Traffic Impact Study

Waldorf Astoria Lake Tahoe

Transportation Impact Study

Prepared for

EKN Tahoe, LLC

Prepared by LSC Transportation Consultants

Waldorf Astoria Lake Tahoe Transportation Impact Study

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EXECUTIVE SUMMARY

PURPOSE

This report presents the traffic impacts associated with the proposed redevelopment of the Tahoe Biltmore Lodge and Casino area located in Crystal Bay, Nevada, within current conditions. This project (Waldorf Astoria Lake Tahoe, or "WALT") would construct a resort with 191 lodging and residential units, a 10,000 square-foot casino, restaurants, retail uses, and associated amenities. Analysis is conducted for both existing, opening year, and future horizon year conditions. WALT is a Plan Revision of the actively permitted TRPA project called Boulder Bay (TRPA permit #CEPP2008-0123). The plan revision is a modification of the currently approved project that reduces the number of units by 183 (or 51%), enhances the guest arrival experience and creates a community gathering area known as The Grove. The Plan Revision does not make any changes to the state and county roadways associated with the approved project. In this report, the WALT project is compared to existing conditions assuming the Biltmore is in full operation today (the Baseline Biltmore). Comparing the WALT project to the approved Boulder Bay project is excluded from this report.

CONCLUSIONS

The conclusions of the traffic analysis are as follows:

1. At the site access points, the WALT project would result in a net reduction of 537 daily one-way vehicle-trips (or a 13-percent reduction) over the Baseline Biltmore use. (The "Baseline Biltmore" use reflects peak-season Year 2006 operations at the previous Tahoe Biltmore, consistent with the baseline assumptions at the time of the original project approval.) During the key PM peak hour, the project would reduce vehicle-trips at the driveways by 74 (or 22 percent), compared to the Baseline Biltmore use.

2. The proposed project would result in a net reduction in vehicle trips on regional roadways (such as SR 28) away from the site access points (Stateline Road and Big Water Road) of 26 percent over the course of a day, and 35 percent over the key PM peak hour, compared to the Baseline Biltmore use. On average, the proposed project would reduce peak-hour traffic volumes on a busy summer day on SR 28 by about 3.5 percent in the eastbound/northbound direction and 1 percent in the westbound/southbound direction.

3. The SR 28/Lakeshore Boulevard intersection located at the west end of Incline Village, Nevada exceeds LOS standards under all study scenarios, with or without the proposed WALT project. The proposed project would reduce the traffic volumes through this intersection, thereby reducing driver delays. This is considered to be a beneficial impact.

4. The project-generated traffic volume impact on the adjacent local streets to the north of the site is expected to be minimal. The WALT site plan provides all access to the parking areas at locations close to SR 28, which tends to encourage use of the state highway rather than local roads. While there is an additional access point defined as the "Guest Arrival" area that is further from SR 28, use of this will be limited to the initial lodging guest arrival trip as opposed to the subsequent trips made by guests. The site plan also increases the travel distance (and thus travel time) on the local roads to circulate behind the site. In addition, the proposed project would slightly reduce the potential for

diversion of traffic to avoid queues generated by the pedestrian signal. A total of 33 daily inbound trips are expected to take Big Water Road to the Guest Arrival located on upper Stateline Road over the course of the day, with 13 of the trips occurring in the PM Peak Hour.

5. "Cut-through" traffic through the site is expected to be minimal. Previously, traffic wanting to cut through the site (to avoid the stretch of highway through Crystal Bay) would travel west on Reservoir Road to Wassou Road and then south on Stateline Road for a total travel distance of 1,090 feet. With the project, the cut-through route will be from Big Water Road, south on Wassou Road, and then south on Stateline Road for a total travel distance of 1,880 feet. With the increase of travel distance, cut-through traffic is expected to be reduced.

6. The eastbound traffic queues forming along SR 28 at the pedestrian crossing signal extend into and beyond the Stateline Road intersection during peak periods, with or without the project. However, given the presence of the central Two-Way Left-Turn Lane (TWLTL) on SR 28 to the east of Stateline Road, this queue does not hinder the ability for turns to be made from Stateline Road. Implementation of the proposed project is not expected to materially affect the traffic queue lengths at the pedestrian signal under any study scenario.

   In addition, in Incline Village, the northbound traffic queues on the Lakeshore Boulevard approach to SR 28 interfere with left turns to/from some of the driveways along the lake-side of Lakeshore Boulevard, with or without the proposed project. However, as the proposed WALT would reduce this queue length, it would have a beneficial impact.

7. The analysis of the need for new turn lanes along SR 28 indicates the following:

   - *SR 28/Stateline Road* - The peak-hour traffic volumes with the Baseline Biltmore use meet the warrant criteria for a new eastbound left-turn lane on SR 28. With implementation of the proposed WALT project, not only would this warrant be met, but a westbound right-turn lane would also be warranted. Widening SR 28 to provide a left-turn lane immediately west of Stateline Road would alleviate the eastbound traffic queues caused by vehicles waiting to turn left into Stateline Road, under both Baseline Biltmore conditions and proposed WALT conditions. Note that this new turn lane would be located in California, on a Caltrans-maintained roadway segment. However, as the LOS for the eastbound approach is forecast to remain at LOS A in the AM Peak Hour and remain at LOS B in the PM Peak Hour and as TRPA staff indicates roadway widening is not consistent with other regional goals, the eastbound left-turn lane is not necessary.

     Considering the relatively slow speeds of southbound traffic at this location (25 miles per hour speed limit), the potential for rear-end crashes is relatively low. There are no LOS deficiencies. A westbound right-turn lane is therefore not necessary.

   - *SR 28/Big Water Road* -

     - The peak-hour traffic volumes with the proposed WALT meet the warrant criteria for a new northbound left-turn lane on SR 28, although the left turns (up to 8 left turns per hour) only make up 1 percent of the directional volume. This improvement is not necessary, considering the low turning volume and the relatively slow speeds of northbound traffic at this location.

- The peak-hour volumes with the proposed WALT on SR 28 meet the warrant criteria for a new southbound right-turn lane (for turns into Big Water Road). However, considering the relatively low right-turn volume, the relatively slow speeds of southbound traffic, and that the LOS for the southbound approach is forecast to remain at LOS A, a southbound right-turn lane is not necessary.

- *SR 28/Lakeshore Boulevard* -

  - The peak-hour traffic volumes with the existing Baseline Biltmore use meet the warrant criteria for a new westbound left-turn lane on SR 28, although the left turns represent less than 2 percent of the directional volume.

  - A new eastbound left-turn lane (for left turns onto Pinion Drive) is marginally warranted with the existing Baseline Biltmore use. The left turns represent less than 1 percent of the directional volume.

  - A new eastbound right-turn lane (for right turns onto Lakeshore Boulevard) is warranted with the existing Baseline Biltmore.

  Though the new turn lanes above would be warranted under conditions with the proposed WALT project, the proposed project would reduce the traffic volumes through this intersection, which is a beneficial impact compared to Baseline Biltmore conditions.

8. The existing Biltmore driveway spacing along SR 28 does not meet NDOT's minimum spacing requirement for access points along a Minor Arterial roadway. As the proposed project would eliminate two existing access points along SR 28, this would improve the driveway spacing conditions. The existing driveways also do not meet the minimum spacing requirement set forth in the Washoe County Development Code for Commercial Driveways on minor arterials. With implementation of the proposed project, the two driveways that do not meet the County's spacing requirement would be eliminated, thereby improving transportation conditions along SR 28.

9. Adequate driver sight distance is expected to be provided at the proposed site access locations, so long as the final landscaping plans do not hinder the intersection sight distance. It must be ensured that the final landscaping plans provide adequate driver sight distance. Given this, and considering that the project would reduce the number of (closely-spaced) driveways along SR 28, this is considered a beneficial impact on transportation safety conditions.

   The project would have a beneficial impact on bicyclist conditions, considering that it would construct a Class 1 bicycle lane within the public right of way and/or a dedicated easement adjacent to SR 28 along the project frontage, and that the project would reduce the number of driveways along the corridor (thereby improving bicyclist safety conditions).

   The proposed project is estimated to reduce pedestrian crossing activity along SR 28 by roughly 30 percent from previous (Baseline Biltmore) levels, primarily due to the significant reduction in gaming floor area. The existing crosswalk location best serves overall pedestrian demand patterns, though minor reconfiguration may be appropriate once final plans for the north side of the highway are

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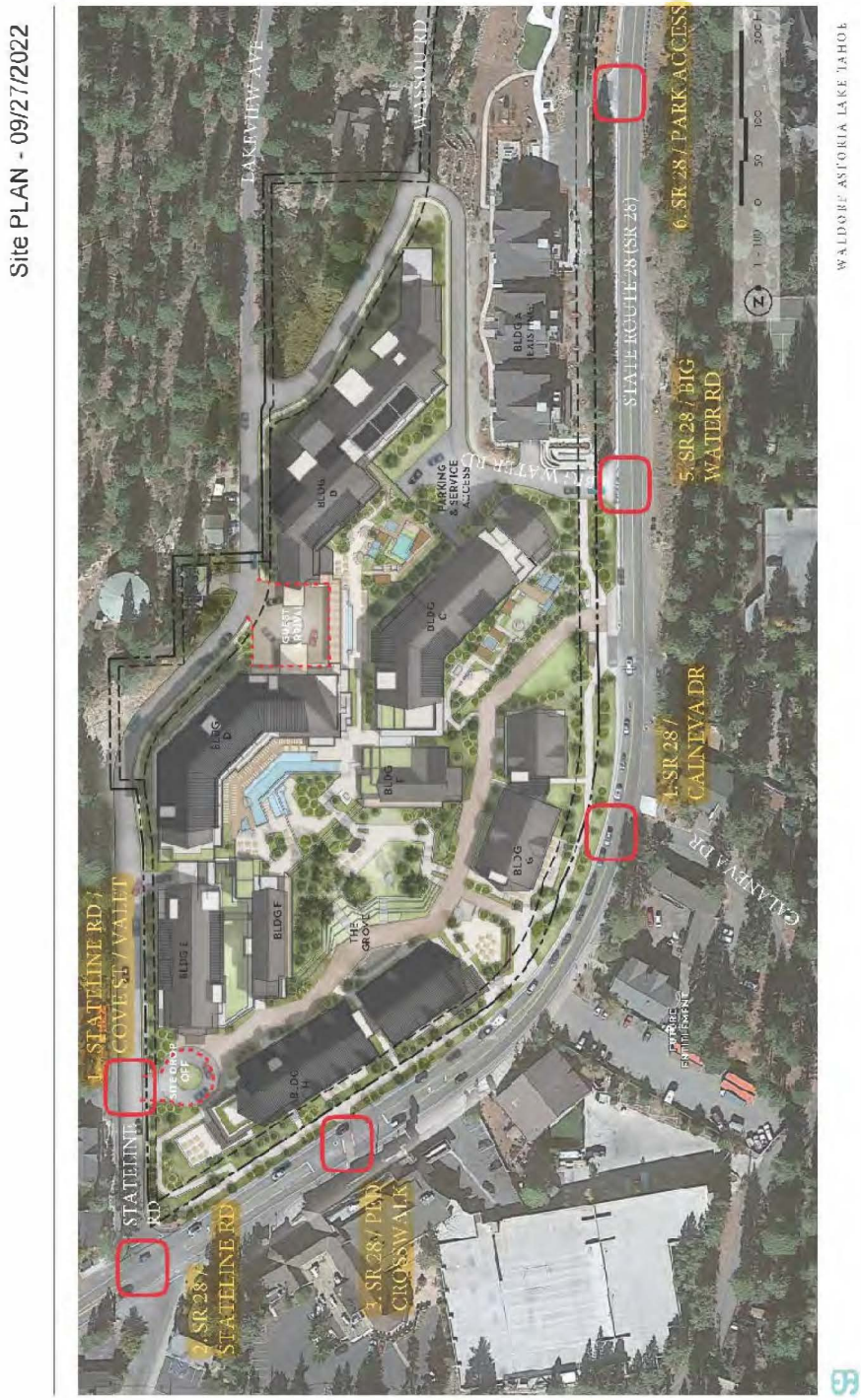
determined. Straightening the crosswalk would provide for a shorter, more logical, and therefore safer crossing for pedestrians. It is recommended that the final project plans consider a site plan that straightens out the existing crosswalk on SR 28, allowing a direct perpendicular pedestrian crossing. The location of bus stops should be coordinated with the transit agencies.



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CHAPTER 1
Introduction

The Waldorf Astoria Lake Tahoe (WALT) development project proposes to redevelop the existing site of the Tahoe Biltmore Lodge and Casino area located along the north/west side of State Route 28 (SR 28) in Crystal Bay, Nevada. In addition, this proposal would result in the removal of the existing uses on the Crystal Bay Motel site. While the project applicant also owns the SR 28 Commercial Center next to The Nugget on the south side of SR 28, no changes are planned to this facility as part of the current proposal. Note that the proposed WALT project is different than the approved "Boulder Bay Community Enhancement Program Project" (Boulder Bay) for which an EIS was prepared in 2009. The Boulder Bay development project is not addressed in this transportation impact study.

This document presents a focused analysis of transportation issues associated with the proposed project, including the following:

- Project impacts on site access intersections, and associated need for intersection or roadway modifications
- Impacts of the proposed project on public safety regarding access
- Impact on bicyclist conditions
- Impact on adjacent local streets
- Pedestrian crossing of SR 28

The following scenarios are included in this study:

1. Existing Year (2022) Conditions With Baseline Biltmore Uses
2. Opening Year (2028) With Baseline Biltmore
3. Opening Year (2028) With Proposed WALT
4. Future Horizon Year With Baseline Biltmore
5. Future Horizon Year With Proposed WALT

Initially, existing and future background conditions are discussed. The proposed development is then assessed to determine the number of vehicle-trips that will be generated. These vehicle-trips are then assigned to the nearby roadway system to identify the impact on traffic operations under opening year and future horizon year conditions. Finally, a site access evaluation, transportation safety-related analysis, impacts on bicyclist conditions, and a pedestrian crossing analysis are presented.

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CHAPTER 2
Existing and Future Background Conditions

The following discussion presents information regarding the transportation characteristics of the project site and existing and future background traffic conditions in the study area.

EXISTING ROADWAY CHARACTERISTICS

The private automobile is the primary mode of transportation in the Lake Tahoe Basin. In Crystal Bay, the major internal road system near the project site includes the following:

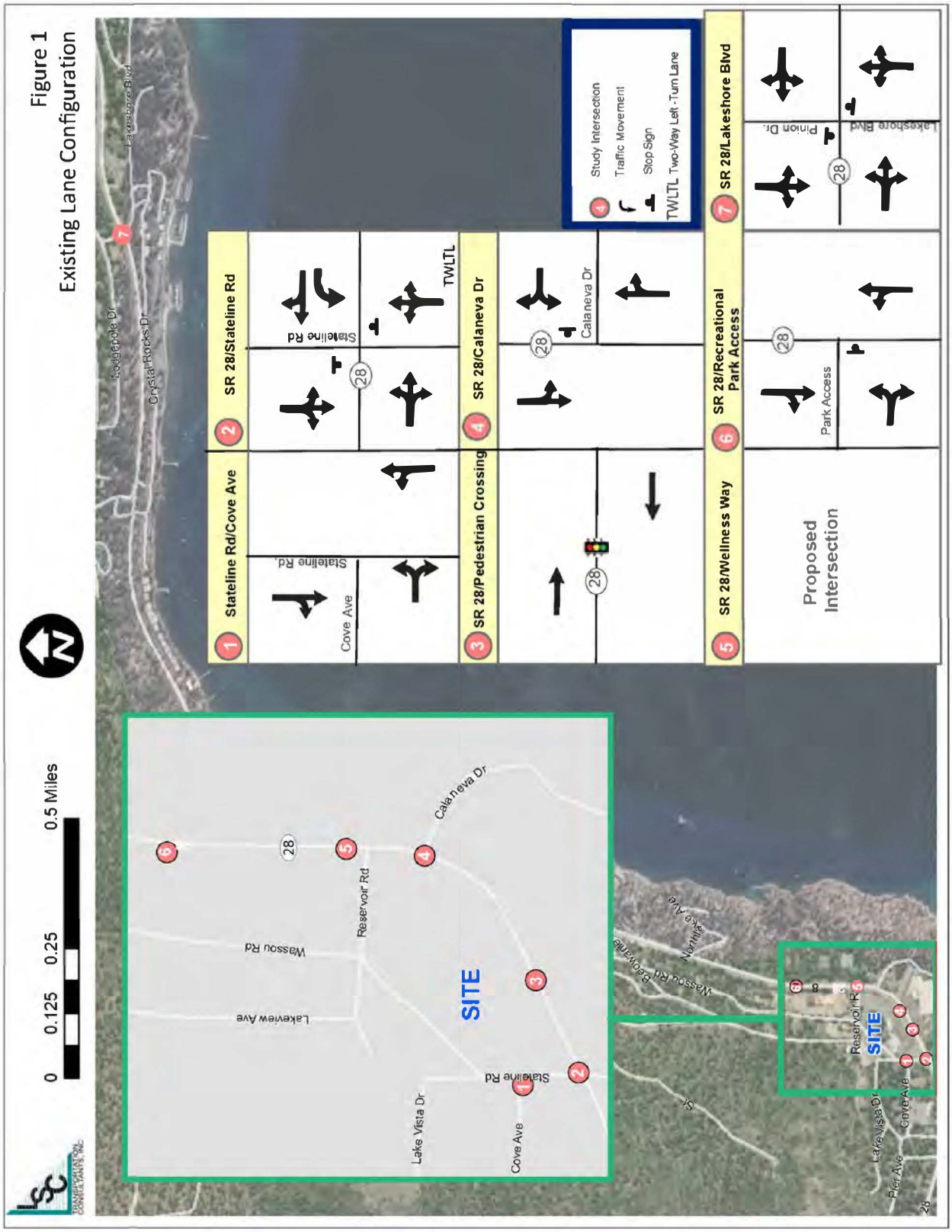
- *SR 28 (Tahoe Boulevard)* through Crystal Bay is a two-lane facility along the north shore of Lake Tahoe from Tahoe City to the west to US 50/Spooner Summit to the east. Near the project site, SR 28 has a posted speed limit of 25 miles per hour. The speed limit increases to 35 miles per hour at the California-Nevada state line to the west and 0.1 miles to the east (north) of the SR 28/Reservoir Road intersection. There is an existing radar speed-feedback sign on eastbound SR 28 immediately south of the recreational park driveway. The roadway segment between Stateline Road and The Nugget Casino contains a central Two-Way Left-Turn Lane (TWLTL). SR 28 in Crystal Bay is an NDOT-owned road that is functionally classified as an urban minor arterial.
- *Stateline Road* is a short two-lane road running north/south through Crystal Bay. It services mainly residential areas along with some commercial areas, stretching from the Crystal Bay Club on the south to Lake Vista Drive on the north.
- *Reservoir Road* is a small two-lane road connecting SR 28 to Wassou Road, providing an access to the residential areas to the north.
- *Lakeview Avenue and Wassou Road* are residential streets north of the project site. Access to these streets from SR 28 is provided by Reservoir Road and Stateline Road on the south, and Beowawie and Amagosa Roads to the north.
- *Calaneva Drive* is a local roadway looping around the south side of the Crystal Bay Club, Nugget Casino and other properties on the south side of SR 28.

All traffic control in the site vicinity is provided by Stop signs on the side street approaches to SR 28. In addition, there is a pedestrian activated traffic signal on SR 28 approximately 300 feet east of Stateline Road (between the Crystal Bay Club and Tahoe Biltmore gaming areas).

The following existing intersections are analyzed in this study:

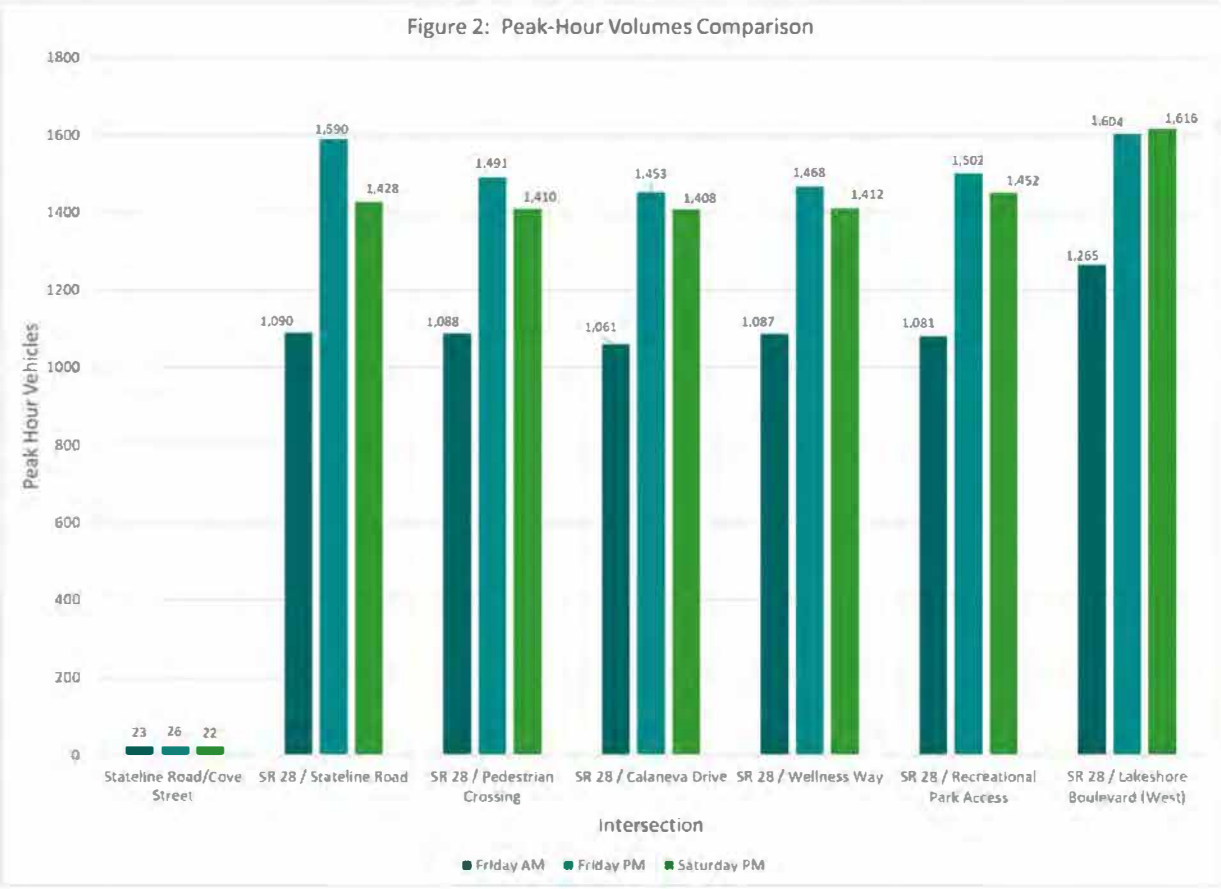
- SR 28 (Tahoe Boulevard)/Stateline Road
- SR 28 (Tahoe Boulevard)/Pedestrian Crossing (signalized)
- SR 28 (Tahoe Boulevard)/Calaneva Drive
- SR 28 (Tahoe Boulevard)/Recreational Park Access
- SR 28 (Tahoe Boulevard)/Lakeshore Road
- Stateline Road/Cove Street

The existing intersection lane configurations and control are shown in Figure 1.



EXISTING TRAFFIC VOLUMES

AM and PM peak-hour intersection turning-movement counts (vehicles, bicyclists and pedestrians) were conducted by LSC at the study intersections along SR 28 in Crystal Bay on Friday and Saturday, July 8-9, 2022. PM counts were also conducted at the SR 28/Lakeshore Boulevard and Stateline Road/Cove Avenue intersections. The counts were conducted on Friday from 8-10 AM and from 2:30 to 5:30 PM, and on Saturday from 1:30 to 4:30 PM. The AM peak hour occurred from 9:00 AM to 10:00 AM, and the PM peak hour varied and occurred between 3:15 PM and 5:30 PM. As illustrated in Figure 2, a comparison of the Friday and Saturday PM counts indicates Friday has the highest PM traffic volumes in Crystal Bay, while Saturday has the highest PM traffic at the SR 28/Lakeshore Boulevard intersection in Incline Village. The highest PM volumes at each intersection location are used, for purposes of this study. The figure also shows that PM peak hour volumes are substantially higher than AM peak hour volumes. The raw count data is provided in Appendix A.



The Nevada Department of Transportation (NDOT) has a permanent count station on SR 28 at a point west of the western end of Lakeshore Boulevard (the closest available location). As shown in Table 1, annual average daily traffic volumes (AADT) generally increased from 2011 to 2018, and then dropped from 2018 to 2020 (the low point in 2020 coincides with the COVID-19 pandemic). The 2021 AADT at this location is 12,700, which is lower than the volume reported in 2018.

Table 1 – NDOT Annual Average Daily Traffic Volumes on SR 28

Station 312240: 915ft N of Lakeshore Dr/Pinion Dr from Lakeshore Blvd to CA/NV Line

Year	Average Annual Daily Traffic
2021	12,700
2020	12,100
2019	12,900
2018	13,400
2017	12,900
2016	12,700
2015	12,400
2014	12,000
2013	12,000
2012	11,300
2011	12,000

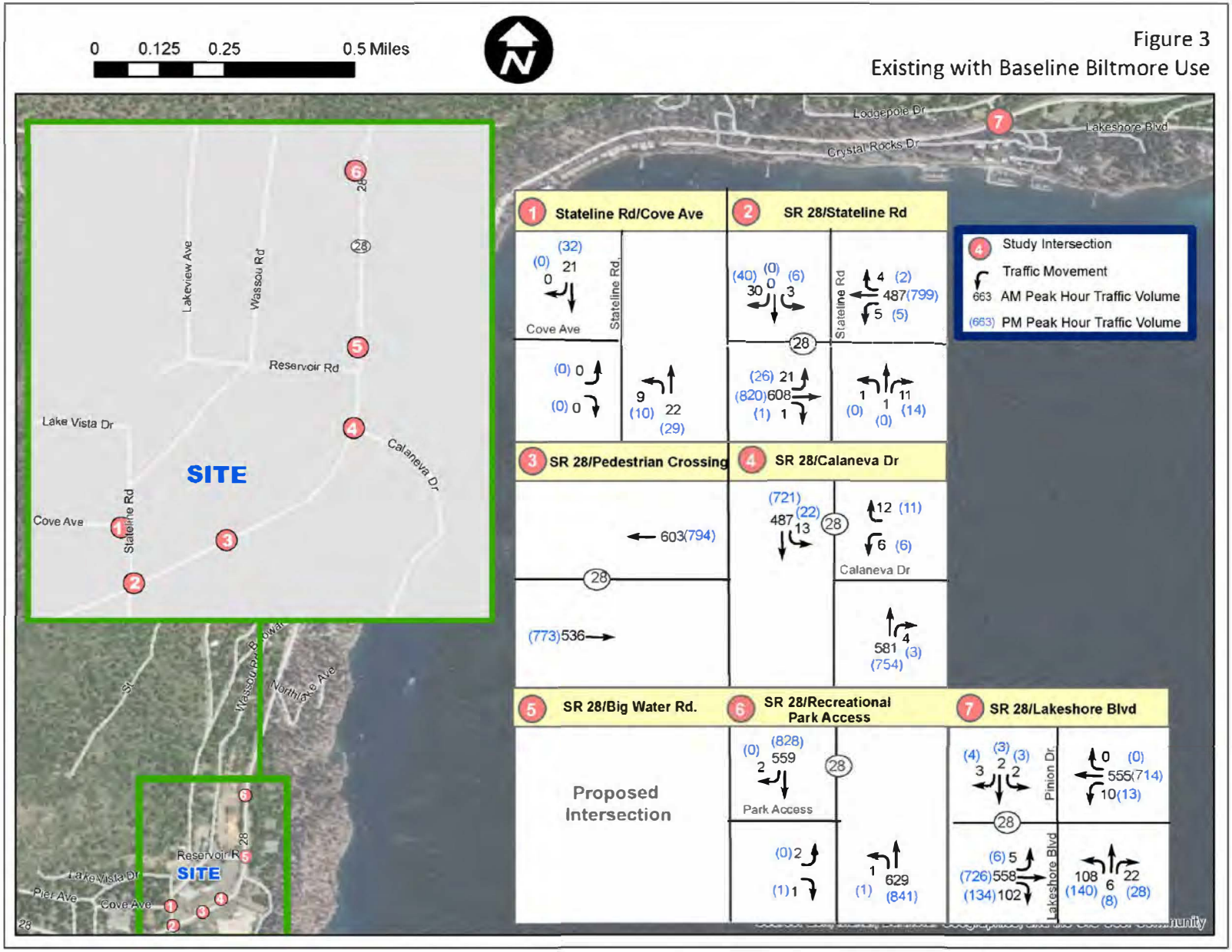
Source: NDOT Traffic Information Systems

NDOT also provides monthly average daily traffic data on SR 28 at this location. A review of this data indicates that the highest traffic volumes occur in the month of July. Thus, the traffic volumes used for this study (based on July counts) represent conditions during the busiest month. Furthermore, NDOT weekly traffic data indicates the highest daily volumes typically occur on Fridays in summer.

Finally, a review of Caltrans traffic volumes indicates that the peak-hour total two-way volume on SR 28 immediately west of the California-Nevada State Line was 1,600 in 2018 and in 2019. (This volume dropped to 1,500 in 2020). The Year 2022 traffic counts conducted by LSC at the SR 28/Stateline Road intersection as a part of this study indicate a peak-hour total two-way volume on SR 28 immediately west of Stateline Road of 1,563 vehicles. As this figure is within 3 percent of the 2018 and 2019 volume, the volumes used in this study are considered to represent busy year conditions.

Traffic Volumes of Baseline Biltmore Use

The Tahoe Biltmore operations were closed at the time the new (2022) traffic counts were conducted. However, for purposes of this study, the baseline scenario assumes full operation of the Baseline Biltmore uses. These land uses are described in Chapter 3, along with a trip generation analysis. Adding the Baseline Biltmore site-generated traffic to the Year 2022 traffic counts results in the 'Existing With Baseline Biltmore' peak-hour traffic volumes shown in Figure 3.



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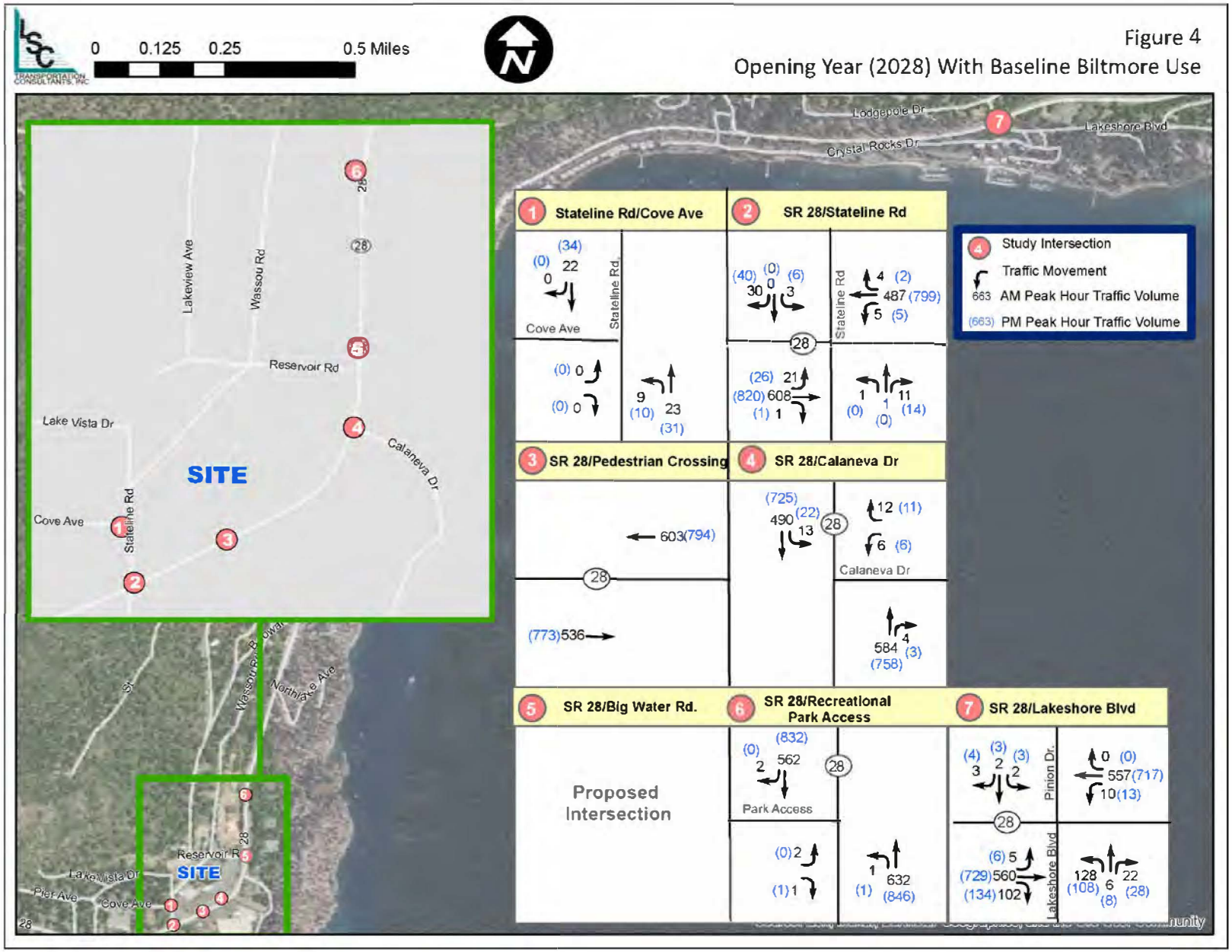
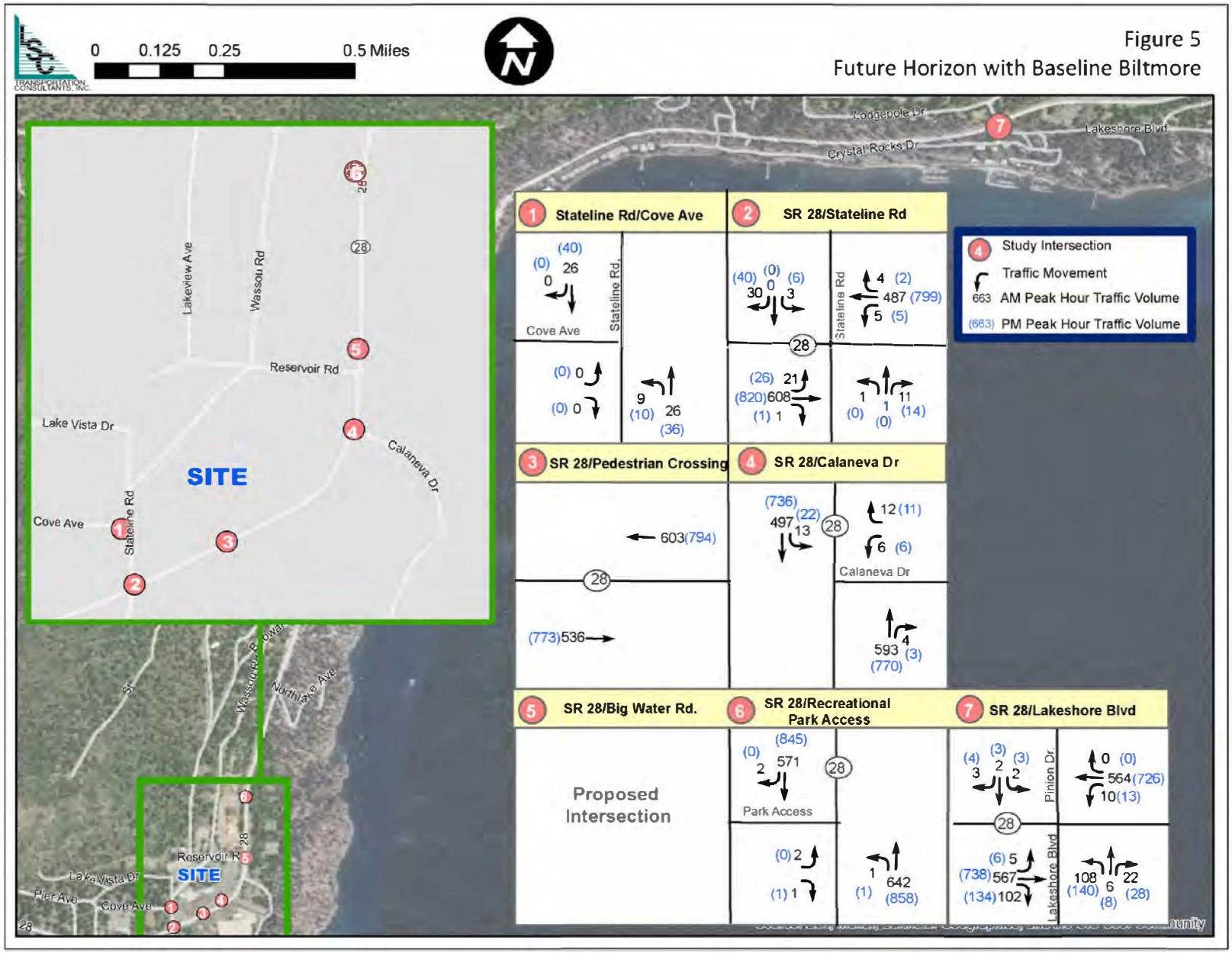
FUTURE BACKGROUND TRAFFIC VOLUMES

Opening Year (2028) and future horizon year traffic volumes are developed based upon growth forecasts from the TRPA's TransCAD Travel Demand Model. Roadway segment volumes from the base year (2018) land use model are subtracted from those of the future (2045) land use model to estimate the growth in traffic between the base and future model years. Next, the traffic generated from the modeled land uses assumed for the Biltmore site are subtracted from the model growth. An average annual growth rate is estimated for each roadway segment. The resulting average annual growth rates are relatively small, with 0.004 percent growth per year along SR 28 west of Stateline Road, 0.1 percent growth on SR 28 south of Calaneva Drive, 0.1 percent at the SR 28/Lakeshore Boulevard intersection, 0.2 percent on Calaneva Drive, and 0.9 percent on Stateline Road. The respective average annual growth rates are applied to the existing year traffic volumes to estimate opening year (2028) and future horizon year background traffic volumes (with the Baseline Biltmore use). The resulting volumes are shown in Figures 4 and 5.


0 0.125 0.25 0.5 Miles
Figure 4
Opening Year (2028) With Baseline Biltmore Use
SITE
Lake Vista Dr
Reservoir Rd
Lakeview Ave
Wassou Rd
Stateline Rd
Cove Ave
Calaneva Dr
Lodgepole Dr
Crystal Rocks Dr
Lakeshore Blvd
1 Stateline Rd/Cove Ave
2 SR 28/Stateline Rd
3 SR 28/Pedestrian Crossing
4 SR 28/Calaneva Dr
5 SR 28/Big Water Rd.
6 SR 28/Recreational Park Access
7 SR 28/Lakeshore Blvd
Study Intersection
Traffic Movement
663 AM Peak Hour Traffic Volume
(663) PM Peak Hour Traffic Volume
Proposed Intersection
Park Access
Pinion Dr.
Lakeshore Blvd
Pier Ave
North Lake Ave


0 0.125 0.25 0.5 Miles
Figure 5
Future Horizon with Baseline Biltmore
SITE
Lake Vista Dr
Reservoir Rd
Lakeview Ave
Wassou Rd
Stateline Rd
Cove Ave
Calaneva Dr
Lodgepole Dr
Crystal Rocks Dr
Lakeshore Blvd
1 Stateline Rd/Cove Ave
2 SR 28/Stateline Rd
3 SR 28/Pedestrian Crossing
4 SR 28/Calaneva Dr
5 SR 28/Big Water Rd.
6 SR 28/Recreational Park Access
7 SR 28/Lakeshore Blvd
Proposed Intersection
Park Access
Pinion Dr.
Study Intersection
Traffic Movement
663 AM Peak Hour Traffic Volume
(663) PM Peak Hour Traffic Volume

CHAPTER 3
Traffic Generation, Distribution, and Assignment

The assessment of transportation-related impacts begins with the development of trip generation estimates for the project. The trip generation of the proposed WALT use is compared to that of the Baseline Biltmore use, in order to determine the project's net impact on trip generation. Once trip data are available, then impacts to levels of service can be assessed.

LAND USE COMPARISON

The land use quantities for the Baseline Biltmore scenario and the proposed WALT scenario are summarized in Table 2. As shown, the total number of lodging/residential units under each scenario is as follows:

- 111 units for the Baseline Biltmore use
- 191 units for WALT

Also worth noting is that the Baseline Biltmore casino was 22,400 square feet, while the WALT casino floor area is reduced to 10,000 square feet. The proposed WALT has about twice as much restaurant area. Additionally, the WALT project proponent will provide a shuttle service as an amenity available to the site's residents and guests upon request, with service to/from public beaches (excluding Speedboat Beach) in summer and to/from Northstar California Resort in winter. Some level of shuttle service will be provided year-round, with adjustments made for summer and winter peak seasons.

TRIP GENERATION

Trip generation is the process by which engineers estimate the amount of traffic that would be associated with a development proposal. This trip generation analysis is conducted for summer daily, AM and PM peak-hour conditions.

Trip Generation of Baseline Biltmore

At the time of this study, the Biltmore operations are completely closed. For purposes of this analysis, the daily trip generation of the Baseline Biltmore use is assumed to be 3,895 daily one-way external trips on the surrounding roadway network. This figure represents actual vehicle trips counted on the Biltmore site driveways in the Year 2008, adjusted to reflect Year 2006 (busier) conditions. The estimated daily trip generation of 3,895 was provided by Fehr & Peers as the lead traffic consultant for the Boulder Bay EIS (reference "Project Alternatives Trip Generation Summary", Fehr & Peers, March 11, 2011, attached herein as Appendix B, and referenced in the TRPA staff summary for the Governing Board hearing for Boulder Bay). Of the 3,895 daily external trips, 320 occur during the PM peak hour.

TABLE 2: Waldorf Astoria at Lake Tahoe (WALT) - Land Use Comparison

	Baseline Biltmore		WALT	
LODGING/RESIDENTIAL				
Hotel Units	92	Units	76	Units
Motel Units	19	Units	-	-
Hotel Residential [1]	-	-	58	Keys
Granite Place (≤3 floors)	-	-	18	DU
Whole Ownership (>3 floors)	-	-	25	DU
Employee Housing	-	-	14	DU
Shuttle Vehicle	-	-	1	vehicle
Meeting Space	Accessory Use		Accessory Use	
Convenience Dining	Accessory Use		Accessory Use	
Bar/Lounge	Accessory Use		Accessory Use	
Service Retail	Accessory Use		Accessory Use	
Daycare Center	Accessory Use		Accessory Use	
Spa	Accessory Use		Accessory Use	
Fitness Center	Accessory Use		Accessory Use	
Subtotal Lodging/Residential	*111*	*DU*	*191*	*Units*
CASINO	*22.383*	*KSF*	*10.000*	*KSF*
RESTAURANT				
Café/Fast Food	-	-	2.235	KSF
Casual Dining	4.5	KSF	12.280	KSF
Fine Dining	3.3	KSF	-	-
Subtotal Restaurant	*7.8*	*KSF*	*14.515*	*KSF*
RETAIL/COMMERCIAL				
Retail	-	-	*4.2*	*KSF*
RECREATION				
County Park	-	-	*3.07*	*acres*

DU = Dwelling Units; KSF = 1,000 Square Feet

Note 1: WALT Hotel residential units include 36 main units and 22 lock-offs for a total of 58 keys.

Source: LSC Transportation Consultants, Inc.

The 3,895 daily trips do not include "pass-by" trips, which are trips generated on the site driveways by vehicles already present on SR 28 "passing-by" the Biltmore site as part of a longer trip. For example, a driver traveling around Lake Tahoe who stops by a restaurant at the Biltmore site would be making a pass-by trip. In this case, the restaurant land use would have generated one inbound plus one outbound trip on the site driveway but would not have generated new traffic on SR 28. Based on the analysis for the approved Baseline Biltmore use, the number of pass-by trips generated by the previous use is 184 daily pass-by trips, with 15 occurring during the PM peak hour. To estimate the total trips crossing the site driveways, the pass-by trips are added to the external trips. This results in a total of 4,079 daily trips and 335 PM peak-hour trips crossing the site driveways. Detailed calculations are provided in Appendix B.

Trip Generation of Proposed Use (WALT)

The site plan is contained in Appendix C, and the proposed land uses and land use quantities are shown in the left-hand columns of Table 3. Standard daily and peak-hour trip generation rates are drawn from the Institute of Transportation Engineers (ITE) *Trip Generation, 11th Edition* manual (ITE, 2021). These standard rates are shown in Table 3. Note that at the time of this study, 18 residential units (Granite Place condominiums) were already constructed and occupied in the area known as "Building A" on the site plan. These units are accessed via existing Big Water Road. For purposes of this study, the 18 units are assumed to be part of the proposed project. With implementation of the project, Big Water Road would be extended to Wassou Road, providing a public roadway connection between SR 28 and the neighborhood above the site.

The proposed WALT land use types are based on the categories identified in the ITE Trip Generation manual. Standard daily and peak-hour trip generation rates are drawn from the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition manual (ITE, 2021), with the exception of the casino, as discussed below. The trip generation rates are based on the following methodology and assumptions:

- Lodging/Residential Trip Generation – The number of available units is increased from 111 previously existing hotel/motel units to 191 proposed lodging and residential units, including 14 employee housing units.
- Hotel Residential Units – These units will be available for participation in a rental pool operated by the hotel, and they will be served by hotel employees. As such, these units are treated as commercial lodging units, rather than residential condos. In addition, 100 percent of lock-off units are assumed to be locked-off, to remain conservatively high in the analysis of trip generation impacts. For purposes of this analysis, 36 "base" units plus 22 lock-off units are assumed, for a total of 58 keys.
- Trip Generation of WALT Shuttle Service – The project proponent will provide a shuttle service as an amenity available to WALT residents and guests upon request, with service to/from public beaches (excluding Speedboat Beach) in summer and to/from Northstar California Resort in winter. Some level of shuttle service will be provided year-round, with adjustments made for summer and winter peak seasons. During busy summer days, one proposed shuttle vehicle is assumed to make round trips between the WALT and nearby beaches for 12 hours a day, departing the WALT Resort once an hour. The shuttle vehicle trips crossing the WALT site driveways are shown as a separate line item under the lodging/ residential category in Table 3.

- **Casino Trip Generation** – With implementation of the proposed project, casino floor area would be reduced by roughly half (from 22,400 to 10,000 square feet). As typical hotels do not contain a casino, the casino gaming area is analyzed individually. The trip generation of the casino is estimated based upon the TRPA-approved trip rates of 265.88 daily one-way trips per thousand square feet of gaming floor area and 16.67 PM peak-hour trips per thousand square feet.
- **Restaurant/Bar Trip Generation** – The proposed WALT provides about twice as much restaurant floor area as the Baseline Biltmore program. The trips generated by restaurant uses compared to that of other site uses indicate that a substantial proportion of trips must come from outside of the project. Convenience dining and bar/lounge uses within the hotel have been integrated into the "Hotel" rate, according to the Institute of Transportation Engineers (ITE) definition of a "Hotel" use. (The ITE definition for a hotel is as follows: "A hotel is a place of lodging that provides sleeping accommodations and supporting facilities such as a full-service restaurant, cocktail lounge, meeting rooms, banquet room, and convention facilities. A hotel typically provides a swimming pool or another recreational facility such as a fitness room.")
- **Retail Trip Generation** – Retail uses are proposed to increase to 4,200 square feet, excluding the accessory uses within the hotel. The service retail uses are included in the ITE "Hotel" rate, by definition of use.
- **Meeting Space Trip Generation** – The trip generation of the WALT meeting space is included in the ITE "Hotel" rate, by definition.

Reductions for Internal Trips

As is typical of a mixed-land use development, some persons generating a trip at the site would visit more than one of the land uses at the site during the same "trip." Common traffic engineering practice dictates that a reduction in total trip generation can be applied to the project, as some of the persons generating trips at one of the land uses can generate a trip at another of the included land uses without generating an additional vehicle trip at the common site access point(s). As an example, a portion of the trips generated by a property with both retail and restaurant uses would be internal to the property, as some restaurant customers also visit the retail shops, or retail employees frequent the restaurant. Some of the restaurant customers would also be patrons of the hotel or other on-site amenities. The portion of the persons generating a trip at a mixed-use development that would visit two or more uses within the development is based on the types of uses within the development, the size of the individual uses, and the distances between them.

The proportion of trips that remain internal to the site (such as lodging guests visiting the casino) are based upon surveys conducted of the previous Biltmore site lodging guests, casino guests, and employees in 2007, a review of the trip internalization assumptions in the approved Boulder Bay Community Enhancement Program EIS, and the guidance provided in the ITE *Trip Generation Handbook* regarding internal capture within a mixed-use development. As shown in the middle column of Table 3, about one-third of the trips generated by the lodging uses are expected to be made to/from another on-site use.

TABLE 3: Waldorf Astoria Lake Tahoe (WALT) - Trip Generation Analysis

Description	Land Use	ITE Land Use Code	Quantity	Unit	Trip Generation Rates[1] Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Percent Reduction for Trips Internal to Project Site	Percent Reduction for External Non-Auto Trips	Site-Generated External One-Way Vehicle Trips Crossing Site Driveways Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Percent Reduction for Pass-by Trips[2]	Site-Generated External Vehicle Trips on Roadway Network Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
PROPOSED WALT																												
LODGING/RESIDENTIAL																												
Hotel Units	Hotel	310	76	Units	8.07	0.26	0.20	0.46	0.30	0.29	0.59	34%	34%	267	9	6	15	10	10	20	0%	267	9	6	15	10	10	20
Hotel Residential[3]	Hotel	310	58	Keys	8.07	0.26	0.20	0.46	0.30	0.29	0.59	34%	34%	204	7	5	12	7	8	15	0%	204	7	5	12	7	8	15
Granite Place (≤3 floors) [4]	Multifamily Housing (Low-Rise)	220	18	DU	6.74	0.10	0.30	0.40	0.32	0.19	0.51	34%	34%	53	1	2	3	3	1	4	0%	53	1	2	3	3	1	4
Exclusive Residential (>3 floors)	Multifamily Housing (Mid-Rise)	221	25	DU	4.54	0.09	0.28	0.37	0.24	0.15	0.39	34%	34%	50	1	3	4	3	1	4	0%	50	1	3	4	3	1	4
Employee Housing	Multifamily Housing (Low-Rise)	220	14	DU	6.74	0.10	0.30	0.40	0.32	0.19	0.51	25%	30%	49	1	2	3	2	2	4	0%	49	1	2	3	2	2	4
Shuttle Vehicle	N/A (vehicle-trip analysis)	N/A	1	vehicle	24	1	1	2	1	1	2	0%	0%	24	1	1	2	1	1	2	0%	24	1	1	2	1	1	2
Subtotal Lodging/Residential			*191*	*Units*										*647*	*20*	*19*	*39*	*26*	*23*	*49*		*647*	*20*	*19*	*39*	*26*	*23*	*49*
CASINO	Gaming (Non-Restricted)	N/A	10	KSF	265.88	8.39	6.59	14.97	11.82	4.85	16.67	45%	12%	1,287	41	32	73	57	24	81	0%	1,287	41	32	73	57	24	81
MEETINGS/EVENTS																												
RESTAURANT																												
Café/Fast Food	Fast Food, No Drive Through	933	2.235	KSF	450.49	25.04	18.14	43.18	16.61	16.61	33.21	26%	12%	656	36	27	63	24	24	48	43%	374	21	15	36	14	13	27
Casual Dining	High Turnover - Sit Down Restaurant	932	12.280	KSF	107.2	5.26	4.31	9.57	5.52	3.53	9.05	26%	12%	857	42	35	77	44	28	72	43%	488	24	20	44	25	16	41
Subtotal Restaurant			*14.52*	*KSF*										*1,513*	*78*	*62*	*140*	*68*	*52*	*120*		*862*	*45*	*35*	*80*	*39*	*29*	*68*
RETAIL/COMMERCIAL																												
Retail	Strip Retail Plaza (<40k)	822	4.2	KSF	54.45	1.42	0.94	2.36	3.30	3.30	6.59	55%	9%	94	2	2	4	6	5	11	5%	89	2	2	4	6	4	10
RECREATION																												
County Park[5]	Public Park	411	3.07	acres	0.78	0.01	0.01	0.02	0.06	0.05	0.11	20%	10%	1	0	0	0	0	0	0	0%	1	0	0	0	0	0	0
TOTAL PROPOSED USE												36%		**3,542**	**141**	**115**	**256**	**157**	**104**	**261**		**2,886**	**108**	**88**	**196**	**128**	**80**	**208**
Trip Generation of Baseline Biltmore														4,079	118	94	212	172	163	335		3,895	118	94	212	166	154	320
PROJECT NET IMPACT (WALT minus Baseline Biltmore)														*-537*	*23*	*21*	*44*	*-15*	*-59*	*-74*		*-1,009*	*-10*	*-6*	*-16*	*-38*	*-74*	*-112*
% Change Compared to Baseline Biltmore														*-13%*			*21%*			*-22%*		*-26%*			*-8%*			*-35%*

DU= Dwelling Unit. KSF = 1,000 Square Feet
Note 1: Standard trip rates are provided in the ITE Trip Generation, 11th Edition manual (2021), except casino trip rates are based on TRPA-approved rates.
Note 2: Passby percentages taken from the ITE Trip Generation Handbook 3rd Edition (2017)
Note 3: The 58 keys for "hotel residential" includes 36 "base" units plus 22 lock-off units. 100% of lock-offs are assumed to be locked-off.
Note 4: Although these 18 low-rise units were recently constructed (Granite Place condominiums), they are included in the WALT uses.
Note 5: Although this park was recently constructed, it is included in the WALT uses.
Source: LSC Transportation Consultants, Inc. and Institute of Transportation Engineers Trip Generation (11th Edition)

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This assumption is reasonable, based on the standard daily trip generation rate of about 8 one-way trips per day, per hotel room, the expected portion of lodging trips that would be regional access trips, and the propensity for lodging guests to patron the on-site dining options. About 45 percent of trips made to/from the casino are estimated to be made internally to the site. Overall, 35 percent of WALT trips would be made internally.

Reductions for Non-Auto Modes

Nearly all data presented in the ITE *Trip Generation* manual volumes have been collected at low-density, single-use, homogeneous, general urban or suburban developments with little or no public transit service and little or no convenient pedestrian access (ITE *Trip Generation Handbook, 3rd Edition*, pg. 6, 2017). Additional reductions for non-auto modes are based on the characteristics of the community, and on the quality and quantity of bicycle, pedestrian, and transit facilities. The project site is currently served by Tahoe Truckee Area Regional Transportation (TART) transit service (including TART Connect microtransit), the North Lake Tahoe Express, and employee shuttles.

The proportion of external trips made via non-auto modes (walking, bicycling, transit) is based upon surveys conducted of the previous Biltmore site lodging guests, casino guests, and employees in 2007. In particular, guests walking between the site uses and other nearby properties (such as the Crystal Bay Club) results in a relatively high proportion of non-auto trips in the North Stateline area. Additionally, data from the TRPA 2018 Summer Travel Surveys conducted at recreational and commercial sites in Crystal Bay (before the TART Connect microtransit service was implemented) suggest that approximately 27 percent of trips made in the area are by non-auto modes.

The estimated portion of external trips made to/from the WALT lodging uses via non-auto modes including the TART Connect microtransit service is 28 percent. Based on the extent of service assumed for the WALT beach shuttle service, it is estimated to reduce vehicular trips to/from the WALT lodging and condominium uses by an additional 6 percent. (This equates to a reduction of 56 one-way vehicle trips made by lodging/residential groups over the course of the day. Considering the beach shuttle is assumed to make 24 one-way trips over the course of the day, it's assumed to carry approximately 2.3 groups per one-way trip, on average (56 divided by 24). The resulting total percent reduction for external trips made to/from the lodging and residential units via non-auto modes is 34 percent, as shown in the middle column of Table 3. Smaller reductions for non-auto travel (ranging from 9 percent to 12 percent) are applied to the remaining land use types. These reductions are well below the non-auto mode split indicated by the TRPA surveys, to remain conservative in this analysis.

Trip Generation at Site Driveways

Applying the trip generation rates to the WALT land use quantities and applying reductions for non-auto travel and internal trips yields a total vehicular trip generation crossing the site driveways of approximately 3,542 daily one-way vehicle-trips, of which 256 (141 entering and 115 exiting) trips occur during the AM peak hour and 261 (157 entering and 104 exiting) occur during the PM peak hour. The peak-hour trips are relatively low compared to total daily trips, as casino-related traffic typically peaks later in the day, after the peak hour of traffic along SR 28.

Comparing the daily trip generation of the WALT and that of the Baseline Biltmore indicates that the WALT would result in a net reduction of 537 daily vehicle-trips (or a 13-percent reduction) at the site access driveways over the course of a peak summer day. During the AM peak hour, the trips crossing the site driveways would increase by 44 (or a 21-percent increase), primarily due to the increased restaurant/dining attractions. A substantial portion of these trips are drawn from existing traffic already passing the site along SR 28. During the key PM peak hour, the WALT would reduce vehicle-trips at the driveways by 74 trips, or 22 percent.

Trip Generation on Roadway Network

Not all trips on the site driveways are new trips on area roadways. A reduction for pass-by activity is appropriate for some commercial land uses, but not for lodging or employment land uses that are the primary purpose of a trip. In addition, as a recreational destination, no pass-by reduction is assumed for the casino land use. The ITE *Trip Generation Handbook, 3rd Edition* (ITE, 2017) presents data collected from many sites regarding the proportion of pass-by trips by land use category, which were applied to the total driveway trip volumes. As shown in the far-right columns of Table 3, this factor reduces the WALT program's overall vehicle-trip generation on adjacent roadways to 2,886 daily one-way vehicle-trips, including 196 during the AM peak hour and 208 during the PM peak hour. Considering the impact on regional roadways such as SR 28 away from the site access driveways (reflecting reductions for pass-by trips), the WALT would result in an overall net reduction in trip generation of 26 percent over the course of a day, 8 percent during the AM peak hour, and 35 percent over the key PM peak hour, compared to the Baseline Biltmore use.

PROJECT TRIP DISTRIBUTION

The distribution of traffic arriving and departing the project site is dependent upon the site location relative to the surrounding residential areas, land use within the project influence area, and regional access patterns. Based upon this data, together with the driveway access locations, project traffic is assigned to the area street system. The estimated project-related traffic distribution pattern is shown in Table 4. As shown, the majority (54 percent) of trips made to/from the site are assumed to have origins/destinations along SR 28 to the north and east of the Crystal Bay area. Forty-three (43) percent of trips to/from the site are distributed to points to the west on SR 28, in California.

TABLE 4: Trip Distribution of WALT

Origin/Destination	Percent of Trips
East on SR 28 East of Lakeshore Blvd	42%
East on SR 28 South on Lakeshore Blvd	10%
East on SR 28 between Big Water Road and Lakeshore Blvd	2%
East on Calaneva Drive	1%
North on Stateline Road	2%
West on SR 28	43%
Total	*100%*

Source: LSC Transportation Consultants, Inc.

PROJECT ACCESS AND TRAFFIC ASSIGNMENT

Baseline Biltmore Traffic Assignment

The Baseline Biltmore site-generated traffic volumes are assigned through the study intersections by applying the distribution percentages to the peak-hour vehicle trips. The reductions for pass-by trips are allocated to the various roadways based on existing traffic patterns. The resulting AM and PM peak-hour traffic volumes estimated to be generated by the Baseline Biltmore use are contained in Appendix B. As discussed in Chapter 2, these volumes are added to the Year 2022 traffic counts to estimate the 'Existing With Baseline Biltmore' volumes shown in Figure 3 (in Chapter 2).

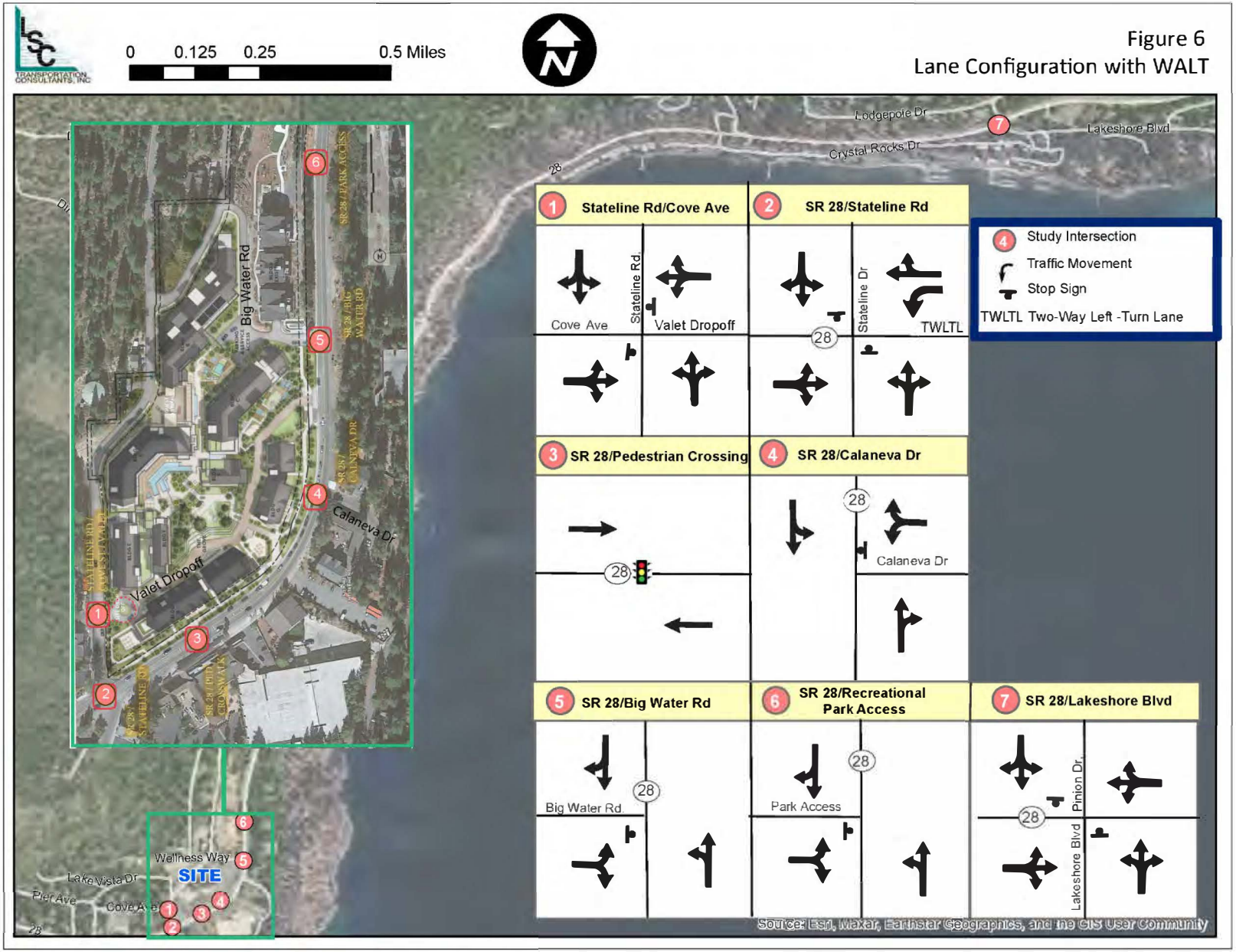
Proposed WALT Access and Traffic Assignment

The proposed WALT site plan includes the following changes to the site access and circulation:

- Reservoir Road would be eliminated, as well as the southernmost portion of Wassou Road. Wassou Road would be reconfigured to "T" into Lakeview Avenue, and Lakeview Avenue and Stateline Road would be realigned using a reverse curve to form a single through roadway.
- A proposed new driveway (Big Water Road) on SR 28 just north of existing Reservoir Road would connect SR 28 on the southeast to Wassou Road on the northwest. This driveway would provide access primarily for the proposed residential units, service vehicles, and some neighborhood traffic.
- The existing Biltmore parking lot driveway located between Reservoir Road and Calaneva Drive would be eliminated.
- The lodging arrival and parking areas would be relocated to the northwest portion of the site, with access via Stateline Road. Parking for the proposed project is assumed to be provided in a subterranean parking structure, accessed via two points: one on Stateline Road at a point north of Cove Drive and one on Big Water Road.
- Lastly, a casino pick-up/drop-off circle would be located on Stateline Road, at a point opposite Cove Drive.

The proposed intersection configuration is presented in Figure 6.

The proposed WALT would increase the traffic volumes on Stateline Road compared to the previous use. (The majority of parking for the previous casino/hotel buildings was accessed via Reservoir Road and the existing driveway on SR 28.) To estimate the impact of the project on peak-hour traffic volumes, the proposed project traffic shown in Table 3 is assigned to the roadway network, again following the distribution presented above. Traffic to and from the specific parking access points within the project site is assigned to the roadway system based upon the path of expected minimum travel time, as well as the proportion of drivers that will be familiar with the roadway network. For instance, it is expected that the proposed casino will be "signed" at Stateline Road; thus, first-time drivers arriving in the area will tend to use this access point. The resulting peak-hour traffic volumes estimated to be generated by the full buildout of the project are contained in Appendix D. Adding the WALT volumes and the shift in existing Reservoir Road volumes to the opening year and future horizon year volumes and removing the Baseline Biltmore volumes yields the 'Opening Year with WALT' and 'Horizon Year with WALT' volumes illustrated in Figures 7 and 8, respectively.



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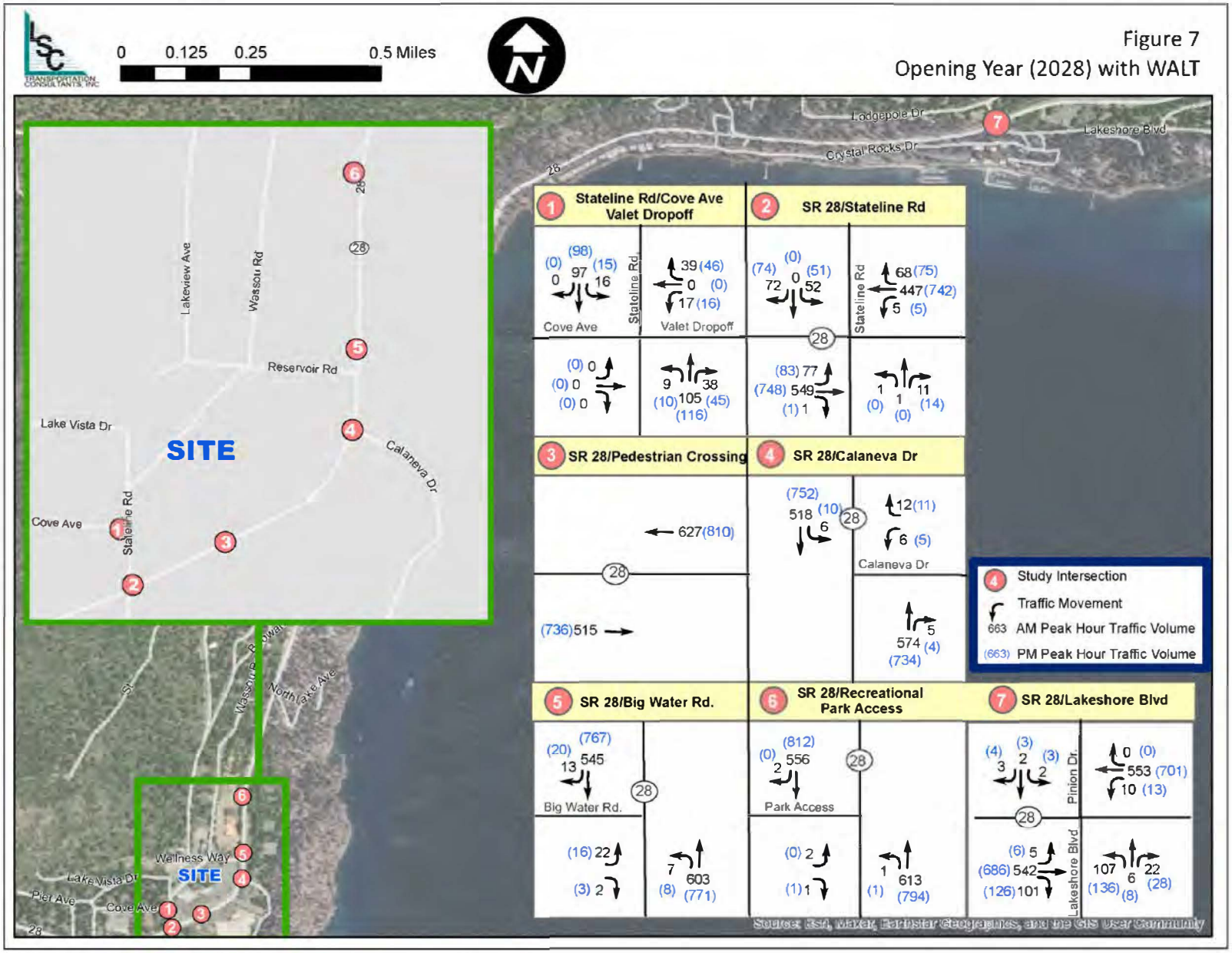

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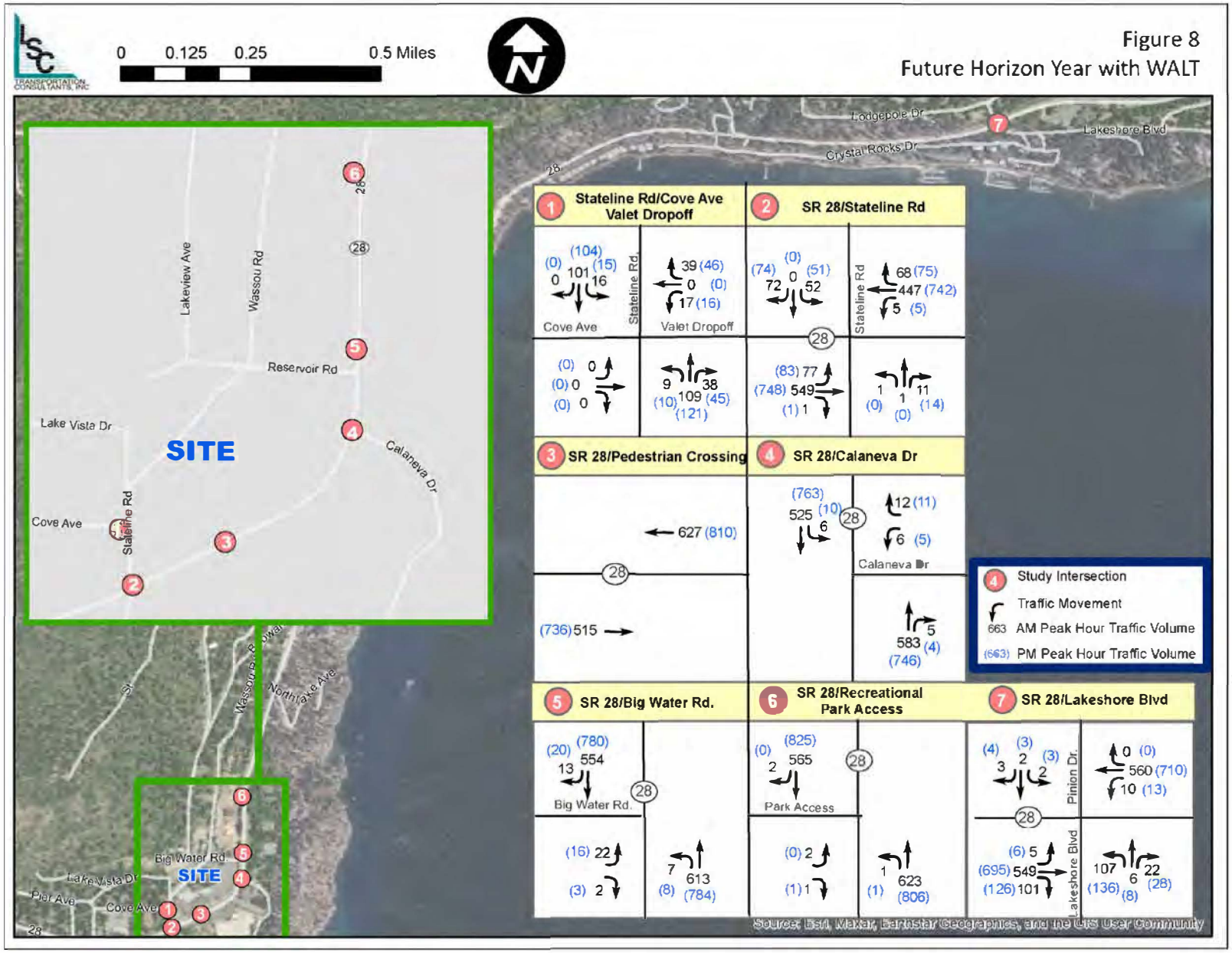

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CHAPTER 4
Intersection Level of Service

Traffic operations at the study intersections are assessed in terms of Level of Service (LOS) and delay. LOS is a concept that was developed by transportation engineers to quantify the level of operation of intersections and roadways (Highway Capacity Manual, Transportation Research Board, 2022). LOS measures are classified in grades "A" through "F," indicating the range of operation. LOS "A" signifies the best level of operation, while "F" represents the worst. A detailed description of LOS criteria is provided in Appendix E.

For signalized intersections, LOS is primarily measured in terms of average delay per vehicle entering the intersection. LOS at unsignalized intersections is reported in terms of delay on the worst movement. Unsignalized intersection LOS is based upon the theory of gap acceptance for side-street stop sign-controlled approaches, while signalized intersection LOS is based upon the assessment of volume-to-capacity ratios and control delay.

LOS ANALYSIS METHODOLOGY

As is the standard for traffic engineering analyses, intersection LOS is analyzed based upon the procedures presented in the *Highway Capacity Manual* (HCM, Federal Highways Administration, 2016) using the *Synchro* software application (Version 11.1, Trafficware). Additionally, in order to reflect the effects of the queuing between the closely-spaced intersections in Crystal Bay, a microscopic traffic simulation was created using the SimTraffic software package (Version 11.1, TrafficWare). The at-grade pedestrian crossing signal tends to make "gaps" in the SR 28 traffic downstream from the signal during busy traffic and pedestrian periods. The simulation indicated the westbound queues forming along SR 28 upstream of the pedestrian signal do not interfere with turns to/from the study intersections. Although the eastbound queues are shown to extend beyond the Stateline Road intersection, this does not appear to hinder the ability for left turns to be made from Stateline Road (given that there is a central Two-Way Left-Turn Lane (TWLTL) on SR 28 to accommodate left turns from Stateline Road). Considering this, the LOS for all study intersections is reported based on the standard HCM methodology, and the simulation results are only used for the pedestrian crossing signal (as this type of signal cannot be analyzed using the standard HCM methodology). Computer output of the LOS calculations and simulation runs is provided in Appendix F.

LOS STANDARDS

TRPA

The LOS standards for the Lake Tahoe Basin, established by the Tahoe Regional Planning Agency (TRPA), are set forth in the 2020 Regional Transportation Plan (finalized in April 2021) with the intent that the Region's highway system and signalized intersections during peak periods shall not exceed the following:

- LOS C on rural scenic/recreational roads,
- LOS D in rural developed areas,
- LOS D on urban roads, or
- LOS D for signalized intersections
- LOS E may be acceptable during peak periods in urban areas, but not to exceed four hours per day.
- These vehicle LOS standards may be exceeded when provisions for multi-modal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users at a level that is proportional to the project generated traffic in relation to overall traffic conditions on affected roadways.

While the TRPA does not have a specific adopted standard for unsignalized intersections, individual traffic movements with LOS "F" are typically considered a concern.

While the Tahoe Regional Planning Compact looks to "reduce the dependency on the private automobile", there are currently no adopted requirements or standards regarding the quality of service of other travel modes (i.e., transit, biking, or walking) that could potentially reduce the demand on the roadway system.

For the proposed use, there are no adopted level of service standards for transit, biking and walking like that for the automobile; however, the 2018 Active Transportation Plan includes design standards to ensure safe access for all that the final project will need to adhere to and the 2020 Regional Transportation Plan/Sustainable Communities Strategy includes numerous policies related to quality of services. The project will be required to comply with the following policies related to transit, pedestrian and bicycle infrastructure proposed within and adjacent to the project.

1. Policy 1.1 Support mixed-use, transit-oriented development, and community revitalization projects that encourage walking, bicycling, and easy access to existing and planned transit stops.

2. Policy 2.18 Accommodate the needs of all categories of travelers by designing and operating roads for safe, comfortable, and efficient travel for roadway users of all ages and abilities, such as pedestrians, bicyclists, transit riders, motorists, commercial vehicles, and emergency vehicles.

3. Policy 2.23 In roadway improvements, construct, upgrade, and maintain active transportation and transit facilities along major travel routes. In constrained locations, all design options should be considered, including but not limited to restriping, roadway realignment, signalization, and purchase of right of way.

4. Policy 3.6 Design projects to maximize visibility at vehicular, bicycle, and pedestrian conflict points. Consider increased safety signage, sight distance, and other design features, as appropriate.

5. Policy 4.18 Design roadway corridors, including driveways, intersections, and scenic turnouts, to minimize impacts to regional traffic flow, transit, and bicycle and pedestrian facilities by using shared access points where feasible.

Nevada Department of Transportation

The NDOT Traffic Impact Analysis guidelines state that LOS "C" will be the design objective for capacity and under no circumstances will less than LOS "D" be accepted for site and non-site traffic.

Washoe County

The LOS standards for Washoe County were set forth in *the Washoe County Development Code* in July 2010. The code states "Streets shall be designed to meet a Level of Service (LOS) standard C, or as otherwise provided for by Regional Transportation Commission policy." In addition, the 2005 Washoe County *Traffic Impact Report Guidelines* state that mitigation of project impacts should be recommended when 2012 and/or 2020 (or latest RTC projection) LOS is "D" or worse in roadway segments and LOS "E" or worse at intersections.

The Washoe County Master Plan (2020) defers to the Washoe County Regional Transportation Plan (RTP) regarding LOS standards. According to the Washoe County 2050 RTP, the LOS standards used for assessing the need for street and highway improvements at a planning level are as follows:

- LOS D for all regional roadway facilities projected to carry less than 27,000 ADT at the latest RTP horizon (such as SR 28); and
- LOS E for all regional roadway facilities projected to carry 27,000 or more ADT at the latest RTP horizon.
- Additionally, all regional road intersections in this study area shall be designed to provide a LOS consistent with maintaining the policy LOS of the intersecting corridors.

Washoe County Tahoe Area Plan

The Washoe County Tahoe Area Plan (the "Area Plan") is a supplement to the TRPA Regional Plan and Washoe County Master Plan. The Area Plan (Policy T4-1) says that LOS at key intersections is to be attained and maintained consistent with the RTP and the Washoe County Land Use and Transportation Element.

As the above standards do not indicate a specific adopted standard for minor movements on unsignalized intersections, individual traffic movements with LOS "F" are considered a concern.

LOS ANALYSIS

Existing Year LOS

Existing Year intersection LOS with the Baseline Biltmore uses was evaluated and the results are presented in Table 5. As shown, all study intersections operate at an acceptable LOS C or better except the SR 28/Lakeshore Boulevard intersection. The worst movement (northbound Lakeshore Boulevard approach) operates at LOS F in the AM and PM peak hours, with a calculated average delay well-exceeding 200 seconds per vehicle.

Opening Year LOS

In the opening year (2028), the average delays would be similar to existing year conditions, and no additional intersections would exceed the LOS standards. With implementation of the proposed WALT, the average delays would not materially change, except at the SR 28/Stateline Road intersection. During the PM peak hour, the average delay per vehicle on the worst movement (the southbound Stateline Road approach) is calculated to increase by about 12 seconds, and the LOS degrades from LOS C to LOS D (still acceptable). The SR 28/Lakeshore Boulevard intersection would continue to operate at unacceptable LOS F. All remaining intersections would operate at an acceptable level.

Future Horizon Year LOS

Under future horizon year conditions with the Baseline Biltmore uses, all intersections would operate at an acceptable LOS C or better, except the SR 28/Lakeshore Boulevard intersection, which would continue to operate at unacceptable LOS F. Implementation of the proposed WALT would cause the SR 28/ Stateline Road intersection to degrade from LOS C to LOS D (still acceptable), and the SR 28/Lakeshore Boulevard intersection would continue to operate at LOS F. All remaining intersections would operate at an acceptable level.

LOS in Kings Beach

Intersection LOS conditions at intersections along SR 28 in Kings Beach are reviewed. According to the Placer County Tahoe Basin Area Plan (PCTBAP), the existing (2016) summer LOS at the SR 28/SR 267 signalized intersection is LOS C (total intersection) and the SR 28/Coon Street roundabout is LOS B (worst approach). A new roundabout will be constructed at the signalized SR 28/SR 267 intersection as a part of the Kings Beach Western Approach Project, which is a Placer County project being done in cooperation with Caltrans. (This project will also provide 1,900 feet of Class II bike lanes, 2,325 feet of new or reconstructed sidewalks, six curb ramps, and two rectangular rapid flashing beacons.)

As the PCTBAP (Policy T-P-6) states that LOS F is acceptable at intersections and roadway segments within the Town Center boundaries during peak periods, a quantitative LOS analysis in Kings Beach is not considered necessary for this study. Furthermore, the proposed WALT project would reduce traffic volumes along SR 28 in Kings Beach by about 2 or 3 percent, compared to conditions with the Baseline Biltmore uses.

Table 5: WALT - Intersection LOS Summary

Intersection	Control Type	LOS Threshold[1,2]	AM Peak Hour With Baseline Biltmore		AM Peak Hour With WALT		PM Peak Hour With Baseline Biltmore		PM Peak Hour With WALT	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Existing Year										
1 Stateline Road / Cove Street	TWSC	E	7.3	A	-	-	7.3	A	-	-
2 SR 28 / Stateline Road	TWSC	E	20.0	C	-	-	17.2	C	-	-
3 SR 28 / Pedestrian Crossing	Signalized	D	9.8	A	-	-	9.7	A	-	-
4 SR 28 / Calaneva Drive	TWSC	E	17.0	C	-	-	23.8	C	-	-
6 SR 28 / Recreational Park Access	TWSC	E	23.5	C	-	-	14.9	B	-	-
7 SR 28 / Lakeshore Boulevard (West)	TWSC	E	**OVF**	**F**	-	-	**OVF**	**F**	-	-
Opening Year (2028)										
1 Stateline Road / Cove Street	TWSC	E	7.3	A	9.8	A	7.3	A	10.2	B
2 SR 28 / Stateline Road	TWSC	E	20.0	C	21.8	C	17.2	C	29.0	D
3 SR 28 / Pedestrian Crossing	Signalized	D	10.3	B	10.0	A	10.1	B	10.6	B
4 SR 28 / Calaneva Drive	TWSC	E	17.0	C	17.0	C	23.9	C	21.8	C
5 SR 28 / Big Water Road	TWSC	E	-	-	30.1	D	-	-	40.6	E
6 SR 28 / Recreational Park Access	TWSC	E	23.6	C	22.9	C	15.0	B	14.8	B
7 SR 28 / Lakeshore Boulevard (West)	TWSC	E	**OVF**	**F**	**OVF**	**F**	**OVF**	**F**	**OVF**	**F**
Future Horizon Year										
1 Stateline Road / Cove Street	TWSC	E	7.3	A	9.8	A	7.3	A	10.3	B
2 SR 28 / Stateline Road	TWSC	E	20.0	C	21.8	C	17.2	C	29.0	D
3 SR 28 / Pedestrian Crossing	Signalized	D	9.6	A	10.5	B	9.6	A	10.2	B
4 SR 28 / Calaneva Drive	TWSC	E	17.3	C	17.2	C	24.5	C	22.2	C
5 SR 28 / Big Water Road	TWSC	E	-	-	31.0	D	-	-	42.4	E
6 SR 28 / Recreational Park Access	TWSC	E	24.2	C	23.5	C	15.2	C	14.9	B
7 SR 28 / Lakeshore Boulevard (West)	TWSC	E	**OVF**	**F**	**OVF**	**F**	**OVF**	**F**	**OVF**	**F**

BOLD text indicates that LOS standard is exceeded.
OVF = Overflow. Overflow indicates a delay greater than 200 seconds per vehicle, which cannot be accurately calculated using HCM methodology.
TWSC = Two-Way Stop-Control
NOTE 1: Level of service for signalized intersections is reported for the total intersection.
NOTE 2: Level of service for roundabouts and other unsignalized intersections is reported for the worst movement.
Source: LSC Transportation Consultants, Inc.

The following areas of transportation impacts are evaluated in this section:

- Project Impact on Traffic Volumes
- Intersection Level of Service
- Intersection Queuing
- Analysis of the Need for New Turn Lanes on SR 28
- Site Access Plans
- Analysis of Historical Crash Data
- Bicyclist Impacts
- Impact on Adjacent Local Streets

In addition, a pedestrian crossing analysis is provided in Chapter 6.

PROJECT IMPACT ON TRAFFIC VOLUMES

Comparing the proposed WALT impacts with the Baseline Biltmore peak-hour traffic volumes in the opening year, the net impact of the proposed project would be as follows:

- At the site access points, the project would result in a net reduction of 537 daily one-way vehicle-trips (or a 13 percent reduction). During the key PM peak hour, the project would reduce vehicle-trips at the driveways by 74 trips, or 22 percent. Although the vehicle trips crossing the site driveways during the AM peak hour would increase, a substantial portion of these trips are drawn from existing traffic already passing the site along SR 28.
- Considering the impact on regional roadways such as SR 28 away from the site access driveways (reflecting reductions for pass-by trips), the proposed project would result in a net reduction in trip generation of 26 percent over the course of a day, 35 percent over the key PM peak hour, and an 8-percent reduction in the AM peak hour.
- The impacts of the proposed project on peak-hour traffic volumes along SR 28 are summarized in Table 6. The proposed project is calculated to reduce PM peak-hour traffic volumes along SR 28 on a busy summer day by 1.8 to 2.9 percent to the west of the site (in Kings Beach) and by 2.4 to 6.1 percent to the north of Crystal Bay (near Incline Village). Within Crystal Bay, the project would reduce the eastbound/northbound PM peak-hour volumes by 3.0 to 4.8 percent, while it would increase westbound/southbound volumes by 2.0 percent (primarily due to the proposed relocation of the hotel and casino uses to the Stateline Road access point).

Table 6: WALT - Impact on Traffic Volumes on SR 28

SR 28 Roadway Segment	Opening Year With Baseline Biltmore EB/NB Volume	Opening Year With Baseline Biltmore WB/SB Volume	Opening Year With WALT EB/NB Volume	Opening Year With WALT WB/SB Volume	Percent Change EB/NB	Percent Change WB/SB
North of the Site	846	832	794	812	-6.1%	-2.4%
Between Pedestrian Crossing and Calaneva Drive	761	794	738	810	-3.0%	2.0%
Between Stateline Road and Pedestrian Crossing	773	806	736	822	-4.8%	2.0%
Between Raccoon Street and Stateline Road	847	839	832	816	-1.8%	-2.7%
Between SR 267 and Raccoon Street	821	785	806	762	-1.8%	-2.9%
Average	*810*	*811*	*781*	*804*	*-3.5%*	*-0.8%*

Note: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
Note: All volumes are taken in the PM Peak Hour
Source: LSC Transportation Consultants, Inc.

INTERSECTION LEVEL OF SERVICE IMPACTS

As summarized in Table 5, the SR 28/Lakeshore Boulevard intersection exceeds LOS standards under 'Existing with Baseline Biltmore' conditions. Implementation of the proposed WALT would reduce traffic volumes through this intersection, thereby reducing driver delays (although it would remain at LOS F). No other LOS deficiencies are identified. Potential LOS mitigation measures are evaluated, and the resulting mitigated LOS is shown in Table 7.

Table 7: WALT - Mitigated Intersection LOS Summary

Intersection	Control Type	Mitigation	LOS Threshold[1,2]	AM Peak Hour Delay (sec/veh)	AM Peak Hour LOS	PM Peak Hour Delay (sec/veh)	PM Peak Hour LOS
SR 28 / Lakeshore Boulevard (West)							
Future Horizon Year With WALT	TWSC	Add TWLTL for NBL	E	41.6	E	**152.1**	**F**
Future Horizon Year With WALT	Signalized	Add Traffic Signal	D	-	-	8.3	A

BOLD text indicates that LOS standard is exceeded.
OVF = Overflow. Overflow indicates a delay greater than 200 seconds per vehicle, which cannot be accurately calculated using HCM methodology.
TWSC = Two-Way Stop-Control, TWLTL = central Two-Way Left-Turn Lane, NBL = Northbound Left Turn
NOTE 1: Level of service for signalized intersections is reported for the total intersection.
NOTE 2: Level of service for roundabouts and other unsignalized intersections is reported for the worst movement.
Source: LSC Transportation Consultants, Inc.

SR 28/Lakeshore Boulevard

With the addition of a central Two-Way Left-Turn Lane (TWLTL) on SR 28 west of Lakeshore Boulevard (which would allow for two-stage left-turn movements from Lakeshore Boulevard onto SR 28), the AM peak-hour LOS would improve to an acceptable LOS E, although the PM peak-hour LOS would remain at LOS F. With the provision of additional lane improvements, the northbound approach would remain at an unacceptable LOS F during the PM peak hour, with or without the WALT project. Consequently, a traffic signal warrant analysis is conducted for this intersection.

Traffic Signal Warrant at SR 28/Lakeshore Boulevard

Traffic signals are typically only considered to be a feasible alternative if conditions meet a sufficient number of individual "warrants," as identified in the *Manual on Uniform Traffic Control Devices* (American Association of State Highway and Transportation Officials, 2022). The "easiest" warrant to meet is typically the "peak hour warrant" that focuses on the level of through traffic on the major highway and the entering traffic on the minor street. Specifically, the warrant consists of a graph depicting a curved line: if the plot of major and minor volumes falls above the line, a signal is considered to be warranted. The graph is included in Appendix G. A peak-hour signal warrant analysis is performed for the intersection of SR 28 and Lakeshore Boulevard. The results show that the warrant is met under all peak-hour scenarios. However, as the proposed WALT would reduce traffic volumes through this intersection, it would have a beneficial impact.

INTERSECTION QUEUEING ANALYSIS

Traffic queues at specific intersections that exceed the storage capacity of turn lanes or ramps, or that block turn movements at important nearby intersections or driveways can cause operational problems beyond those identified in the LOS analysis. The 95th-percentile traffic queue lengths (the length that is only exceeded 5 percent of the time during the analysis period) are reviewed at intersection locations where queuing could potentially interfere with adjacent roads or driveways. The results indicate that the eastbound traffic queues forming at the pedestrian crossing signal extend into and beyond the Stateline Road intersection during peak periods, with or without the proposed WALT. This queue affects drivers wishing to turn left from SR 28 onto Stateline Road; however, given the presence of the central Two-Way Left-Turn Lane (TWLTL) on SR 28 to the east of Stateline Road, this queue does not hinder the ability for turns to be made from Stateline Road onto the highway. Implementation of the proposed project is not expected to materially affect the traffic queue lengths at the pedestrian signal under any study scenario.

In addition, northbound traffic queues on the Lakeshore Boulevard approach to SR 28 interfere with left turns to/from some of the driveways along the lake-side of Lakeshore Boulevard, with or without the proposed project. However, as the proposed WALT would reduce this queue length, it would have a beneficial impact.

No other traffic queuing issues are identified.

ANALYSIS OF THE NEED FOR NEW TURN LANES ON SR 28

Left-Turn Lane Warrant

Traffic volumes at the study intersections on SR 28 are reviewed regarding the need for new turn lanes along SR 28. The need for new left-turn lanes is evaluated using the procedure discussed in the *NDOT Access Management System and Standards* (2017). The warrant criteria are contained in Appendix G. Based on the criteria, new left-turn lanes are warranted on SR 28 at the following locations:

- **At Stateline Road** – Eastbound left-turn lane is warranted under all peak-hour scenarios, with or without the proposed project. Note that this new turn lane would be located in California, on a Caltrans-maintained highway segment. However, as the LOS for the eastbound approach is forecast to remain at LOS A in the AM Peak Hour and remain at LOS B in the PM Peak Hour

and as TRPA staff indicates roadway widening is not consistent with other regional goals, the eastbound left-turn lane is not necessary.

- At Big Water Road - Northbound left-turn lane warrant is met under all scenarios with the proposed WALT, although the left turns only make up 1 percent of the total northbound volume. Only 8 left turns are expected to be made into Big Water Road during the busiest hours, or one left turn every 7.5 minutes, on average. The addition of a left-turn lane would be consistent with Area Plan Policy T-2, which states to create left-turn pockets at public road intersections along SR 28 throughout the Crystal Bay Tourist regulatory zone neighborhood in cooperation with NDOT. However, considering the low turning volume and the relatively slow speeds of northbound traffic at this location (25 miles per hour speed limit), the potential for rear-end crashes is relatively low. The costs associated with a new left-turn lane would be expected to outweigh the benefits. Furthermore, the design of this turn lane may interfere with turns made to/from the Stillwater Cove driveway and with the post office perpendicular parking spaces along the highway. As such, a new northbound left-turn lane is not considered to be necessary.

- At Lakeshore Boulevard -
  - Westbound left-turn lane is warranted under all scenarios, with or without the WALT (although the left turns represent less than 2 percent of the westbound directional volume)
  - Eastbound left-turn lane warrant is marginally met under all scenarios, with or without the WALT (although the left turns represent less than 1 percent of the eastbound directional volume)

  As the proposed WALT project would reduce traffic volumes through this intersection, this would be a beneficial impact.

Right-Turn Lane Warrant

Using the procedures presented in the *NDOT Access Management System and Standards,* right-turn lane warrants are based on a comparison of right-turning vehicles compared to the total volume of advancing vehicles (traveling in the same direction). The right-turn lane warrant criteria are included in Appendix G. Based on the criteria, new right-turn lanes may be warranted on SR 28 at the following locations:

- At Stateline Road – Westbound right-turn lane warrant is met with the WALT project. Considering the relatively slow speeds of southbound traffic at this location (25 miles per hour speed limit), the potential for rear-end crashes is relatively low. There are no LOS deficiencies. A westbound right-turn lane is therefore not necessary.
- At Big Water Road - Southbound right-turn lane warrant is met with the WALT project. Up to 20 right turns would be made during the busiest hours, which equates to one right turn every 3 minutes, on average. Considering the relatively low number of right turns and the relatively slow speeds of southbound traffic at this location, the potential for rear-end crashes is relatively low. There are no LOS deficiencies. A westbound right-turn lane is therefore not necessary.
- At Lakeshore Boulevard - Eastbound right-turn lane warrant is met under all scenarios, with or without the WALT project.

SITE ACCESS PLANS

The site access plans are reviewed with regards to transportation-related safety issues, such as proposed access locations, driveway spacing, interaction of project traffic with turn movements to/from adjacent intersections, and driver sight distance. Lastly, historical crash data for the study area is reviewed.

Driveway Spacing

The proposed project would reduce the total number of driveways along SR 28. This is a beneficial impact, as it improves traffic flow along the highway and reduces the potential for vehicular conflicts and conflicts between vehicles and pedestrians/bicyclists. It is also consistent with existing policies to reduce curb cuts on main thoroughfares, such as the following:

- TRPA RTP Policy 4.18: "Design roadway corridors, including driveways, intersections, and scenic turnouts, to minimize impacts to regional traffic flow, transit, and bicycle and pedestrian facilities by using shared access points where feasible."
- Washoe County Tahoe Area Plan Policy T3-1: "…The number of driveways along State Route 28 should be consolidated and minimized… Entrances to casinos and their parking areas in the Crystal Bay Tourist regulatory zone are encouraged to be relocated to back streets for those parking areas that have rear access."
- Washoe County Tahoe Area Plan Policy T3-2: "Prioritize local street access before allowing new curb cuts on State Route 28."

The *NDOT Access Management System and Standards* indicates the minimum spacing required for access points along a Minor Arterial roadway with a speed limit less than or equal to 35 mph (such as SR 28 in Crystal Bay) is 1,320 feet. None of the existing or proposed access points along SR 28 meet this standard. However, as the proposed project would eliminate existing access points along SR 28, this would improve (increase) the driveway spacing conditions. It is worth noting that Minor Arterials in Nevada are generally designed to allow speed limits of 35 to 45 miles per hour in urban areas, whereas the stretch of SR 28 in Crystal Bay has slower speeds, with a speed limit of 25 miles per hour.

The *Washoe County Development Code* states in Section 110.436.115 that Commercial Driveways shall be spaced from "center to center shall be a minimum of two hundred thirty-five (235) feet on major arterials, one hundred fifty (150) feet on minor arterials, and fifty (50) feet on commercial collectors." All of the proposed access points meet this minimum requirement.

Lastly, the proposed site plans would accomplish Area Plan Policy T-4, which states "Clearly define and delineate Wassou Road as separate from the Biltmore parking lot.

Driver Sight Distance

Driver sight distance was evaluated at the proposed access intersections. There are two types of sight distance standards that should be met at driveways or intersections: stopping sight distance and intersection sight distance. Intersection sight distance requirements are meant to ensure that adequate time is provided for the waiting driver at an unsignalized intersection or driveway to either cross all lanes of through traffic, cross the near lanes and turn left, or turn right, without requiring through traffic to radically alter their speed. Intersection sight distance requirements are based upon the need for a driver

to discern a gap of up to 7.5 seconds in oncoming traffic to safely choose an adequate gap. The *NDOT Access Management System and Standards* refers to the design intersection sight distance requirements set forth in *A Policy on Geometric Design of Highways and Streets* (AASHTO "Green Book", 2018). Stopping sight distance is the distance an oncoming driver on the major roadway needs to perceive an object in the travel lane (such as a turning vehicle), react to the object, and come to a safe stop. Stopping sight distance requirements are set forth in the AASHTO Green Book. A review of the driver sight distance conditions indicates that adequate sight distance is expected to be provided at the proposed site access locations, so long as the final landscaping plans do not hinder the intersection sight distance.

HISTORICAL CRASH DATA

Crash data in the vicinity of the project was provided by NDOT and was reviewed for the most recent 5 years available at the time of this study (January 1, 2016 – January 1, 2021). Appendix H contains tables summarizing the crash severity, crash types, lighting, and weather conditions. The following findings are made:

- A total of 13 crashes occurred at the study intersections on SR 28 in Crystal Bay, and 12 crashes occurred within 250 feet of the SR 28/Lakeshore Boulevard intersection in Incline Village.
- No fatalities were reported.
- Most of the crashes were reported as property damage only, except at the SR 28/Stateline Road intersection. Two (2) of the 3 crashes at this intersection resulted in injuries. One of these injury crashes occurred just west of the pedestrian crossing signal (although no pedestrians were reported to be involved).
- The most prevalent types of crashes were "non-collision" (32 percent), "angle" (28 percent) and "rear-end" (28 percent).
- Almost all (24 of 25) crashes occurred during dry weather conditions.
- The majority of crashes (64 percent) occurred during the daylight.
- None of the crashes involved pedestrians or bicyclists.

As the project would provide adequate driveway spacing and driver sight distance conditions and considering that the project would reduce the number of (closely spaced) driveways along SR 28, this is considered a beneficial impact on transportation safety conditions.

IMPACT ON BICYCLIST CONDITIONS

At present, Class 2 bicycle lanes are provided along SR 28 to the west of the California-Nevada State Line. The project proposes to construct a Class 1 bicycle lane within the public right of way or dedicated easement adjacent to SR 28 along the project frontage. Considering this, and the fact that the project would reduce the number of driveways along the corridor, the proposed project would have a beneficial impact on bicyclist conditions. The ATP for the Lake Tahoe Region identifies the bus stops in Crystal Bay as locations where bike parking is needed. Additionally, Area Plan Policy T-14 calls for a multi-use path to be constructed along the north side of SR 28 from the Crystal Bay Tourist regulatory zone to Northwood Boulevard (western intersection) in Incline Village.

IMPACT ON ADJACENT LOCAL STREETS

The site plan includes modifications to the existing streets on the northern side of the site (Stateline Road, Lakeview Avenue, and Wassou Road) and the proposed Big Water Road connection). It is therefore appropriate to consider the impacts of the proposed project on these nearby streets. There are two potential sources of traffic activity on these streets that could potentially be affected by the proposed project:

- Site-Generated Traffic – The site plan concentrates site-generated traffic at two key access points: on Stateline Road approximately 200 feet north of SR 28 and on Big Water Road approximately 200 feet west of SR 28. Guests arriving to the site for the first time will have a choice between going up Stateline Road and Big Water Road, however after guests arrive to the site, the remaining trips will be directed to hotel valet on Stateline Road. The proposed revisions to the existing local roads also make the travel path around the north and west sides of the site longer than today's travel path and more circuitous. However, despite the longer path, drivers coming from the east will still see a path 900 feet less than if they were to take SR 28 to Stateline. As a result, drivers coming from the east will be more inclined to take Big Water Road up to the guest arrival whereas guests coming from the west will take Stateline Road.

  The project applicant indicates that the use of the Guest Arrival area will be limited to inbound customer valet trips only. No employees would access this location, nor would outbound valet trips. Therefore, there would be two sources of trips to the Guest Arrival area: the initial inbound guest arrival trip at the beginning of their stay, and inbound hotel restaurant and bar external non-guest customers.

  The average length of stay for overnight visitors during the summer months is assumed to be approximately 2.9 days, based on the average of 2015 data from the Ritz-Carlton Hotel (2.46 days) and North Lake Tahoe Resort Association (now North Tahoe Community Alliance) 2003-2016 hotel/motel/B&B visitor data (3.4 days). Taking the hotel daily trip rate of 8.07 and multiplying by the 2.9 days results in an average of 23 daily trips over the course of 2.9 days. As 13% of the hotel trips are employee trips, that leaves a total of 20 trips made by hotel guests over the course of an average stay. As only one trip out of the 20 trips is the initial trip, that results in 5% of daily guest hotel trips that are initial arrival trips. A total of 471 external daily vehicle trips are associated with the hotel units and hotel residential units, 61 of which are employee trips and 410 which are guest trips. Taking 5% of the 410 guest daily trips leaves 21 daily trips that would be initial guest arrival trips.

  Though the hotel restaurant and bar are considered accessory uses, there is a potential for some of the customers of these uses to be non-hotel guests. While there is no specific data available on this percentage, it is estimated to be between 10% and 20% at most. To be conservative, the 20% factor is applied to ITE trip generation rates, resulting in an additional 91 daily external vehicle trips associated with the hotel restaurant and bar. Discounting the employee trips, a total of 79 daily trips are associated with the hotel restaurant and bar. In addition, half (40) of the total daily restaurant and bar trips would be inbound trips, resulting in a total of 61 inbound trips to the Guest Arrival area.

  Consistent with the distribution discussion in Chapter 3, 54% of the initial guest arrival trips will be originating from the east and would be expected to travel up Big Water Road. Applying 54% to the 61 inbound trips results in a total of 33 daily trips traveling up Big Water Road. No guest

arrival trips are assumed to occur in the AM Peak Hour. In the PM Peak Hour, approximately 40% of hotel guests are assumed to arrive resulting in a total of 13 vehicles westbound on Big Water Road in the PM Peak Hour (the equivalent of an average of 1 vehicle traveling up Big Water Road every 4.5 minutes).

The remaining site-generated trips associated with the hotel, restaurant and bar (excluding the employee trips which would be going up Big Water Road to the parking and service access) are assumed to use Stateline Road. A daily average of 456 vehicles associated with the WALT hotel and its accessory restaurant and bar uses will travel on Stateline Road (or an average of 1 vehicle every 3.1 minutes) on a busy summer day, with 55 vehicles occurring in the PM Peak Hour (or an average of 1 vehicle every 1.1 minute).

- Diverted "Cut Through" Traffic – At peak times of pedestrian activity at the pedestrian crossing, there is an existing potential for southbound drivers using the local streets to divert off of SR 28 to save travel time. (There is less of a potential for diverted traffic in the northbound direction, as eastbound SR 28 drivers are close to the pedestrian signal when they reach the route option at Stateline Road, and as these drivers must then face the delays of turning left onto SR 28 from Reservoir Road.) The proposed project would reduce the potential for diverted traffic, in two ways. First, travel queues generated by the signalized pedestrian crossing are expected to be reduced slightly, due to the site-generated traffic to/from the west (the majority of the site traffic) will no longer travel through the pedestrian crossing (as it largely does under existing conditions). The 95th-percentile PM peak-hour westbound/southbound queue generated by the pedestrian signal is forecast to be reduced from an existing condition of 271 feet to a future plus project condition of 255 feet (a 6 percent reduction). Secondly, the length of the local road option via Reservoir Road (or Big Water Road in the future) will be greater in the 'with project' condition (1,880 feet) than it is today (1,090 feet), reducing the attractiveness of the diversion via Big Water Road. The travel distance of a diversion route via Beowawie Road and Wassou Road will be effectively unchanged from current conditions (within 20 feet). In sum, the proposed project would not increase the potential for diversion onto local streets, but instead would result in a slight reduction in this potential.

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CHAPTER 6
SR 28 Pedestrian Crossing Analysis

An analysis of the pedestrian crossing on SR 28 is conducted. First, the project's impact on pedestrian crossing activity is estimated. Next, the change in the geography of pedestrian crossing activity resulting from the proposed project land use plan is assessed. Finally, the need for pedestrian crossing enhancements is evaluated.

The Baseline Biltmore land uses in the Crystal Bay area generated substantial pedestrian crossing activity on SR 28. In particular, the presence of the Crystal Bay Casino and The Nugget Casino on the south side of the highway and the Tahoe Biltmore Casino on the north side generated pedestrian activity between the gaming areas. The fact that the two gaming areas are almost immediately across the highway from each other tends to increase and concentrate pedestrian activity in a single location. Pedestrian activity was recorded along SR 28 between Stateline Road and Reservoir Road on Saturday, July 19, 2008 from 4:00 PM to 8:00 PM. The counts showed that the greatest number of pedestrian crossings occurred during the 7:00 PM hour (129 pedestrian crossings). While individual trip patterns were not tracked, the large majority of the pedestrians were observed to be walking to or from the Biltmore. (New pedestrian crossing counts were not conducted as a part of this study, given that the Biltmore operations are closed.)

EXISTING PEDESTRIAN CROSSING

A pedestrian-actuated signalized at-grade crossing is currently provided roughly 250-feet east of the Stateline Road intersection. This signal aids pedestrians in crossing the highway, while also "grouping" pedestrians to reduce the overall delay to through traffic on the highway below that would occur with random pedestrian crossings. When consistently activated in periods of high pedestrian activity, this signal operates on an 89-second total cycle. The crosswalk traverses the intersection on a diagonal of approximately 26 degrees. The length of the crosswalk along this path is 56 feet measured from edge of curb to edge of curb.

IMPACT OF PROPOSED WALT

The proposed WALT project plans would change this previous condition in two ways: (1) change the demand for pedestrian crossing, and (2) change the configuration of land uses, particularly with respect to the casino floor area. It would also provide a new pedestrian plaza that will be open to the public, providing a buffered walking experience from the highway.

Impact on Peak Population

The first step in evaluating the change in the demand for pedestrian crossing is to estimate the change in the potential peak population of the project site. Table 8 presents an analysis of the potential population, both for the Baseline Biltmore site land uses and the proposed WALT site land uses. This is calculated by multiplying the individual land use quantities by the estimated number of persons per unit of development. It is necessary to also include a factor reflecting the internal use of more than a single land use by a specific individual (such as a lodging guest that is also a casino customer). As shown in the table, the proposed WALT project would reduce the peak number of persons on the site by 15 percent over that

generated by the Baseline Biltmore land uses. Note that this population analysis is only used for purposes of estimating the change in pedestrian crossing activity. It is not meant to be used for evaluating other areas of impacts.

Table 8: WALT - Peak Population Estimates

For purposes of estimating pedestrian activity.

Description	Baseline Biltmore Land Use #	Proposed WALT Land Use #	Units	Persons per Unit	Reduction to Reflect Population Also Lodged/Living On Site: Baseline Biltmore Uses	Reduction to Reflect Population Also Lodged/Living On Site: Proposed WALT Uses	Peak Population: Biltmore Uses	Peak Population: Proposed WALT Uses	in Population	Percent Change in Peak Population
RESIDENTIAL / LODGING										
Hotel Units - 1 bedroom	62	42	Units	2	0%	0%	124	84	-40	-32%
Hotel Units - 2 bedroom	49	34	Units	3	0%	0%	147	102	-45	-31%
Whole Ownership Units - 1 bedroom	0	26	Units	2	0%	0%	0	52	52	100%
Whole Ownership Units - 2 bedroom	0	19	Units	3	0%	0%	0	57	57	100%
Whole Ownership Units - 3 bedroom	0	8	Units	4	0%	0%	0	32	32	100%
Whole Ownership Units - 4+ bedroom	0	5	Units	5	0%	0%	0	25	25	100%
Exclusive Residential - 3 bedroom	0	15	Units	4	0%	0%	0	60	60	100%
Exclusive Residential - 4+ bedroom	0	28	Units	5	0%	0%	0	140	140	100%
Employee Housing - 2 bedroom	0	14	Units	3	0%	0%	0	42	42	100%
Hotel Units - Employees	55	20	Employees	1	0%	15%	55	17	-38	-69%
Condo-Hotel Units - Employees	0	15	Employees	1	0%	15%	0	13	13	100%
Workforce Housing - Employees	0	4	Employees	1	0%	0%	0	4	4	100%
Total Residential/Lodging	**111**	**191**	**Units**				**326**	**628**	**302**	**93%**
RETAIL/RESTAURANT										
Retail										
Retail (CFA)	0	4.20	KSF	11	0%	25%	0	34	34	100%
Service Retail	Accessory Use	Accessory Use	KSF	11	-	-	-	-	-	-
Daycare Center	Accessory Use	Accessory Use	KSF	11	-	-	-	-	-	-
Retail Employees	0	5	Employees	1	0%	15%	0	4	4	100%
									0	100%
Restaurant									0	100%
Fine Dining [2]	3.3	0.00	KSF	31	80%	25%	21	0	-21	-100%
Casual Dining [2]	4.5	12.280	KSF	26	80%	25%	24	244	220	929%
Café/Fast Food	0	2.235	KSF	17	80%	25%	0	29	29	100%
Convenience Dining	0	Accessory Use	KSF	17	-	-	-	-	-	-
Bar/Lounge [2]	Accessory Use	Accessory Use	KSF	50	-	-	-	-	-	-
Restaurant Employees	41	77	Employees	1	0%	15%	41	66	25	60%
Total Retail/Restaurant	**7.80**	**18.715**	**KSF**				**85**	**377**	**291**	**341%**
RECREATIONAL										
Casino Gaming	22.383	10.00	KSF	100	25%	19%	1679	813	-866	-52%
Casino Employees	76	20	Employees	1	0%	15%	76	17	-59	-78%
Spa and Fitness Center	0	Accessory Use	KSF	10	-	-	-	-	-	-
Park	0	3.07	Acres	6	0%	20%	0	15	15	100%
Total Recreational							**1755**	**844**	**-910**	**-52%**
MEETING SPACE										
Convention Center/Conference Facilities	Accessory Use	Accessory Use	Seats	1	75%	75%	-	-	-	-
Convention Center Employees	Accessory Use	Accessory Use	Employees	1	0%	0%	-	-	-	-
Total Meetings and Entertainment							**0**	**0**	**0**	**0%**
							2,166	**1,849**	**-317**	**-15%**

Source: LSC Transportation Consultants, Inc,

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EXHIBIT Q

For the lodging and residential units, it is assumed that the first bedroom is full (two persons on average), while each additional bedroom is used by one additional person on average. Although the lodging facilities and retail/restaurant population increase with the proposed project, the primary source of the reduction in persons is from the reduced casino area, which is estimated to reduce the number of persons onsite by 910.

Impact on Pedestrian Crossing Activity

As discussed above, the overall number of persons on the project parcels would be reduced. The size of the casino on the north side of the highway would be reduced by 55 percent, substantially reducing the greatest generator of pedestrian crossing activity. The elimination of the Crystal Bay Motel lodging on the south side would also tend to slightly reduce crossing activity, as these lodging guests would no longer cross to the north side of the highway. On the other hand, the increase in lodging guests and residents on the north side of the highway would generate an increase in travel between the hotel and residences on the north side of the highway and gaming commercial uses on the south side. The additional restaurant/ retail uses in the proposed project would also tend to generate increased pedestrian travel from lodging and residential areas on the south side of the highway. On balance, however, it is estimated that the proposed project will result in a net reduction in pedestrian crossing activity of roughly 30 percent from Baseline Biltmore levels, primarily due to the significant reduction in gaming floor area.

The geography of pedestrian crossing activity will also be changed by the land use plan. Although the casino area would be moved to a location roughly 200 feet off of SR 28 along the east side of Stateline Road, the direct pedestrian path between the proposed project and Crystal Bay Club gaming floors will remain roughly in the same location as the existing crossing location. However, the proposed hotel/spa and other residential/lodging uses on the project site will tend to generate pedestrian trips further to the north than at present.

The upper portion of Table 9 presents an evaluation of the relative proportions of overall pedestrian crossing demand that will occur between various land uses both south of SR 28 and north of the highway, with the proposed project plan. These proportions of total crossing activity by trip origin and destination are based upon observations of previous pedestrian activity as well as the population estimates for the various elements of the project land uses presented in Table 8. In comparison with the Baseline Biltmore pedestrian pattern (which was heavily concentrated between the Crystal Bay and Biltmore gaming areas), pedestrian activity will be more dispersed (though the highest proportion will still be to and from the Crystal Bay Club).

Table 9: Evaluation of Pedestrian Crossing Demand

		North Side of SR 28		
		Casino	Commercial	Residential/ Hotel
Proportion of Total Crossing Activity by Origin and Destination				
	% of Demand			
South Side of SR 28	on Side	53%	19%	27%
Crystal Bay Club	60%	32%	12%	16%
Tahoe Nugget	25%	13%	5%	7%
Post Office Area	15%	8%	3%	4%
Existing At-Grade Crossing				
Proportion of Pedestrians Using Facility by Origin-Destination				
Crystal Bay Club		100%	100%	100%
Tahoe Nugget		100%	25%	0%
Post Office Area		20%	5%	0%
Overall Proportion of Crossing Pedestrians Served				**76%**
Overpass to Tahoe Nugget				
Proportion of Pedestrians Using Facility by Origin-Destination				
Crystal Bay Club		25%	75%	90%
Tahoe Nugget		100%	100%	100%
Post Office Area		80%	50%	20%
Overall Proportion of Crossing Pedestrians Served				**65%**
Overpass to SR 28 Commercial Center Site				
Proportion of Pedestrians Using Facility by Origin-Destination				
Crystal Bay Club		0%	50%	75%
Tahoe Nugget		20%	75%	85%
Post Office Area		95%	70%	50%
Overall Proportion of Crossing Pedestrians Served				**42%**
At Grade Crossing at Stateline Road				
Proportion of Pedestrians Using Facility by Origin-Destination				
Crystal Bay Club		25%	5%	5%
Tahoe Nugget		0%	0%	0%
Post Office Area		0%	0%	0%
Overall Proportion of Crossing Pedestrians Served				**9%**

POTENTIAL CROSSING OPTIONS

Four potential pedestrian crossing options are evaluated, as follows:

1. Existing signalized at-grade pedestrian crossing
2. Pedestrian overpass
3. Pedestrian crossing at the SR 28 commercial center
4. At-grade crossing at Stateline Road

Existing At-Grade Pedestrian Crossing

Simply keeping the existing signal-protected crossing in place would result in a pedestrian walk distance between the front doors of the Crystal Bay Club gaming area and the proposed project gaming area of approximately 350 feet, as shown in Table 10. This is the shortest distance provided by any of the alternatives. This location is also convenient for pedestrians traveling between the Tahoe Nugget and the proposed casino and traveling between the northern portion of the project site (such as the hotel and spa) and the Crystal Bay Club. While traffic delays would still result for through traffic on SR 28, the reduction in crossing activity discussed above would result in a slight reduction in the number of times per hour that the signal is activated.

Table 10: Walk Distance between WALT and Crystal Bay Club Gaming Areas

	Walk Distance (Feet)	Ratio to Minimum Distance
At Grade Crossing at Stateline Road	500	1.43
Existing At Grade Crossing	350	1.00
Pedestrian Overpass at Tahoe Nugget	500	1.43
Pedestrian Overpass at SR 28 Commercial Center Site	700	2.00

Table 9 presents an evaluation of the total highway pedestrian crossing activity that would use this crossing point, given the proposed project plan. The proportion of pedestrians between each trip origin/ destination pair that would use the facility is estimated based upon the relative walk distance using the facility versus a more direct route, and pedestrian's propensity to prefer a protected crossing where convenient. Multiplied by the proportion of total pedestrian activity for each origin/destination pair and summed over all trips, it is estimated that 76 percent of all pedestrians crossing SR 28 in the vicinity would use the protected at-grade crossing.

It should also be noted that the existing at-grade crossing currently aids side-street movements out of Stateline Road, particularly for the left-turn movements onto the highway, by providing breaks in the through traffic on the state highway.

As stated above, the crosswalk traverses the intersection along a skewed path of approximately 26 degrees off of the perpendicular. The length of this path is 56 feet. A straight path across the roadway would be 50 feet in length. Straightening the crosswalk would provide for a more direct route across the roadway and could reduce the number of pedestrians crossing outside of the crosswalk. More importantly, the reduction of 6 feet of crossing without reducing the pedestrian clearance interval could provide for a slower pedestrian walking speed. The reconfiguration of the crosswalk would provide for a shorter, more logical, and therefore safer crossing for pedestrians and should be considered with the construction of the project. It is recommended that final plans for the redevelopment of the Biltmore site consider a site plan that allows a direct perpendicular pedestrian crossing.

PEDESTRIAN OVERPASS AT THE SOUTHWEST SIDE OF THE TAHOE NUGGET

Under this option, a pedestrian overpass would be constructed between Building H of the proposed project and an elevator/stair tower immediately adjacent to the southwest side of the Tahoe Nugget. Full ADA access would be provided on both sides of the roadway. This option would require the participation of The Tahoe Nugget owner, and would provide a walk distance between the two casinos of approximately 500 feet.

A key question regarding this alternative is how many of the pedestrians crossing SR 28 would use an overpass if available. To assess this issue, the methodology presented in *Design and Safety of Pedestrian Facilities* (Institute of Transportation Engineers, 1999) was applied. This methodology considers the ratio of travel time using the underpass to the travel time crossing at-grade. To generalize, it reflects the fact that previous studies have indicated that the large majority of pedestrians would use an overpass or underpass so long as the time required does not exceed the time for the at-grade crossing by more than roughly 20 percent. Above this ratio, the use of the underpass drops sharply towards zero. Figure 9 summarizes the results of this study. Table 10 presents the analysis of relative travel distance. As shown, the ratio of walk distance via the overpass versus crossing at-grade would be 1.43, indicating that virtually all pedestrians would choose to cross SR 28 at-grade rather than using the overpass when traveling between the two casinos.

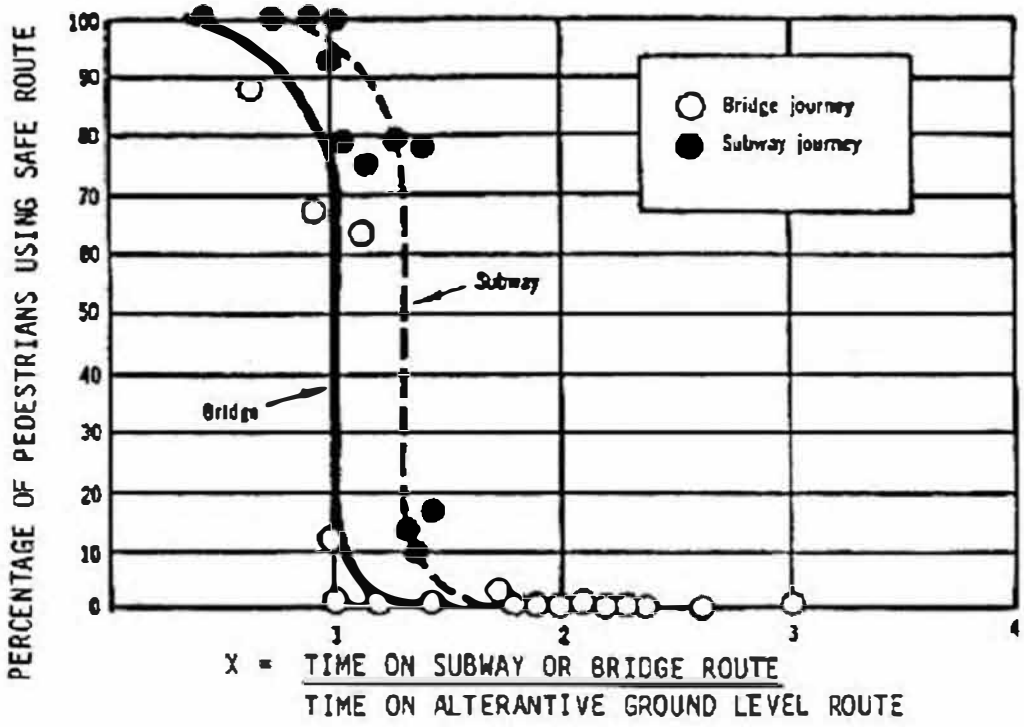
As evidenced in the Stateline area of South Shore, one means of ensuring use of a pedestrian overpass or underpass is by installing fencing between the sidewalk and travel lanes. In the north Stateline area, however, this is infeasible due to the presence of the Crystal Bay Club driveway – roughly 70 feet to the east of the existing crosswalk – and the on-street bus stops on both sides of the highway – roughly an equivalent distance to the west. With fencing, pedestrians who find the overpass to be too far out of their way could simply walk around either end of the fencing.

Factoring the proportion of pedestrians making each origin-destination trip by the proportion using this facility, it is estimated that 65 percent of all persons crossing the highway would use this facility, or slightly less than the at-grade crossing. This proportion could be increased to 71 percent if fencing is provided along the north side of the highway between the hotel driveway and the bus stop. The

remainder would still cross the highway at-grade. With a fence on the north side, the reduction in pedestrian activity would probably allow the removal of the at-grade pedestrian-actuated signal, with little resulting delay to traffic flow.

Beyond the pedestrian use considerations discussed above, the decision to provide a pedestrian overpass must consider other factors, such as the visual impact of the overpass structure and the elevator banks, stairs and/or ramps on either side, the detrimental impact on street-front retail activity, the cost, and the impact on traffic flow. According to the WALT project proponent, a pedestrian overpass is not considered to be a viable option.

Figure 9: Propensity of Pedestrians to Use Grade Separated Structures versus Ratio of Travel Time



PEDESTRIAN CROSSING AT THE SR 28 COMMERCIAL CENTER SITE

Another potential overpass site is at the location of the SR 28 Commercial Center that is part of the overall project site just to the east of the Tahoe Nugget parking area. This location would result in a walk distance between the Crystal Bay Club and proposed project casino gaming areas of roughly 700 feet, which is twice the distance via the existing at-grade crossing location. As also shown in Table 9, an overpass at this location would serve 42 percent of the crossing pedestrians. With a fence along the north side from the hotel driveway to the transit stop, this proportion would increase slightly to 46 percent. Pedestrian crossing on SR 28, particularly at the ends of the fence, would remain at a high enough levels in busy tourist periods to cause substantial conflict between pedestrians and motorists.

AT-GRADE CROSSING AT STATELINE ROAD

Relocating the existing pedestrian crossing to Stateline Road would put it in an inconvenient location for the majority of pedestrians in the area, resulting in only 9 percent of all crossing activity at this location. This would not be a volume-increase of pedestrians sufficient enough to warrant a traffic signal, and other measures (such as a mid-block pedestrian-actuated signal) would still be needed to the east.

CONCLUSIONS

Providing an at-grade signal-protected crosswalk at or near the existing location is recommended as the appropriate strategy for the foreseeable future. While this signal does create substantial traffic delays in peak traffic periods, given that the proposed project would generally reduce both traffic volumes in the area as well as pedestrian crossing activity, the provision of a pedestrian overpass as part of this phase of the project does not appear to be warranted. The existing crosswalk location best serves overall pedestrian demand patterns, though minor reconfiguration may be appropriate once final plans for the north side of the highway are determined. The location of bus stops should be coordinated with the transit agencies.

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EXHIBIT Q

Appendix A

RAW COUNT DATA

Stateline/ Cove St.

Total		Date: 7/8/2022				Day: Friday													
Street Name		Stateline				Stateline								Cove St				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
14:30	14:45	0	0	0	0	0	0	0	0					0	0	0	0	0	8
14:45	15:00	0	0	0	0	0	0	0	0					0	0	0	0	0	9
15:00	15:15	1	1	0	0	0	4	0	0					0	0	1	0	7	16
15:15	15:30	0	0	0	0	0	1	0	0					0	0	0	0	1	15
15:30	15:45	0	1	0	0	0	0	0	0					0	0	0	0	1	18
15:45	16:00	1	2	0	0	0	2	0	0					0	0	2	0	7	23
16:00	16:15	0	1	0	0	0	4	1	0					0	0	0	1	6	25
16:15	16:30	0	3	0	0	0	0	0	0					0	0	1	0	4	25
16:30	16:45	0	3	0	1	0	2	0	0					0	0	1	0	6	26
16:45	17:00	3	2	0	1	0	3	0	0					1	0	0	0	9	
17:00	17:15	4	1	0	1	0	1	0	0					0	0	0	0	6	
17:15	17:30	3	2	0	0	0	0	0	0					0	0	0	1	5	
																			PHF
PM Peak-Hour		**10**	**8**	**0**	**3**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**26**	**0.72**

Total		Date: 7/16/2022				Day: Saturday													
Street Name		Stateline				Stateline								Cove St				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Total	1hr total
13:30	13:45	0	0	0	0	0	0	0	0					0	0	0	0	0	10
13:45	14:00	1	1	0	0	0	1	0	0					0	0	2	0	5	15
14:00	14:15	0	1	0	0	0	2	0	0					1	0	0	4	4	14
14:15	14:30	0	1	0	0	0	0	0	0					0	0	0	0	1	20
14:30	14:45	1	4	0	0	0	0	0	0					0	0	0	2	5	22
14:45	15:00	1	1	0	0	0	1	1	0					0	0	0	0	4	21
15:00	15:15	0	3	0	0	0	2	0	0					1	0	4	1	10	19
15:15	15:30	0	1	0	0	0	1	1	0					0	0	0	1	3	15
15:30	15:45	1	1	0	0	0	1	0	0					0	0	1	0	4	19
15:45	16:00	1	0	0	0	0	0	0	0					0	0	1	1	2	
16:00	16:15	0	0	0	0	0	2	0	0					0	0	4	0	6	
16:15	16:30	2	2	0	3	0	1	0	0					0	0	2	0	7	
																			PHF
PM Peak-Hour		**2**	**9**	**0**	**0**	**0**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**4**	**22**	**0.55**

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EXHIBIT Q

SR28 / State Line

Total		Date:	7/8/2022			Day:	Friday												
Street Name		Stateline Rd				Stateline Rd				SR28				SR28				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	1	1	2	0	0	0	3	0	2	106	1	0	3	84	1	0	204	924
8:15	8:30	0	0	2	2	0	0	2	0	1	104	0	0	2	103	2	0	216	973
8:30	8:45	0	0	2	0	0	0	3	0	2	126	0	0	2	130	0	0	265	1,063
8:45	9:00	1	0	0	0	0	0	3	0	2	138	0	0	1	93	1	0	239	1,029
9:00	9:15	0	1	4	0	1	0	4	1	1	134	0	0	2	105	1	0	253	1,090
9:15	9:30	0	0	2	0	0	0	6	0	4	154	0	0	2	136	2	0	306	
9:30	9:45	0	0	1	0	1	0	2	0	0	113	0	0	0	114	0	0	231	
9:45	10:00	1	0	4	0	1	0	2	0	1	172	1	0	1	116	1	0	300	
14:45	15:00	0	0	1	0	3	0	2	0	0	92	0	0	2	82	0	1	172	1,198
15:00	15:15	0	0	0	0	0	0	1	0	3	167	0	0	3	173	1	0	348	1,380
15:15	15:30	1	0	4	0	3	0	1	0	3	168	0	0	3	144	0	0	327	1,434
15:30	15:45	0	0	2	5	1	0	1	0	0	181	0	0	2	163	1	0	351	1,486
15:45	16:00	1	0	4	0	1	0	3	0	4	169	0	1	2	169	1	0	354	1,528
16:00	16:15	0	0	2	1	1	0	3	2	0	204	1	1	2	188	1	0	402	1,590
16:15	16:30	0	0	7	0	1	0	2	0	1	184	0	1	1	182	1	0	379	1,559
16:30	16:45	0	0	2	2	2	0	1	1	3	183	0	0	0	202	0	1	393	1,545
16:45	17:00	0	0	3	2	2	0	0	0	1	200	0	0	2	200	0	0	416	
17:00	17:15	2	0	0	2	1	0	0	0	3	198	0	0	2	165	0	0	371	
17:15	17:30	1	0	0	0	2	0	3	0	3	177	0	0	1	178	0	1	365	
		0	0	1	1	1	0	0	0	1	83	0	0	0	108	2	0		
																			PHF
AM Peak-Hour		**1**	**1**	**11**	**0**	**3**	**0**	**14**	**1**	**6**	**573**	**1**	**0**	**5**	**471**	**4**	**0**	**1,090**	**0.89**
PM Peak-Hour		**0**	**0**	**14**	**5**	**6**	**0**	**14**	**12**	**5**	**771**	**1**	**2**	**5**	**772**	**2**	**1**	**1,590**	**0.96**

HV																			
Street Name		Stateline Rd				Stateline Rd				SR28				SR28				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	0	1	0	0	0	2	0	0	1	0	0	0	3	0	0	7	30
8:15	8:30	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	0	7	29
8:30	8:45	0	0	0	0	0	0	0	0	1	7	0	0	0	2	0	0	10	29
8:45	9:00	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	6	25
9:00	9:15	0	0	0	0	0	0	2	0	0	2	0	0	0	2	0	0	6	23
9:15	9:30	0	0	0	0	0	0	1	0	1	3	0	0	0	2	0	0	7	17
9:30	9:45	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	6	
9:45	10:00	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4	
14:30	14:45	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	15
14:45	15:00	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	18
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	19
15:15	15:30	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4	18
15:30	15:45	0	0	0	0	0	0	1	0	0	3	0	0	0	1	1	0	6	18
15:45	16:00	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	4	25
16:00	16:15	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4	24
16:15	16:30	0	0	0	0	0	0	0	0	1	2	0	0	0	1	0	0	4	22
16:30	16:45	0	0	0	0	0	0	3	0	0	5	0	0	0	5	0	0	13	21
16:45	17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	
17:00	17:15	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
17:15	17:30	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	
																			% HV
Peak-Hour Volume		**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**10**	**0**	**0**	**0**	**9**	**0**	**0**	**23**	**0.0211**
PM Peak-Hour		**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**8**	**0**	**0**	**0**	**12**	**0**	**0**	**24**	**0.02**

Bicycle															
Street Name		Stateline			Stateline			SR28			SR28			Totals	
Direction		Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
8:00	8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:15	8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	7
8:30	8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	8
8:45	9:00	0	0	0	0	0	0	0	3	0	0	0	0	3	8
9:00	9:15	0	0	0	0	0	0	0	4	0	0	0	0	4	6
9:15	9:30	0	0	0	0	0	0	0	1	0	0	0	0	1	
9:30	9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45	10:00	0	0	0	0	0	0	0	1	0	0	0	0	1	
14:30	14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	6
14:45	15:00	0	0	0	0	0	0	0	0	0	0	1	0	1	6
15:00	15:15	0	0	0	0	0	0	2	0	0	0	0	0	2	6
15:15	15:30	0	0	0	0	0	0	0	1	0	0	2	0	3	8
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	7
15:45	16:00	0	0	0	0	0	0	0	0	0	0	1	0	1	11
16:00	16:15	0	0	0	0	0	0	0	0	0	0	4	0	4	10
16:15	16:30	0	0	0	0	0	0	0	2	0	0	0	0	2	9
16:30	16:45	0	0	0	0	0	0	0	3	0	0	1	0	4	7
16:45	17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:00	17:15	0	0	0	0	0	3	0	0	0	0	0	0	3	
17:15	17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak-Hour Volume		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	
PM Peak-Hour		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**5**	**0**	**10**	

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EXHIBIT Q

Total	Date: 7/9/2022				Day: Saturday												Totals	
Street Name	Stateline Rd				Stateline Rd				SR28				SR28					
Direction	Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Total	1hr total
13:30	13:45	0	0	0	0	0	0	0	0	0	21	0	0	1	13	0	0	35	1029
13:45	14:00	1	0	2	0	0	0	3	1	1	158	1	0	0	160	2	0	328	1338
14:00	14:15	0	0	1	0	1	1	5	0	2	152	0	4	1	167	1	0	331	1393
14:15	14:30	0	0	2	1	0	0	0	0	1	171	0	0	3	158	0	0	335	1407
14:30	14:45	0	0	5	0	0	0	1	0	2	157	0	0	2	176	1	0	344	1426
14:45	15:00	1	0	0	0	0	0	1	0	4	196	0	0	1	180	0	0	383	1428
15:00	15:15	1	0	1	0	3	0	3	0	1	158	0	0	0	177	1	0	345	1405
15:15	15:30	0	0	1	0	0	0	3	0	2	179	0	0	5	164	0	0	354	1437
15:30	15:45	1	1	2	2	1	0	4	0	1	169	0	0	1	163	3	0	346	1378
15:45	16:00	0	0	1	0	2	0	1	0	2	194	1	0	1	158	0	0	360	
16:00	16:15	1	0	2	1	0	0	5	0	0	181	1	0	1	186	0	1	377	
16:15	16:30	0	0	0	1	1	0	5	0	1	148	0	0	1	137	2	0	295	
PM Peak-Hour		**3**	**1**	**4**	**2**	**4**	**0**	**11**	**0**	**8**	**702**	**0**	**0**	**7**	**684**	**4**	**0**	**1,428**	PHF **0.93**

HV																			
Street Name	Stateline Rd				Stateline Rd				SR28				SR28				Totals	
Direction	Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
13:30	13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
13:45	14:00	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	9
14:00	14:15	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	3	7
14:15	14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	7
14:30	14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	11
14:45	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	10
15:00	15:15	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	12
15:15	15:30	0	0	0	0	0	0	1	0	0	2	0	0	0	2	0	0	5	12
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
15:45	16:00	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4	
16:00	16:15	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	3	
16:15	16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak-Hour Volume		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	**0**	**0**	**0**	**4**	**0**	**0**	**10**	% HV **0.0070**

Bicycle														
Street Name	Stateline			Stateline			SR28			SR28			Totals	
Direction	Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
13:30	13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	7
13:45	14:00	0	0	0	0	0	0	0	0	0	0	3	0	3	10
14:00	14:15	0	0	0	0	0	0	0	0	0	0	3	0	3	9
14:15	14:30	0	0	0	0	0	0	0	0	0	0	1	0	1	6
14:30	14:45	0	0	0	0	0	0	0	3	0	0	0	0	3	8
14:45	15:00	0	0	0	0	0	0	0	0	0	0	2	0	2	5
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	5
15:15	15:30	0	0	0	0	0	0	0	1	0	0	2	0	3	6
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0	0	0	0	2	0	2	0
16:00	16:15	0	0	0	0	0	0	0	0	0	0	1	0	1	0
16:15	16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak-Hour Volume		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**5**	

WSUP23-0025
EXHIBIT Q

SR28 / Crosswalk - Biltmore site closed/under construction during counts.

Total		Date:	7/8/2022			Day:	Friday												
Street Name		Crosswalk				Crosswalk				SR28				SR28				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	0	0	1	0	0	0	0	0	92	0	0	0	123	0	0	215	923
8:15	8:30	0	0	0	1	0	0	0	0	0	109	0	0	0	104	0	0	213	955
8:30	8:45	0	0	0	0	0	0	0	0	0	132	0	0	0	126	0	0	258	1,038
8:45	9:00	0	0	0	0	0	0	0	0	0	98	0	0	0	139	0	0	237	1,007
9:00	9:15	0	0	0	0	0	0	0	0	0	107	0	0	0	140	0	0	247	1,088
9:15	9:30	0	0	0	0	0	0	0	0	0	140	0	0	0	156	0	0	296	
9:30	9:45	0	0	0	0	0	0	0	0	0	114	0	0	0	113	0	0	227	
9:45	10:00	0	0	0	0	0	0	0	0	0	140	0	0	0	178	0	0	318	
14:30	14:45	0	0	0	0	0	0	0	2	0	133	0	0	0	132	0	0	265	1,285
14:45	15:00	0	0	0	0	0	0	0	0	0	168	0	0	0	172	0	0	341	1,386
15:00	15:15	0	0	0	0	0	0	0	0	0	147	0	0	0	178	0	0	325	1,441
15:15	15:30	0	0	0	0	0	0	0	0	0	170	0	0	0	184	0	0	354	1,472
15:30	15:45	0	0	0	0	0	0	0	0	0	181	0	0	0	185	0	0	366	1,491
15:45	16:00	0	0	0	8	0	0	0	1	0	188	0	0	0	208	0	0	396	1,481
16:00	16:15	0	0	0	0	0	0	0	1	0	176	0	0	0	180	0	0	356	1,457
16:15	16:30	0	0	0	0	0	0	0	0	0	178	0	0	0	194	0	0	373	1,439
16:30	16:45	0	0	0	0	0	0	0	1	0	155	0	0	0	201	0	0	356	
16:45	17:00	0	0	0	2	0	0	0	0	0	171	0	0	0	201	0	0	372	
17:00	17:15	0	0	0	2	0	0	0	0	0	177	0	0	0	161	0	0	338	
17:15	17:30	0	0	0	1	0	0	0	1	0	174	0	0	0	172	0	0		
																			PHF
AM Peak-Hour		0	0	0	0	0	0	0	0	0	501	0	0	0	587	0	0	1,088	0.86
PM Peak-Hour		0	0	0	8	0	0	0	2	0	724	0	0	0	767	0	0	1,491	0.94

HV																			
Street Name		Crosswalk				Crosswalk				SR28				SR28				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7	28
8:15	8:30	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	0	7	26
8:30	8:45	0	0	0	0	0	0	0	0	0	2	0	0	0	7	0	0	9	25
8:45	9:00	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5	22
9:00	9:15	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5	22
9:15	9:30	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	6	17
9:30	9:45	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6	
9:45	10:00	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5	
14:30	14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	15
14:45	15:00	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	15
15:00	15:15	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	5	15
15:15	15:30	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	5	16
15:30	15:45	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	17
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	21
16:00	16:15	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	6	21
16:15	16:30	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	6	19
16:30	16:45	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7	19
16:45	17:00	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	
17:00	17:15	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4	
17:15	17:30	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6	
																			% HV
Peak-Hour Volume		0	0	0	0	0	0	0	0	0	10	0	0	0	12	0	0	22	0.0202
PM Peak-Hour		0	0	0	0	0	0	0	0	0	9	0	0	0	8	0	0	17	0.01

Bicycle														
Street Name		Crosswalk			Crosswalk			SR28			SR28			Totals	
Direction		Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
8:00	8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15	8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	6
8:30	8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	7
8:45	9:00	0	0	0	0	0	0	0	0	0	0	2	0	2	7
9:00	9:15	0	0	0	0	0	0	0	0	0	0	4	0	4	6
9:15	9:30	0	0	0	0	0	0	0	0	0	0	1	0	1	
9:30	9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45	10:00	0	0	0	0	0	0	0	0	0	0	1	0	1	
14:30	14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	3
14:45	15:00	0	0	0	0	0	0	0	1	0	0	0	0	1	5
15:00	15:15	0	0	0	0	0	0	0	1	0	0	0	0	1	5
15:15	15:30	0	0	0	0	0	0	0	0	0	0	1	0	1	9
15:30	15:45	0	0	0	0	0	0	0	2	0	0	0	0	2	10
15:45	16:00	0	0	0	0	0	0	0	0	0	0	1	0	1	12
16:00	16:15	0	0	0	0	0	0	0	4	0	0	1	0	5	11
16:15	16:30	0	0	0	0	0	0	0	0	0	0	2	0	2	6
16:30	16:45	0	0	0	0	0	0	0	1	0	0	3	0	4	4
16:45	17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:00	17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:15	17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak-Hour Volume		0	0	0	0	0	0	0	0	0	0	6	0	6	
PM Peak-Hour		0	0	0	0	0	0	0	6	0	0	4	0	10	

WSUP23-0025
EXHIBIT Q

Total		Date:	7/9/2022			Day:	Saturday												
Street Name		Crosswalk				Crosswalk				SR28				SR28				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Total	1hr total
13:30	13:45	0	0	0	3	0	0	0	0	0	157	0	0	0	168	0	0	325	1303
13:45	14:00	0	0	0	0	0	0	0	0	0	161	0	0	0	163	0	0	324	1320
14:00	14:15	0	0	0	3	0	0	0	0	0	168	0	0	0	151	0	0	319	1370
14:15	14:30	0	0	0	2	0	0	0	0	0	160	0	0	0	175	0	0	335	1392
14:30	14:45	0	0	0	0	0	0	0	0	0	180	0	0	0	162	0	0	342	1410
14:45	15:00	0	0	0	3	0	0	0	1	0	183	0	0	0	191	0	0	374	1399
15:00	15:15	0	0	0	0	0	0	0	0	0	178	0	0	0	163	0	0	341	1375
15:15	15:30	0	0	0	1	0	0	0	3	0	171	0	0	0	182	0	0	353	1411
15:30	15:45	0	0	0	0	0	0	0	2	0	164	0	0	0	167	0	0	331	1360
15:45	16:00	0	0	0	2	0	0	0	0	0	157	0	0	0	193	0	0	350	
16:00	16:15	0	0	0	4	0	0	0	0	0	186	0	0	0	191	0	0	377	
16:15	16:30	0	0	0	0	0	0	0	0	0	146	0	0	0	156	0	0	302	
																			PHF
PM Peak-Hour		0	0	0	4	0	0	0	4	0	712	0	0	0	698	0	0	1,410	0.94

HV																			
Street Name		Crosswalk				Crosswalk				SR28				SR28				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
13:30	13:45	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	9
13:45	14:00	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	8
14:00	14:15	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	6
14:15	14:30	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	7
14:30	14:45	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	10
14:45	15:00	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	2	9
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	10
15:15	15:30	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5	10
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
15:45	16:00	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	
16:00	16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	
16:15	16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
																			% HV
Peak-Hour Volume		0	0	0	2	0	0	0	0	0	5	0	0	0	5	0	0	10	0.0071

Bicycle															
Street Name		Crosswalk			Crosswalk			SR28			SR28			Totals	
Direction		Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
13:30	13:45	0	0	0	0	0	0	0	0	0	0	9	0	9	16
13:45	14:00	0	0	0	0	0	0	0	3	0	0	0	0	3	11
14:00	14:15	0	0	0	0	0	0	0	3	0	0	0	0	3	8
14:15	14:30	0	0	0	0	0	0	0	1	0	0	0	0	1	5
14:30	14:45	0	0	0	0	0	0	0	1	0	0	3	0	4	6
14:45	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	4
15:15	15:30	0	0	0	0	0	0	0	1	0	0	1	0	2	5
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0	2	0	0	0	0	2	0
16:00	16:15	0	0	0	0	0	0	0	1	0	0	0	0	1	0
16:15	16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak-Hour Volume		0	0	0	0	0	0	0	2	0	0	4	0	6	

WSUP23-0025
EXHIBIT Q

SR28 / Cal Neva Dr

Total		Date:	7/8/2022			Day:	Friday												
Street Name		SR28				SR28								Cal Neva Dr				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	118	1	0	3	92	0	0					0	0	3	2	217	926
8:15	8:30	0	104	0	0	0	110	0	0					1	0	2	1	217	956
8:30	8:45	0	126	0	0	3	127	0	0					0	0	1	1	257	1,034
8:45	9:00	0	131	2	0	0	100	0	0					1	0	1	2	235	1,008
9:00	9:15	0	138	0	0	2	101	0	0					0	0	6	0	247	1,061
9:15	9:30	0	152	3	0	1	136	0	0					3	0	0	0	295	
9:30	9:45	0	107	0	0	1	119	0	0					2	0	2	1	231	
9:45	10:00	0	161	1	0	2	120	0	0					0	0	4	0	288	
14:45	15:00	0	102	0	0	2	80	0	0					0	0	2	0	186	1,239
15:00	15:15	0	171	0	0	2	145	0	0					1	0	4	1	323	1,411
15:15	15:30	0	176	1	0	3	169	0	0					0	0	4	1	353	1,447
15:30	15:45	0	183	0	0	3	189	0	0					0	0	2	0	377	
15:45	16:00	0	178	2	0	0	176	0	0					1	0	1	0	358	1,434
16:00	16:15	0	180	1	0	2	168	0	0					2	0	6	1	359	1,451
16:15	16:30	0	178	0	0	5	173	0	0					1	0	2	1	359	1,417
16:30	16:45	0	196	2	0	1	154	0	0					2	0	3	1	358	1,425
16:45	17:00	0	195	2	0	2	175	0	0					0	0	1	2	375	
17:00	17:15	0	142	0	0	2	179	0	0					2	0	0	5	325	
17:15	17:30	0	187	2	0	1	172	0	0					1	0	4	5	367	
																			PHF
AM Peak-Hour		**0**	**558**	**4**	**0**	**6**	**476**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**12**	**1**	**1,061**	**0.90**
PM Peak-Hour		**0**	**719**	**3**	**0**	**10**	**706**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**11**	**2**	**1,453**	**0.96**

HV																			
Street Name		SR28				SR28								Cal Neva Dr				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	4	0	0	0	3	0	0					0	0	0	0	7	29
8:15	8:30	0	5	0	0	0	2	0	0					0	0	0	0	7	28
8:30	8:45	0	7	0	0	0	2	0	0					0	0	0	0	9	26
8:45	9:00	0	2	0	0	0	4	0	0					0	0	0	0	6	23
9:00	9:15	0	3	0	0	0	3	0	0					0	0	0	0	6	20
9:15	9:30	0	3	0	0	0	2	0	0					0	0	0	0	5	14
9:30	9:45	0	4	0	0	0	2	0	0					0	0	0	0	6	
9:45	10:00	0	1	0	0	0	2	0	0					0	0	0	0	3	
14:30	14:45	0	0	0	0	0	0	0	0					0	0	0	0	0	12
14:45	15:00	0	0	0	0	0	2	0	0					0	0	0	0	2	17
15:00	15:15	0	1	0	0	0	4	0	0					0	0	0	0	5	17
15:15	15:30	0	1	0	0	0	4	0	0					0	0	0	0	5	14
15:30	15:45	0	4	0	0	0	1	0	0					0	0	0	0	5	16
15:45	16:00	0	2	0	0	0	0	0	0					0	0	0	0	2	19
16:00	16:15	0	1	0	0	0	1	0	0					0	0	0	0	2	18
16:15	16:30	0	3	0	0	0	4	0	0					0	0	0	0	7	23
16:30	16:45	0	3	0	0	0	5	0	0					0	0	0	0	8	19
16:45	17:00	0	0	0	0	0	1	0	0					0	0	0	0	1	
17:00	17:15	0	3	0	0	0	4	0	0					0	0	0	0	7	
17:15	17:30	0	2	0	0	0	1	0	0					0	0	0	0	3	
																			% HV
Peak-Hour Volume		**0**	**11**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0.0189**
PM Peak-Hour		**0**	**10**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0.01**

Bicycle															
Street Name		SR28			SR28						Cal Neva Dr			Totals	
Direction		Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
8:00	8:15	0	2	0	0	0	0				0	0	0	2	7
8:15	8:30	0	0	0	0	1	0				0	0	0	1	9
8:30	8:45	0	0	0	0	0	0				0	0	0	0	9
8:45	9:00	0	3	0	0	0	0				0	0	1	4	9
9:00	9:15	0	4	0	0	0	0				0	0	0	4	5
9:15	9:30	0	1	0	0	0	0				0	0	0	1	
9:30	9:45	0	0	0	0	0	0				0	0	0	0	
9:45	10:00	0	0	0	0	0	0				0	0	0	0	
14:30	14:45	0	0	0	0	0	0				0	0	0	0	3
14:45	15:00	0	0	0	0	0	0				0	0	0	0	4
15:00	15:15	0	0	0	0	2	0				0	0	0	2	4
15:15	15:30	0	1	0	0	0	0				0	0	0	1	4
15:30	15:45	0	0	0	0	1	0				0	0	0	1	4
15:45	16:00	0	0	0	0	0	0				0	0	0	0	6
16:00	16:15	0	2	0	0	0	0				0	0	0	2	7
16:15	16:30	0	1	0	0	0	0				0	0	0	1	5
16:30	16:45	0	2	0	0	1	0				0	0	0	3	5
16:45	17:00	0	0	0	0	1	0				0	0	0	1	
17:00	17:15	0	0	0	0	0	0				0	0	0	0	
17:15	17:30	0	0	0	0	1	0				0	0	0	1	
Peak-Hour Volume		**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	
PM Peak-Hour		**0**	**5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	

WSUP23-0025
EXHIBIT Q

Total Date: **7/9/2022** Day: **Saturday**

Street Name		SR28				SR28								Cal Neva Dr				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Total	1hr total
13:30	13:45	0	167	1	0	2	153	0	0					1	0	2	0	326	1326
13:45	14:00	0	165	0	0	1	159	0	0					1	0	2	0	328	1331
14:00	14:15	0	148	1	0	2	167	0	0					1	0	1	0	320	1378
14:15	14:30	0	179	0	0	0	168	0	0					0	0	5	0	352	
14:30	14:45	0	155	0	0	0	173	0	0					1	0	2	0	331	1406
14:45	15:00	0	192	0	0	3	180	0	0					0	0	0	0	375	1400
15:00	15:15	0	165	0	0	2	181	0	0					0	0	2	0	350	1378
15:15	15:30	0	180	1	0	1	165	0	0					1	0	2	0	350	1395
15:30	15:45	0	159	0	0	1	162	0	0					2	0	1	2	325	1348
15:45	16:00	0	187	1	0	1	162	0	0					1	0	1	0	353	
16:00	16:15	0	187	1	0	2	173	0	0					1	0	3	2	367	
16:15	16:30	0	153	0	0	0	149	0	0					0	0	1	0	303	
PM Peak-Hour		**0**	**691**	**0**	**0**	**5**	**702**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**9**	**0**	**1,408**	PHF **0.94**

HV

Street Name		SR28				SR28								Cal Neva Dr				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
13:30	13:45	0	1	0	0	0	1	0	0					0	0	0	0	2	9
13:45	14:00	0	2	0	0	0	2	0	0					0	0	0	0	4	8
14:00	14:15	0	0	0	0	0	1	0	0					0	0	0	0	1	6
14:15	14:30	0	1	0	0	0	1	0	0					0	0	0	0	2	7
14:30	14:45	0	0	0	0	0	1	0	0					0	0	0	0	1	9
14:45	15:00	0	0	0	0	0	2	0	0					0	0	0	0	2	8
15:00	15:15	0	2	0	0	0	0	0	0					0	0	0	0	2	10
15:15	15:30	0	2	0	0	0	2	0	0					0	0	0	0	4	10
15:30	15:45	0	0	0	0	0	0	0	0					0	0	0	0	0	6
15:45	16:00	0	0	1	0	0	3	0	0					0	0	0	0	4	
16:00	16:15	0	2	0	0	0	0	0	0					0	0	0	0	2	
16:15	16:30	0	0	0	0	0	0	0	0					0	0	0	0	0	
Peak-Hour Volume		**0**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	% HV **0.0050**

Bicycle

Street Name		SR28			SR28						Cal Neva Dr			Totals	
Direction		Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
13:30	13:45	0	9	0	0	0	0				0	0	0	9	16
13:45	14:00	0	0	0	0	3	0				0	0	0	3	10
14:00	14:15	0	0	0	0	3	0				0	0	0	3	9
14:15	14:30	0	0	0	0	1	0				0	0	0	1	6
14:30	14:45	0	3	0	0	0	0				0	0	0	3	7
14:45	15:00	0	0	0	0	2	0				0	0	0	2	5
15:00	15:15	0	0	0	0	0	0				0	0	0	0	5
15:15	15:30	0	1	0	0	1	0				0	0	0	2	7
15:30	15:45	0	0	0	0	1	0				0	0	0	1	0
15:45	16:00	0	0	0	0	2	0				0	0	0	2	0
16:00	16:15	0	0	0	0	2	0				0	0	0	2	0
16:15	16:30	0	0	0	0	0	0				0	0	0	0	0
Peak-Hour Volume		**0**	**3**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	

WSUP23-0025
EXHIBIT Q

SR28 / Reservoir Dr.

Total		Date:	7/8/2022			Day:	Friday													
Street Name		SR28				SR28				Reservoir Rd				Neighborhood				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	112	0	0	1	91	0	0	0	0	2	0	0	0	0	0	206	921
8:15	8:30	1	104	0	0	0	111	0	0	2	0	1	0	0	0	1	0	220	967
8:30	8:45	1	126	0	0	0	126	1	0	0	0	3	0	1	0	0	0	258	1,041
8:45	9:00	2	130	0	0	3	98	0	0	1	0	2	0	0	0	1	0	237	1,017
9:00	9:15	3	141	0	0	1	101	0	0	2	0	1	0	2	0	1	0	252	1,101
9:15	9:30	3	150	0	0	1	136	0	0	0	0	2	1	0	0	2	1	294	
9:30	9:45	5	103	0	0	1	121	1	0	2	0	1	0	0	0	0	0	234	
9:45	10:00	2	178	0	0	2	133	0	0	0	0	5	0	0	0	1	0	321	
14:30	14:45	3	85	0	0	0	75	0	0	0	0	1	0	0	0	0	0	164	1,212
14:45	15:00	2	186	0	0	1	166	1	0	1	0	2	0	0	0	4	0	363	1,423
15:00	15:15	4	167	0	0	2	157	1	0	2	0	2	0	0	0	1	0	336	1,450
15:15	15:30	3	167	0	0	1	173	1	0	1	0	1	0	0	0	2	0	349	1,484
15:30	15:45	3	190	0	0	2	168	2	0	2	0	7	0	0	0	1	0	375	
15:45	16:00	4	190	0	0	0	192	0	0	1	0	3	0	0	0	0	0	390	1,467
16:00	16:15	4	173	0	0	0	186	1	0	1	0	3	0	0	0	2	0	370	1,453
16:15	16:30	4	186	0	0	0	160	3	0	1	0	4	0	0	0	1	0	359	1,414
16:30	16:45	1	195	0	0	2	145	0	0	0	0	0	0	0	0	5	0	348	1,422
16:45	17:00	3	183	0	0	2	181	0	0	2	0	2	0	0	0	3	0	376	
17:00	17:15	2	142	0	0	0	183	0	0	2	0	1	0	0	0	1	0	331	
17:15	17:30	3	176	0	0	1	183	0	0	0	0	0	0	1	0	3	0	367	
																			PHF
AM Peak-Hour		**13**	**572**	**0**	**0**	**5**	**491**	**1**	**0**	**4**	**0**	**9**	**1**	**2**	**0**	**4**	**1**	**1,101**	**0.86**
PM Peak-Hour		**15**	**739**	**0**	**0**	**2**	**706**	**6**	**0**	**5**	**0**	**17**	**0**	**0**	**0**	**4**	**0**	**1,494**	**0.96**

HV																			
Street Name		SR28				SR28				Reservoir Rd				Neighborhood				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0	0	7	29
8:15	8:30	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7	27
8:30	8:45	0	7	0	0	0	2	0	0	0	0	0	0	0	0	0	0	9	26
8:45	9:00	1	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6	23
9:00	9:15	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	22
9:15	9:30	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6	
9:30	9:45	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6	
9:45	10:00	1	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	
14:30	14:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	15
14:45	15:00	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5	17
15:00	15:15	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4	14
15:15	15:30	1	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	15
15:30	15:45	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	16
15:45	16:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	19
16:00	16:15	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	18
16:15	16:30	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6	19
16:30	16:45	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6	15
16:45	17:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
17:00	17:15	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6	
17:15	17:30	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
																			% HV
Peak-Hour Volume		**1**	**11**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**0.0200**
PM Peak-Hour		**2**	**8**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0.01**

Bicycle															
Street Name		SR28			SR28			Reservoir Rd			Neighborhood			Totals	
Direction		Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
8:00	8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:15	8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	7
8:30	8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	8
8:45	9:00	0	3	0	0	0	0	0	0	0	0	0	0	3	8
9:00	9:15	0	4	0	0	0	0	0	0	0	0	0	0	4	6
9:15	9:30	0	1	0	0	0	0	0	0	0	0	0	0	1	
9:30	9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45	10:00	0	1	0	0	0	0	0	0	0	0	0	0	1	
14:30	14:45	0	0	0	0	1	0	0	0	0	0	0	0	1	4
14:45	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	4
15:00	15:15	0	1	0	0	2	0	0	0	0	0	0	0	3	4
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	7
15:30	15:45	0	0	0	0	1	0	0	0	0	0	0	0	1	10
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	10
16:00	16:15	0	2	0	0	4	0	0	0	0	0	0	0	6	12
16:15	16:30	0	3	0	0	0	0	0	0	0	0	0	0	3	6
16:30	16:45	0	0	0	0	1	0	0	0	0	0	0	0	1	4
16:45	17:00	0	1	0	0	1	0	0	0	0	0	0	0	2	
17:00	17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:15	17:30	0	0	0	0	1	0	0	0	0	0	0	0	1	
Peak-Hour Volume		**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	
PM Peak-Hour		**0**	**5**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	

WSUP23-0025
EXHIBIT Q

Total	Date: 7/9/2022				Day: Saturday													
Street Name	SR28				SR28				Reservoir Rd				Neighborhood				Totals	
Direction	Northbound				Southbound				Eastbound				Westbound					
Start time End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Total	1hr total
13:30 13:45	4	164	0	1	0	154	3	0	0	0	2	0	0	0	1	0	328	1336
13:45 14:00	1	167	0	0	0	157	0	0	3	0	2	0	0	0	0	0	330	1337
14:00 14:15	1	146	0	0	1	168	0	0	0	0	1	0	0	0	1	0	318	1384
14:15 14:30	4	180	1	0	3	172	0	0	0	0	0	0	0	0	0	1	360	
14:30 14:45	1	155	0	0	0	171	0	0	0	0	2	1	0	0	0	0	329	1414
14:45 15:00	1	188	1	0	1	179	1	0	1	0	1	0	1	0	3	0	377	1412
15:00 15:15	3	164	0	0	0	184	1	0	0	0	1	0	0	0	2	0	355	1391
15:15 15:30	4	180	0	0	0	165	1	0	0	0	1	0	0	0	2	0	353	1400
15:30 15:45	4	154	2	0	1	162	2	0	1	0	0	0	1	0	0	1	327	1360
15:45 16:00	1	188	0	0	0	164	0	0	2	0	1	0	0	0	0	0	356	
16:00 16:15	5	183	1	0	1	172	0	0	0	0	1	0	0	0	1	0	364	
16:15 16:30	0	154	1	0	2	151	1	0	1	0	1	0	1	0	1	0	313	
																		PHF
PM Peak-Hour	**9**	**687**	**2**	**0**	**4**	**706**	**2**	**0**	**1**	**0**	**4**	**1**	**1**	**0**	**5**	**1**	**1,421**	**0.94**

HV																		
Street Name	SR28				SR28				Reservoir Rd				Neighborhood				Totals	
Direction	Northbound				Southbound				Eastbound				Westbound					
Start time End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
13:30 13:45	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	8
13:45 14:00	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	7
14:00 14:15	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	6
14:15 14:30	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	7
14:30 14:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	10
14:45 15:00	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	9
15:00 15:15	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10
15:15 15:30	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	10
15:30 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
15:45 16:00	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	
16:00 16:15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
16:15 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		% HV
Peak-Hour Volume	**1**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0.0049**

Bicycle														
Street Name	SR28			SR28			Reservoir Rd			Neighborhood			Totals	
Direction	Northbound			Southbound			Eastbound			Westbound				
Start time End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
13:30 13:45	0	9	0	0	0	0	0	0	0	0	0	0	9	16
13:45 14:00	0	0	0	0	3	0	0	0	0	0	0	0	3	10
14:00 14:15	0	0	0	0	3	0	0	0	0	0	0	0	3	9
14:15 14:30	0	0	0	0	1	0	0	0	0	0	0	0	1	6
14:30 14:45	0	3	0	0	0	0	0	0	0	0	0	0	3	7
14:45 15:00	0	0	0	0	2	0	0	0	0	0	0	0	2	4
15:00 15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	4
15:15 15:30	0	1	0	0	1	0	0	0	0	0	0	0	2	4
15:30 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	2
15:45 16:00	0	0	0	0	2	0	0	0	0	0	0	0	2	
16:00 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	
16:15 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak-Hour Volume	**0**	**3**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	

WSUP23-0025
EXHIBIT Q

SR28 / Big Water Rd.

Total		Date:	7/8/2022			Day: Friday													
Street Name		SR28				SR28				Big Water Rd								Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	112	0	0	0	92	0	0	1	0	0	0					205	911
8:15	8:30	0	105	0	0	0	111	1	0	0	0	0	0					217	955
8:30	8:45	0	127	0	0	0	127	0	0	1	0	1	0					256	1,029
8:45	9:00	0	132	0	0	0	101	0	0	0	0	0	1					233	1,004
9:00	9:15	1	143	0	0	0	102	0	0	3	0	0	2					249	1,087
9:15	9:30	0	153	0	0	0	137	0	0	1	0	0	0					291	
9:30	9:45	0	108	0	0	0	123	0	0	0	0	0	0					231	
9:45	10:00	0	180	0	0	0	135	0	0	1	0	0	0					316	
14:30	14:45	0	88	0	0	0	75	0	0	0	0	0	0					163	1,198
14:45	15:00	0	188	0	0	0	168	0	0	0	0	0	0					356	1,400
15:00	15:15	2	169	0	0	0	159	1	0	0	0	1	0					332	1,430
15:15	15:30	0	170	0	0	0	175	0	0	1	0	1	0					347	1,462
15:30	15:45	1	192	0	0	0	172	0	0	0	0	0	0					365	1,468
15:45	16:00	0	194	0	0	0	192	0	0	0	0	0	0					386	1,446
16:00	16:15	0	177	0	0	0	186	1	0	0	0	0	0					364	1,430
16:15	16:30	0	190	0	1	0	163	0	0	0	0	0	0					353	1,393
16:30	16:45	0	196	0	0	0	147	0	0	0	0	0	0					343	1,403
16:45	17:00	0	186	0	0	0	182	1	0	0	0	1	0					370	
17:00	17:15	0	144	0	0	0	183	0	0	0	0	0	0					327	
17:15	17:30	0	179	0	0	0	184	0	0	0	0	0	0					363	
																			PHF
AM Peak-Hour		**1**	**584**	**0**	**0**	**0**	**497**	**0**	**0**	**5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1,087**	**0.86**
PM Peak-Hour		**1**	**753**	**0**	**1**	**0**	**713**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,468**	**0.95**

HV																			
Street Name		SR28				SR28				Big Water Rd								Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	4	0	0	0	3	0	0	0	0	0	0					7	29
8:15	8:30	0	5	0	0	0	2	0	0	0	0	0	0					7	27
8:30	8:45	0	7	0	0	0	2	0	0	0	0	0	0					9	26
8:45	9:00	0	3	0	0	0	3	0	0	0	0	0	0					6	23
9:00	9:15	0	3	0	0	0	2	0	0	0	0	0	0					5	22
9:15	9:30	0	3	0	0	0	3	0	0	0	0	0	0					6	
9:30	9:45	0	4	0	0	0	2	0	0	0	0	0	0					6	
9:45	10:00	0	2	0	0	0	3	0	0	0	0	0	0					5	
14:30	14:45	0	1	0	0	0	0	0	0	0	0	0	0					1	15
14:45	15:00	0	0	0	0	0	5	0	0	0	0	0	0					5	17
15:00	15:15	0	1	0	0	0	3	0	0	0	0	0	0					4	14
15:15	15:30	0	2	0	0	0	3	0	0	0	0	0	0					5	15
15:30	15:45	0	3	0	0	0	0	0	0	0	0	0	0					3	16
15:45	16:00	0	2	0	0	0	0	0	0	0	0	0	0					2	19
16:00	16:15	0	2	0	0	0	3	0	0	0	0	0	0					5	18
16:15	16:30	0	3	0	0	0	3	0	0	0	0	0	0					6	19
16:30	16:45	0	2	0	0	0	4	0	0	0	0	0	0					6	15
16:45	17:00	0	1	0	0	0	0	0	0	0	0	0	0					1	
17:00	17:15	0	2	0	0	0	4	0	0	0	0	0	0					6	
17:15	17:30	0	2	0	0	0	0	0	0	0	0	0	0					2	
		0		0	0	0		0	0	0	0	0	0						
																			% HV
Peak-Hour Volume		**0**	**12**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**0.0202**
PM Peak-Hour		**0**	**10**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0.01**

Bicycle															
Street Name		SR28			SR28			Big Water Rd						Totals	
Direction		Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
8:00	8:15	0	0	0	0	0	0	0	0	0				0	2
8:15	8:30	0	0	0	0	0	0	0	0	0				0	4
8:30	8:45	0	0	0	0	0	0	0	0	0				0	5
8:45	9:00	0	1	0	0	1	0	0	0	0				2	5
9:00	9:15	0	0	0	0	2	0	0	0	0				2	3
9:15	9:30	0	1	0	0	0	0	0	0	0				1	
9:30	9:45	0	0	0	0	0	0	0	0	0				0	
9:45	10:00	0	0	0	0	0	0	0	0	0				0	
14:30	14:45	0	0	0	0	0	0	0	0	0				0	3
14:45	15:00	0	0	0	0	0	0	0	0	0				0	4
15:00	15:15	0	1	0	0	2	0	0	0	0				3	4
15:15	15:30	0	0	0	0	0	0	0	0	0				0	6
15:30	15:45	0	0	0	0	1	0	0	0	0				1	8
15:45	16:00	0	0	0	0	0	0	0	0	0				0	7
16:00	16:15	0	2	0	0	3	0	0	0	0				5	7
16:15	16:30	0	0	0	0	2	0	0	0	0				2	2
16:30	16:45	0	0	0	0	0	0	0	0	0				0	1
16:45	17:00	0	0	0	0	0	0	0	0	0				0	
17:00	17:15	0	0	0	0	0	0	0	0	0				0	
17:15	17:30	0	0	0	0	1	0	0	0	0				1	
Peak-Hour Volume		**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	
PM Peak-Hour		**0**	**2**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	

WSUP23-0025
EXHIBIT Q

Total	Date: 7/9/2022				Day: Saturday												Totals	
Street Name	SR28				SR28				Big Water Rd									
Direction	Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Total	1hr total
13:30	13:45	1	167	0	0	0	157	0	0	0	0	1	0					326	1328
13:45	14:00	0	168	0	0	0	156	1	0	0	0	0	3					325	1330
14:00	14:15	0	147	0	0	0	169	0	0	1	0	0	2					317	1377
14:15	14:30	0	185	0	1	0	175	0	0	0	0	0	1					360	1412
14:30	14:45	0	156	0	0	0	171	0	0	1	0	0	1					328	1404
14:45	15:00	0	190	0	0	0	180	1	0	1	0	0	0					372	1401
15:00	15:15	0	167	0	0	0	185	0	0	0	0	0	0					352	1382
15:15	15:30	0	184	0	0	0	165	1	0	0	0	2	1					352	1392
15:30	15:45	0	160	0	0	0	165	0	0	0	0	0	0					325	1349
15:45	16:00	0	189	0	0	0	164	0	0	0	0	0	2					353	
16:00	16:15	0	189	0	0	0	173	0	0	0	0	0	0					362	
16:15	16:30	0	155	0	0	0	154	0	0	0	0	0	0					309	
PM Peak-Hour		**0**	**698**	**0**	**1**	**0**	**711**	**1**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1,412**	PHF **0.95**

HV																		Totals	
Street Name	SR28				SR28				Big Water Rd									
Direction	Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
13:30	13:45	0	1	0	0	0	1	0	0	0	0	0	0					2	8
13:45	14:00	0	2	0	0	0	1	0	0	0	0	0	0					3	7
14:00	14:15	0	0	0	0	0	1	0	0	0	0	0	0					1	6
14:15	14:30	0	1	0	0	0	1	0	0	0	0	0	0					2	7
14:30	14:45	0	0	0	0	0	1	0	0	0	0	0	0					1	10
14:45	15:00	0	0	0	0	0	2	0	0	0	0	0	0					2	9
15:00	15:15	0	2	0	0	0	0	0	0	0	0	0	0					2	10
15:15	15:30	0	2	0	0	0	3	0	0	0	0	0	0					5	10
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0					0	5
15:45	16:00	0	0	0	0	0	3	0	0	0	0	0	0					3	
16:00	16:15	0	2	0	0	0	0	0	0	0	0	0	0					2	
16:15	16:30	0	0	0	0	0	0	0	0	0	0	0	0					0	
Peak-Hour Volume		**0**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	% HV **0.0050**

Bicycle															
Street Name	SR28			SR28			Big Water Rd						Totals	
Direction	Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
13:30	13:45	0	0	0	0	9	0	0	0	0				9	9
13:45	14:00	0	0	0	0	0	0	0	0	0				0	3
14:00	14:15	0	0	0	0	0	0	0	0	0				0	3
14:15	14:30	0	0	0	0	0	0	0	0	0				0	3
14:30	14:45	0	0	0	0	3	0	0	0	0				3	4
14:45	15:00	0	0	0	0	0	0	0	0	0				0	1
15:00	15:15	0	0	0	0	0	0	0	0	0				0	1
15:15	15:30	0	0	0	0	1	0	0	0	0				1	1
15:30	15:45	0	0	0	0	0	0	0	0	0				0	0
15:45	16:00	0	0	0	0	0	0	0	0	0				0	
16:00	16:15	0	0	0	0	0	0	0	0	0				0	
16:15	16:30	0	0	0	0	0	0	0	0	0				0	
Peak-Hour Volume		**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	

WSUP23-0025
EXHIBIT Q

SR28 / Park Access

Total		Date: 7/8/2022				Day: Friday													
Street Name		SR28				SR28				Park Access								Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	124	0	0	0	93	0	0	0	0	0	0					217	927
8:15	8:30	0	108	0	0	0	112	0	0	0	0	0	0					220	961
8:30	8:45	0	126	0	0	0	127	0	0	0	0	0	0					253	1,027
8:45	9:00	0	133	0	0	0	104	0	0	0	0	0	0					237	1,001
9:00	9:15	1	143	0	0	0	106	1	0	0	0	0	0					251	1,081
9:15	9:30	0	152	0	0	0	134	0	0	0	0	0	1					286	
9:30	9:45	0	102	0	0	0	123	1	0	1	0	0	0					227	
9:45	10:00	0	183	0	0	0	132	0	0	1	0	1	0					317	
14:30	14:45	1	201	0	0	0	181	0	0	0	0	1	0					384	1,502
14:45	15:00	0	180	0	0	0	191	0	0	0	0	0	0					371	
15:00	15:15	0	181	0	0	0	192	0	0	0	0	0	0					373	
15:15	15:30	0	199	0	0	0	175	0	0	0	0	0	0					374	
																			PHF
AM Peak-Hour		**1**	**580**	**0**	**0**	**0**	**495**	**2**	**0**	**2**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1,081**	**0.85**
PM Peak-Hour		**1**	**761**	**0**	**0**	**0**	**739**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1,502**	**0.98**

HV																			
Street Name		SR28				SR28				Park Access								Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
8:00	8:15	0	5	0	0	0	3	0	0	0	0	0	0					8	30
8:15	8:30	0	6	0	0	0	2	0	0	0	0	0	0					8	26
8:30	8:45	0	7	0	0	0	2	0	0	0	0	0	0					9	23
8:45	9:00	0	1	0	0	0	4	0	0	0	0	0	0					5	20
9:00	9:15	0	3	0	0	0	1	0	0	0	0	0	0					4	19
9:15	9:30	0	3	0	0	0	2	0	0	0	0	0	0					5	
9:30	9:45	0	4	0	0	0	2	0	0	0	0	0	0					6	
9:45	10:00	0	1	0	0	0	3	0	0	0	0	0	0					4	
14:30	14:45	0	1	0	0	0	3	0	0	0	0	0	0					4	16
14:45	15:00	0	2	0	0	0	2	0	0	0	0	0	0					4	
15:00	15:15	0	2	0	0	0	2	0	0	0	0	0	0					4	
15:15	15:30	0	4	0	0	0	0	0	0	0	0	0	0					4	
																			% HV
Peak-Hour Volume		**0**	**11**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**0.0176**
PM Peak-Hour		**0**	**9**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0.01**

Bicycle														
Street Name		SR28			SR28			Park Access					Totals	
Direction		Northbound			Southbound			Eastbound			Westbound			
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
8:00	8:15	0	2	0	0	0	0	0	0	0				2	5
8:15	8:30	0	0	0	0	0	0	0	0	0				0	6
8:30	8:45	0	0	0	0	0	0	0	0	0				0	7
8:45	9:00	0	3	0	0	0	0	0	0	0				3	7
9:00	9:15	0	3	0	0	0	0	0	0	0				3	5
9:15	9:30	0	1	0	0	0	0	0	0	0				1	
9:30	9:45	0	0	0	0	0	0	0	0	0				0	
9:45	10:00	0	1	0	0	0	0	0	0	0				1	
14:30	14:45	0	1	0	0	2	0	0	0	0				3	6
14:45	15:00	0	0	0	0	1	0	0	0	0				1	3
15:00	15:15	0	0	0	0	1	0	0	0	0				1	2
15:15	15:30	0	0	0	0	1	0	0	0	0				1	1
Peak-Hour Volume		**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	
PM Peak-Hour		**0**	**1**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	

Total	Date: 7/9/2022				Day: Saturday												Totals	
Street Name																		
Direction	Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Total	1hr total
13:30	13:45																	0	0
13:45	14:00																	0	0
14:00	14:15																	0	0
14:15	14:30																	0	0
14:30	14:45																	0	0
14:45	15:00																	0	0
15:00	15:15																	0	0
15:15	15:30																	0	0
15:30	15:45																	0	0
15:45	16:00																	0	
16:00	16:15																	0	
16:15	16:30																	0	
PM Peak-Hour		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	PHF #DIV/0!

HV																	Totals	
Street Name																		
Direction	Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
13:30	13:45																	0	0
13:45	14:00																	0	0
14:00	14:15																	0	0
14:15	14:30																	0	0
14:30	14:45																	0	0
14:45	15:00																	0	0
15:00	15:15																	0	0
15:15	15:30																	0	0
15:30	15:45																	0	0
15:45	16:00																	0	
16:00	16:15																	0	
16:15	16:30																	0	
Peak-Hour Volume		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	% HV 0.0000

Bicycle														
Street Name													Totals	
Direction	Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
13:30	13:45														0
13:45	14:00														0
14:00	14:15														0
14:15	14:30														0
14:30	14:45														0
14:45	15:00														0
15:00	15:15														0
15:15	15:30														0
15:30	15:45														0
15:45	16:00														
16:00	16:15														
16:15	16:30														
Peak-Hour Volume		0	0	0	0	0	0	0	0	0	0	0	0	0	

WSUP23-0025
EXHIBIT Q

SR28 / Lakeshore Blvd.

Total		Date:	7/15/2022			Day:	Friday													
Street Name		Lakeshore Blvd.				Pinion Dr				SR28				SR28				Totals		
Direction		Northbound				Southbound				Eastbound				Westbound						
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total	
14:30	14:45	27	1	6	0	1	0	4	0	1	121	25	0	3	140	3	0	332	1,429	
14:45	15:00	24	1	11	0	1	2	1	0	1	139	29	0	10	121	2	0	342	1,488	
15:00	15:15	20	2	7	0	3	1	0	0	1	134	33	0	4	163	0	0	368	1,561	
15:15	15:30	28	1	6	0	0	0	0	0	1	172	22	0	8	149	0	0	387		
15:30	15:45	26	0	11	0	0	2	3	0	2	172	29	0	2	143	1	0	391	1,594	
15:45	16:00	16	0	5	0	3	0	1	0	0	206	28	0	3	151	2	0	415	1,601	
16:00	16:15	27	1	7	0	3	0	1	0	0	167	28	0	4	172	1	0	411	1,589	
16:15	16:30	13	2	9	0	0	1	1	0	0	154	31	0	9	156	1	0	377	1,572	
16:30	16:45	24	1	9	0	0	4	1	0	0	191	32	0	6	129	1	0	398	1,573	
16:45	17:00	24	2	1	0	0	1	1	0	0	169	32	0	0	173	0	0	403		
17:00	17:15	16	1	7	0	3	3	1	0	2	172	39	0	9	140	1	0	394		
17:15	17:30	23	1	7	0	0	1	0	0	0	172	25	0	5	143	1	0	378		
																			PHF	
PM Peak-Hour		97	2	29	0	6	2	5	0	3	717	107	0	17	615	4	0	1,604	0.97	

HV																				
Street Name		Lakeshore Blvd.				Pinion Dr				SR28				SR28				Totals		
Direction		Northbound				Southbound				Eastbound				Westbound						
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total	
14:30	14:45	1	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	7	24	
14:45	15:00	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	20	
15:00	15:15	0	0	0	0	0	0	0	0	0	1	0	0	0	6	0	0	7	19	
15:15	15:30	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	6	14	
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	12	
15:45	16:00	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	17	
16:00	16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	19	
16:15	16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	21	
16:30	16:45	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	8	20	
16:45	17:00	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5		
17:00	17:15	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	4		
17:15	17:30	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	3		
																			% HV	
PM Peak-Hour		0	0	0	0	0	0	0	0	0	5	0	0	0	9	0	0	14	0.01	

Bicycle															
Street Name		Lakeshore Blvd.			Pinion Dr			SR28			SR28			Totals	
Direction		Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
14:30	14:45	0	0	0	0	0	0	0	0	1	0	0	0	1	3
14:45	15:00	0	0	0	0	0	0	0	0	1	0	0	0	1	2
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	8
15:15	15:30	0	0	0	0	0	0	0	1	0	0	0	0	1	8
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	12
15:45	16:00	0	0	2	0	0	0	0	1	4	0	0	0	7	12
16:00	16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	5
16:15	16:30	0	0	0	0	1	0	0	0	4	0	0	0	5	5
16:30	16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:00	17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:15	17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak-Hour		0	0	2	0	0	0	0	2	4	0	0	0	8	

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Total	Date: 7/16/2022				Day: Saturday													
Street Name	Lakeshore Blvd.				Pinion Dr				SR28				SR28				Totals	
Direction	Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Total	1hr total
13:30	13:45	29	1	7	2	0	0	0	0	0	128	25	1	6	174	0	0	370	868
13:45	14:00	33	0	10	0	0	1	0	0	1	144	30	0	1	149	1	0	370	878
14:00	14:15	8	0	1	0	0	0	0	0	0	24	5	0	2	24	0	0	64	871
14:15	14:30	8	0	2	0	0	0	0	0	1	32	3	0	0	18	0	0	64	1184
14:30	14:45	27	2	15	0	1	1	0	0	0	145	34	0	2	153	0	0	380	1548
14:45	15:00	24	3	5	0	1	0	1	0	1	160	25	0	8	135	0	0	363	1555
15:00	15:15	20	1	10	0	0	3	2	0	0	181	14	0	4	142	0	0	377	1557
15:15	15:30	31	1	11	0	1	1	1	0	1	181	29	0	5	166	0	0	428	1616
15:30	15:45	32	1	7	0	2	1	1	0	2	160	28	0	3	150	0	0	387	1550
15:45	16:00	24	3	4	0	0	1	2	0	2	161	27	0	2	139	0	0	365	
16:00	16:15	36	3	6	0	0	0	0	0	1	163	34	0	3	190	0	0	436	
16:15	16:30	27	2	10	0	0	0	0	0	0	156	28	0	2	136	1	0	362	
PM Peak-Hour		**123**	**8**	**28**	**0**	**3**	**3**	**4**	**0**	**6**	**665**	**118**	**0**	**13**	**645**	**0**	**0**	**1,616**	PHF **0.93**

HV																			
Street Name		Lakeshore Blvd.				Pinion Dr				SR28				SR28				Totals	
Direction		Northbound				Southbound				Eastbound				Westbound					
Start time	End time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Peds	Total	1hr total
13:30	13:45	0	0	0	2	0	0	0	0	0	2	0	1	0	0	0	0	2	3
13:45	14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
14:00	14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
14:15	14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
14:30	14:45	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	14
14:45	15:00	0	0	0	0	0	0	0	0	0	2	0	0	2	1	0	0	5	14
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	9
15:15	15:30	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	8
15:30	15:45	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	6
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16:00	16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	
16:15	16:30	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	
Peak-Hour Volume		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**5**	**0**	**0**	**8**	% HV **0.0050**

Bicycle															
Street Name		Lakeshore Blvd.			Pinions Dr.			SR28			SR28			Totals	
Direction		Northbound			Southbound			Eastbound			Westbound				
Start time	End time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	1hr total
13:30	13:45	0	0	0	0	1	0	0	0	0	0	0	0	1	2
13:45	14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1
14:00	14:15	0	0	0	0	0	0	0	0	0	1	0	0	1	8
14:15	14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	8
14:30	14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	10
14:45	15:00	4	1	0	0	0	0	0	2	0	0	0	0	7	10
15:00	15:15	0	0	0	0	0	0	0	0	1	0	0	0	1	6
15:15	15:30	0	1	0	0	0	0	0	0	1	0	0	0	2	5
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	3
15:45	16:00	0	0	0	0	0	0	0	0	2	0	1	0	3	
16:00	16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	
16:15	16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak-Hour Volume		**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**0**	**5**	

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Appendix B

BASELINE BILTMORE TRIP GENERATION

Appendix B: Reference for Baseline Biltmore DVTE

FEHR & PEERS
TRANSPORTATION CONSULTANTS

PROJECT ALTERNATIVES TRIP GENERATION SUMMARY

Alternative	Trip Generation (with Original Pass-By Calculations)		Trip Generation (with New Pass-By Calculations)	
	PM Peak Hour	Daily	PM Peak Hour	Daily
Existing Conditions (Based on 2008 Traffic Counts)[1]	234	2,846	237	2,880
Baseline Existing Conditions[2]	315	3,840	320	3,895
Alternative A	373	5,853	381	5,934
Alternative B	504	7,870	513	7,957
Alternative C	274	3,501	294	3,891
Alternative C (Reduced)	260	3,380	281	3,766
Alternative D	302	3,948	330	4,419
Alternative E	554	8,468	566	8,609

Notes: [1] Includes trip generation estimates of the Tahoe Biltmore overflow parking lot, Crystal Bay Motel, and Crystal Bay office space.

[2] Includes an adjustment factor to account for the economic conditions at the time the traffic volumes counts were collected.

Sources: Fehr & Peers, 2011

As shown in the table, Alternative C and Alternative C (Reduced) generate fewer daily and PM peak hour trips than Alternative A (TRPA Significance Standard) and the Alternative Baseline Existing Conditions (Appendix AA) (calculations provided in the Final EIS). Therefore, the conclusions in the FEIS are unchanged (i.e. no additional impacts identified).

Appendix B: Baseline Tahoe Biltmore Trip Generation

	Daily	PM Peak Hour	PM In	PM Out
Trip Generation from Counts		168	72	96
PM Peak Hour/Daily Trip Generation Ratio (6.4%)	2,625			
Tahoe Biltmore Overflow Parking Lot Trip Generation	114	57	46	11
Operating Conditions Adjustment (28% decline)	1,068	87	46	41
Pass-By Trips[1]	-184	-15	-6	-9
Crystal Bay Motel Trip Generation	186	11	6	5
Crystal Bay Office Trip Generation	86	12	2	10
Total Trip Generation at Site Driveways (without Pass-by Reduction)	**4,079**	**335**	**172**	**163**
Total Trip Generation on External Roadways (after Pass-by Reduction)	**3,895**	**320**	**166**	**154**

Note 1: Pass-by Trips Updated per Alternative Pass-by Calculation memo by Fehr & Peers (March 11, 2011)

Source: Boulder Bay Alternative Baseline Existing Conditions Traffic Volumes (May 17, 2010)

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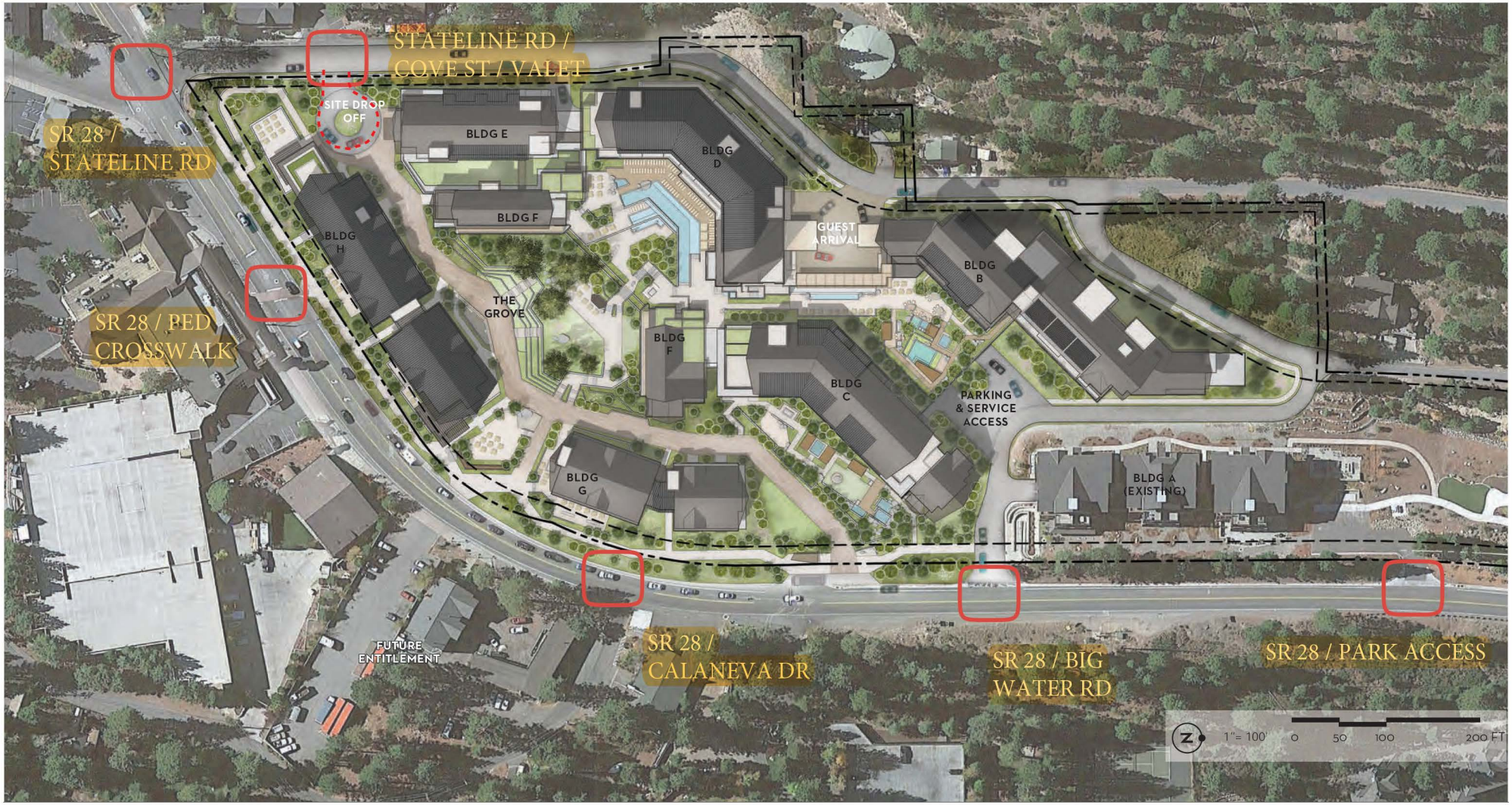
Appendix C

SITE PLAN



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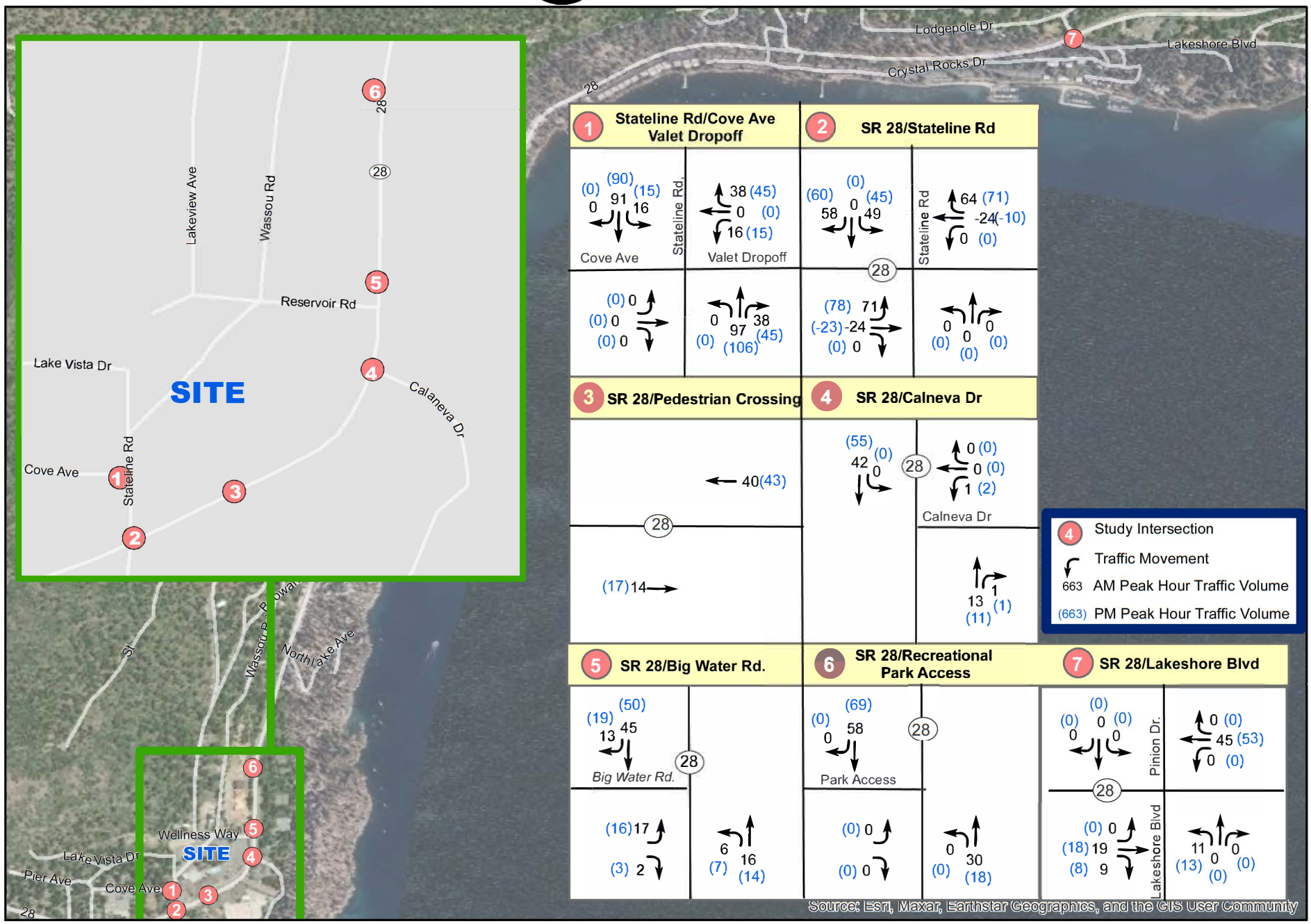
Appendix D

WALT PROJECT-GENERATED VOLUMES

WALT Project-Generated Volumes



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Appendix E

LOS DESCRIPTIONS

DESCRIPTIONS OF LEVELS OF SERVICE

The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A level of service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with level of service A representing the best operating conditions and level of service F the worst.

Level of Service Definitions

In general, the various levels of service are defined as follows for uninterrupted flow facilities:

- **Level of service A** represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. The general level of comfort and convenience provided to the motorist, passenger, or pedestrian is excellent.

- **Level of service B** is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A. The level of comfort and convenience provided is somewhat less than at LOS A, because the presence of others in the traffic stream begins to affect individual behavior.

- **Level of service C** is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.

- **Level of Service D** represents high-density, but stable, flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.

- **Level of service E** represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.

- **Level of service F** is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion. Level of service F is used to describe the operating conditions within the queue, as well as the point of the breakdown. It should be noted, however, that in many cases operating conditions of vehicles or pedestrians discharged from the queue may be quite good. Nevertheless, it is the point at which arrival flow exceeds discharge flow which causes the queue to form, and level of service F is an appropriate designation for such points.

Appendix F

LOS OUTPUT

AM LEVEL OF SERVICE OUTPUT

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	9	23	22	0
Future Vol, veh/h	0	0	9	23	22	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	10	25	24	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	69	24	24	0	-	0
Stage 1	24	-	-	-	-	-
Stage 2	45	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	936	1052	1591	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	930	1052	1591	-	-	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	977	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1591	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	608	1	5	487	4	1	1	11	3	0	30
Future Vol, veh/h	21	608	1	5	487	4	1	1	11	3	0	30
Conflicting Peds, #/hr	39	0	0	0	0	39	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	6	-	-	-6	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	683	1	6	547	4	1	1	12	3	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	590	0	0	684	0	0	1310	1334	684	1338	1332	588
Stage 1	-	-	-	-	-	-	732	732	-	600	600	-
Stage 2	-	-	-	-	-	-	578	602	-	738	732	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.32	7.72	6.82	5.92	5.32	5.62
Critical Hdwy Stg 1	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	985	-	-	909	-	-	88	99	400	203	240	561
Stage 1	-	-	-	-	-	-	323	334	-	596	598	-
Stage 2	-	-	-	-	-	-	414	400	-	524	545	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	948	-	-	909	-	-	79	90	400	180	219	540
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	90	-	315	347	-
Stage 1	-	-	-	-	-	-	310	320	-	550	570	-
Stage 2	-	-	-	-	-	-	384	381	-	485	523	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	20	12.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	254	948	-	-	909	-	-	507
HCM Lane V/C Ratio	0.058	0.025	-	-	0.006	-	-	0.073
HCM Control Delay (s)	20	8.9	0	-	9	0	-	12.7
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

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Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	12	584	4	13	490
Future Vol, veh/h	6	12	584	4	13	490
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	13	649	4	14	544

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1223	651	0	0	653	0
Stage 1	651	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	198	469	-	-	934	-
Stage 1	519	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	194	469	-	-	934	-
Mov Cap-2 Maneuver	194	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	553	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	319	934	-
HCM Lane V/C Ratio	-	-	0.063	0.015	-
HCM Control Delay (s)	-	-	17	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1	1	632	562	2
Future Vol, veh/h	2	1	1	632	562	2
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	1	1	744	661	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1408	662	663	0	-	0
Stage 1	662	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	153	462	926	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	469	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	153	462	926	-	-	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	512	-	-	-	-	-
Stage 2	469	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	926	-	197	-	-
HCM Lane V/C Ratio	0.001	-	0.018	-	-
HCM Control Delay (s)	8.9	0	23.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	29.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	560	102	10	557	0	108	6	22	2	2	3
Future Vol, veh/h	5	560	102	10	557	0	108	6	22	2	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	609	111	11	605	0	117	7	24	2	2	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	605	0	0	720	0	0	1305	1302	665	1317	1357	605
Stage 1	-	-	-	-	-	-	675	675	-	627	627	-
Stage 2	-	-	-	-	-	-	630	627	-	690	730	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	973	-	-	882	-	-	~ 95	112	419	301	341	599
Stage 1	-	-	-	-	-	-	368	376	-	691	699	-
Stage 2	-	-	-	-	-	-	394	400	-	664	668	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	973	-	-	882	-	-	~ 92	109	419	265	331	599
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 92	109	-	265	331	-
Stage 1	-	-	-	-	-	-	365	373	-	685	686	-
Stage 2	-	-	-	-	-	-	383	392	-	610	662	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	298.6	14.8
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	106	973	-	-	882	-	-	376
HCM Lane V/C Ratio	1.395	0.006	-	-	0.012	-	-	0.02
HCM Control Delay (s)	298.6	8.7	0	-	9.1	0	-	14.8
HCM Lane LOS	F	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	10.5	0	-	-	0	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

3: Ped Xing & SR 28 Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.7	0.3
Total Delay (hr)	1.4	1.7	3.1
Total Del/Veh (s)	8.2	10.3	9.2
Avg Speed (mph)	13	10	11
Vehicles Entered	602	606	1208
Vehicles Exited	604	606	1210
Hourly Exit Rate	604	606	1210
Input Volume	622	603	1225
% of Volume	97	100	99

Total Zone Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	4.0
Total Delay (hr)	3.1
Total Del/Veh (s)	117.8
Avg Speed (mph)	11
Vehicles Entered	104
Vehicles Exited	91
Hourly Exit Rate	91
Input Volume	1225
% of Volume	7

Intersection: 3: Ped Xing & SR 28

Movement	EB	WB	B21
Directions Served	T	T	T
Maximum Queue (ft)	237	251	21
Average Queue (ft)	126	141	1
95th Queue (ft)	205	222	11
Link Distance (ft)	208	183	242
Upstream Blk Time (%)	1	2	
Queuing Penalty (veh)	3	10	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 14

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	17	0	39	9	105	38	16	97	0
Future Vol, veh/h	0	0	0	17	0	39	9	105	38	16	97	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	18	0	42	10	114	41	17	105	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	315	314	105	294	294	135	105	0	0	155	0	0
Stage 1	139	139	-	155	155	-	-	-	-	-	-	-
Stage 2	176	175	-	139	139	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	638	601	949	658	617	914	1486	-	-	1425	-	-
Stage 1	864	782	-	847	769	-	-	-	-	-	-	-
Stage 2	826	754	-	864	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	599	589	949	648	605	914	1486	-	-	1425	-	-
Mov Cap-2 Maneuver	599	589	-	648	605	-	-	-	-	-	-	-
Stage 1	858	772	-	841	764	-	-	-	-	-	-	-
Stage 2	782	749	-	853	772	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.8	0.4	1.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1486	-	-	-	813	1425	-	-
HCM Lane V/C Ratio	0.007	-	-	-	0.075	0.012	-	-
HCM Control Delay (s)	7.4	0	-	0	9.8	7.6	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	77	549	1	5	447	68	1	1	11	52	0	72
Future Vol, veh/h	77	549	1	5	447	68	1	1	11	52	0	72
Conflicting Peds, #/hr	39	0	0	0	0	39	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	6	-	-	-6	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	617	1	6	502	76	1	1	12	58	0	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	617	0	0	618	0	0	1385	1421	618	1389	1383	579
Stage 1	-	-	-	-	-	-	792	792	-	591	591	-
Stage 2	-	-	-	-	-	-	593	629	-	798	792	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.32	7.72	6.82	5.92	5.32	5.62
Critical Hdwy Stg 1	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	963	-	-	962	-	-	76	85	441	191	228	567
Stage 1	-	-	-	-	-	-	294	308	-	601	602	-
Stage 2	-	-	-	-	-	-	404	385	-	495	522	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	927	-	-	962	-	-	57	70	441	156	187	546
Mov Cap-2 Maneuver	-	-	-	-	-	-	57	70	-	274	311	-
Stage 1	-	-	-	-	-	-	252	264	-	496	574	-
Stage 2	-	-	-	-	-	-	341	367	-	411	447	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.1	21.8	19.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	229	927	-	-	962	-	-	386
HCM Lane V/C Ratio	0.064	0.093	-	-	0.006	-	-	0.361
HCM Control Delay (s)	21.8	9.3	0	-	8.8	0	-	19.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0	-	-	1.6

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	12	574	5	6	518
Future Vol, veh/h	6	12	574	5	6	518
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	13	638	6	7	576

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1231	641	0	0	644	0
Stage 1	641	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	196	475	-	-	941	-
Stage 1	525	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	194	475	-	-	941	-
Mov Cap-2 Maneuver	194	-	-	-	-	-
Stage 1	525	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	320	941	-
HCM Lane V/C Ratio	-	-	0.063	0.007	-
HCM Control Delay (s)	-	-	17	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

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EXHIBIT Q

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	2	7	603	545	13
Future Vol, veh/h	22	2	7	603	545	13
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	2	8	701	634	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1359	642	649	0	-	0
Stage 1	642	-	-	-	-	-
Stage 2	717	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	164	474	937	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	162	474	937	-	-	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.1	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	937	-	171	-	-
HCM Lane V/C Ratio	0.009	-	0.163	-	-
HCM Control Delay (s)	8.9	0	30.1	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1	1	613	556	2
Future Vol, veh/h	2	1	1	613	556	2
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	1	1	721	654	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1378	655	656	0	-	0
Stage 1	655	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	160	466	931	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	160	466	931	-	-	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	516	-	-	-	-	-
Stage 2	481	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	931	-	205	-	-
HCM Lane V/C Ratio	0.001	-	0.017	-	-
HCM Control Delay (s)	8.9	0	22.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	26.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	542	101	10	553	0	107	6	22	2	2	3
Future Vol, veh/h	5	542	101	10	553	0	107	6	22	2	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	589	110	11	601	0	116	7	24	2	2	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	601	0	0	699	0	0	1280	1277	644	1293	1332	601
Stage 1	-	-	-	-	-	-	654	654	-	623	623	-
Stage 2	-	-	-	-	-	-	626	623	-	670	709	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	976	-	-	898	-	-	~ 100	117	432	308	348	601
Stage 1	-	-	-	-	-	-	380	386	-	693	700	-
Stage 2	-	-	-	-	-	-	397	402	-	672	674	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	976	-	-	898	-	-	~ 97	114	432	273	339	601
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 97	114	-	273	339	-
Stage 1	-	-	-	-	-	-	377	383	-	687	687	-
Stage 2	-	-	-	-	-	-	387	395	-	618	668	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	261.3	14.6
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	112	976	-	-	898	-	-	384
HCM Lane V/C Ratio	1.31	0.006	-	-	0.012	-	-	0.02
HCM Control Delay (s)	261.3	8.7	0	-	9.1	0	-	14.6
HCM Lane LOS	F	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	9.9	0	-	-	0	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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EXHIBIT Q

3: Ped Xing & SR 28 Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.6	0.3
Total Delay (hr)	1.3	1.7	3.0
Total Del/Veh (s)	7.9	10.0	9.0
Avg Speed (mph)	13	10	12
Vehicles Entered	602	616	1218
Vehicles Exited	601	617	1218
Hourly Exit Rate	601	617	1218
Input Volume	612	627	1239
% of Volume	98	98	98

Total Zone Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	4.0
Total Delay (hr)	3.0
Total Del/Veh (s)	116.6
Avg Speed (mph)	12
Vehicles Entered	96
Vehicles Exited	90
Hourly Exit Rate	90
Input Volume	1239
% of Volume	7

Intersection: 3: Ped Xing & SR 28

Movement	EB	WB	B21
Directions Served	T	T	T
Maximum Queue (ft)	214	236	7
Average Queue (ft)	120	139	0
95th Queue (ft)	199	212	5
Link Distance (ft)	208	183	242
Upstream Blk Time (%)	0	2	
Queuing Penalty (veh)	2	10	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 12

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	9	27	26	0
Future Vol, veh/h	0	0	9	27	26	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	10	29	28	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	77	28	28	0	-	0
Stage 1	28	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	926	1047	1585	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	920	1047	1585	-	-	-
Mov Cap-2 Maneuver	920	-	-	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	973	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1585	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	608	1	5	487	4	1	1	11	3	0	30
Future Vol, veh/h	21	608	1	5	487	4	1	1	11	3	0	30
Conflicting Peds, #/hr	39	0	0	0	0	39	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	6	-	-	-6	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	683	1	6	547	4	1	1	12	3	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	590	0	0	684	0	0	1310	1334	684	1338	1332	588
Stage 1	-	-	-	-	-	-	732	732	-	600	600	-
Stage 2	-	-	-	-	-	-	578	602	-	738	732	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.32	7.72	6.82	5.92	5.32	5.62
Critical Hdwy Stg 1	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	985	-	-	909	-	-	88	99	400	203	240	561
Stage 1	-	-	-	-	-	-	323	334	-	596	598	-
Stage 2	-	-	-	-	-	-	414	400	-	524	545	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	948	-	-	909	-	-	79	90	400	180	219	540
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	90	-	315	347	-
Stage 1	-	-	-	-	-	-	310	320	-	550	570	-
Stage 2	-	-	-	-	-	-	384	381	-	485	523	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	20	12.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	254	948	-	-	909	-	-	507
HCM Lane V/C Ratio	0.058	0.025	-	-	0.006	-	-	0.073
HCM Control Delay (s)	20	8.9	0	-	9	0	-	12.7
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	12	593	4	13	497
Future Vol, veh/h	6	12	593	4	13	497
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	13	659	4	14	552

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1241	661	0	0	663	0
Stage 1	661	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	193	462	-	-	926	-
Stage 1	514	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	189	462	-	-	926	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	514	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.3	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	312	926	-
HCM Lane V/C Ratio	-	-	0.064	0.016	-
HCM Control Delay (s)	-	-	17.3	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1	1	642	571	2
Future Vol, veh/h	2	1	1	642	571	2
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	1	1	755	672	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1430	673	674	0	-	0
Stage 1	673	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	148	455	917	-	-	-
Stage 1	507	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	148	455	917	-	-	-
Mov Cap-2 Maneuver	148	-	-	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	463	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	917	-	191	-	-
HCM Lane V/C Ratio	0.001	-	0.018	-	-
HCM Control Delay (s)	8.9	0	24.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	30.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	567	102	10	564	0	108	6	22	2	2	3
Future Vol, veh/h	5	567	102	10	564	0	108	6	22	2	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	616	111	11	613	0	117	7	24	2	2	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	613	0	0	727	0	0	1320	1317	672	1332	1372	613
Stage 1	-	-	-	-	-	-	682	682	-	635	635	-
Stage 2	-	-	-	-	-	-	638	635	-	697	737	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	966	-	-	876	-	-	~ 93	109	415	296	337	594
Stage 1	-	-	-	-	-	-	364	372	-	688	696	-
Stage 2	-	-	-	-	-	-	389	396	-	661	666	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	966	-	-	876	-	-	~ 90	106	415	260	328	594
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 90	106	-	260	328	-
Stage 1	-	-	-	-	-	-	361	369	-	682	683	-
Stage 2	-	-	-	-	-	-	378	388	-	606	660	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	$ 310.9	14.9
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	104	966	-	-	876	-	-	372
HCM Lane V/C Ratio	1.421	0.006	-	-	0.012	-	-	0.02
HCM Control Delay (s)	$ 310.9	8.7	0	-	9.2	0	-	14.9
HCM Lane LOS	F	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	10.7	0	-	-	0	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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3: Ped Xing & SR 28 Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.6	0.3
Total Delay (hr)	1.4	1.6	3.0
Total Del/Veh (s)	8.1	9.6	8.9
Avg Speed (mph)	13	10	12
Vehicles Entered	606	595	1201
Vehicles Exited	607	595	1202
Hourly Exit Rate	607	595	1202
Input Volume	622	603	1225
% of Volume	98	99	98

Total Zone Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	3.7
Total Delay (hr)	3.0
Total Del/Veh (s)	117.3
Avg Speed (mph)	12
Vehicles Entered	97
Vehicles Exited	88
Hourly Exit Rate	88
Input Volume	1225
% of Volume	7

Intersection: 3: Ped Xing & SR 28

Movement	EB	WB	B21
Directions Served	T	T	T
Maximum Queue (ft)	230	237	6
Average Queue (ft)	126	134	0
95th Queue (ft)	205	205	4
Link Distance (ft)	208	183	242
Upstream Blk Time (%)	1	1	
Queuing Penalty (veh)	4	7	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 11

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	17	0	39	9	109	38	16	101	0
Future Vol, veh/h	0	0	0	17	0	39	9	109	38	16	101	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	18	0	42	10	118	41	17	110	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	324	323	110	303	303	139	110	0	0	159	0	0
Stage 1	144	144	-	159	159	-	-	-	-	-	-	-
Stage 2	180	179	-	144	144	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	629	595	943	649	610	909	1480	-	-	1420	-	-
Stage 1	859	778	-	843	766	-	-	-	-	-	-	-
Stage 2	822	751	-	859	778	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	591	583	943	639	598	909	1480	-	-	1420	-	-
Mov Cap-2 Maneuver	591	583	-	639	598	-	-	-	-	-	-	-
Stage 1	853	768	-	837	761	-	-	-	-	-	-	-
Stage 2	778	746	-	848	768	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.8	0.4	1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1480	-	-	-	806	1420	-	-
HCM Lane V/C Ratio	0.007	-	-	-	0.076	0.012	-	-
HCM Control Delay (s)	7.4	0	-	0	9.8	7.6	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

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Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	77	549	1	5	447	68	1	1	11	52	0	72
Future Vol, veh/h	77	549	1	5	447	68	1	1	11	52	0	72
Conflicting Peds, #/hr	39	0	0	0	0	39	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	6	-	-	-6	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	617	1	6	502	76	1	1	12	58	0	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	617	0	0	618	0	0	1385	1421	618	1389	1383	579
Stage 1	-	-	-	-	-	-	792	792	-	591	591	-
Stage 2	-	-	-	-	-	-	593	629	-	798	792	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.32	7.72	6.82	5.92	5.32	5.62
Critical Hdwy Stg 1	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	963	-	-	962	-	-	76	85	441	191	228	567
Stage 1	-	-	-	-	-	-	294	308	-	601	602	-
Stage 2	-	-	-	-	-	-	404	385	-	495	522	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	927	-	-	962	-	-	57	70	441	156	187	546
Mov Cap-2 Maneuver	-	-	-	-	-	-	57	70	-	274	311	-
Stage 1	-	-	-	-	-	-	252	264	-	496	574	-
Stage 2	-	-	-	-	-	-	341	367	-	411	447	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.1	21.8	19.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	229	927	-	-	962	-	-	386
HCM Lane V/C Ratio	0.064	0.093	-	-	0.006	-	-	0.361
HCM Control Delay (s)	21.8	9.3	0	-	8.8	0	-	19.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0	-	-	1.6

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EXHIBIT Q

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	12	583	5	6	525
Future Vol, veh/h	6	12	583	5	6	525
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	13	648	6	7	583

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1248	651	0	0	654	0
Stage 1	651	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	191	469	-	-	933	-
Stage 1	519	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	189	469	-	-	933	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	544	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.2	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	314	933	-
HCM Lane V/C Ratio	-	-	0.064	0.007	-
HCM Control Delay (s)	-	-	17.2	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	2	7	613	554	13
Future Vol, veh/h	22	2	7	613	554	13
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	2	8	713	644	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1381	652	659	0	-	0
Stage 1	652	-	-	-	-	-
Stage 2	729	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	159	468	929	-	-	-
Stage 1	518	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	468	929	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	477	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	929	-	166	-	-
HCM Lane V/C Ratio	0.009	-	0.168	-	-
HCM Control Delay (s)	8.9	0	31	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1	1	623	565	2
Future Vol, veh/h	2	1	1	623	565	2
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	1	1	733	665	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1401	666	667	0	-	0
Stage 1	666	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	154	459	923	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	154	459	923	-	-	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	474	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	923	-	198	-	-
HCM Lane V/C Ratio	0.001	-	0.018	-	-
HCM Control Delay (s)	8.9	0	23.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	27.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	549	101	10	560	0	107	6	22	2	2	3
Future Vol, veh/h	5	549	101	10	560	0	107	6	22	2	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	597	110	11	609	0	116	7	24	2	2	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	609	0	0	707	0	0	1296	1293	652	1309	1348	609
Stage 1	-	-	-	-	-	-	662	662	-	631	631	-
Stage 2	-	-	-	-	-	-	634	631	-	678	717	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	970	-	-	891	-	-	~ 97	114	427	303	344	596
Stage 1	-	-	-	-	-	-	375	382	-	690	698	-
Stage 2	-	-	-	-	-	-	392	398	-	669	672	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	970	-	-	891	-	-	~ 94	111	427	268	334	596
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 94	111	-	268	334	-
Stage 1	-	-	-	-	-	-	372	379	-	684	685	-
Stage 2	-	-	-	-	-	-	381	390	-	615	666	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	277.4	14.7
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	109	970	-	-	891	-	-	379
HCM Lane V/C Ratio	1.346	0.006	-	-	0.012	-	-	0.02
HCM Control Delay (s)	277.4	8.7	0	-	9.1	0	-	14.7
HCM Lane LOS	F	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	10.1	0	-	-	0	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

3: Ped Xing & SR 28 Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.6	0.3
Total Delay (hr)	1.4	1.7	3.1
Total Del/Veh (s)	8.2	10.5	9.3
Avg Speed (mph)	13	9	11
Vehicles Entered	609	596	1205
Vehicles Exited	608	595	1203
Hourly Exit Rate	608	595	1203
Input Volume	612	627	1239
% of Volume	99	95	97

Total Zone Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	3.9
Total Delay (hr)	3.1
Total Del/Veh (s)	108.2
Avg Speed (mph)	11
Vehicles Entered	89
Vehicles Exited	99
Hourly Exit Rate	99
Input Volume	1239
% of Volume	8

Intersection: 3: Ped Xing & SR 28

Movement	EB	WB	B21
Directions Served	T	T	T
Maximum Queue (ft)	229	248	38
Average Queue (ft)	121	148	2
95th Queue (ft)	202	231	20
Link Distance (ft)	208	183	242
Upstream Blk Time (%)	1	3	
Queuing Penalty (veh)	3	14	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 17

PM LEVEL OF SERVICE OUTPUT

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	10	29	32	0
Future Vol, veh/h	0	0	10	29	32	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	14	40	44	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	112	44	44	0	-	0
Stage 1	44	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	885	1026	1564	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	877	1026	1564	-	-	-
Mov Cap-2 Maneuver	877	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1564	-	-	-	-
HCM Lane V/C Ratio	0.009	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	820	1	5	799	2	0	0	14	6	0	40
Future Vol, veh/h	26	820	1	5	799	2	0	0	14	6	0	40
Conflicting Peds, #/hr	39	0	0	0	0	39	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	6	-	-	-6	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	854	1	5	832	2	0	0	15	6	0	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	873	0	0	855	0	0	1773	1792	855	1798	1791	872
Stage 1	-	-	-	-	-	-	909	909	-	882	882	-
Stage 2	-	-	-	-	-	-	864	883	-	916	909	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.32	7.72	6.82	5.92	5.32	5.62
Critical Hdwy Stg 1	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	773	-	-	785	-	-	36	44	310	113	147	405
Stage 1	-	-	-	-	-	-	243	261	-	457	489	-
Stage 2	-	-	-	-	-	-	262	271	-	443	479	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	744	-	-	785	-	-	30	39	310	97	130	390
Mov Cap-2 Maneuver	-	-	-	-	-	-	30	39	-	226	266	-
Stage 1	-	-	-	-	-	-	226	243	-	409	465	-
Stage 2	-	-	-	-	-	-	231	258	-	393	446	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	17.2	16.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	310	744	-	-	785	-	-	356
HCM Lane V/C Ratio	0.047	0.036	-	-	0.007	-	-	0.135
HCM Control Delay (s)	17.2	10	0	-	9.6	0	-	16.7
HCM Lane LOS	C	B	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	11	754	3	22	721
Future Vol, veh/h	6	11	754	3	22	721
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	11	785	3	23	751

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1584	787	0	0	788	0
Stage 1	787	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	119	392	-	-	831	-
Stage 1	449	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	113	392	-	-	831	-
Mov Cap-2 Maneuver	113	-	-	-	-	-
Stage 1	449	-	-	-	-	-
Stage 2	423	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.8	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	209	831	-
HCM Lane V/C Ratio	-	-	0.085	0.028	-
HCM Control Delay (s)	-	-	23.8	9.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	1	841	828	0
Future Vol, veh/h	0	1	1	841	828	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	858	845	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1705	845	845	0	-	0
Stage 1	845	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	101	363	792	-	-	-
Stage 1	421	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	101	363	792	-	-	-
Mov Cap-2 Maneuver	101	-	-	-	-	-
Stage 1	420	-	-	-	-	-
Stage 2	414	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	792	-	363	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s)	9.6	0	14.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	130.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	726	134	13	714	0	140	8	28	3	3	4
Future Vol, veh/h	6	726	134	13	714	0	140	8	28	3	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	781	144	14	768	0	151	9	30	3	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	768	0	0	925	0	0	1665	1661	853	1681	1733	768
Stage 1	-	-	-	-	-	-	865	865	-	796	796	-
Stage 2	-	-	-	-	-	-	800	796	-	885	937	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	846	-	-	739	-	-	~ 48	61	319	210	253	508
Stage 1	-	-	-	-	-	-	274	292	-	619	649	-
Stage 2	-	-	-	-	-	-	303	320	-	583	609	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	846	-	-	739	-	-	~ 45	58	319	163	241	508
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 45	58	-	163	241	-
Stage 1	-	-	-	-	-	-	270	288	-	610	628	-
Stage 2	-	-	-	-	-	-	289	309	-	505	600	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	$ 1317.4	19.6
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	53	846	-	-	739	-	-	258
HCM Lane V/C Ratio	3.571	0.008	-	-	0.019	-	-	0.042
HCM Control Delay (s)	$ 1317.4	9.3	0	-	10	0	-	19.6
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	20.5	0	-	-	0.1	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

3: Ped Xing & SR 28 Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.6	0.3
Total Delay (hr)	2.1	2.1	4.3
Total Del/Veh (s)	8.7	9.7	9.2
Avg Speed (mph)	13	10	12
Vehicles Entered	867	786	1653
Vehicles Exited	871	787	1658
Hourly Exit Rate	871	787	1658
Input Volume	840	794	1634
% of Volume	104	99	101

Total Zone Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	7.6
Total Delay (hr)	4.3
Total Del/Veh (s)	209.7
Avg Speed (mph)	12
Vehicles Entered	65
Vehicles Exited	68
Hourly Exit Rate	68
Input Volume	1634
% of Volume	4

Intersection: 3: Ped Xing & SR 28

Movement	EB	WB	B21
Directions Served	T	T	T
Maximum Queue (ft)	247	268	148
Average Queue (ft)	175	173	13
95th Queue (ft)	271	268	77
Link Distance (ft)	206	184	242
Upstream Blk Time (%)	4	6	0
Queuing Penalty (veh)	30	41	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 72

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	10	31	34	0
Future Vol, veh/h	0	0	10	31	34	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	14	43	47	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	118	47	47	0	-	0
Stage 1	47	-	-	-	-	-
Stage 2	71	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	878	1022	1560	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	870	1022	1560	-	-	-
Mov Cap-2 Maneuver	870	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1560	-	-	-	-
HCM Lane V/C Ratio	0.009	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	820	1	5	799	2	0	0	14	6	0	40
Future Vol, veh/h	26	820	1	5	799	2	0	0	14	6	0	40
Conflicting Peds, #/hr	39	0	0	0	0	39	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	6	-	-	-6	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	854	1	5	832	2	0	0	15	6	0	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	873	0	0	855	0	0	1773	1792	855	1798	1791	872
Stage 1	-	-	-	-	-	-	909	909	-	882	882	-
Stage 2	-	-	-	-	-	-	864	883	-	916	909	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.32	7.72	6.82	5.92	5.32	5.62
Critical Hdwy Stg 1	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	773	-	-	785	-	-	36	44	310	113	147	405
Stage 1	-	-	-	-	-	-	243	261	-	457	489	-
Stage 2	-	-	-	-	-	-	262	271	-	443	479	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	744	-	-	785	-	-	30	39	310	97	130	390
Mov Cap-2 Maneuver	-	-	-	-	-	-	30	39	-	226	266	-
Stage 1	-	-	-	-	-	-	226	243	-	409	465	-
Stage 2	-	-	-	-	-	-	231	258	-	393	446	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	17.2	16.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	310	744	-	-	785	-	-	356
HCM Lane V/C Ratio	0.047	0.036	-	-	0.007	-	-	0.135
HCM Control Delay (s)	17.2	10	0	-	9.6	0	-	16.7
HCM Lane LOS	C	B	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	11	758	3	22	725
Future Vol, veh/h	6	11	758	3	22	725
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	11	790	3	23	755

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1593	792	0	0	793	0
Stage 1	792	-	-	-	-	-
Stage 2	801	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	118	389	-	-	828	-
Stage 1	446	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	112	389	-	-	828	-
Mov Cap-2 Maneuver	112	-	-	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	421	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.9	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	208	828	-
HCM Lane V/C Ratio	-	-	0.085	0.028	-
HCM Control Delay (s)	-	-	23.9	9.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	1	846	832	0
Future Vol, veh/h	0	1	1	846	832	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	863	849	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1714	849	849	0	-	0
Stage 1	849	-	-	-	-	-
Stage 2	865	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	99	361	789	-	-	-
Stage 1	419	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	99	361	789	-	-	-
Mov Cap-2 Maneuver	99	-	-	-	-	-
Stage 1	418	-	-	-	-	-
Stage 2	412	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	789	-	361	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s)	9.6	0	15	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	130.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	729	134	13	717	0	140	8	28	3	3	4
Future Vol, veh/h	6	729	134	13	717	0	140	8	28	3	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	784	144	14	771	0	151	9	30	3	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	771	0	0	928	0	0	1671	1667	856	1687	1739	771
Stage 1	-	-	-	-	-	-	868	868	-	799	799	-
Stage 2	-	-	-	-	-	-	803	799	-	888	940	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	844	-	-	737	-	-	~ 48	61	317	208	252	506
Stage 1	-	-	-	-	-	-	273	290	-	618	648	-
Stage 2	-	-	-	-	-	-	302	319	-	582	608	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	844	-	-	737	-	-	~ 45	58	317	161	240	506
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 45	58	-	161	240	-
Stage 1	-	-	-	-	-	-	269	286	-	609	627	-
Stage 2	-	-	-	-	-	-	288	308	-	503	599	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	$ 1317.4	19.7
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	53	844	-	-	737	-	-	256
HCM Lane V/C Ratio	3.571	0.008	-	-	0.019	-	-	0.042
HCM Control Delay (s)	$ 1317.4	9.3	0	-	10	0	-	19.7
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	20.5	0	-	-	0.1	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

3: Ped Xing & SR 28 Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.2	0.2
Denied Del/Veh (s)	0.0	0.8	0.4
Total Delay (hr)	2.1	2.2	4.3
Total Del/Veh (s)	8.8	10.1	9.4
Avg Speed (mph)	13	10	12
Vehicles Entered	856	783	1639
Vehicles Exited	857	782	1639
Hourly Exit Rate	857	782	1639
Input Volume	840	794	1634
% of Volume	102	98	100

Total Zone Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	9.8
Total Delay (hr)	4.3
Total Del/Veh (s)	212.0
Avg Speed (mph)	12
Vehicles Entered	63
Vehicles Exited	66
Hourly Exit Rate	66
Input Volume	1634
% of Volume	4

Intersection: 3: Ped Xing & SR 28

Movement	EB	WB	B21
Directions Served	T	T	T
Maximum Queue (ft)	248	258	132
Average Queue (ft)	172	174	14
95th Queue (ft)	262	269	90
Link Distance (ft)	206	184	242
Upstream Blk Time (%)	3	6	0
Queuing Penalty (veh)	29	45	2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 76

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	16	0	46	10	116	45	15	98	0
Future Vol, veh/h	0	0	0	16	0	46	10	116	45	15	98	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	92	72	92	92	92	72	72	92	92	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	17	0	50	14	161	49	16	136	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	407	406	136	382	382	186	136	0	0	210	0	0
Stage 1	168	168	-	214	214	-	-	-	-	-	-	-
Stage 2	239	238	-	168	168	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	555	534	913	576	551	856	1448	-	-	1361	-	-
Stage 1	834	759	-	788	725	-	-	-	-	-	-	-
Stage 2	764	708	-	834	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	513	521	913	566	538	856	1448	-	-	1361	-	-
Mov Cap-2 Maneuver	513	521	-	566	538	-	-	-	-	-	-	-
Stage 1	825	749	-	779	717	-	-	-	-	-	-	-
Stage 2	711	700	-	823	749	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.2	0.5	0.8
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1448	-	-	-	756	1361	-	-
HCM Lane V/C Ratio	0.01	-	-	-	0.089	0.012	-	-
HCM Control Delay (s)	7.5	0	-	0	10.2	7.7	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	83	748	1	5	742	75	0	0	14	51	0	74
Future Vol, veh/h	83	748	1	5	742	75	0	0	14	51	0	74
Conflicting Peds, #/hr	39	0	0	0	0	39	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	6	-	-	-6	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	779	1	5	773	78	0	0	15	53	0	77

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	890	0	0	780	0	0	1813	1852	780	1820	1813	851
Stage 1	-	-	-	-	-	-	952	952	-	861	861	-
Stage 2	-	-	-	-	-	-	861	900	-	959	952	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.32	7.72	6.82	5.92	5.32	5.62
Critical Hdwy Stg 1	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	761	-	-	837	-	-	33	40	347	110	143	415
Stage 1	-	-	-	-	-	-	227	246	-	467	496	-
Stage 2	-	-	-	-	-	-	263	265	-	425	464	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	733	-	-	837	-	-	22	30	347	85	108	400
Mov Cap-2 Maneuver	-	-	-	-	-	-	22	30	-	192	235	-
Stage 1	-	-	-	-	-	-	180	195	-	357	472	-
Stage 2	-	-	-	-	-	-	210	252	-	323	368	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.1	15.8	29
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	347	733	-	-	837	-	-	277
HCM Lane V/C Ratio	0.042	0.118	-	-	0.006	-	-	0.47
HCM Control Delay (s)	15.8	10.6	0	-	9.3	0	-	29
HCM Lane LOS	C	B	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0	-	-	2.4

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	11	734	4	10	752
Future Vol, veh/h	5	11	734	4	10	752
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	11	765	4	10	783

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1570	767	0	0	769	0
Stage 1	767	-	-	-	-	-
Stage 2	803	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	122	402	-	-	845	-
Stage 1	458	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	119	402	-	-	845	-
Mov Cap-2 Maneuver	119	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	432	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	231	845	-
HCM Lane V/C Ratio	-	-	0.072	0.012	-
HCM Control Delay (s)	-	-	21.8	9.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	3	8	771	767	20
Future Vol, veh/h	16	3	8	771	767	20
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	3	8	812	807	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1646	818	828	0	-	0
Stage 1	818	-	-	-	-	-
Stage 2	828	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	109	376	803	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	429	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	107	376	803	-	-	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	426	-	-	-	-	-
Stage 2	429	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	40.6	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	803	-	121	-	-
HCM Lane V/C Ratio	0.01	-	0.165	-	-
HCM Control Delay (s)	9.5	0	40.6	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	1	794	812	0
Future Vol, veh/h	0	1	1	794	812	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	810	829	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1641	829	829	0	-	0
Stage 1	829	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	110	370	803	-	-	-
Stage 1	429	-	-	-	-	-
Stage 2	437	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	110	370	803	-	-	-
Mov Cap-2 Maneuver	110	-	-	-	-	-
Stage 1	428	-	-	-	-	-
Stage 2	437	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	803	-	370	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s)	9.5	0	14.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	109

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	6	686	126	13	701	0	136	8	28	3	3	4
Future Vol, veh/h	6	686	126	13	701	0	136	8	28	3	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	738	135	14	754	0	146	9	30	3	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	754	0	0	873	0	0	1604	1600	806	1619	1667	754
Stage 1	-	-	-	-	-	-	818	818	-	782	782	-
Stage 2	-	-	-	-	-	-	786	782	-	837	885	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	856	-	-	773	-	-	~ 54	68	341	223	267	515
Stage 1	-	-	-	-	-	-	295	311	-	625	653	-
Stage 2	-	-	-	-	-	-	310	326	-	602	623	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	856	-	-	773	-	-	~ 51	65	341	177	255	515
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 51	65	-	177	255	-
Stage 1	-	-	-	-	-	-	291	307	-	616	633	-
Stage 2	-	-	-	-	-	-	296	316	-	526	614	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	$ 1083.8	18.7
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	856	-	-	773	-	-	274
HCM Lane V/C Ratio	3.082	0.008	-	-	0.018	-	-	0.039
HCM Control Delay (s)	$ 1083.8	9.2	0	-	9.7	0	-	18.7
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	19.2	0	-	-	0.1	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

3: Ped Xing & SR 28 Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.6	0.3
Total Delay (hr)	1.7	2.4	4.1
Total Del/Veh (s)	8.0	10.6	9.4
Avg Speed (mph)	14	10	12
Vehicles Entered	770	807	1577
Vehicles Exited	772	806	1578
Hourly Exit Rate	772	806	1578
Input Volume	813	810	1623
% of Volume	95	100	97

Total Zone Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	8.6
Total Delay (hr)	4.1
Total Del/Veh (s)	178.6
Avg Speed (mph)	12
Vehicles Entered	56
Vehicles Exited	79
Hourly Exit Rate	79
Input Volume	1623
% of Volume	5

Intersection: 3: Ped Xing & SR 28

Movement	EB	WB	B21
Directions Served	T	T	T
Maximum Queue (ft)	246	261	209
Average Queue (ft)	143	185	17
95th Queue (ft)	250	275	102
Link Distance (ft)	206	184	242
Upstream Blk Time (%)	2	7	0
Queuing Penalty (veh)	17	56	3
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 77

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	10	36	40	0
Future Vol, veh/h	0	0	10	36	40	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	14	50	56	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	134	56	56	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	78	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	860	1011	1549	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	852	1011	1549	-	-	-
Mov Cap-2 Maneuver	852	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1549	-	-	-	-
HCM Lane V/C Ratio	0.009	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	820	1	5	799	2	0	0	14	6	0	40
Future Vol, veh/h	26	820	1	5	799	2	0	0	14	6	0	40
Conflicting Peds, #/hr	39	0	0	0	0	39	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	6	-	-	-6	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	854	1	5	832	2	0	0	15	6	0	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	873	0	0	855	0	0	1773	1792	855	1798	1791	872
Stage 1	-	-	-	-	-	-	909	909	-	882	882	-
Stage 2	-	-	-	-	-	-	864	883	-	916	909	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.32	7.72	6.82	5.92	5.32	5.62
Critical Hdwy Stg 1	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	773	-	-	785	-	-	36	44	310	113	147	405
Stage 1	-	-	-	-	-	-	243	261	-	457	489	-
Stage 2	-	-	-	-	-	-	262	271	-	443	479	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	744	-	-	785	-	-	30	39	310	97	130	390
Mov Cap-2 Maneuver	-	-	-	-	-	-	30	39	-	226	266	-
Stage 1	-	-	-	-	-	-	226	243	-	409	465	-
Stage 2	-	-	-	-	-	-	231	258	-	393	446	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	17.2	16.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	310	744	-	-	785	-	-	356
HCM Lane V/C Ratio	0.047	0.036	-	-	0.007	-	-	0.135
HCM Control Delay (s)	17.2	10	0	-	9.6	0	-	16.7
HCM Lane LOS	C	B	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	11	770	3	22	736
Future Vol, veh/h	6	11	770	3	22	736
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	11	802	3	23	767

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1617	804	0	0	805	0
Stage 1	804	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	114	383	-	-	819	-
Stage 1	440	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	108	383	-	-	819	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	440	-	-	-	-	-
Stage 2	415	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.5	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	202	819	-
HCM Lane V/C Ratio	-	-	0.088	0.028	-
HCM Control Delay (s)	-	-	24.5	9.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	1	858	845	0
Future Vol, veh/h	0	1	1	858	845	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	876	862	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1740	862	862	0	-	0
Stage 1	862	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	96	355	780	-	-	-
Stage 1	414	-	-	-	-	-
Stage 2	406	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	96	355	780	-	-	-
Mov Cap-2 Maneuver	96	-	-	-	-	-
Stage 1	413	-	-	-	-	-
Stage 2	406	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	780	-	355	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s)	9.6	0	15.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	139

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	738	134	13	726	0	140	8	28	3	3	4
Future Vol, veh/h	6	738	134	13	726	0	140	8	28	3	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	794	144	14	781	0	151	9	30	3	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	781	0	0	938	0	0	1691	1687	866	1707	1759	781
Stage 1	-	-	-	-	-	-	878	878	-	809	809	-
Stage 2	-	-	-	-	-	-	813	809	-	898	950	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	837	-	-	730	-	-	~ 46	59	313	204	248	501
Stage 1	-	-	-	-	-	-	268	287	-	614	645	-
Stage 2	-	-	-	-	-	-	297	314	-	578	605	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	837	-	-	730	-	-	~ 43	56	313	157	236	501
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 43	56	-	157	236	-
Stage 1	-	-	-	-	-	-	264	283	-	605	623	-
Stage 2	-	-	-	-	-	-	283	303	-	499	596	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	$ 1421.4	20
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	50	837	-	-	730	-	-	251
HCM Lane V/C Ratio	3.785	0.008	-	-	0.019	-	-	0.043
HCM Control Delay (s)	$ 1421.4	9.3	0	-	10	0	-	20
HCM Lane LOS	F	A	A	-	B	A	-	C
HCM 95th %tile Q(veh)	20.8	0	-	-	0.1	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

3: Ped Xing & SR 28 Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.4	0.2
Total Delay (hr)	2.0	2.1	4.1
Total Del/Veh (s)	8.8	9.6	9.2
Avg Speed (mph)	13	11	12
Vehicles Entered	824	784	1608
Vehicles Exited	824	781	1605
Hourly Exit Rate	824	781	1605
Input Volume	840	794	1634
% of Volume	98	98	98

Total Zone Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	6.2
Total Delay (hr)	4.1
Total Del/Veh (s)	192.2
Avg Speed (mph)	12
Vehicles Entered	47
Vehicles Exited	68
Hourly Exit Rate	68
Input Volume	1634
% of Volume	4

Intersection: 3: Ped Xing & SR 28

Movement	EB	WB	B21
Directions Served	T	T	T
Maximum Queue (ft)	245	259	133
Average Queue (ft)	168	171	12
95th Queue (ft)	262	269	77
Link Distance (ft)	206	184	242
Upstream Blk Time (%)	3	6	0
Queuing Penalty (veh)	27	42	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 70

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	16	0	46	10	121	45	15	104	0
Future Vol, veh/h	0	0	0	16	0	46	10	121	45	15	104	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	92	72	92	92	92	72	72	92	92	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	17	0	50	14	168	49	16	144	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	422	421	144	397	397	193	144	0	0	217	0	0
Stage 1	176	176	-	221	221	-	-	-	-	-	-	-
Stage 2	246	245	-	176	176	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	542	524	903	563	540	849	1438	-	-	1353	-	-
Stage 1	826	753	-	781	720	-	-	-	-	-	-	-
Stage 2	758	703	-	826	753	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	501	511	903	553	527	849	1438	-	-	1353	-	-
Mov Cap-2 Maneuver	501	511	-	553	527	-	-	-	-	-	-	-
Stage 1	817	743	-	772	712	-	-	-	-	-	-	-
Stage 2	706	695	-	815	743	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.3	0.5	0.8
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1438	-	-	-	746	1353	-	-
HCM Lane V/C Ratio	0.01	-	-	-	0.09	0.012	-	-
HCM Control Delay (s)	7.5	0	-	0	10.3	7.7	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0	-	-

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EXHIBIT Q

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	83	748	1	5	742	75	0	0	14	51	0	74
Future Vol, veh/h	83	748	1	5	742	75	0	0	14	51	0	74
Conflicting Peds, #/hr	39	0	0	0	0	39	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	6	-	-	-6	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	779	1	5	773	78	0	0	15	53	0	77

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	890	0	0	780	0	0	1813	1852	780	1820	1813	851
Stage 1	-	-	-	-	-	-	952	952	-	861	861	-
Stage 2	-	-	-	-	-	-	861	900	-	959	952	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.32	7.72	6.82	5.92	5.32	5.62
Critical Hdwy Stg 1	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.32	6.72	-	4.92	4.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	761	-	-	837	-	-	33	40	347	110	143	415
Stage 1	-	-	-	-	-	-	227	246	-	467	496	-
Stage 2	-	-	-	-	-	-	263	265	-	425	464	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	733	-	-	837	-	-	22	30	347	85	108	400
Mov Cap-2 Maneuver	-	-	-	-	-	-	22	30	-	192	235	-
Stage 1	-	-	-	-	-	-	180	195	-	357	472	-
Stage 2	-	-	-	-	-	-	210	252	-	323	368	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.1	15.8	29
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	347	733	-	-	837	-	-	277
HCM Lane V/C Ratio	0.042	0.118	-	-	0.006	-	-	0.47
HCM Control Delay (s)	15.8	10.6	0	-	9.3	0	-	29
HCM Lane LOS	C	B	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0	-	-	2.4

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	11	746	4	10	763
Future Vol, veh/h	5	11	746	4	10	763
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	11	777	4	10	795

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1594	779	0	0	781	0
Stage 1	779	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	118	396	-	-	837	-
Stage 1	452	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	116	396	-	-	837	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	452	-	-	-	-	-
Stage 2	426	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.2	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	226	837	-
HCM Lane V/C Ratio	-	-	0.074	0.012	-
HCM Control Delay (s)	-	-	22.2	9.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	3	8	784	780	20
Future Vol, veh/h	16	3	8	784	780	20
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	3	8	825	821	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1673	832	842	0	-	0
Stage 1	832	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	105	369	794	-	-	-
Stage 1	427	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	103	369	794	-	-	-
Mov Cap-2 Maneuver	103	-	-	-	-	-
Stage 1	419	-	-	-	-	-
Stage 2	423	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	42.4	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	794	-	116	-	-
HCM Lane V/C Ratio	0.011	-	0.172	-	-
HCM Control Delay (s)	9.6	0	42.4	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	1	806	825	0
Future Vol, veh/h	0	1	1	806	825	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	822	842	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1666	842	842	0	-	0
Stage 1	842	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	106	364	794	-	-	-
Stage 1	423	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	106	364	794	-	-	-
Mov Cap-2 Maneuver	106	-	-	-	-	-
Stage 1	422	-	-	-	-	-
Stage 2	431	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	794	-	364	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s)	9.5	0	14.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	110.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	695	126	13	710	0	136	8	28	3	3	4
Future Vol, veh/h	6	695	126	13	710	0	136	8	28	3	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	747	135	14	763	0	146	9	30	3	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	763	0	0	882	0	0	1622	1618	815	1637	1685	763
Stage 1	-	-	-	-	-	-	827	827	-	791	791	-
Stage 2	-	-	-	-	-	-	795	791	-	846	894	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	850	-	-	767	-	-	~ 53	66	337	219	263	510
Stage 1	-	-	-	-	-	-	291	307	-	621	650	-
Stage 2	-	-	-	-	-	-	305	322	-	599	621	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	850	-	-	767	-	-	~ 50	63	337	173	251	510
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 50	63	-	173	251	-
Stage 1	-	-	-	-	-	-	287	303	-	612	629	-
Stage 2	-	-	-	-	-	-	291	312	-	523	612	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	$ 1109.1	18.9
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	59	850	-	-	767	-	-	269
HCM Lane V/C Ratio	3.135	0.008	-	-	0.018	-	-	0.04
HCM Control Delay (s)	$ 1109.1	9.3	0	-	9.8	0	-	18.9
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	19.3	0	-	-	0.1	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

3: Ped Xing & SR 28 Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.6	0.3
Total Delay (hr)	1.8	2.4	4.2
Total Del/Veh (s)	8.3	10.2	9.3
Avg Speed (mph)	13	10	12
Vehicles Entered	780	831	1611
Vehicles Exited	781	830	1611
Hourly Exit Rate	781	830	1611
Input Volume	813	810	1623
% of Volume	96	102	99

Total Zone Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	10.0
Total Delay (hr)	4.2
Total Del/Veh (s)	185.6
Avg Speed (mph)	12
Vehicles Entered	46
Vehicles Exited	75
Hourly Exit Rate	75
Input Volume	1623
% of Volume	5

Intersection: 3: Ped Xing & SR 28

Movement	EB	WB	B21
Directions Served	T	T	T
Maximum Queue (ft)	249	257	198
Average Queue (ft)	139	179	18
95th Queue (ft)	255	270	96
Link Distance (ft)	206	184	242
Upstream Blk Time (%)	2	6	0
Queuing Penalty (veh)	20	48	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 69

MITIGATED LEVEL OF SERVICE OUTPUT

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	549	101	10	560	0	107	6	22	2	2	3
Future Vol, veh/h	5	549	101	10	560	0	107	6	22	2	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	590	109	11	602	0	115	6	24	2	2	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	602	0	0	699	0	0	1282	1279	645	1294	1333	602
Stage 1	-	-	-	-	-	-	655	655	-	624	624	-
Stage 2	-	-	-	-	-	-	627	624	-	670	709	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	975	-	-	898	-	-	~ 100	116	432	308	348	601
Stage 1	-	-	-	-	-	-	379	386	-	693	700	-
Stage 2	-	-	-	-	-	-	396	402	-	672	674	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	975	-	-	898	-	-	~ 97	113	432	279	339	601
Mov Cap-2 Maneuver	-	-	-	-	-	-	217	228	-	279	339	-
Stage 1	-	-	-	-	-	-	376	383	-	687	687	-
Stage 2	-	-	-	-	-	-	386	395	-	619	668	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	41.6	14.5
HCM LOS			E	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	237	975	-	-	898	-	-	388
HCM Lane V/C Ratio	0.612	0.006	-	-	0.012	-	-	0.019
HCM Control Delay (s)	41.6	8.7	0	-	9.1	0	-	14.5
HCM Lane LOS	E	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	3.6	0	-	-	0	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

WSUP23-0025
EXHIBIT Q

Intersection	
Int Delay, s/veh	15.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	695	126	13	710	0	136	8	28	3	3	4
Future Vol, veh/h	6	695	126	13	710	0	136	8	28	3	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	747	135	14	763	0	146	9	30	3	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	763	0	0	882	0	0	1622	1618	815	1637	1685	763
Stage 1	-	-	-	-	-	-	827	827	-	791	791	-
Stage 2	-	-	-	-	-	-	795	791	-	846	894	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	850	-	-	767	-	-	~ 53	66	337	219	263	510
Stage 1	-	-	-	-	-	-	291	307	-	621	650	-
Stage 2	-	-	-	-	-	-	305	322	-	599	621	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	850	-	-	767	-	-	~ 50	63	337	185	251	510
Mov Cap-2 Maneuver	-	-	-	-	-	-	153	168	-	185	251	-
Stage 1	-	-	-	-	-	-	287	303	-	612	629	-
Stage 2	-	-	-	-	-	-	291	312	-	523	612	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	152.1	18.5
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	169	850	-	-	767	-	-	278
HCM Lane V/C Ratio	1.094	0.008	-	-	0.018	-	-	0.039
HCM Control Delay (s)	152.1	9.3	0	-	9.8	0	-	18.5
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	9.4	0	-	-	0.1	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱			↕	
Traffic Vol, veh/h	5	549	101	10	560	0	107	6	22	2	2	3
Future Vol, veh/h	5	549	101	10	560	0	107	6	22	2	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	590	109	11	602	0	115	6	24	2	2	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	602	0	0	699	0	0	1282	1279	645	1294	1333	602
Stage 1	-	-	-	-	-	-	655	655	-	624	624	-
Stage 2	-	-	-	-	-	-	627	624	-	670	709	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	975	-	-	898	-	-	~ 100	116	432	308	348	601
Stage 1	-	-	-	-	-	-	379	386	-	693	700	-
Stage 2	-	-	-	-	-	-	396	402	-	672	674	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	975	-	-	898	-	-	~ 97	113	432	279	339	601
Mov Cap-2 Maneuver	-	-	-	-	-	-	217	228	-	279	339	-
Stage 1	-	-	-	-	-	-	376	383	-	687	687	-
Stage 2	-	-	-	-	-	-	386	395	-	619	668	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	34.1	14.5
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	217	362	975	-	-	898	-	-	388
HCM Lane V/C Ratio	0.53	0.083	0.006	-	-	0.012	-	-	0.019
HCM Control Delay (s)	38.9	15.8	8.7	0	-	9.1	0	-	14.5
HCM Lane LOS	E	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2.8	0.3	0	-	-	0	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

WSUP23-0025
EXHIBIT Q

Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱			↕	
Traffic Vol, veh/h	6	695	126	13	710	0	136	8	28	3	3	4
Future Vol, veh/h	6	695	126	13	710	0	136	8	28	3	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	5	-	-	-11	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	747	135	14	763	0	146	9	30	3	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	763	0	0	882	0	0	1622	1618	815	1637	1685	763
Stage 1	-	-	-	-	-	-	827	827	-	791	791	-
Stage 2	-	-	-	-	-	-	795	791	-	846	894	-
Critical Hdwy	4.12	-	-	4.12	-	-	8.12	7.52	6.72	4.92	4.32	5.12
Critical Hdwy Stg 1	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	-	3.92	3.32	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	850	-	-	767	-	-	~ 53	66	337	219	263	510
Stage 1	-	-	-	-	-	-	291	307	-	621	650	-
Stage 2	-	-	-	-	-	-	305	322	-	599	621	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	850	-	-	767	-	-	~ 50	63	337	185	251	510
Mov Cap-2 Maneuver	-	-	-	-	-	-	153	168	-	185	251	-
Stage 1	-	-	-	-	-	-	287	303	-	612	629	-
Stage 2	-	-	-	-	-	-	291	312	-	523	612	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	98.9	18.5
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	153	275	850	-	-	767	-	-	278
HCM Lane V/C Ratio	0.956	0.141	0.008	-	-	0.018	-	-	0.039
HCM Control Delay (s)	119.7	20.2	9.3	0	-	9.8	0	-	18.5
HCM Lane LOS	F	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	7	0.5	0	-	-	0.1	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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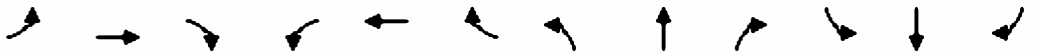
EXHIBIT Q

HCM 6th Signalized Intersection Summary
7: Lakeshore Blvd/Pinion Dr & SR 28

03/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	6	695	126	13	710	0	136	8	28	3	3	4
Future Volume (veh/h)	6	695	126	13	710	0	136	8	28	3	3	4
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	1870	1870	1870	1870	1870	1870	1723	1723	1723	2303	2303	2303
Adj Flow Rate, veh/h	6	747	135	14	763	0	146	9	30	3	3	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	917	165	93	1098	0	343	25	42	177	175	161
Arrive On Green	0.60	0.60	0.60	0.60	0.60	0.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	3	1537	276	10	1839	0	1002	133	220	348	917	843
Grp Volume(v), veh/h	888	0	0	777	0	0	185	0	0	10	0	0
Grp Sat Flow(s),veh/h/ln	1816	0	0	1850	0	0	1355	0	0	2108	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	16.3	0.0	0.0	12.1	0.0	0.0	5.4	0.0	0.0	0.2	0.0	0.0
Prop In Lane	0.01		0.15	0.02		0.00	0.79		0.16	0.30		0.40
Lane Grp Cap(c), veh/h	1169	0	0	1191	0	0	410	0	0	513	0	0
V/C Ratio(X)	0.76	0.00	0.00	0.65	0.00	0.00	0.45	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	1688	0	0	1711	0	0	739	0	0	992	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.7	0.0	0.0	5.9	0.0	0.0	16.0	0.0	0.0	13.9	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.6	0.0	0.0	0.8	0.0	0.0	0.0	0.0	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	3.6	0.0	0.0	2.7	0.0	0.0	1.5	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	0.0	0.0	6.5	0.0	0.0	16.8	0.0	0.0	14.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		888			777			185			10	
Approach Delay, s/veh		8.0			6.5			16.8			14.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.6		29.8		12.6		29.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		37.5		18.5		37.5				
Max Q Clear Time (g_c+I1), s		7.4		18.3		2.2		14.1				
Green Ext Time (p_c), s		0.7		7.0		0.0		6.2				
Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

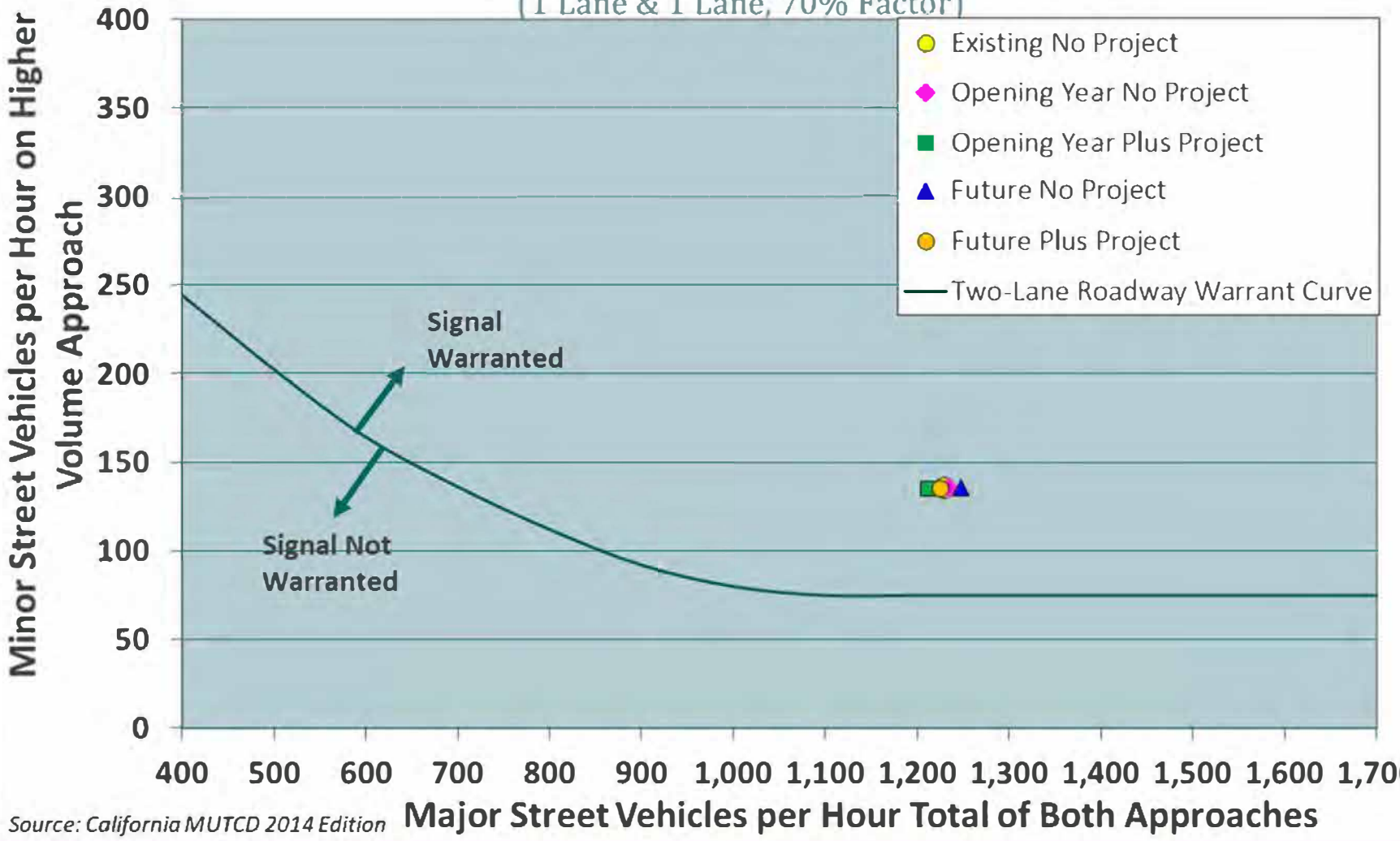
WSUP23-0025
EXHIBIT Q

Appendix G

SIGNAL AND TURN-LANE WARRANTS

Figure G3: SR 28/Lakeshore Blvd AM Peak-Hour Signal Warrant

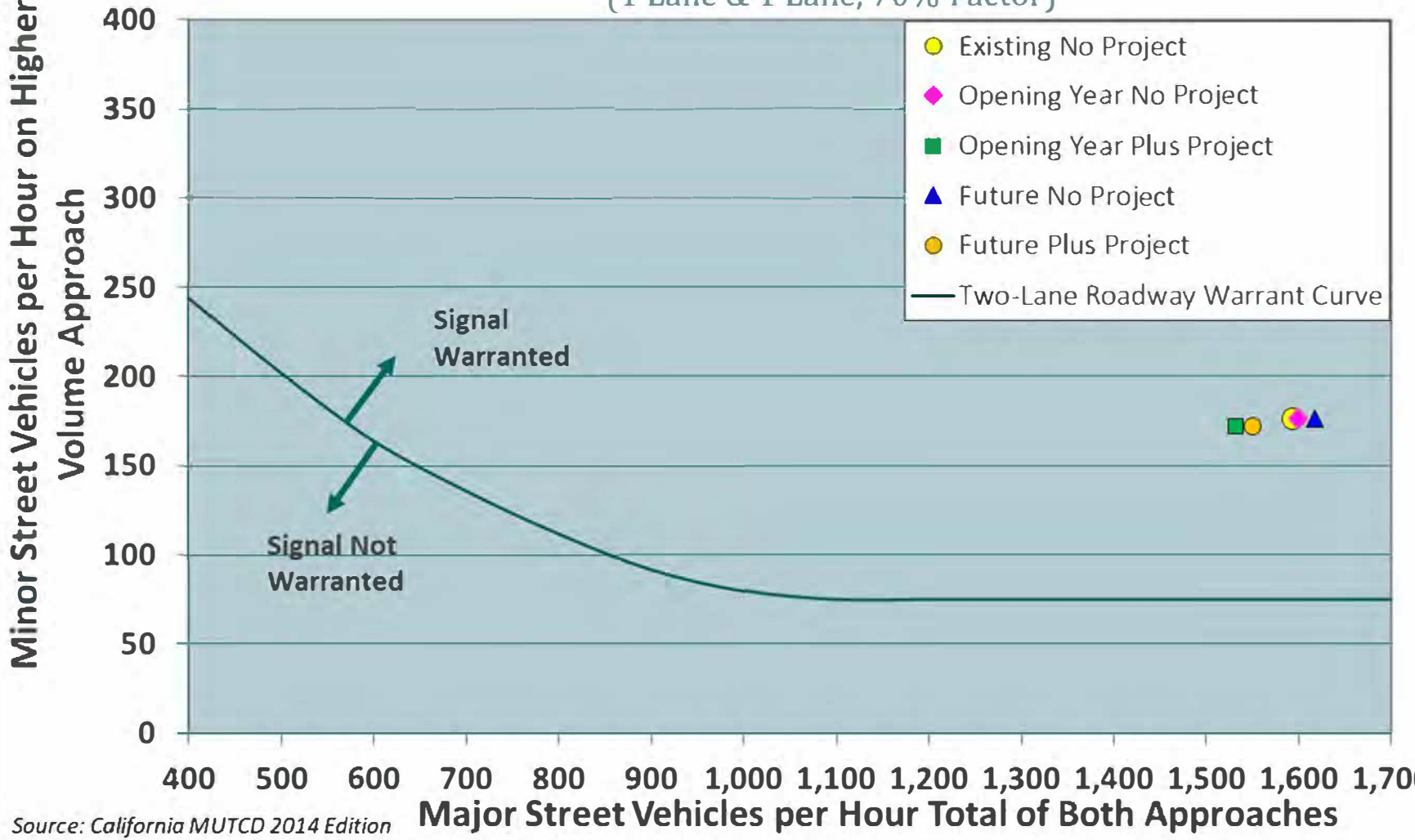
(1 Lane & 1 Lane, 70% Factor)



Source: California MUTCD 2014 Edition

Figure G4: SR 28/Lakeshore Blvd PM Peak-Hour Signal Warrant

(1 Lane & 1 Lane, 70% Factor)



Source: California MUTCD 2014 Edition

Left-Turn Lane Warrant

Table 4-13: Left-Turn Lane Warrants at Unsignalized Intersections, Two-Lane Roadways in Rural Areas

Turning Volume[1] (VPH)	Minimum Directional Volume in the Through Lane[2] (vphpl)			
	≤ 30 mph	35-40 mph	45-55 mph	≥60 mph
<5	Not Required	May be Required	ay be Requir	May be Required
5	400	220	120	60
10	240	140	80	40
15	160	100	60	Required
20	120	80	Required	Required
25	100	Required	Required	Required
≥26	Required	Required	Required	Required

Turn lane is warranted if the design year volumes are equal to or greater than the volumes provided above. Posted speed (mph) of the roadway should be used in the warrant analysis

Note 1: Use linear interpoloation for turning volumes between 5 and 25 vph

Note 2: The directional volume is the volume in the same direction as served by the auxiliary lane. The directional volume in the through lane includes through vehicles and turning vehicles

Right-Turn Lane Warrant

Table 4-17: Right-Turn Lane Warrants at Unsignalized Intersections, Two-Lane Roadways in Rural Areas

Turning Volume[1] (VPH)	Minimum Directional Volume in the Through Lane[2] (vphpl)			
	≤ 30 mph	35-40 mph	45-55 mph	≥60 mph
<5	Not Required	May be Required	May be Required	May be Required
5	800	460	270	160
10	430	280	170	110
15	290	180	110	80
20	200	140	90	70
25	170	120	80	Required
30	160	110	Required	Required
≥31	Required	Required	Required	Required

Turn lane is warranted if the design year volumes are equal to or greater than the volumes provided above. Posted speed (mph) of the roadway should be used in the warrant analysis

Note 1: Use linear interpoloation for turning volumes between 5 and 30 vph

Note 2: The directional volume is the volume in the same direction as served by the auxiliary lane. The directional volume in the through lane includes through vehicles and turning vehicles

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Appendix H

CRASH DATA SUMMARY

Table F1: WALT - Summary of Crashes by Severity

January 1, 2016 - January 1, 2021

	Intersections				
Crash Severity	State Line Road	CalNeva Drive	Reservoir Road	Lakeshore Blvd/Pinion Dr/Mile Marker 9	**Total**
Fatal	0	0	0	0	0
Severe Injury	1	0	0	0	1
Other Visible Injury	1	2	0	1	4
Complaint of Pain	0	0	1	1	2
Property Damage Only	1	3	4	10	18
5-Year Total	3	5	5	12	25
5-Year Total Injury	2	2	1	2	7
Percent of All Crashes					
Fatal	0.0%	0.0%	0.0%	0.0%	0.0%
Severe Injury	33.3%	0.0%	0.0%	0.0%	4.0%
Other Visible Injury	33.3%	40.0%	0.0%	8.3%	16.0%
Complaint of Pain	0.0%	0.0%	20.0%	8.3%	8.0%
Property Damage Only	33.3%	60.0%	80.0%	83.3%	72.0%

Source: LSC Transportation Inc. and NDOT TSE Crash Data Request

Table F2: WALT - Summary of Crashes by Lighting

January 1, 2016 - January 1, 2021

	Intersections				
Lighting	State Line Road	CalNeva Drive	Reservoir Road	Lakeshore Blvd/Pinion Dr/Mile Marker 9	**Total**
Daylight	3	3	5	5	16
Dawn				1	1
Dark-Spot Lighting		1		2	3
Dark-No Lighting				3	3
Dark-Unknown Lighting					0
Unknown		1		1	2
5-Year Total	3	5	5	12	25
Percent of All Crashes					
Daylight	100.0%	60.0%	100.0%	41.7%	64.0%
Dawn	0.0%	0.0%	0.0%	8.3%	4.0%
Dark-Spot Lighting	0.0%	20.0%	0.0%	16.7%	12.0%
Dark-No Lighting	0.0%	0.0%	0.0%	25.0%	12.0%
Dark-Unknown Lighting	0.0%	0.0%	0.0%	0.0%	0.0%
Unknown	0.0%	20.0%	0.0%	8.3%	8.0%

Source: LSC Transportation Inc. and NDOT TSE Crash Data Request

Table F3: WALT - Summary of Crashes by Weather

January 1, 2016 - January 1, 2021

	Intersections				
Weather	State Line Road	CalNeva Drive	Reservoir Road	Lakeshore Blvd/Pinion Dr/Mile Marker 9	**Total**
Clear	3	2	4	10	19
Cloudy		2		1	3
Fog				1	1
Raining					0
Snowing			1		1
Wind		1			1
Other					0
5-Year Total	3	5	5	12	25
Percent of All Crashes					
Clear	100.0%	40.0%	80.0%	83.3%	76.0%
Cloudy	0.0%	40.0%	0.0%	8.3%	12.0%
Fog	0.0%	0.0%	0.0%	8.3%	4.0%
Raining	0.0%	0.0%	0.0%	0.0%	0.0%
Snowing	0.0%	0.0%	20.0%	0.0%	4.0%
Wind	0.0%	20.0%	0.0%	0.0%	4.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%

Source: LSC Transportation Inc. and NDOT TSE Crash Data Request

Table F4: WALT - Summary of Crashes by Crash Type

January 1, 2016 - January 1, 2021

	Intersections				
Crash Type	State Line Road	CalNeva Drive	Reservoir Road	Lakeshore Blvd/Pinion Dr/Mile Marker 9	**Total**
Angle		1	1	5	7
Sideswipe,Overtaking			1		1
Sideswipe,Meeting			1		1
Rear-End	2	1	2	2	7
Head-On		1			1
Non-Collision	1	2		5	8
5-Year Total	3	5	5	12	25
Percent of All Crashes					
Angle	0.0%	20.0%	20.0%	41.7%	28.0%
Sideswipe,Overtaking	0.0%	0.0%	20.0%	0.0%	4.0%
Sideswipe,Meeting	0.0%	0.0%	20.0%	0.0%	4.0%
Rear-End	66.7%	20.0%	40.0%	16.7%	28.0%
Head-On	0.0%	20.0%	0.0%	0.0%	4.0%
Non-Collision	33.3%	40.0%	0.0%	41.7%	32.0%

Source: LSC Transportation Inc. and NDOT TSE Crash Data Request