



LSC TRANSPORTATION CONSULTANTS, INC.
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May 18, 2020

Steve Miller
Gallant Homes
6265 Lehman Drive
Colorado Springs, CO, 80918

RE: Gallant Townhomes
Colorado Springs, CO
Traffic Impact Study
LSC #194450

Dear Mr. Miller,

LSC Transportation Consultants, Inc. is pleased to provide transportation planning and traffic engineering services for the proposed Gallant Townhomes residential development with approximately 172 multi-family dwelling units in Colorado Springs, Colorado. Located at El Paso County parcel ID 5307000011, the 10.55-acre site is on the northeast corner of the intersection of Templeton Gap Road/Wolf Ridge Road.

Two access points are proposed for the property:

- Approximately 250 feet north of Templeton Gap Road/Wolf Ridge Road
- Approximately 1,080 feet east of Templeton Gap Road/Wolf Ridge Road (415 feet east of Tullamore Drive/Wolf Ridge Road)

This traffic impact study has been completed for submittal to the City of Colorado Springs.

REPORT CONTENTS

The preparation of this report included the following:

- An inventory of existing roadway and traffic conditions on Templeton Gap Road and Wolf Ridge Road adjacent to the site, including surface conditions, functional classification, widths, pavement markings, traffic control signs, posted speed limits, intersection and access spacing, roadway and intersection alignments, roadway grades, and auxiliary turn lanes
- Weekday morning, school, and late-afternoon peak-hour turning-movement traffic counts at the following intersections:
 - Templeton Gap Road/Wolf Ridge Road
 - Tutt Boulevard/Templeton Gap Road
- Estimated average weekday traffic (AWT) volumes for study area roadway

- Projections of 20-year background traffic volumes at the study intersections:
 - Templeton Gap Road/Wolf Ridge Road
 - Tutt Boulevard/Templeton Gap Road
- The proposed site land use and access plan
- Estimates of average weekday (24 hour) and weekday peak-hour trip generation for the proposed development and the estimated directional distribution of site-generated vehicle trips on the streets and intersections adjacent to the site
- Projected site-generated and resulting total peak-hour intersection traffic volumes at the site access points on Templeton Gap Road and Wolf Ridge Road
- Projected total daily and peak-hour traffic volumes at the study intersection
- Intersection level of service analysis at the study intersections and site accesses
- Findings and recommendations

LAND USE AND ACCESS

Figure 1 shows the site location relative to the adjacent and nearby streets. As shown, the development is proposed to be located northeast of the Templeton Gap Road/Wolf Ridge Road intersection. The proposed residential development is proposed to contain approximately 172 multi-family dwelling units.

Figure 2 provides the proposed site plan. As shown in the figure, two access points are proposed with one located on Templeton Gap Road and the second on Wolf Ridge Road. The accesses must meet the City sight distance requirements of 390 feet for the Templeton Gap Road access and 335 feet for the Wolf Ridge Road access.

ROAD AND TRAFFIC CONDITIONS

Figure 1 shows the streets adjacent to and in the vicinity of the site. Adjacent streets serving the site are identified below followed by a brief description of each:

Tutt Boulevard is a north/south minor arterial street that extends north from Constitution Avenue to Cowpoke Road on the east side of Powers Boulevard. Tutt Boulevard is planned to be extended north to Research Parkway. In the vicinity of the site, Tutt Boulevard is a four-lane Minor Arterial with a raised median and a posted speed limit of 30 miles per hour (mph). The intersections of Sisters Grove/Tutt, Powerwood View/Tutt, and Templeton Gap Road/Tutt have all been constructed as two-lane modern roundabouts.

Templeton Gap Road consists of many discontinuous sections that extend northeast through Colorado Springs. The section of Templeton Gap Road in the vicinity of the site has one through lane in each direction and has a posted speed limit of 35 mph. There are left-turn auxiliary lanes at the intersection with Wolf Ridge Road.

Wolf Ridge Road is an east/west roadway that extends between Templeton Gap Road and Black Forest Road. The roadway continues west of Templeton Gap Road to Tutt Boulevard as Stone Mesa Point. The roadway has a three-lane cross-section with a through lane in each direction and a two-way left-turn lane in the center. The posted speed limit is 30 mph.

Existing Traffic Volumes

Vehicular turning movement counts were conducted by LSC in May 2019 at Templeton Gap Road/Wolf Ridge Road. In addition, previously collected count data from September 2018 at the intersection of Tutt Boulevard/Templeton Gap Road has been included.

Figure 3 shows these turning-movement volumes, as well as the average weekday traffic volumes (estimated based on factored peak-hour count data) on the study area streets. Raw count data are attached.

TRIP GENERATION

Estimates of the vehicle trips projected to be generated by the Townhomes at Bradley Crossroads residential development have been made using the nationally published trip generation rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). ITE Land Use Category 220 – “Multi-Family Housing (Low-Rise),” along with corresponding trip generation rates, have been used to develop the trip generation estimates for site buildout.

Table 1 below presents a summary of the estimated site trip generation. A detailed trip generation estimate for the development, including ITE rates for the proposed land uses, is presented in Table 3 (attached).

The proposed residential development is projected to generate approximately 1,250 vehicle-trips on the average weekday during a 24-hour period, with approximately half entering and half exiting the site. During the morning peak hour, approximately 18 entering and 61 exiting vehicle trips would be generated. Approximately 60 entering and 35 exiting vehicle trips would be generated by the site during the evening peak hour.

Table 1: Estimated Site Vehicle-Trip Generation

Analysis Period	Weekday		
	In	Out	Total
Morning Peak Hour	18	61	79
Evening Peak Hour	60	35	95
Daily/24-hour	630	630	1260

TRIP DISTRIBUTION AND ASSIGNMENT

Trip Directional Distribution

Estimating the directional distribution of site-generated vehicle-trips to the study area roads and intersections is a necessary component in determining the site's traffic impacts. Figure 4 shows the percentages of the site-generated vehicle-trips projected to be oriented to and from the site's major approaches. Estimates have been based on the following factors: the proposed new land use, the area street and road system serving the site, and the site's geographic location, relative to other land uses within the City of Colorado Springs and El Paso County.

Site-Generated Traffic

Site-generated traffic volumes at the proposed site access points on Templeton Gap Road and Wolf Ridge Road, as well as at the study intersections, have been calculated by applying the directional distribution percentages estimated by LSC (from Figure 4) to the trip generation estimates (from Table 3). Figure 5 shows the projected site-generated traffic volumes for the weekday morning and evening peak hours.

Existing-Plus-Site-Generated Traffic Volumes

Figure 6a shows the sum of the existing traffic volumes (from Figure 3) and site-generated peak-hour traffic volumes (shown in Figure 5). These volumes represent the projected short-term total traffic following site buildout.

Estimated Future Long-Term Background Traffic Volumes

Figure 7 shows the projected long-term background traffic volumes for the year 2040. Background volumes include increases in through traffic and trips generated by other area future development, but do **not** include projected traffic to be generated by the proposed residential development. Estimated long-term background traffic volumes on Templeton Gap Road, Tutt Boulevard, and Wolf Ridge Road have been based in-part on estimates from the Watermark at Greenbriar report. The background traffic also includes all master plan parcels that have yet to be developed within the area bounded by Powers Boulevard, Woodmen Road, Black Forest Road, and Dublin Boulevard.

Future Long-Term Total Traffic Volumes

Figure 8a shows the projected 2040 total traffic volumes, which are the sum of long-term background traffic volumes (from Figure 7) plus site-generated traffic volumes (from Figure 5).

LEVEL OF SERVICE ANALYSIS

The following intersections have been analyzed to determine the projected morning and evening peak-hour intersection levels of service for short- and long-term traffic scenarios:

- Templeton Gap Road/Wolf Ridge Road
- Tutt Boulevard/Templeton Gap Road
- Templeton Gap Road/Site Access
- Wolf Ridge Road/Site Access

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from “A” to “F.” LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 2 shows the level of service delay ranges for signalized and unsignalized intersections.

Table 2: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) ⁽¹⁾
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more
(1) For unsignalized intersections, if V/C ratio is greater than 1.0 the level of service is LOS F, regardless of the projected average control delay per vehicle.		

Levels of service, lane geometry, and traffic control are provided in Figure 3, Figure 6b, Figure 7, and Figure 8b for the existing, existing + site-generated, long-term background, and long-term background + site-generated scenarios, respectively.

Tutt Boulevard/Templeton Gap Road

The roundabout at the intersection of Tutt Boulevard/Templeton Gap Road currently operates at LOS A during both peak hours and is forecast to continue to operate at LOS A in all future scenarios. All movements are anticipated to operate at LOS B or better.

Templeton Gap Road/Wolf Ridge Road

The yielding turn movements at the unsignalized intersection of Templeton Gap Road/Wolf Ridge Road currently operate at LOS B or better during both peak hours. The turning movements are forecast to operate at LOS C or better in all future scenarios during both peak hours.

Site Access Points

The yielding movements at the site access points on Templeton Gap Road and Wolf Ridge Road are anticipated to operate at LOS B or better with the site-generated traffic in both the short- and long-term scenarios.

AUXILIARY TURN LANE ANALYSIS

There is a two-way left-turn lane on Wolf Ridge Road, which would be used for eastbound left-turning vehicles at the Wolf Ridge Road site access.

The projected turning volumes at the Templeton Gap Road site access are not projected to require auxiliary lanes.

PEDESTRIAN CROSSING

Due to the presence of Vista Ridge High School across Wolf Ridge Road, it is recommended that a pedestrian crossing be provided. Figure 9 provides the approximate location, as well as conceptual signing and striping, for the crossing. As shown, the crossing should be located at the top of the vertical curve, located approximately 215 feet east of the proposed site access. Each approach should be signed with a pedestrian school crossing sign (S1-1) and supplemental diagonal arrow plaque (W16-7P). Pedestrian ramps will be required on both sides of the crosswalk. There should be advance warning signs (S1-1 and W16-9P) on each approach. Additionally, the 50 feet prior to the crosswalk on each approach should be signed with "No Parking, Stopping, or Standing" signs.

CONCLUSIONS

- The site is projected to generate approximately 1,260 new driveway vehicle trips on the average weekday.
- During the weekday morning peak hour of adjacent street traffic, 18 vehicles would enter and 61 vehicles would exit the site.
- During the weekday evening peak hour of adjacent street traffic, 60 vehicles would enter and 35 vehicles would exit the site.
- All individual turning movements and approaches at all studied intersections are projected to operate at LOS C or better during both peak hours, through the 2040 horizon year. No

auxiliary lanes are required to be constructed, based on traffic projected to be generated by the development.

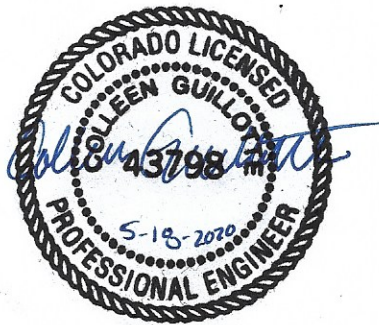
- A crosswalk should be signed and striped at the top of the vertical curve, approximately 215 feet east of the site access. See the Pedestrian Crossing section for additional information.

* * * * *

Please contact me if you have any questions regarding this report.

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.



By: Colleen Guilloe, P.E., PTOE
Project Manager

CRG:jas

Enclosures: Table 3
Figure 1 - Figure 8
Traffic Count Reports
Synchro LOS Reports

Contents

REPORT CONTENTS	1
LAND USE AND ACCESS	2
ROAD AND TRAFFIC CONDITIONS	2
Existing Traffic Volumes	3
TRIP GENERATION	3
TRIP DISTRIBUTION AND ASSIGNMENT	4
Trip Directional Distribution	4
Site-Generated Traffic	4
Existing-Plus-Site-Generated Traffic Volumes	4
Estimated Future Long-Term Background Traffic Volumes	4
Future Long-Term Total Traffic Volumes	4
LEVEL OF SERVICE ANALYSIS	5
Tutt Boulevard/Templeton Gap Road	5
Templeton Gap Road/Wolf Ridge Road	6
Site Access Points	6
AUXILIARY TURN LANE ANALYSIS	6
PEDESTRIAN CROSSING	6
CONCLUSIONS	6
Enclosures	7

Tables and Figures

ITE		Value	Units	Trip Generation Rates ⁽¹⁾					Total Trips Generated				
				Average	A.M.		P.M.		Average	A.M.		P.M.	
Code	Description			Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
220	Multi-Family Housing (Low-Rise)	172	DU	7.32	0.11	0.36	0.35	0.21	1259	18	61	60	35
(1) DU = dwelling units													
(2) Source: Trip Generation, 10th Edition, 2017, by the Institute of Transportation Engineers (ITE)													

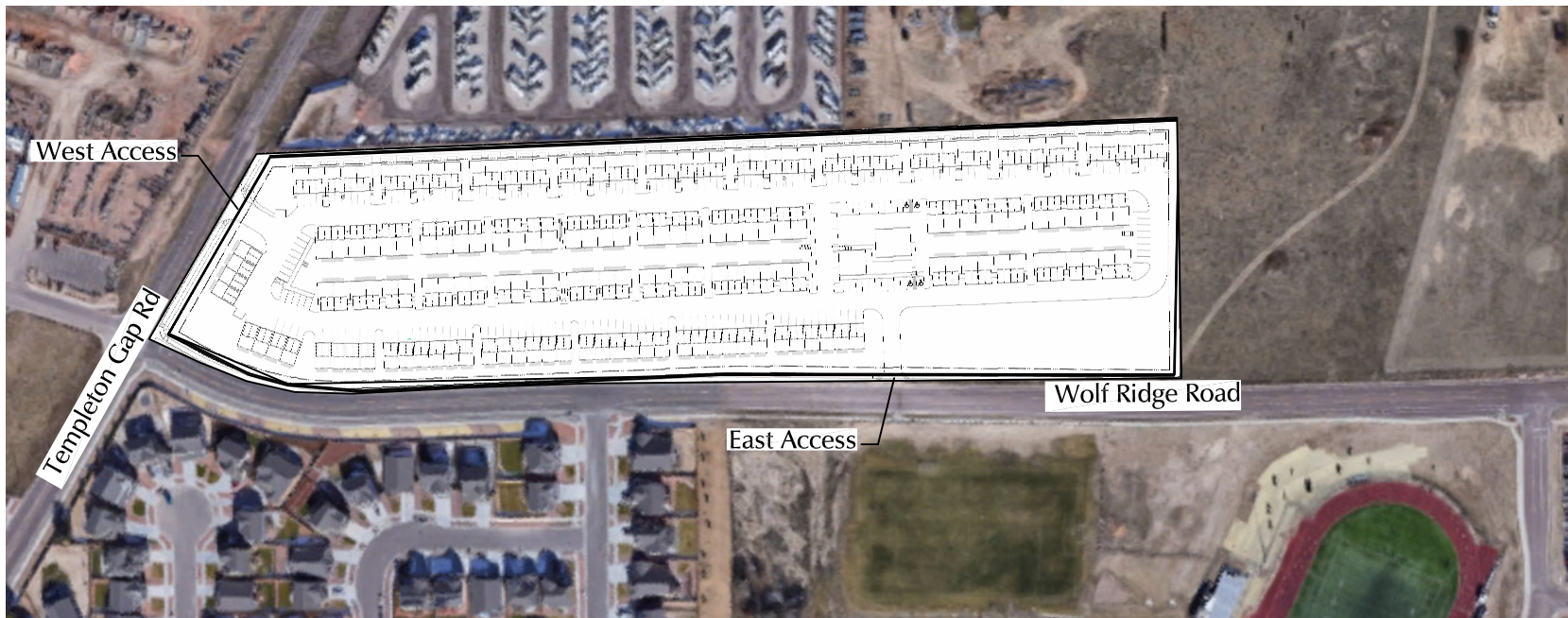
(2) Source: Trip Generation, 10th Edition, 2017, by the Institute of Transportation Engineers (ITE)

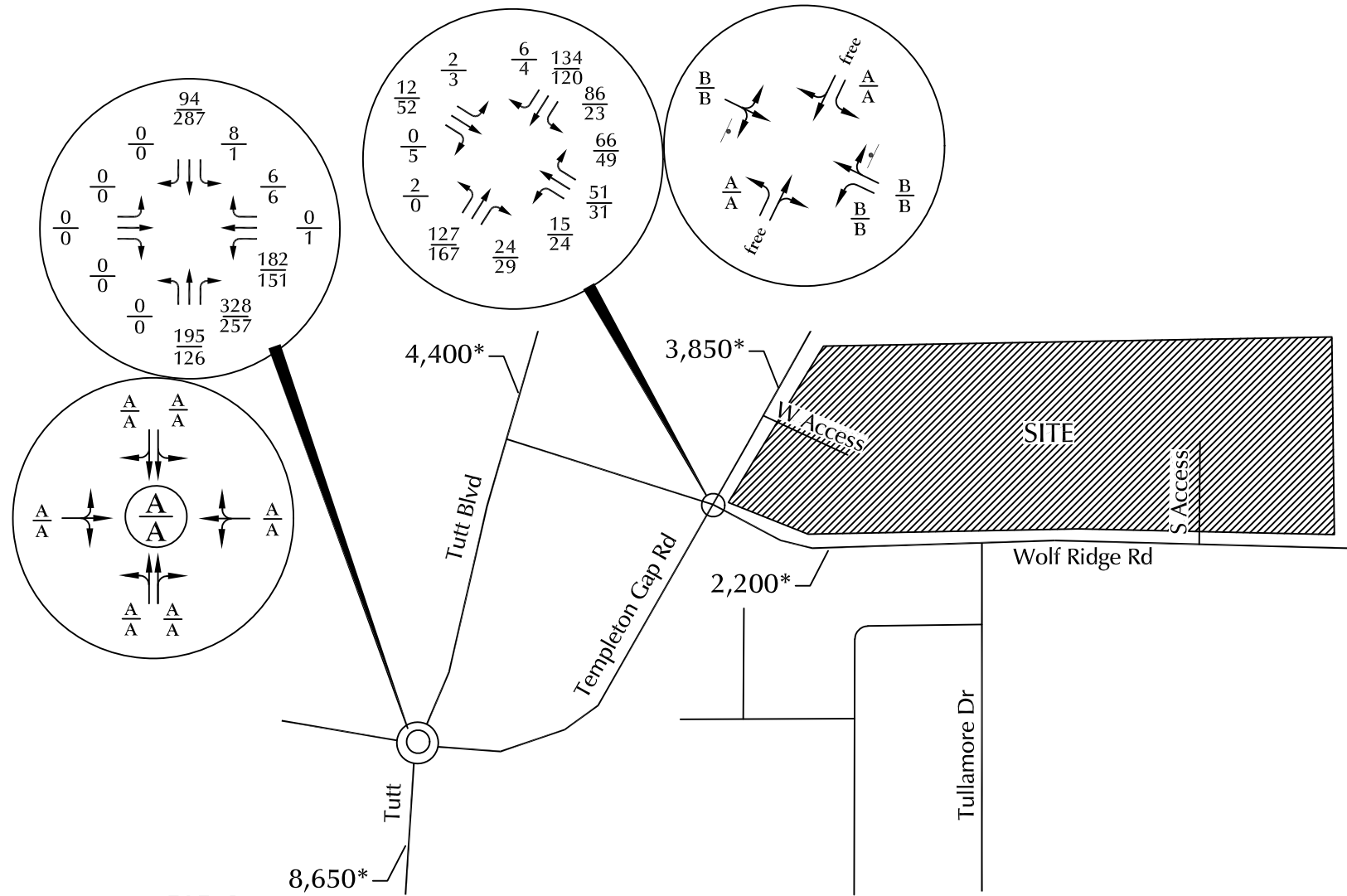


Not to
scale



Not to
scale





LEGEND:

XX = AM Weekday Peak-Hour Traffic (veh/hr)
 XX = PM Weekday Peak-Hour Traffic (veh/hr) X,XXX = Average Daily Traffic

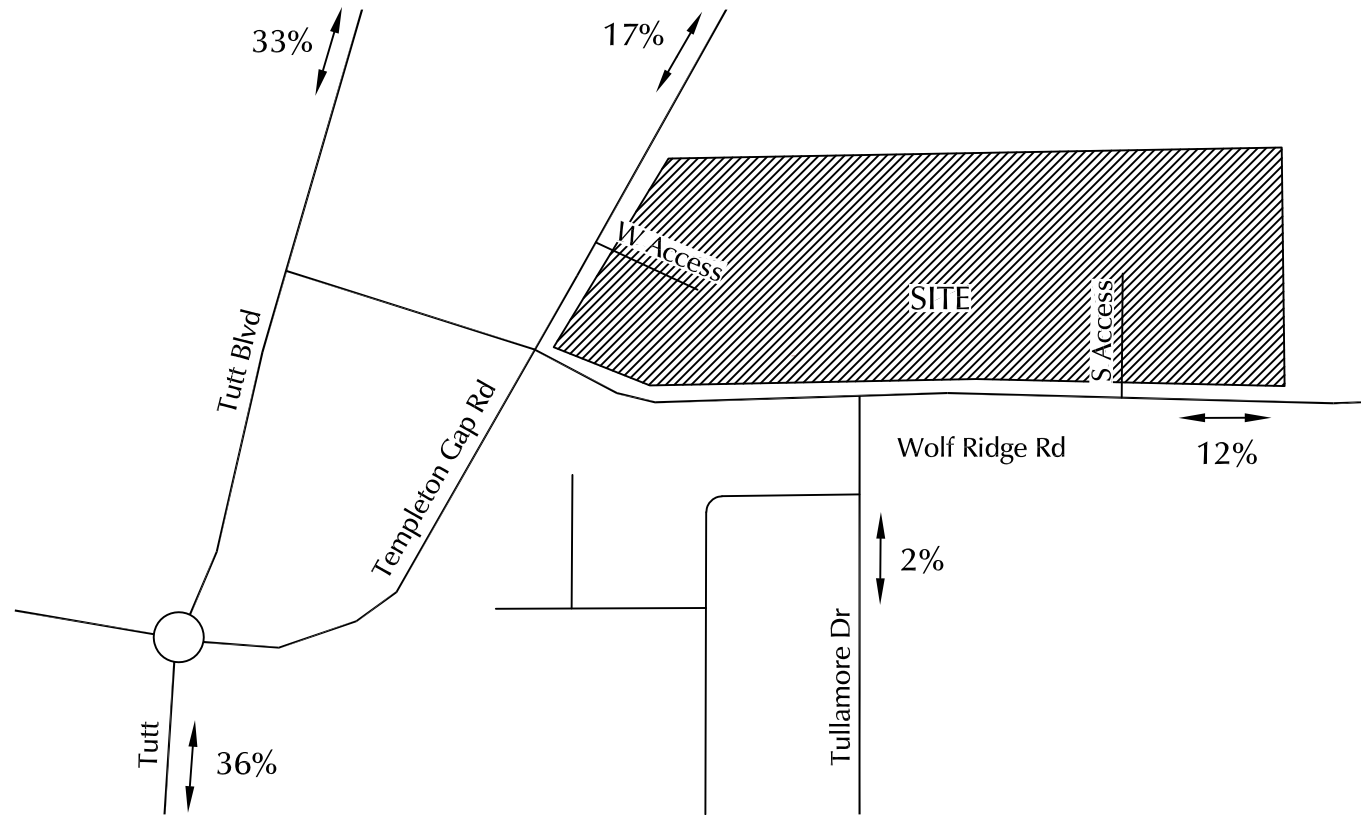
X = AM Weekday Peak-Hour LOS
 X = PM Weekday Peak-Hour LOS *Estimated by LSC

Counts by LSC (May 2019)

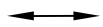
⊥ = Stop Sign LOS = level of service



Figure 3
**Existing Traffic, Lane
 Geometry, and Traffic Control**
 Galiant Townhomes (LSC #194450)



LEGEND:

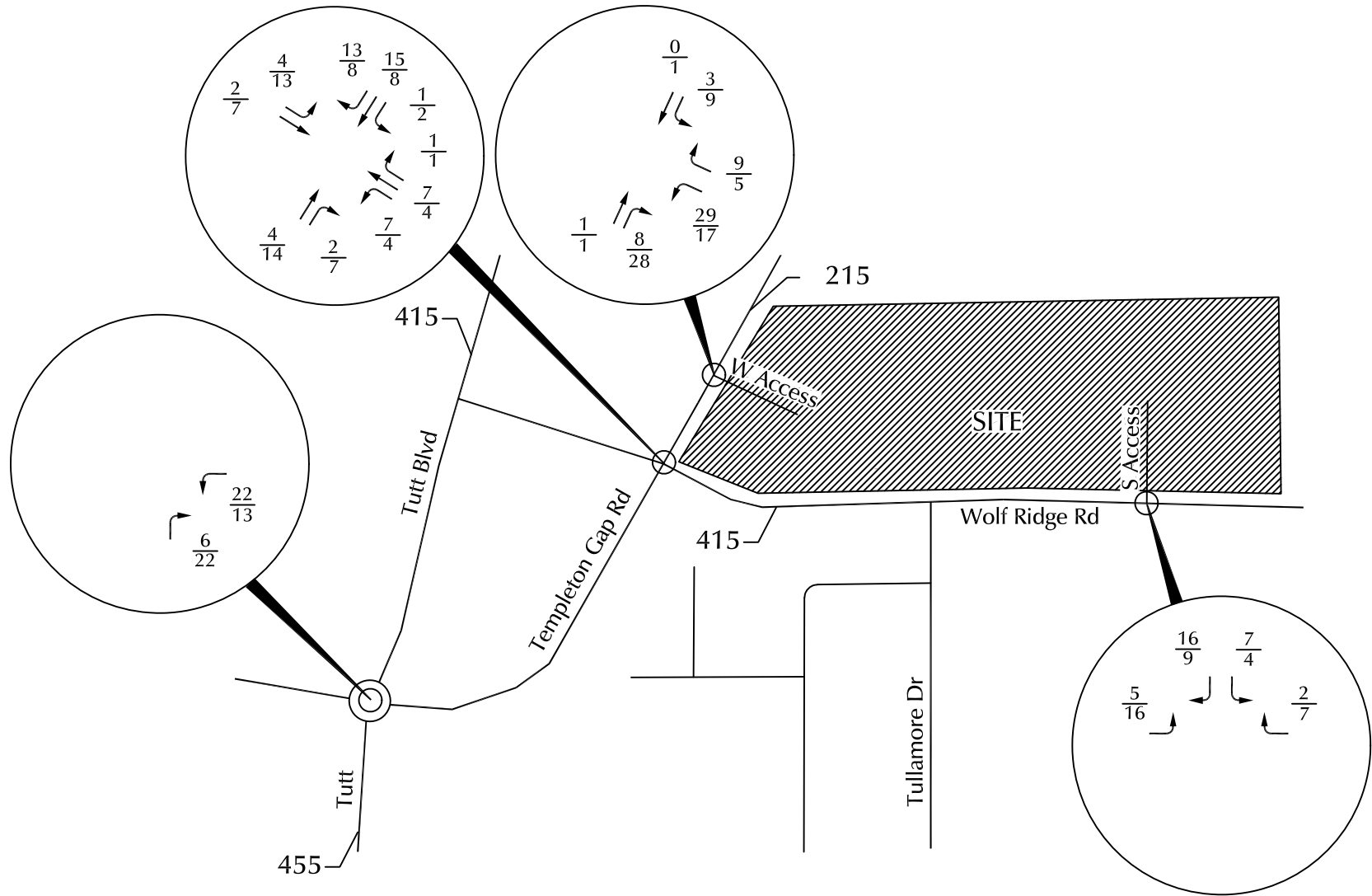


XX% = Percent Directional Distribution



Figure 4
Directional Distribution

Galiant Townhomes (LSC #194450)

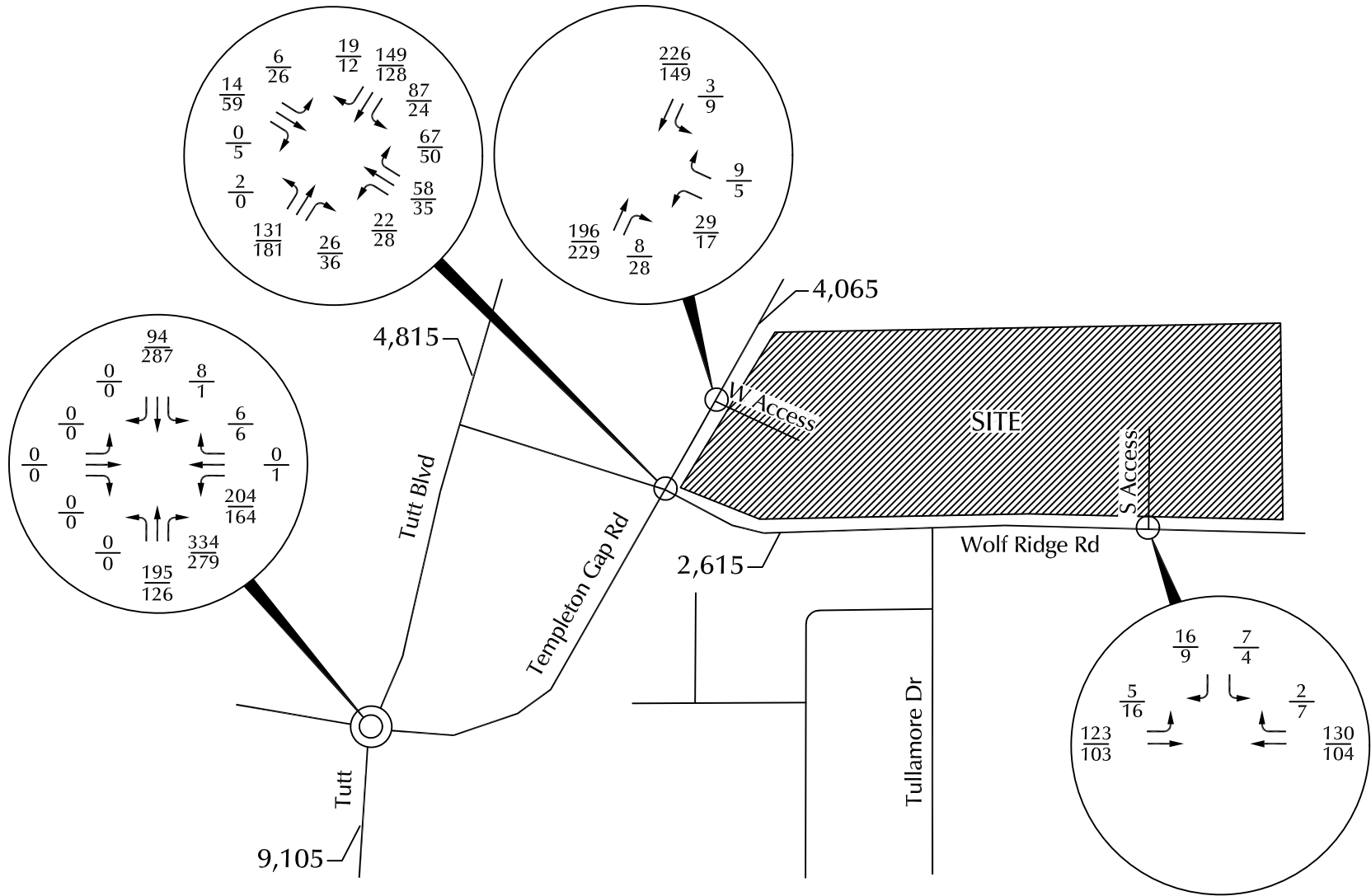


LEGEND:

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (veh/hr)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (veh/hr)

X,XXX = Average Daily Traffic

Figure 5
Site-Generated Traffic
 Galiant Townhomes (LSC #194450)



LEGEND:

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (veh/hr)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (veh/hr)

X,XXX = Average Daily Traffic

Figure 6a
Existing + Site Traffic
 Galiant Townhomes (LSC #194450)

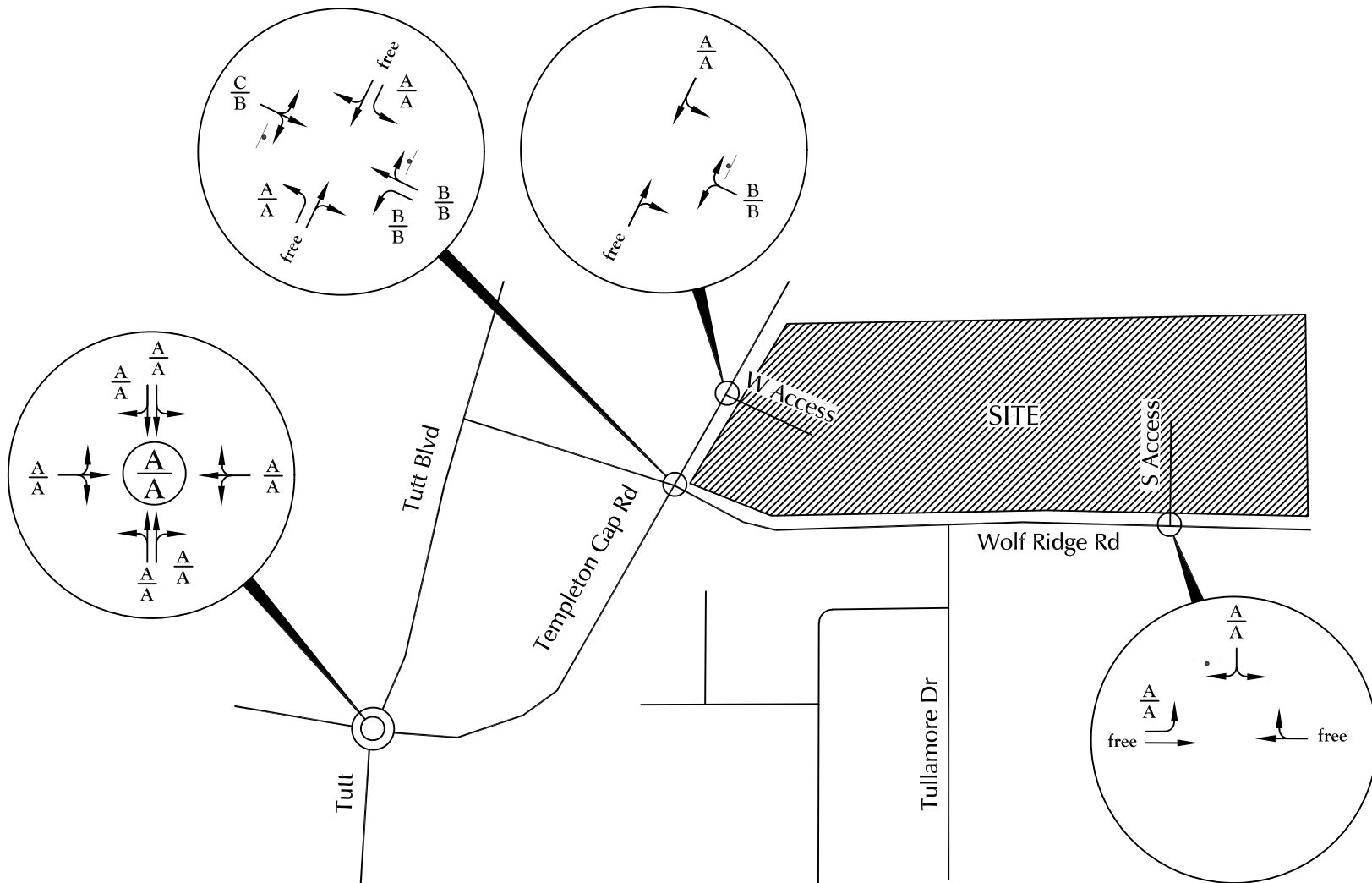


Figure 6b
**Existing + Site Lane
 Geometry, and Traffic Control**
 Galiant Townhomes (LSC #194450)

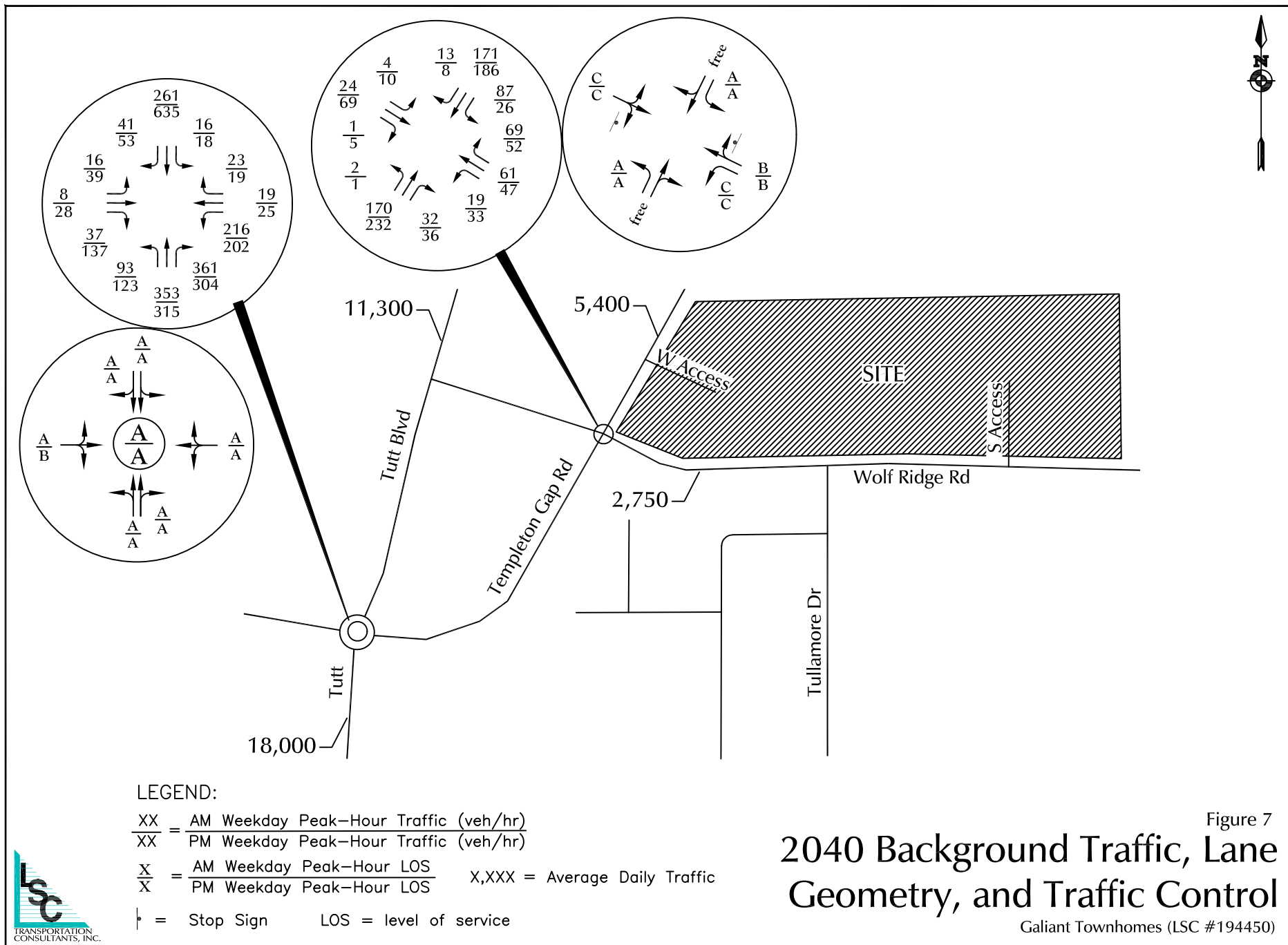


Figure 7
 2040 Background Traffic, Lane
 Geometry, and Traffic Control

Gaiant Townhomes (LSC #194450)

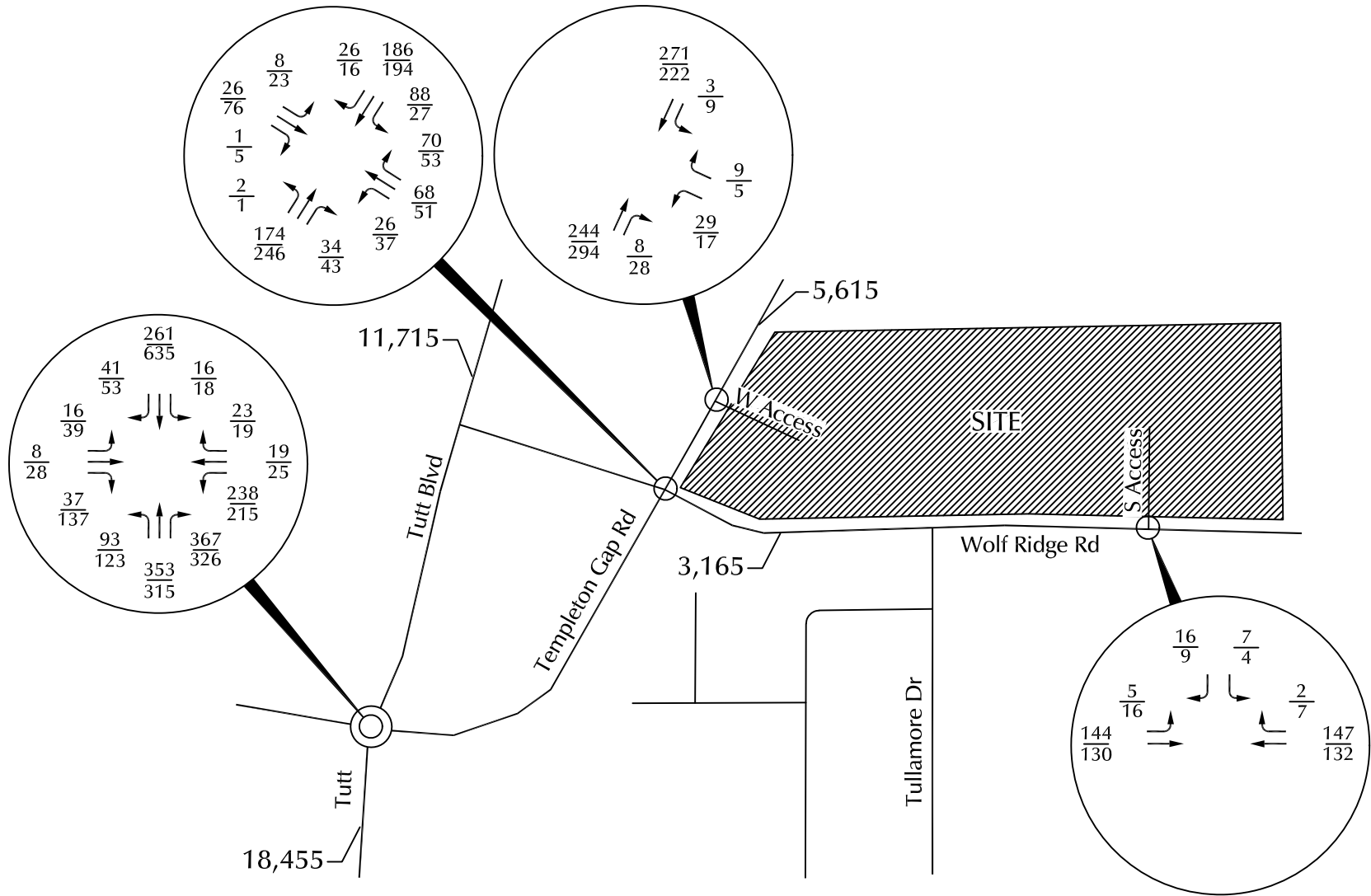


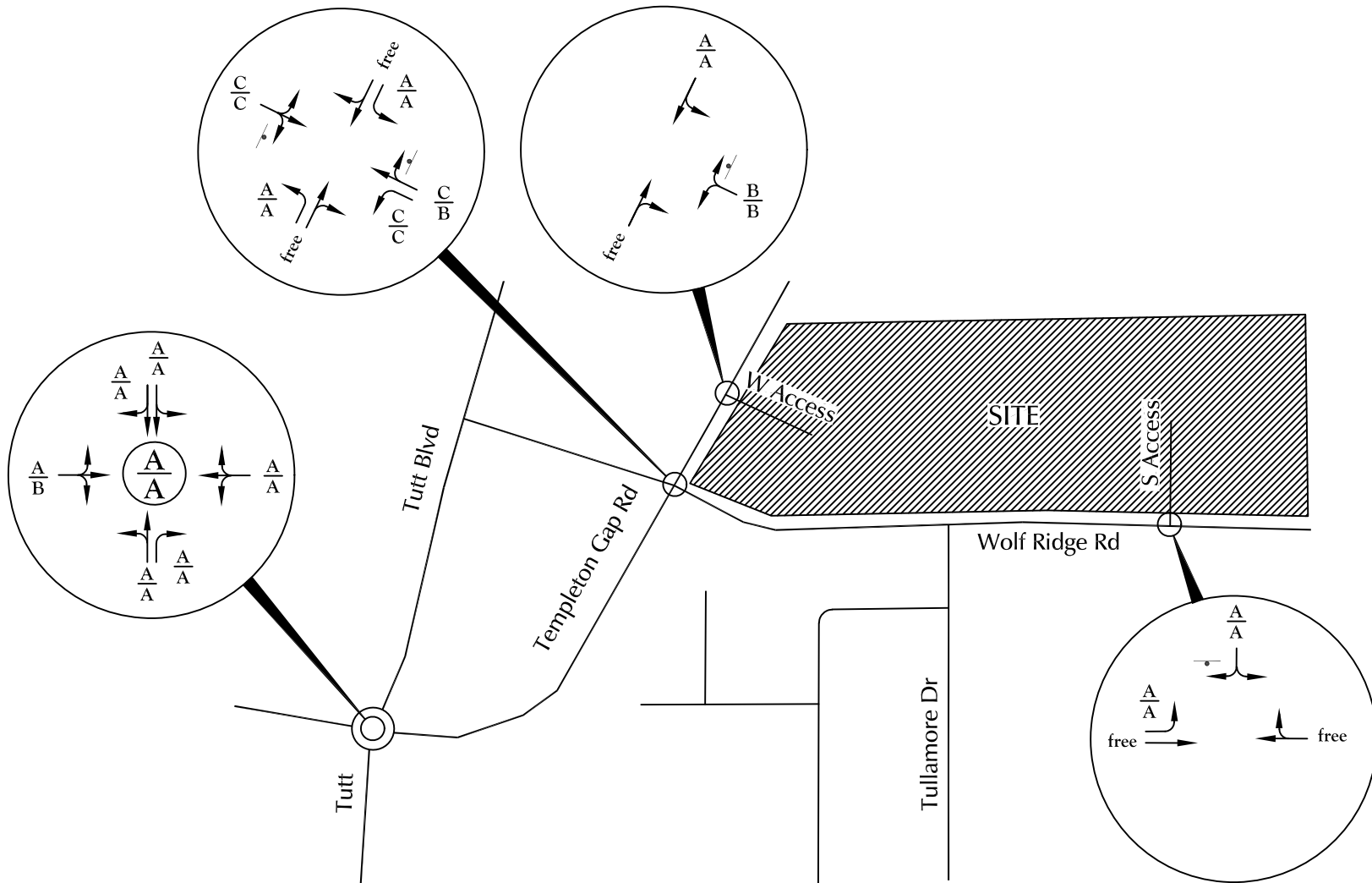
Figure 8a
2040 Background + Site Traffic, Lane
Geometry, and Traffic Control

Galiant Townhomes (LSC #194450)



LEGEND:

XX = AM Weekday Peak-Hour Traffic (veh/hr)
XX = PM Weekday Peak-Hour Traffic (veh/hr) X,XXX = Average Daily Traffic



LEGEND:

$$\frac{X}{X} = \frac{\text{AM Weekday Peak-Hour LOS}}{\text{PM Weekday Peak-Hour LOS}}$$

⊥ = Stop Sign LOS = level of service

2040 Background + Site Lane Geometry, and Traffic Control

Galiant Townhomes (LSC #194450)

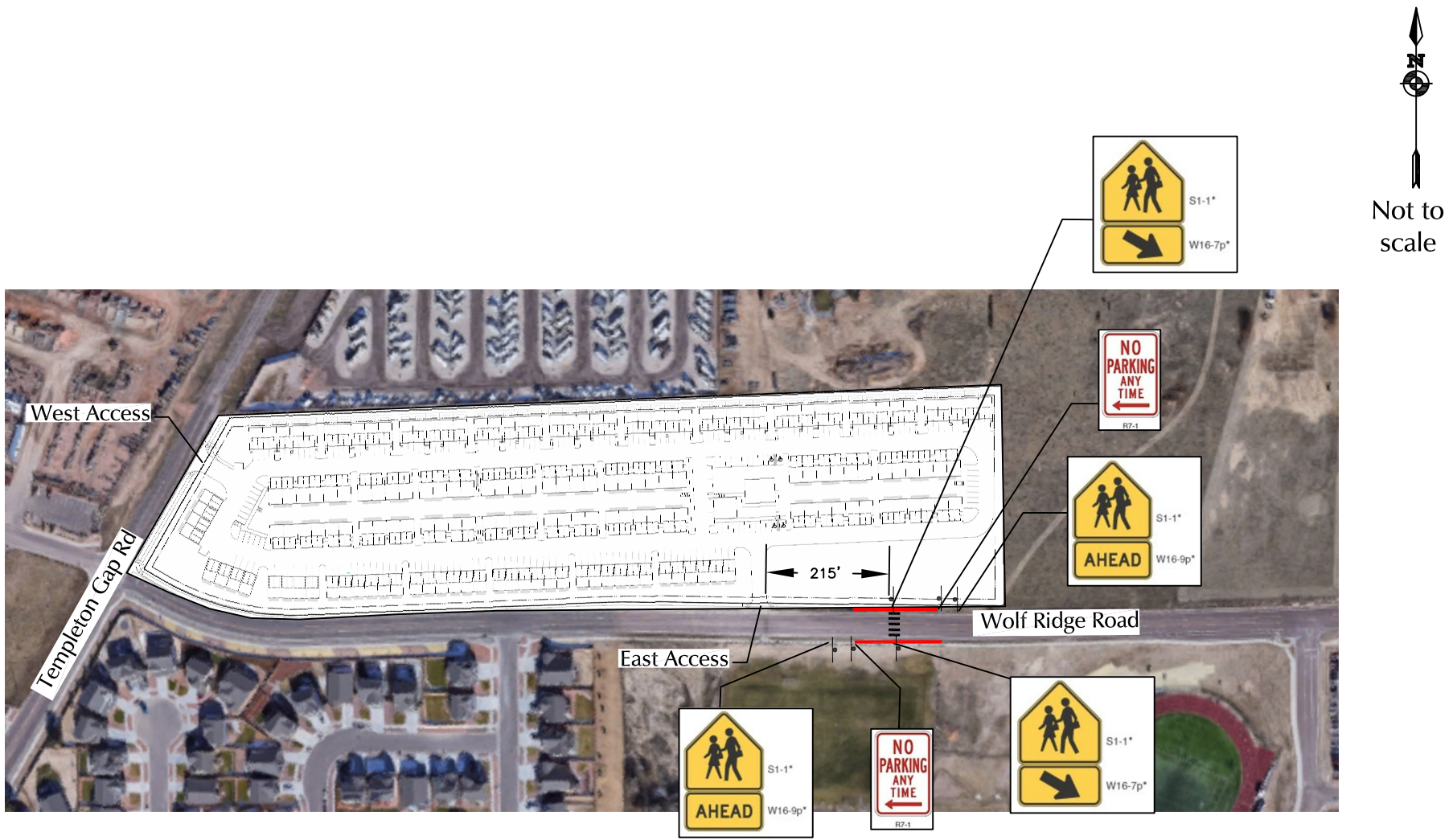


Figure 9
Conceptual Pedestrian Crossing
Galiant Townhomes (LSC #194450)

Traffic Counts

LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name : Templeton Gap Rd - Wolf Ridge Rd AM

Site Code : 194450

Start Date : 5/9/2019

Page No : 1

Groups Printed- Unshifted

	Templeton Gap Rd Southbound				Wolf Ridge Rd Westbound				Templeton Gap Rd Northbound				Stone Mesa Pt Eastbound				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:30	3	13	2	0	2	8	3	0	0	7	2	0	0	3	0	0	43
06:45	18	25	2	0	3	13	6	0	1	10	13	0	0	3	0	0	94
Total	21	38	4	0	5	21	9	0	1	17	15	0	0	6	0	0	137
07:00	15	21	0	0	6	7	5	0	0	13	6	0	0	6	0	0	79
07:15	14	31	1	0	0	17	8	0	0	27	14	0	0	7	0	0	119
07:30	13	34	3	0	3	18	15	0	0	30	6	0	0	1	0	0	123
07:45	24	37	3	0	3	13	20	0	1	31	7	0	1	5	0	0	145
Total	66	123	7	0	12	55	48	0	1	101	33	0	1	19	0	0	466
08:00	38	32	0	0	4	10	15	0	0	31	2	0	1	3	0	0	136
08:15	11	31	0	0	5	10	16	0	1	35	9	0	0	3	0	0	121
Grand Total	136	224	11	0	26	96	88	0	3	184	59	0	2	31	0	0	860
Apprch %	36.7	60.4	3	0	12.4	45.7	41.9	0	1.2	74.8	24	0	6.1	93.9	0	0	
Total %	15.8	26	1.3	0	3	11.2	10.2	0	0.3	21.4	6.9	0	0.2	3.6	0	0	

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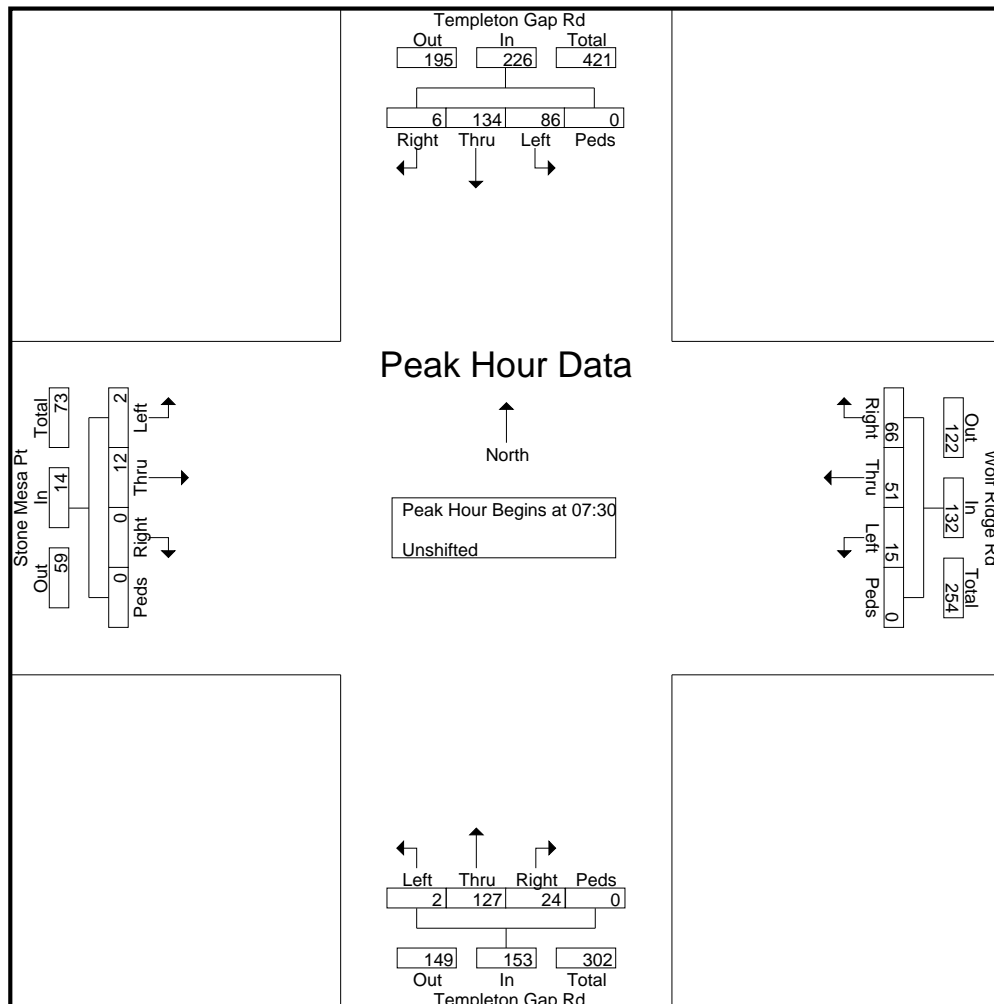
File Name : Templeton Gap Rd - Wolf Ridge Rd AM

Site Code : 194450

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Page No : 2

	Templeton Gap Rd Southbound					Wolf Ridge Rd Westbound					Templeton Gap Rd Northbound					Stone Mesa Pt Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	13	34	3	0	50	3	18	15	0	36	0	30	6	0	36	0	1	0	0	1	123
07:45	24	37	3	0	64	3	13	20	0	36	1	31	7	0	39	1	5	0	0	6	145
08:00	38	32	0	0	70	4	10	15	0	29	0	31	2	0	33	1	3	0	0	4	136
08:15	11	31	0	0	42	5	10	16	0	31	1	35	9	0	45	0	3	0	0	3	121
Total Volume	86	134	6	0	226	15	51	66	0	132	2	127	24	0	153	2	12	0	0	14	525
% App. Total	38.1	59.3	2.7	0		11.4	38.6	50	0		1.3	83	15.7	0		14.3	85.7	0	0		
PHF	.566	.905	.500	.000	.807	.750	.708	.825	.000	.917	.500	.907	.667	.000	.850	.500	.600	.000	.000	.583	.905



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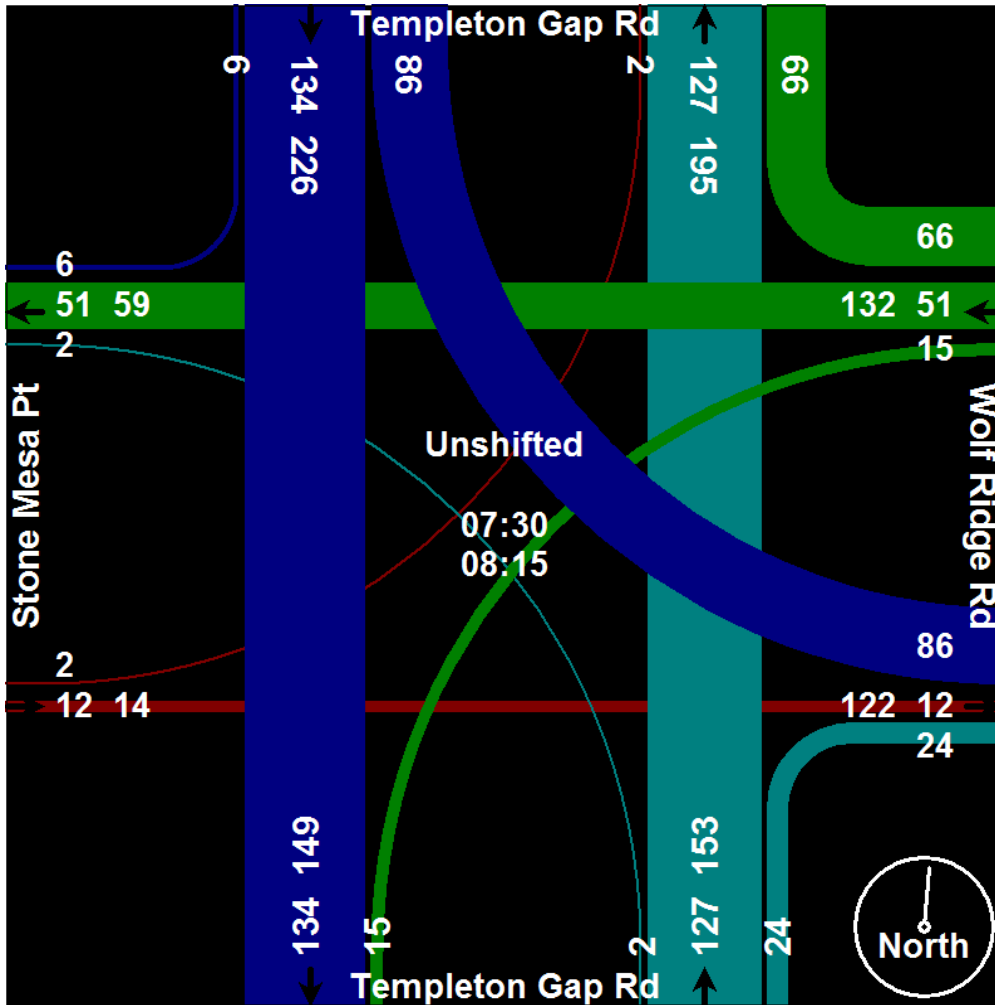
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	Templeton Gap Rd Southbound				Wolf Ridge Rd Westbound				Templeton Gap Rd Northbound				Stone Mesa Pt Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	5	30	1	0	4	8	11	0	0	48	9	0	0	9	1	0	126
16:15	5	31	2	0	6	11	18	0	0	35	7	0	1	14	1	0	131
16:30	11	33	1	0	9	6	14	0	0	36	5	0	0	14	1	0	130
16:45	2	26	0	0	5	6	6	0	0	48	8	0	2	15	2	0	120
Total	23	120	4	0	24	31	49	0	0	167	29	0	3	52	5	0	507
17:00	7	23	3	0	4	5	8	0	0	52	1	0	3	18	1	0	125
17:15	6	21	0	0	5	4	8	0	0	41	13	0	2	17	0	0	117
17:30	5	23	0	0	3	1	4	0	0	47	10	0	3	13	1	0	110
17:45	16	15	0	0	4	8	5	0	0	34	8	0	1	22	2	0	115
Total	34	82	3	0	16	18	25	0	0	174	32	0	9	70	4	0	467
Grand Total	57	202	7	0	40	49	74	0	0	341	61	0	12	122	9	0	974
Apprch %	21.4	75.9	2.6	0	24.5	30.1	45.4	0	0	84.8	15.2	0	8.4	85.3	6.3	0	
Total %	5.9	20.7	0.7	0	4.1	5	7.6	0	0	35	6.3	0	1.2	12.5	0.9	0	

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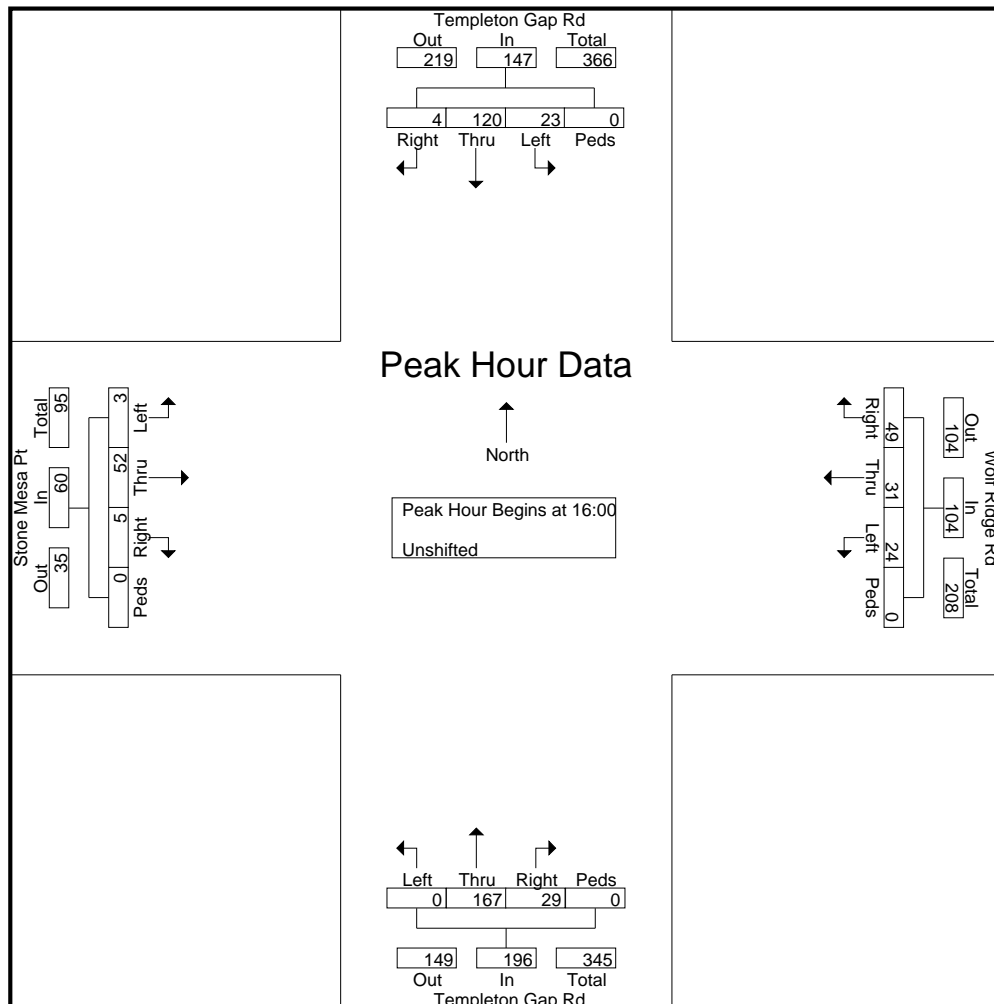
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Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	5	30	1	0	36	4	8	11	0	23	0	48	9	0	57	0	9	1	0	10	126
16:15	5	31	2	0	38	6	11	18	0	35	0	35	7	0	42	1	14	1	0	16	131
16:30	11	33	1	0	45	9	6	14	0	29	0	36	5	0	41	0	14	1	0	15	130
16:45	2	26	0	0	28	5	6	6	0	17	0	48	8	0	56	2	15	2	0	19	120
Total Volume	23	120	4	0	147	24	31	49	0	104	0	167	29	0	196	3	52	5	0	60	507
% App. Total	15.6	81.6	2.7	0		23.1	29.8	47.1	0		0	85.2	14.8	0		5	86.7	8.3	0		
PHF	.523	.909	.500	.000	.817	.667	.705	.681	.000	.743	.000	.870	.806	.000	.860	.375	.867	.625	.000	.789	.968



LSC Transportation Consultants, Inc.

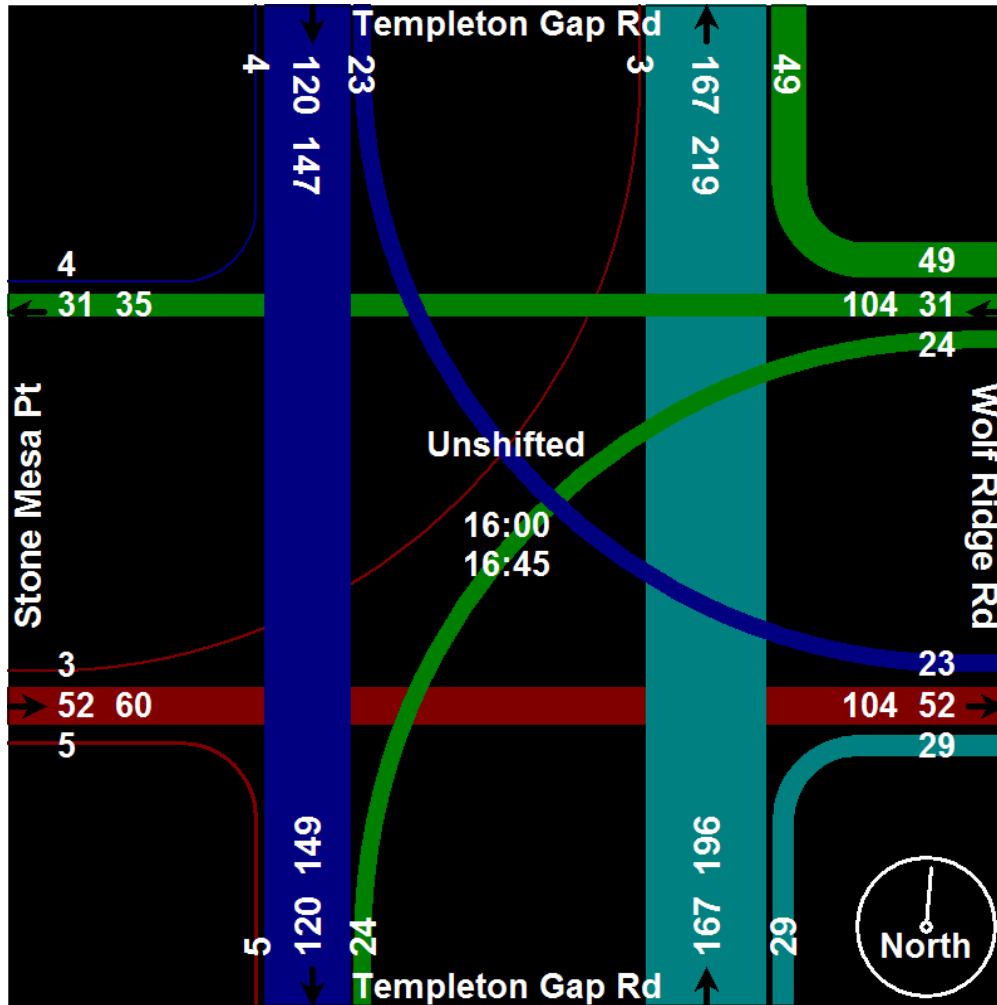
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Colorado Springs, CO 80905

719-633-2868

File Name : Tutt Blvd - Wolf Ridge Rd AM

Site Code : 00184850

Start Date : 9/11/2018

Page No : 1

Groups Printed- Unshifted

	Tutt Blvd Southbound				Wolf Ridge Rd Westbound				Tutt Blvd Northbound				Wolf Ridge Rd Eastbound				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:30	0	9	0	0	18	0	0	0	0	30	31	0	0	0	0	0	88
06:45	0	14	0	0	23	0	0	0	0	54	57	0	0	0	0	0	148
Total	0	23	0	0	41	0	0	0	0	84	88	0	0	0	0	0	236
07:00	2	13	0	2	33	0	1	1	0	33	95	0	0	0	0	0	180
07:15	6	29	0	0	55	0	2	0	0	52	132	0	0	0	0	0	276
07:30	0	25	0	0	48	0	3	0	0	43	54	0	0	0	0	0	173
07:45	0	27	0	0	46	0	0	0	0	67	47	0	0	0	0	0	187
Total	8	94	0	2	182	0	6	1	0	195	328	0	0	0	0	0	816
08:00	1	23	0	0	36	0	0	0	0	46	40	0	0	0	0	0	146
08:15	0	25	0	0	19	0	3	0	0	50	34	0	0	0	0	0	131
Grand Total	9	165	0	2	278	0	9	1	0	375	490	0	0	0	0	0	1329
Apprch %	5.1	93.8	0	1.1	96.5	0	3.1	0.3	0	43.4	56.6	0	0	0	0	0	
Total %	0.7	12.4	0	0.2	20.9	0	0.7	0.1	0	28.2	36.9	0	0	0	0	0	

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Colorado Springs, CO 80905

719-633-2868

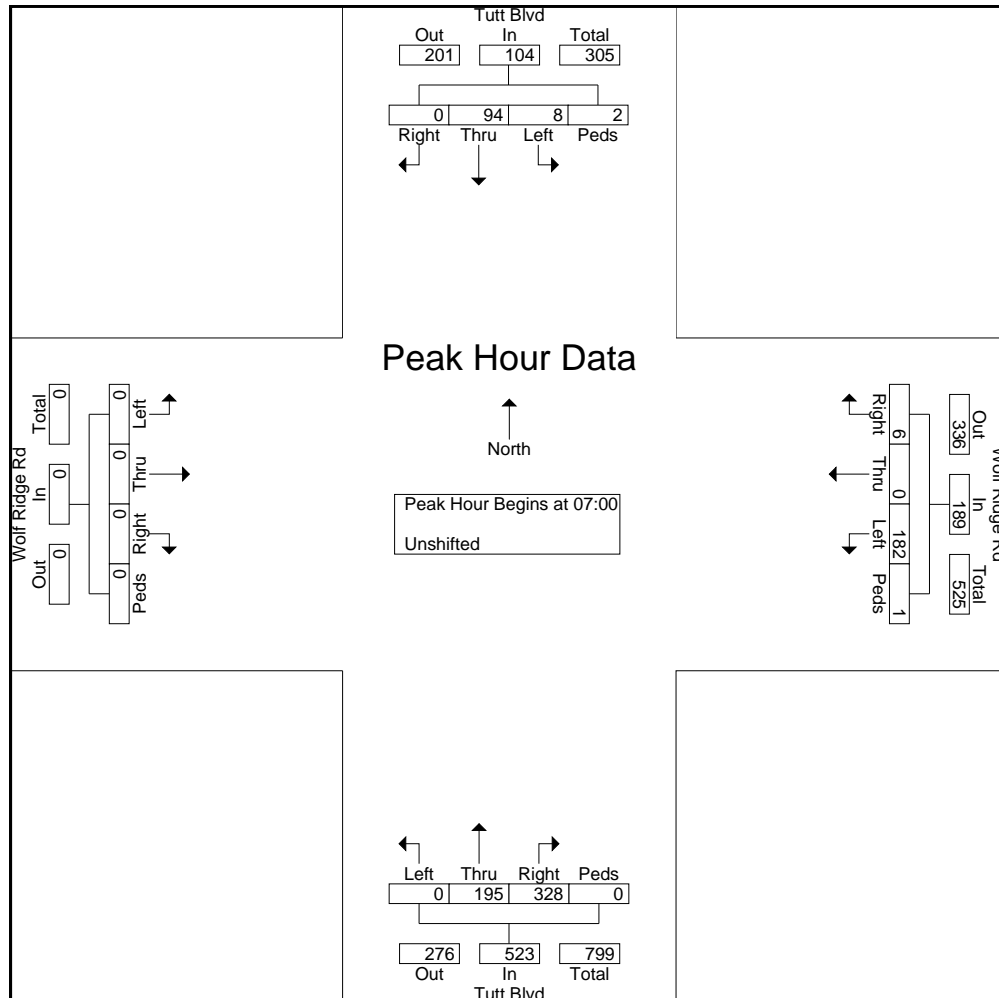
File Name : Tutt Blvd - Wolf Ridge Rd AM

Site Code : 00184850

Start Date : 9/11/2018

Page No : 2

	Tutt Blvd Southbound					Wolf Ridge Rd Westbound					Tutt Blvd Northbound					Wolf Ridge Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	2	13	0	2	17	33	0	1	1	35	0	33	95	0	128	0	0	0	0	0	180
07:15	6	29	0	0	35	55	0	2	0	57	0	52	132	0	184	0	0	0	0	0	276
07:30	0	25	0	0	25	48	0	3	0	51	0	43	54	0	97	0	0	0	0	0	173
07:45	0	27	0	0	27	46	0	0	0	46	0	67	47	0	114	0	0	0	0	0	187
Total Volume	8	94	0	2	104	182	0	6	1	189	0	195	328	0	523	0	0	0	0	0	816
% App. Total	7.7	90.4	0	1.9		96.3	0	3.2	0.5		0	37.3	62.7	0		0	0	0	0		
PHF	.333	.810	.000	.250	.743	.827	.000	.500	.250	.829	.000	.728	.621	.000	.711	.000	.000	.000	.000	.000	.739



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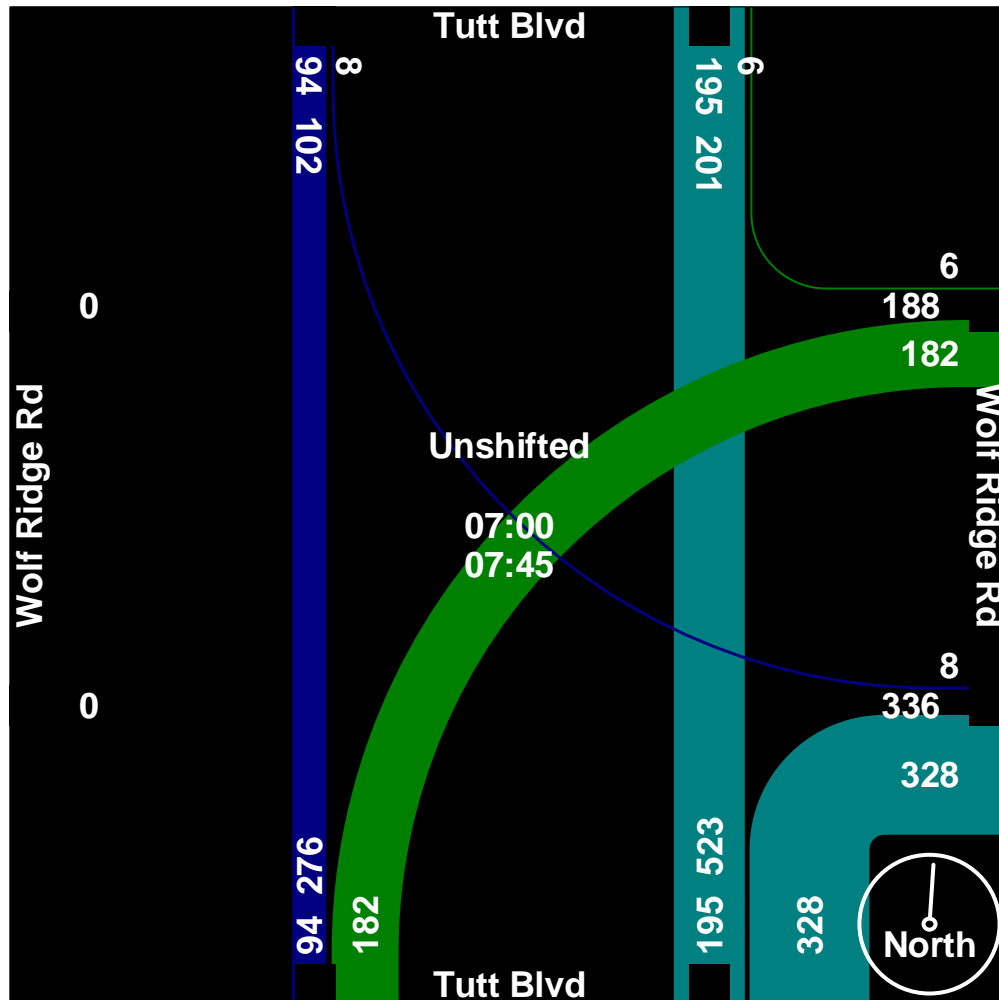
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719-633-2868

File Name : Tutt Blvd - Wolf Ridge Rd AM

Site Code : 00184850

Start Date : 9/11/2018

Page No : 3



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719-633-2868

File Name : Tutt Blvd - Wolf Ridge Rd PM

Site Code : 00184850

Start Date : 9/10/2018

Page No : 1

Groups Printed- Unshifted

	Tutt Blvd Southbound				Wolf Ridge Rd Westbound				Tutt Blvd Northbound				Wolf Ridge Rd Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	2	58	0	0	40	0	0	0	1	22	41	0	0	0	0	0	164
16:15	0	71	0	1	36	0	0	0	0	18	44	0	0	0	0	0	170
16:30	0	87	0	1	33	0	1	0	0	28	64	1	0	0	0	0	215
16:45	0	51	0	1	40	1	1	0	0	36	65	0	0	0	0	0	195
Total	2	267	0	3	149	1	2	0	1	104	214	1	0	0	0	0	744
17:00	1	77	0	0	38	0	3	0	0	31	62	0	0	0	0	0	212
17:15	0	72	0	1	40	0	1	0	0	31	66	1	0	0	0	0	212
17:30	1	53	0	0	33	1	1	0	0	28	58	0	0	0	0	0	175
17:45	1	47	0	0	28	0	0	0	1	17	40	0	0	1	0	0	135
Total	3	249	0	1	139	1	5	0	1	107	226	1	0	1	0	0	734
Grand Total	5	516	0	4	288	2	7	0	2	211	440	2	0	1	0	0	1478
Apprch %	1	98.3	0	0.8	97	0.7	2.4	0	0.3	32.2	67.2	0.3	0	100	0	0	
Total %	0.3	34.9	0	0.3	19.5	0.1	0.5	0	0.1	14.3	29.8	0.1	0	0.1	0	0	

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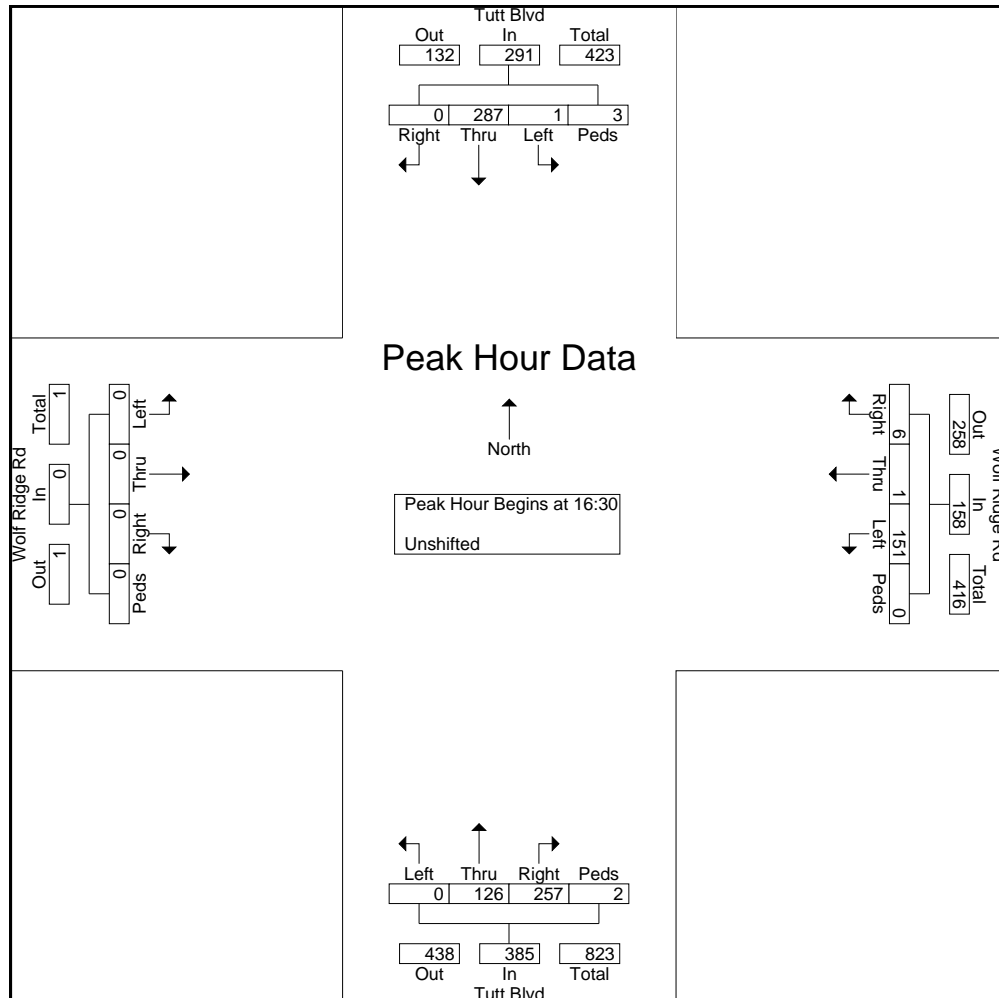
File Name : Tutt Blvd - Wolf Ridge Rd PM

Site Code : 00184850

Start Date : 9/10/2018

Page No : 2

	Tutt Blvd Southbound					Wolf Ridge Rd Westbound					Tutt Blvd Northbound					Wolf Ridge Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	0	87	0	1	88	33	0	1	0	34	0	28	64	1	93	0	0	0	0	0	215
16:45	0	51	0	1	52	40	1	1	0	42	0	36	65	0	101	0	0	0	0	0	195
17:00	1	77	0	0	78	38	0	3	0	41	0	31	62	0	93	0	0	0	0	0	212
17:15	0	72	0	1	73	40	0	1	0	41	0	31	66	1	98	0	0	0	0	0	212
Total Volume	1	287	0	3	291	151	1	6	0	158	0	126	257	2	385	0	0	0	0	0	834
% App. Total	0.3	98.6	0	1		95.6	0.6	3.8	0		0	32.7	66.8	0.5		0	0	0	0		
PHF	.250	.825	.000	.750	.827	.944	.250	.500	.000	.940	.000	.875	.973	.500	.953	.000	.000	.000	.000	.000	.970



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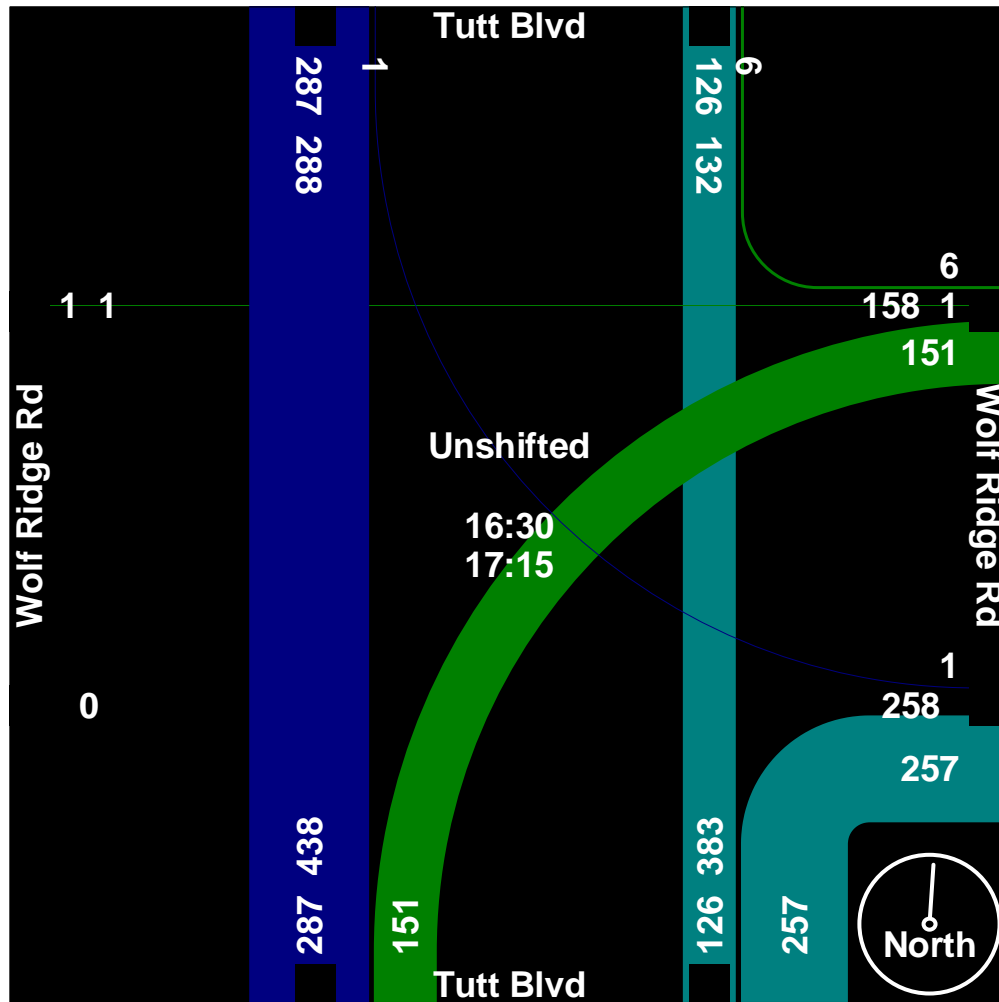
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719-633-2868

File Name : Tutt Blvd - Wolf Ridge Rd PM

Site Code : 00184850

Start Date : 9/10/2018

Page No : 3



Levels of Service

HCM 6th TWSC
3: Templeton Gap Rd & Stone Mesa Pt/Wolf Ridge Rd

2019 Existing
AM Peak Hour

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕		↕	↕	
Traffic Vol, veh/h	2	12	0	15	51	66	2	127	24	86	134	6
Future Vol, veh/h	2	12	0	15	51	66	2	127	24	86	134	6
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	-	-	-	145	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	21	0	16	55	72	2	138	26	98	152	7

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	571	520	156	517	510	151	159	0	0	164	0	0
Stage 1	352	352	-	155	155	-	-	-	-	-	-	-
Stage 2	219	168	-	362	355	-	-	-	-	-	-	-
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	432	461	890	469	467	895	1420	-	-	1414	-	-
Stage 1	665	632	-	847	769	-	-	-	-	-	-	-
Stage 2	783	759	-	657	630	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	340	429	890	428	434	895	1420	-	-	1414	-	-
Mov Cap-2 Maneuver	340	429	-	428	434	-	-	-	-	-	-	-
Stage 1	664	588	-	846	768	-	-	-	-	-	-	-
Stage 2	667	758	-	590	587	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.2		12.5		0.1		2.9	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1420	-	-	414 428 612 1414	-	-	-
HCM Lane V/C Ratio	0.002	-	-	0.058 0.038 0.208 0.069	-	-	-
HCM Control Delay (s)	7.5	-	-	14.2 13.7 12.4 7.7	-	-	-
HCM Lane LOS	A	-	-	B B B A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2 0.1 0.8 0.2	-	-	-








HCM 6th Roundabout
7: Tutt Blvd & Templeton Gap Rd

2019 Existing
AM Peak Hour

Intersection					
Intersection Delay, s/veh	5.0				
Intersection LOS	A				
Approach	EB	WB	NB	SB	
Entry Lanes	0	1	2	2	
Conflicting Circle Lanes	2	2	2	2	
Adj Approach Flow, veh/h	0	226	737	138	
Demand Flow Rate, veh/h	0	230	751	141	
Vehicles Circulating, veh/h	364	280	11	223	
Vehicles Exiting, veh/h	0	482	353	287	
Ped Vol Crossing Leg, #/h	0	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	1.000	
Approach Delay, s/veh	0.0	5.1	5.2	3.7	
Approach LOS	-	A	A	A	
Lane	Left	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LT	R	LT	TR
RT Channelized					
Lane Util	1.000	0.373	0.627	0.468	0.532
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	230	280	471	66	75
Cap Entry Lane, veh/h	1119	1336	1407	1099	1175
Entry HV Adj Factor	0.983	0.980	0.981	0.986	0.978
Flow Entry, veh/h	226	275	462	65	73
Cap Entry, veh/h	1100	1310	1380	1084	1149
V/C Ratio	0.205	0.210	0.335	0.060	0.064
Control Delay, s/veh	5.1	4.5	5.6	3.8	3.7
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	1	0	0

HCM 6th TWSC
3: Templeton Gap Rd & Stone Mesa Pt/Wolf Ridge Rd

2019 Existing
PM Peak Hour

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	52	5	24	31	49	0	167	29	23	120	4
Future Vol, veh/h	3	52	5	24	31	49	0	167	29	23	120	4
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	-	-	-	145	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	57	5	32	42	66	0	182	32	25	130	4
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	434	396	132	411	382	198	134	0	0	214	0	0
Stage 1	182	182	-	198	198	-	-	-	-	-	-	-
Stage 2	252	214	-	213	184	-	-	-	-	-	-	-
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	532	541	917	551	551	843	1451	-	-	1356	-	-
Stage 1	820	749	-	804	737	-	-	-	-	-	-	-
Stage 2	752	725	-	789	747	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	455	531	917	496	541	843	1451	-	-	1356	-	-
Mov Cap-2 Maneuver	455	531	-	496	541	-	-	-	-	-	-	-
Stage 1	820	736	-	804	737	-	-	-	-	-	-	-
Stage 2	654	725	-	711	734	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.5		11.6		0		1.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR					
Capacity (veh/h)	1451	-	-	546	496	693	1356	-	-			
HCM Lane V/C Ratio	-	-	-	0.119	0.065	0.156	0.018	-	-			
HCM Control Delay (s)	0	-	-	12.5	12.8	11.2	7.7	-	-			
HCM Lane LOS	A	-	-	B	B	B	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.4	0.2	0.6	0.1	-	-			




HCM 6th Roundabout
7: Tutt Blvd & Templeton Gap Rd

2019 Existing
PM Peak Hour

Intersection					
Intersection Delay, s/veh	4.1				
Intersection LOS	A				
Approach	EB	WB	NB	SB	
Entry Lanes	0	1	2	2	
Conflicting Circle Lanes	2	2	2	2	
Adj Approach Flow, veh/h	0	171	416	347	
Demand Flow Rate, veh/h	0	174	425	354	
Vehicles Circulating, veh/h	521	140	1	167	
Vehicles Exiting, veh/h	0	286	520	147	
Ped Vol Crossing Leg, #/h	0	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	1.000	
Approach Delay, s/veh	0.0	4.1	4.0	4.3	
Approach LOS	-	A	A	A	
Lane	Left	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LT	R	LT	TR
RT Channelized					
Lane Util	1.000	0.329	0.671	0.469	0.531
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	174	140	285	166	188
Cap Entry Lane, veh/h	1261	1349	1419	1158	1232
Entry HV Adj Factor	0.983	0.980	0.979	0.983	0.978
Flow Entry, veh/h	171	137	279	163	184
Cap Entry, veh/h	1239	1322	1389	1138	1206
V/C Ratio	0.138	0.104	0.201	0.143	0.153
Control Delay, s/veh	4.1	3.6	4.2	4.4	4.3
LOS	A	A	A	A	A
95th %tile Queue, veh	0	0	1	1	1








HCM 6th TWSC
2: Templeton Gap Rd & W Access

Short Term Total
AM Peak Hour

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	9	196	8	3	226
Future Vol, veh/h	29	9	196	8	3	226
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	32	10	213	9	3	246
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	470	218	0	0	222	0
Stage 1	218	-	-	-	-	-
Stage 2	252	-	-	-	-	-
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	552	822	-	-	1347	-
Stage 1	818	-	-	-	-	-
Stage 2	790	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	550	822	-	-	1347	-
Mov Cap-2 Maneuver	550	-	-	-	-	-
Stage 1	818	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.5	0		0.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 597		1347	-	
HCM Lane V/C Ratio	-	- 0.069		0.002	-	
HCM Control Delay (s)	-	- 11.5		7.7	0	
HCM Lane LOS	-	- B		A	A	
HCM 95th %tile Q(veh)	-	- 0.2		0	-	

HCM 6th TWSC
3: Templeton Gap Rd & Stone Mesa Pt/Wolf Ridge Rd

Short Term Total
AM Peak Hour

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	14	0	22	58	67	2	131	26	87	149	19
Future Vol, veh/h	6	14	0	22	58	67	2	131	26	87	149	19
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	-	-	-	145	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	24	0	24	63	73	2	142	28	99	169	22
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	606	552	180	550	549	156	191	0	0	170	0	0
Stage 1	378	378	-	160	160	-	-	-	-	-	-	-
Stage 2	228	174	-	390	389	-	-	-	-	-	-	-
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	409	442	863	446	443	890	1383	-	-	1407	-	-
Stage 1	644	615	-	842	766	-	-	-	-	-	-	-
Stage 2	775	755	-	634	608	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	314	411	863	403	412	890	1383	-	-	1407	-	-
Mov Cap-2 Maneuver	314	411	-	403	412	-	-	-	-	-	-	-
Stage 1	643	572	-	841	765	-	-	-	-	-	-	-
Stage 2	652	754	-	565	565	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.5		13.3		0.1		2.6					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR					
Capacity (veh/h)	1383	-	-	376 403 579	1407	-	-					
HCM Lane V/C Ratio	0.002	-	-	0.092 0.059 0.235	0.07	-	-					
HCM Control Delay (s)	7.6	-	-	15.5 14.5 13.1	7.8	-	-					
HCM Lane LOS	A	-	-	C B B	A	-	-					
HCM 95th %tile Q(veh)	0	-	-	0.3 0.2 0.9	0.2	-	-					





HCM 6th Roundabout
7: Tutt Blvd & Templeton Gap Rd

Short Term Total
AM Peak Hour

Intersection					
Intersection Delay, s/veh	5.1				
Intersection LOS	A				
Approach	EB	WB	NB	SB	
Entry Lanes	0	1	2	2	
Conflicting Circle Lanes	2	2	2	2	
Adj Approach Flow, veh/h	0	253	745	138	
Demand Flow Rate, veh/h	0	258	759	141	
Vehicles Circulating, veh/h	392	280	11	251	
Vehicles Exiting, veh/h	0	490	381	287	
Ped Vol Crossing Leg, #/h	0	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	1.000	
Approach Delay, s/veh	0.0	5.4	5.2	3.8	
Approach LOS	-	A	A	A	
Lane	Left	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LT	R	LT	TR
RT Channelized					
Lane Util	1.000	0.369	0.631	0.468	0.532
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	258	280	479	66	75
Cap Entry Lane, veh/h	1119	1336	1407	1072	1147
Entry HV Adj Factor	0.981	0.980	0.981	0.986	0.978
Flow Entry, veh/h	253	275	470	65	73
Cap Entry, veh/h	1098	1310	1380	1056	1122
V/C Ratio	0.231	0.210	0.340	0.062	0.065
Control Delay, s/veh	5.4	4.5	5.7	3.9	3.8
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	2	0	0

HCM 6th TWSC
15: Wolf Ridge Rd & S Access

Short Term Total
AM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	123	130	2	7	16
Future Vol, veh/h	5	123	130	2	7	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	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	5	134	141	2	8	17




Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	143	0	0 286 142
Stage 1	-	-	- 142 -
Stage 2	-	-	- 144 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1440	-	- 704 906
Stage 1	-	-	- 885 -
Stage 2	-	-	- 883 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1440	-	- 702 906
Mov Cap-2 Maneuver	-	-	- 723 -
Stage 1	-	-	- 882 -
Stage 2	-	-	- 883 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1440	-	-	-	841
HCM Lane V/C Ratio	0.004	-	-	-	0.03
HCM Control Delay (s)	7.5	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1








HCM 6th TWSC
2: Templeton Gap Rd & W Access

Short Term Total
PM Peak Hour

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	5	229	28	9	149
Future Vol, veh/h	17	5	229	28	9	149
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	18	5	249	30	10	162
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	446	264	0	0	279	0
Stage 1	264	-	-	-	-	-
Stage 2	182	-	-	-	-	-
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	570	775	-	-	1284	-
Stage 1	780	-	-	-	-	-
Stage 2	849	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	565	775	-	-	1284	-
Mov Cap-2 Maneuver	565	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.2	0		0.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		602	1284	
HCM Lane V/C Ratio	-	-		0.04	0.008	
HCM Control Delay (s)	-	-		11.2	7.8	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		0.1	0	

HCM 6th TWSC
3: Templeton Gap Rd & Stone Mesa Pt/Wolf Ridge Rd

Short Term Total
PM Peak Hour

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	59	5	28	35	50	0	181	36	24	128	12
Future Vol, veh/h	26	59	5	28	35	50	0	181	36	24	128	12
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	-	-	-	145	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	64	5	38	47	68	0	197	39	26	139	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	472	434	146	449	421	217	152	0	0	236	0	0
Stage 1	198	198	-	217	217	-	-	-	-	-	-	-
Stage 2	274	236	-	232	204	-	-	-	-	-	-	-
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	502	515	901	520	524	823	1429	-	-	1331	-	-
Stage 1	804	737	-	785	723	-	-	-	-	-	-	-
Stage 2	732	710	-	771	733	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	422	505	901	460	514	823	1429	-	-	1331	-	-
Mov Cap-2 Maneuver	422	505	-	460	514	-	-	-	-	-	-	-
Stage 1	804	722	-	785	723	-	-	-	-	-	-	-
Stage 2	628	710	-	685	718	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.2		12.1		0		1.1					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR					
Capacity (veh/h)	1429	-	-	489 460 660	1331	-	-					
HCM Lane V/C Ratio	-	-	-	0.2 0.082 0.174	0.02	-	-					
HCM Control Delay (s)	0	-	-	14.2 13.5 11.6	7.8	-	-					
HCM Lane LOS	A	-	-	B B B	A	-	-					
HCM 95th %tile Q(veh)	0	-	-	0.7 0.3 0.6	0.1	-	-					

HCM 6th Roundabout
7: Tutt Blvd & Templeton Gap Rd

Short Term Total
PM Peak Hour

Intersection					
Intersection Delay, s/veh	4.2				
Intersection LOS	A				
Approach	EB	WB	NB	SB	
Entry Lanes	0	1	2	2	
Conflicting Circle Lanes	2	2	2	2	
Adj Approach Flow, veh/h	0	185	440	347	
Demand Flow Rate, veh/h	0	189	449	354	
Vehicles Circulating, veh/h	536	140	1	182	
Vehicles Exiting, veh/h	0	310	535	147	
Ped Vol Crossing Leg, #/h	0	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	1.000	
Approach Delay, s/veh	0.0	4.2	4.1	4.4	
Approach LOS	-	A	A	A	
Lane	Left	Left	Right	Left	Right
Designated Moves	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LT	R	LT	TR
RT Channelized					
Lane Util	1.000	0.312	0.688	0.469	0.531
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	189	140	309	166	188
Cap Entry Lane, veh/h	1261	1349	1419	1142	1217
Entry HV Adj Factor	0.979	0.980	0.981	0.983	0.978
Flow Entry, veh/h	185	137	303	163	184
Cap Entry, veh/h	1234	1322	1391	1122	1190
V/C Ratio	0.150	0.104	0.218	0.145	0.155
Control Delay, s/veh	4.2	3.6	4.4	4.5	4.3
LOS	A	A	A	A	A
95th %tile Queue, veh	1	0	1	1	1

HCM 6th TWSC
15: Wolf Ridge Rd & S Access

Short Term Total
PM Peak Hour

Intersection

Int Delay, s/veh 1

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 16 103 104 7 4 9

Future Vol, veh/h 16 103 104 7 4 9

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length 25 - - - 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 17 112 113 8 4 10

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 121 0 - 0 263 117

Stage 1 - - - - 117 -

Stage 2 - - - - 146 -

Critical Hdwy 4.12 - - - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy 2.218 - - - 3.518 3.318

Pot Cap-1 Maneuver 1467 - - - 726 935

Stage 1 - - - - 908 -

Stage 2 - - - - 881 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1467 - - - 717 935

Mov Cap-2 Maneuver - - - - 733 -

Stage 1 - - - - 897 -

Stage 2 - - - - 881 -

Approach EB WB SB

HCM Control Delay, s 1 0 9.2

HCM LOS A

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1467 - - - 862

HCM Lane V/C Ratio 0.012 - - - 0.016

HCM Control Delay (s) 7.5 - - - 9.2

HCM Lane LOS A - - - A

HCM 95th %tile Q(veh) 0 - - - 0.1

HCM 6th TWSC
3: Templeton Gap Rd & Stone Mesa Pt/Wolf Ridge Rd

Long Term Background
AM Peak Hour

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕		↕	↕	
Traffic Vol, veh/h	4	24	1	19	61	69	2	170	32	87	171	13
Future Vol, veh/h	4	24	1	19	61	69	2	170	32	87	171	13
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	-	-	-	145	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	41	2	21	66	75	2	185	35	99	194	15

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	677	624	202	628	614	203	209	0	0	220	0	0
Stage 1	400	400	-	207	207	-	-	-	-	-	-	-
Stage 2	277	224	-	421	407	-	-	-	-	-	-	-
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	367	402	839	395	407	838	1362	-	-	1349	-	-
Stage 1	626	602	-	795	731	-	-	-	-	-	-	-
Stage 2	729	718	-	610	597	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	273	372	839	340	377	838	1362	-	-	1349	-	-
Mov Cap-2 Maneuver	273	372	-	340	377	-	-	-	-	-	-	-
Stage 1	625	558	-	794	730	-	-	-	-	-	-	-
Stage 2	603	717	-	522	553	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	16.6		14.5		0.1		2.5	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1362	-	-	361 340 532	1349	-	-
HCM Lane V/C Ratio	0.002	-	-	0.139 0.061 0.266	0.073	-	-
HCM Control Delay (s)	7.6	-	-	16.6 16.3 14.2	7.9	-	-
HCM Lane LOS	A	-	-	C C B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5 0.2 1.1	0.2	-	-

Intersection						
Intersection Delay, s/veh	7.2					
Intersection LOS	A					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	66	311	1136		430	
Demand Flow Rate, veh/h	67	317	1159		438	
Vehicles Circulating, veh/h	647	658	48		422	
Vehicles Exiting, veh/h	213	549	666		553	
Ped Vol Crossing Leg, #/h	0	0	0		0	
Ped Cap Adj	1.000	1.000	1.000		1.000	
Approach Delay, s/veh	5.3	9.4	7.1		6.1	
Approach LOS	A	A	A		A	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	67	317	545	614	206	232
Cap Entry Lane, veh/h	819	812	1292	1363	916	992
Entry HV Adj Factor	0.982	0.980	0.980	0.981	0.981	0.982
Flow Entry, veh/h	66	311	534	602	202	228
Cap Entry, veh/h	805	795	1265	1337	898	974
V/C Ratio	0.082	0.391	0.422	0.450	0.225	0.234
Control Delay, s/veh	5.3	9.4	7.0	7.1	6.3	6.0
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	2	2	2	1	1

HCM 6th TWSC
3: Templeton Gap Rd & Stone Mesa Pt/Wolf Ridge Rd

Long Term Background
PM Peak Hour

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔		↔	↔	
Traffic Vol, veh/h	10	69	5	33	47	52	1	232	36	26	186	8
Future Vol, veh/h	10	69	5	33	47	52	1	232	36	26	186	8
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	-	-	-	145	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	75	5	45	64	70	1	252	39	28	202	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	604	556	207	577	541	272	211	0	0	291	0	0
Stage 1	263	263	-	274	274	-	-	-	-	-	-	-
Stage 2	341	293	-	303	267	-	-	-	-	-	-	-
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	410	439	833	428	448	767	1360	-	-	1271	-	-
Stage 1	742	691	-	732	683	-	-	-	-	-	-	-
Stage 2	674	670	-	706	688	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	326	429	833	362	438	767	1360	-	-	1271	-	-
Mov Cap-2 Maneuver	326	429	-	362	438	-	-	-	-	-	-	-
Stage 1	741	676	-	731	682	-	-	-	-	-	-	-
Stage 2	555	669	-	610	673	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	15.8		14.1		0		0.9	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1360	-	-	425 362 565	1271	-	-
HCM Lane V/C Ratio	0.001	-	-	0.215 0.123 0.237	0.022	-	-
HCM Control Delay (s)	7.6	-	-	15.8 16.3 13.3	7.9	-	-
HCM Lane LOS	A	-	-	C C B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.8 0.4 0.9	0.1	-	-




HCM 6th Roundabout
7: Tutt Blvd & Templeton Gap Rd

Long Term Background
PM Peak Hour

Intersection						
Intersection Delay, s/veh	7.9					
Intersection LOS	A					
Approach	EB	WB	NB	SB		
Entry Lanes	1	1	2	2		
Conflicting Circle Lanes	2	2	2	2		
Adj Approach Flow, veh/h	221	268	806	851		
Demand Flow Rate, veh/h	226	273	823	867		
Vehicles Circulating, veh/h	1026	529	96	389		
Vehicles Exiting, veh/h	230	390	1156	413		
Ped Vol Crossing Leg, #/h	0	0	0	0		
Ped Cap Adj	1.000	1.000	1.000	1.000		
Approach Delay, s/veh	11.8	7.3	5.9	8.9		
Approach LOS	B	A	A	A		
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.469	0.531
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	226	273	387	436	407	460
Cap Entry Lane, veh/h	594	906	1236	1309	944	1020
Entry HV Adj Factor	0.980	0.983	0.979	0.980	0.982	0.980
Flow Entry, veh/h	221	268	379	427	400	451
Cap Entry, veh/h	582	891	1210	1283	927	1000
V/C Ratio	0.381	0.301	0.313	0.333	0.431	0.451
Control Delay, s/veh	11.8	7.3	5.9	5.9	8.9	8.8
LOS	B	A	A	A	A	A
95th %tile Queue, veh	2	1	1	1	2	2

HCM 6th TWSC
2: Templeton Gap Rd & W Access

Long Term Total
AM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	9	244	8	3	271
Future Vol, veh/h	29	9	244	8	3	271
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	32	10	265	9	3	295
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	571	270	0	0	274	0
Stage 1	270	-	-	-	-	-
Stage 2	301	-	-	-	-	-
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	482	769	-	-	1289	-
Stage 1	775	-	-	-	-	-
Stage 2	751	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	481	769	-	-	1289	-
Mov Cap-2 Maneuver	481	-	-	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	749	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.4	0		0.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	528	1289	-	
HCM Lane V/C Ratio	-	-	0.078	0.003	-	
HCM Control Delay (s)	-	-	12.4	7.8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

HCM 6th TWSC
3: Templeton Gap Rd & Stone Mesa Pt/Wolf Ridge Rd

Long Term Total
AM Peak Hour

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕		↕	↕	
Traffic Vol, veh/h	8	26	1	26	68	70	2	174	34	88	186	26
Future Vol, veh/h	8	26	1	26	68	70	2	174	34	88	186	26
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	-	-	-	145	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	45	2	28	74	76	2	189	37	100	211	30

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	713	656	226	662	653	208	241	0	0	226	0	0
Stage 1	426	426	-	212	212	-	-	-	-	-	-	-
Stage 2	287	230	-	450	441	-	-	-	-	-	-	-
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	347	385	813	375	387	832	1326	-	-	1342	-	-
Stage 1	606	586	-	790	727	-	-	-	-	-	-	-
Stage 2	720	714	-	589	577	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	250	355	813	319	357	832	1326	-	-	1342	-	-
Mov Cap-2 Maneuver	250	355	-	319	357	-	-	-	-	-	-	-
Stage 1	605	542	-	788	726	-	-	-	-	-	-	-
Stage 2	587	713	-	499	534	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	18.4		15.5		0.1		2.3	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1326	-	-	329 319 503	1342	-	-
HCM Lane V/C Ratio	0.002	-	-	0.183 0.089 0.298	0.075	-	-
HCM Control Delay (s)	7.7	-	-	18.4 17.4 15.2	7.9	-	-
HCM Lane LOS	A	-	-	C C C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7 0.3 1.2	0.2	-	-





HCM 6th Roundabout
7: Tutt Blvd & Templeton Gap Rd

Long Term Total
AM Peak Hour

Intersection						
Intersection Delay, s/veh	7.4					
Intersection LOS	A					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	66	338	1145		430	
Demand Flow Rate, veh/h	67	345	1168		438	
Vehicles Circulating, veh/h	675	658	48		450	
Vehicles Exiting, veh/h	213	558	694		553	
Ped Vol Crossing Leg, #/h	0	0	0		0	
Ped Cap Adj	1.000	1.000	1.000		1.000	
Approach Delay, s/veh	5.4	10.0	7.1		6.3	
Approach LOS	A	A	A		A	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	67	345	549	619	206	232
Cap Entry Lane, veh/h	800	812	1292	1363	892	969
Entry HV Adj Factor	0.982	0.978	0.980	0.980	0.981	0.982
Flow Entry, veh/h	66	338	538	607	202	228
Cap Entry, veh/h	786	794	1266	1337	875	951
V/C Ratio	0.084	0.425	0.425	0.454	0.231	0.240
Control Delay, s/veh	5.4	10.0	7.1	7.2	6.5	6.2
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	2	2	2	1	1

HCM 6th TWSC
15: Wolf Ridge Rd & S Access

Long Term Total
AM Peak Hour

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	144	147	2	7	16
Future Vol, veh/h	5	144	147	2	7	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	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	5	157	160	2	8	17




Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	162	0	0	328	161
Stage 1	-	-	-	161	-
Stage 2	-	-	-	167	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1417	-	-	666	884
Stage 1	-	-	-	868	-
Stage 2	-	-	-	863	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1417	-	-	663	884
Mov Cap-2 Maneuver	-	-	-	697	-
Stage 1	-	-	-	865	-
Stage 2	-	-	-	863	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1417	-	-	-	817
HCM Lane V/C Ratio	0.004	-	-	-	0.031
HCM Control Delay (s)	7.5	-	-	-	9.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
2: Templeton Gap Rd & W Access

Long Term Total
PM Peak Hour

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	5	294	28	9	222
Future Vol, veh/h	17	5	294	28	9	222
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	18	5	320	30	10	241
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	596	335	0	0	350	0
Stage 1	335	-	-	-	-	-
Stage 2	261	-	-	-	-	-
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	466	707	-	-	1209	-
Stage 1	725	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	461	707	-	-	1209	-
Mov Cap-2 Maneuver	461	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.5	0		0.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	501	1209	-	
HCM Lane V/C Ratio	-	-	0.048	0.008	-	
HCM Control Delay (s)	-	-	12.5	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

HCM 6th TWSC
3: Templeton Gap Rd & Stone Mesa Pt/Wolf Ridge Rd

Long Term Total
PM Peak Hour

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔		↔	↔	
Traffic Vol, veh/h	23	76	5	37	51	53	1	246	43	27	194	16
Future Vol, veh/h	23	76	5	37	51	53	1	246	43	27	194	16
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	-	-	-	145	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	83	5	50	69	72	1	267	47	29	211	17

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	641	594	220	615	579	291	228	0	0	314	0	0
Stage 1	278	278	-	293	293	-	-	-	-	-	-	-
Stage 2	363	316	-	322	286	-	-	-	-	-	-	-
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	388	418	820	403	426	748	1340	-	-	1246	-	-
Stage 1	728	680	-	715	670	-	-	-	-	-	-	-
Stage 2	656	655	-	690	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	301	408	820	332	416	748	1340	-	-	1246	-	-
Mov Cap-2 Maneuver	301	408	-	332	416	-	-	-	-	-	-	-
Stage 1	727	664	-	714	669	-	-	-	-	-	-	-
Stage 2	532	654	-	586	659	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	18.1		15		0		0.9	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1340	-	-	387 332 538	1246	-	-
HCM Lane V/C Ratio	0.001	-	-	0.292 0.151 0.261	0.024	-	-
HCM Control Delay (s)	7.7	-	-	18.1 17.8 14	8	-	-
HCM Lane LOS	A	-	-	C C B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.2 0.5 1	0.1	-	-





HCM 6th Roundabout
7: Tutt Blvd & Templeton Gap Rd

Long Term Total
PM Peak Hour

Intersection						
Intersection Delay, s/veh	8.0					
Intersection LOS	A					
Approach	EB	WB	NB	SB		
Entry Lanes	1	1	2	2		
Conflicting Circle Lanes	2	2	2	2		
Adj Approach Flow, veh/h	221	282	830	851		
Demand Flow Rate, veh/h	226	288	847	867		
Vehicles Circulating, veh/h	1041	529	96	404		
Vehicles Exiting, veh/h	230	414	1171	413		
Ped Vol Crossing Leg, #/h	0	0	0	0		
Ped Cap Adj	1.000	1.000	1.000	1.000		
Approach Delay, s/veh	12.1	7.5	6.0	9.0		
Approach LOS	B	A	A	A		
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.469	0.531
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	226	288	398	449	407	460
Cap Entry Lane, veh/h	586	906	1236	1309	931	1007
Entry HV Adj Factor	0.980	0.981	0.980	0.980	0.982	0.980
Flow Entry, veh/h	221	282	390	440	400	451
Cap Entry, veh/h	574	888	1211	1283	914	987
V/C Ratio	0.386	0.318	0.322	0.343	0.437	0.457
Control Delay, s/veh	12.1	7.5	6.0	6.0	9.1	9.0
LOS	B	A	A	A	A	A
95th %tile Queue, veh	2	1	1	2	2	2

HCM 6th TWSC
15: Wolf Ridge Rd & S Access

Long Term Total
PM Peak Hour

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	130	132	7	4	9
Future Vol, veh/h	16	130	132	7	4	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	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	17	141	143	8	4	10

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	151	0	0	322	147
Stage 1	-	-	-	147	-
Stage 2	-	-	-	175	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1430	-	-	672	900
Stage 1	-	-	-	880	-
Stage 2	-	-	-	855	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1430	-	-	664	900
Mov Cap-2 Maneuver	-	-	-	696	-
Stage 1	-	-	-	869	-
Stage 2	-	-	-	855	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1430	-	-	-	826
HCM Lane V/C Ratio	0.012	-	-	-	0.017
HCM Control Delay (s)	7.5	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1