	631	0	0	901	0	0
Stage 1	636	636	-	931	931	-	-	-	-	-	-	-
Stage 2	493	951	-	327	647	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	161	109	692	130	110	570	961	-	-	763	-	-
Stage 1	437	475	-	291	348	-	-	-	-	-	-	-
Stage 2	532	341	-	665	470	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	148	105	692	123	106	570	961	-	-	763	-	-
Mov Cap-2 Maneuver	148	105	-	123	106	-	-	-	-	-	-	-
Stage 1	426	470	-	283	339	-	-	-	-	-	-	-
Stage 2	502	332	-	649	465	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.2	72.7	0.2	0.1
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	961	-	-	189	132	763	-	-
HCM Lane V/C Ratio	0.026	-	-	0.104	0.651	0.01	-	-
HCM Control Delay (s)	8.8	-	-	26.2	72.7	9.8	-	-
HCM Lane LOS	A	-	-	D	F	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	3.5	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	13	815	5	0	513
Future Vol, veh/h	0	13	815	5	0	513
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	91	92	92	80
Heavy Vehicles, %	2	0	2	0	2	2
Mvmt Flow	0	14	896	5	0	641

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	448	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	564	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	564	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	564	-
HCM Lane V/C Ratio	-	-	0.025	-
HCM Control Delay (s)	-	-	11.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	6	24	53	4	7	66	545	69	28	874	24
Future Vol, veh/h	38	6	24	53	4	7	66	545	69	28	874	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	150	200	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	89	92
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	2	0
Mvmt Flow	41	7	26	58	4	8	72	592	75	30	982	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1484	1853	491	1291	1804	296	1008	0	0	667	0	0
Stage 1	1042	1042	-	736	736	-	-	-	-	-	-	-
Stage 2	442	811	-	555	1068	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	88	75	529	123	80	706	695	-	-	932	-	-
Stage 1	249	309	-	381	428	-	-	-	-	-	-	-
Stage 2	570	396	-	489	301	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	65	529	97	69	706	695	-	-	932	-	-
Mov Cap-2 Maneuver	75	65	-	97	69	-	-	-	-	-	-	-
Stage 1	223	299	-	341	383	-	-	-	-	-	-	-
Stage 2	500	355	-	440	291	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	94.5	91.5	1	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	695	-	-	106	104	932	-	-
HCM Lane V/C Ratio	0.103	-	-	0.697	0.669	0.033	-	-
HCM Control Delay (s)	10.8	-	-	94.5	91.5	9	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	3.6	3.4	0.1	-	-

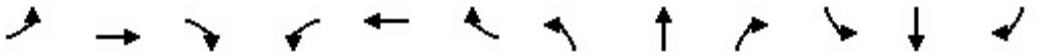
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	10	573	17	0	926
Future Vol, veh/h	0	10	573	17	0	926
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	89
Heavy Vehicles, %	2	0	2	0	2	2
Mvmt Flow	0	11	623	18	0	1040

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	312	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	690	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	690	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	690	-
HCM Lane V/C Ratio	-	-	0.016	-
HCM Control Delay (s)	-	-	10.3	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2	6	66	5	8	23	802	18	7	496	10
Future Volume (veh/h)	10	2	6	66	5	8	23	802	18	7	496	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1870	1900	1900	1870	1900
Adj Flow Rate, veh/h	11	2	7	72	5	9	25	881	20	8	620	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.92	0.80	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	0	0	2	0
Cap, veh/h	234	32	55	311	8	15	642	2184	990	517	2184	990
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.61	0.61	0.61	0.61	0.61	0.61
Sat Flow, veh/h	757	349	595	1261	88	158	808	3554	1610	628	3554	1610
Grp Volume(v), veh/h	20	0	0	86	0	0	25	881	20	8	620	11
Grp Sat Flow(s),veh/h/ln	1701	0	0	1506	0	0	808	1777	1610	628	1777	1610
Q Serve(g_s), s	0.0	0.0	0.0	1.5	0.0	0.0	0.5	4.3	0.2	0.2	2.8	0.1
Cycle Q Clear(g_c), s	0.4	0.0	0.0	1.8	0.0	0.0	3.3	4.3	0.2	4.6	2.8	0.1
Prop In Lane	0.55		0.35	0.84		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	0	0	333	0	0	642	2184	990	517	2184	990
V/C Ratio(X)	0.06	0.00	0.00	0.26	0.00	0.00	0.04	0.40	0.02	0.02	0.28	0.01
Avail Cap(c_a), veh/h	1249	0	0	1227	0	0	642	2184	990	517	2184	990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	0.0	14.9	0.0	0.0	3.8	3.4	2.6	4.5	3.1	2.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.0	0.1	0.6	0.0	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	0.0	0.0	15.3	0.0	0.0	4.0	3.9	2.6	4.6	3.4	2.6
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		20			86			926			639	
Approach Delay, s/veh		14.3			15.3			3.9			3.4	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.0		8.2		26.0		8.2				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		21.0		24.0		21.0		24.0				
Max Q Clear Time (g_c+I1), s		6.3		2.4		6.6		3.8				
Green Ext Time (p_c), s		5.1		0.0		3.4		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			4.4									
HCM 6th LOS			A									

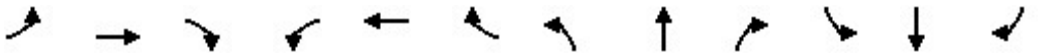
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	13	815	5	0	513
Future Vol, veh/h	0	13	815	5	0	513
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	91	92	92	80
Heavy Vehicles, %	2	0	2	0	2	2
Mvmt Flow	0	14	896	5	0	641

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	448	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	564	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	564	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	564	-
HCM Lane V/C Ratio	-	-	0.025	-
HCM Control Delay (s)	-	-	11.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	6	24	53	4	7	66	545	69	28	874	24
Future Volume (veh/h)	38	6	24	53	4	7	66	545	69	28	874	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1870	1900	1900	1870	1900
Adj Flow Rate, veh/h	41	7	26	58	4	8	72	592	75	30	982	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	0	0	2	0
Cap, veh/h	221	24	57	293	12	18	481	2310	1047	634	2310	1047
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	816	244	574	1286	121	182	582	3554	1610	782	3554	1610
Grp Volume(v), veh/h	74	0	0	70	0	0	72	592	75	30	982	26
Grp Sat Flow(s),veh/h/ln	1634	0	0	1589	0	0	582	1777	1610	782	1777	1610
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	0.0	2.7	2.8	0.7	0.7	5.3	0.2
Cycle Q Clear(g_c), s	1.5	0.0	0.0	1.4	0.0	0.0	8.1	2.8	0.7	3.5	5.3	0.2
Prop In Lane	0.55		0.35	0.83		0.11	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	303	0	0	323	0	0	481	2310	1047	634	2310	1047
V/C Ratio(X)	0.24	0.00	0.00	0.22	0.00	0.00	0.15	0.26	0.07	0.05	0.43	0.02
Avail Cap(c_a), veh/h	1065	0	0	1044	0	0	481	2310	1047	634	2310	1047
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	0.0	16.8	0.0	0.0	5.3	2.9	2.6	3.7	3.4	2.5
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	0.7	0.3	0.1	0.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.5	0.0	0.0	0.2	0.2	0.1	0.1	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	0.0	0.0	17.2	0.0	0.0	6.0	3.2	2.7	3.8	4.0	2.5
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		74			70			739			1038	
Approach Delay, s/veh		17.3			17.2			3.4			3.9	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		9.0		31.0		9.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		26.0		24.0		26.0		24.0				
Max Q Clear Time (g_c+I1), s		10.1		3.5		7.3		3.4				
Green Ext Time (p_c), s		4.1		0.3		6.5		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			4.7									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	10	573	17	0	926
Future Vol, veh/h	0	10	573	17	0	926
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	89
Heavy Vehicles, %	2	0	2	0	2	2
Mvmt Flow	0	11	623	18	0	1040

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	312	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	690	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	690	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

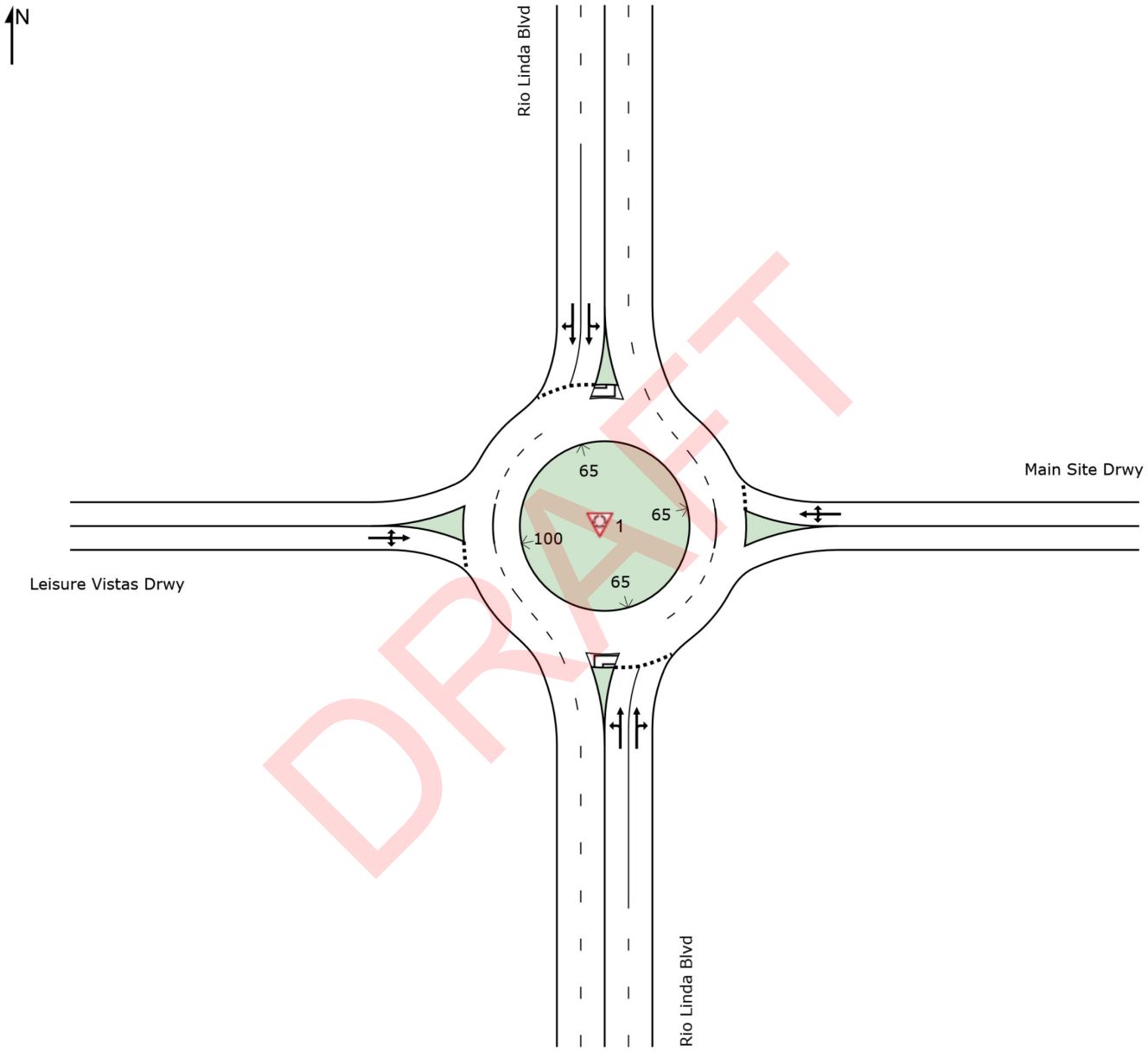
Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	690	-
HCM Lane V/C Ratio	-	-	0.016	-
HCM Control Delay (s)	-	-	10.3	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

SITE LAYOUT

Site: 1 [Rio Linda Blvd & Main Site Drwy/Leisure Vistas Drwy]

2040 Cumulative - AM Peak
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

Site: 1 [Rio Linda Blvd & Main Site Drwy/Leisure Vistas Drwy]

2040 Cumulative - AM Peak
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Rio Linda Blvd												
3	L2	25	0.0	0.339	9.4	LOS A	1.9	48.1	0.12	0.47	0.12	37.9
8	T1	881	2.0	0.339	5.7	LOS A	1.9	48.1	0.12	0.47	0.12	39.3
18	R2	20	0.0	0.339	5.4	LOS A	1.9	48.1	0.12	0.46	0.12	30.1
Approach		926	1.9	0.339	5.8	LOS A	1.9	48.1	0.12	0.47	0.12	39.0
East: Main Site Drwy												
1	L2	72	0.0	0.134	9.4	LOS A	0.5	11.8	0.60	0.81	0.60	28.5
6	T1	5	0.0	0.134	8.6	LOS A	0.5	11.8	0.60	0.81	0.60	27.7
16	R2	9	0.0	0.134	5.6	LOS A	0.5	11.8	0.60	0.81	0.60	27.9
Approach		86	0.0	0.134	8.9	LOS A	0.5	11.8	0.60	0.81	0.60	28.4
North: Rio Linda Blvd												
7	L2	8	0.0	0.252	10.9	LOS B	1.2	30.8	0.26	0.48	0.26	31.4
4	T1	620	2.0	0.252	5.8	LOS A	1.2	30.8	0.26	0.48	0.26	39.3
14	R2	11	0.0	0.252	5.0	LOS A	1.2	30.8	0.26	0.47	0.26	36.7
Approach		638	1.9	0.252	5.8	LOS A	1.2	30.8	0.26	0.48	0.26	39.1
West: Leisure Vistas Drwy												
5	L2	11	0.0	0.025	12.0	LOS B	0.1	2.2	0.52	0.72	0.52	34.6
2	T1	2	0.0	0.025	6.9	LOS A	0.1	2.2	0.52	0.72	0.52	34.7
12	R2	7	0.0	0.025	6.4	LOS A	0.1	2.2	0.52	0.72	0.52	34.0
Approach		20	0.0	0.025	9.6	LOS A	0.1	2.2	0.52	0.72	0.52	34.4
All Vehicles		1670	1.8	0.339	6.0	LOS A	1.9	48.1	0.20	0.49	0.20	38.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Rio Linda Blvd & Main Site Drwy/Leisure Vistas Drwy]

2040 Cumulative - PM Peak
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Rio Linda Blvd												
3	L2	72	0.0	0.284	9.7	LOS A	1.4	36.6	0.23	0.52	0.23	37.0
8	T1	592	2.0	0.284	5.9	LOS A	1.4	36.6	0.23	0.51	0.23	38.6
18	R2	75	0.0	0.284	5.6	LOS A	1.4	36.6	0.23	0.49	0.23	29.9
Approach		739	1.6	0.284	6.3	LOS A	1.4	36.6	0.23	0.51	0.23	37.3
East: Main Site Drwy												
1	L2	58	0.0	0.090	8.1	LOS A	0.3	8.0	0.54	0.74	0.54	29.0
6	T1	4	0.0	0.090	7.4	LOS A	0.3	8.0	0.54	0.74	0.54	28.1
16	R2	8	0.0	0.090	4.4	LOS A	0.3	8.0	0.54	0.74	0.54	28.4
Approach		70	0.0	0.090	7.7	LOS A	0.3	8.0	0.54	0.74	0.54	28.8
North: Rio Linda Blvd												
7	L2	30	0.0	0.421	11.2	LOS B	2.5	62.8	0.37	0.52	0.37	31.1
4	T1	982	2.0	0.421	6.0	LOS A	2.5	62.8	0.37	0.52	0.37	38.8
14	R2	26	0.0	0.421	5.3	LOS A	2.5	62.8	0.37	0.51	0.37	36.3
Approach		1039	1.9	0.421	6.2	LOS A	2.5	62.8	0.37	0.52	0.37	38.4
West: Leisure Vistas Drwy												
5	L2	41	0.0	0.131	14.3	LOS B	0.5	11.3	0.64	0.86	0.64	33.5
2	T1	7	0.0	0.131	9.2	LOS A	0.5	11.3	0.64	0.86	0.64	33.6
12	R2	26	0.0	0.131	8.7	LOS A	0.5	11.3	0.64	0.86	0.64	32.9
Approach		74	0.0	0.131	11.9	LOS B	0.5	11.3	0.64	0.86	0.64	33.3
All Vehicles		1921	1.6	0.421	6.5	LOS A	2.5	62.8	0.33	0.53	0.33	37.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.