Appendix C

Transportation Impact Analysis Report

Sphere of Influence

Specific Plan

City of Grass Valley

Draft for Review

This document is in draft form. A final version of this document may differ from this draft. As such, the contents of this draft document shall not be relied upon. GHD disclaims any responsibility or liability arising from decisions made based on this draft document.

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1. Introduction

This report has been prepared for Ascent Environmental to present the results of the Transportation Impact Analysis Report (TIAR) performed by GHD for the proposed Sphere of Influence in the City of Grass Valley. The project is located along side La Barr Meadows Road and Taylorville Road in Grass Valley, California.

For the purpose of CEQA and this TIAR, the proposed project will be assumed to be developed in one phase.

- Location: ±405.3 acres south of the McKnight Way Interchange along Taylorville Road and La Barr Meadows Road
- Land Use Quantities
    - Open Space – 48.6 acres
    - Residential
        - Low Density – 52 dwelling units
        - Medium Density – 327 dwelling units
        - High Density – 134 dwelling units
    - Central Business – 173,200 square feet
    - Manufacturing – 334,300 square feet
    - Industrial – 2,593,300 square feet

The project location and study area are presented in **Figure 1**.

The following analysis scenarios are included as a part of the TIAR:

- Existing No Project Conditions
- Existing Plus Project Conditions
- Year 2040 No Project Conditions
- Year 2040 Plus Project Conditions

Existing No Project conditions represent the analysis scenario in which the current traffic operations at the study locations are investigated using current traffic counts and intersection configurations.

Existing Plus Project conditions represent the analysis scenario in which traffic impacts associated with the proposed project are investigated in comparison to the *Existing No Project* conditions. Project trips generated by the proposed project are added to existing traffic counts and intersection configurations remain the same. To reduce the proposed project operational deficiencies and raise LOS to acceptable levels, improvements will be recommended for locations where the project affects intersection operations to unacceptable levels and were found to be significant.

Year 2040 No Project conditions represent the analysis scenario which would exist following approximately twenty years of development in the City of Grass Valley. *Year 2040 No Project* conditions evaluate traffic operations in the Year 2040 excluding the proposed development of the Sphere of Influence.

Year 2040 Plus Project conditions represent the analysis scenario in which traffic impacts associated with the proposed project are investigated in comparison to the *Year 2040 No Project* conditions. To reduce the proposed project operational deficiencies and raise LOS to acceptable levels, improvements will be recommended for locations where the project affects intersection operations to unacceptable levels and were found to be significant.

2. Project Setting

The City of Grass Valley is the largest city in the western region of Nevada County, California, covering approximately 4.74 square miles. The US Census Bureau reports that in 2010 the population in Grass Valley was approximately 12,900 people.

2.1 Transportation System

The following roadways provide primary circulation within the City of Grass Valley in the vicinity of the proposed project:

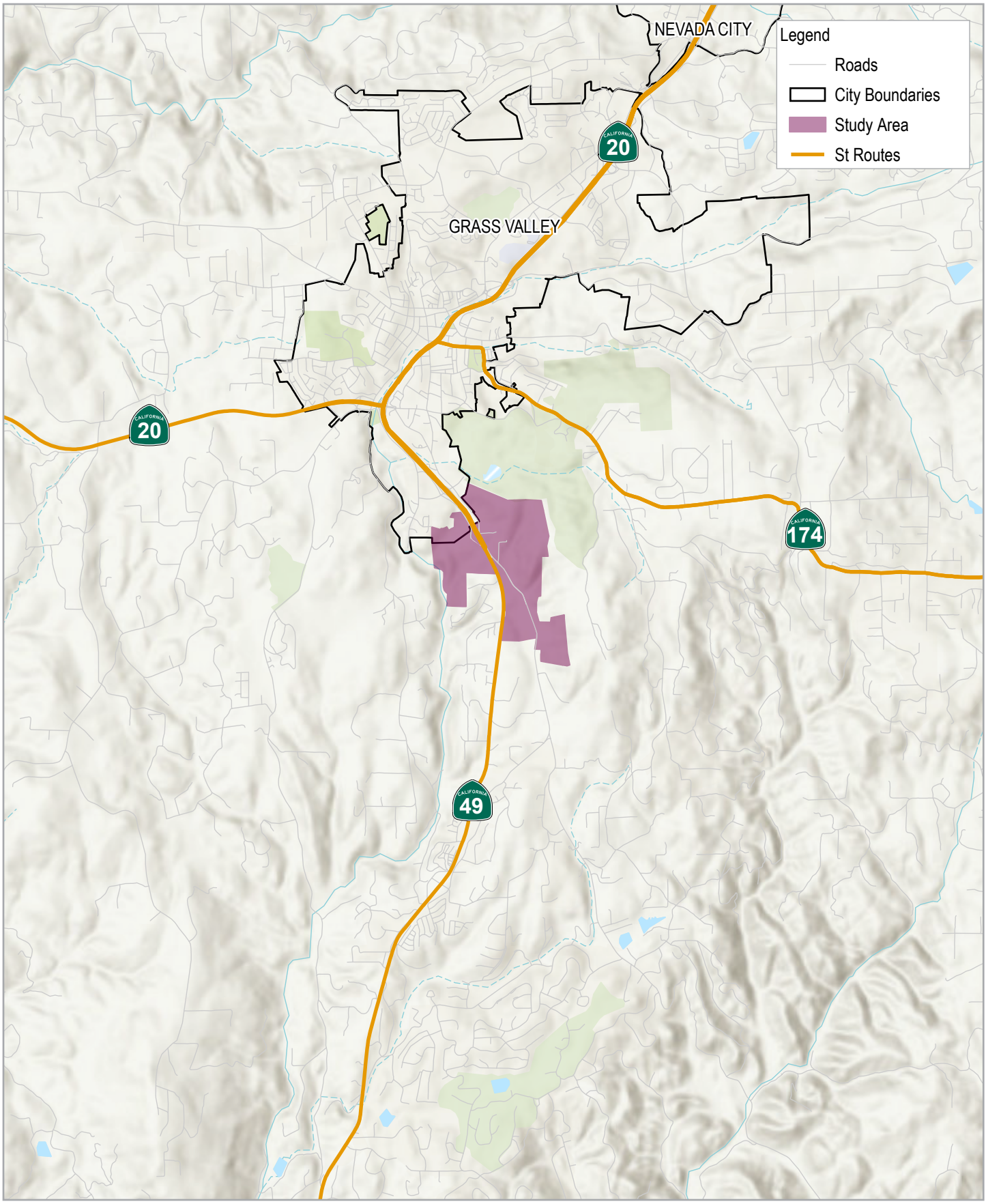
State Route 49 (SR 49) is an inter-regional highway that begins in Madera County where it diverges from State Route 41. SR 49 traverses in the north-south direction through Tuolumne, Calaveras, Amador, El Dorado, Placer, Nevada, Yuba, Sierra, and Plumas counties. SR 49 terminates at its northern terminus at SR 70. SR 49 has a four-lane divided freeway through the project study area. SR 49 has double designation through the project study area as SR 20. Throughout this report, the segment of highway will be recognized as SR 49.

McKnight Way is a two-lane east-west roadway that runs between S. Auburn Street/La Barr Meadows and Freeman Lane. McKnight is a primary roadway that connect regional traffic from SR 49 to residential and business uses via collector roadways.

Taylorville Road is a two-lane north-south roadway that runs between Freeman Lane to a southern terminus south of McKnight Way. Taylorville Road serves housing and business land uses.

La Barr Meadows Road is a two-lane north-south roadway that runs between McKnight Way south to State Route 49. La Barr Meadows Road primarily serves housing, industrial, and manufacturing land uses.

South Auburn Street is a two-lane north-south roadway that runs between McKnight Way north to Washington Street. South Auburn Street serves a mixture of housing, industrial, and businesses.



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Study Area Map

Project No. **11219095**
Revision No. **-**
Date **Feb 2021**

FIGURE 1

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2.2 Study Intersections

The following list of critical study intersections were selected in coordination with the City of Grass Valley and Caltrans staff for analysis within this study for Weekday AM and PM peak hour conditions:

1. La Barr Meadows Road/S. Auburn Street & McKnight Way
2. State Route 49 NB Ramps & McKnight Way
3. State Route 49 SB Ramps & McKnight Way
4. Taylorville Road & McKnight Way
5. State Route 49 & Allison Ranch Road/La Barr Meadows Road
6. State Route 49 & Crestview Drive (Plus Project Only)

2.3 Data Collection and Analysis Time Periods

Due to COVID-19, collection of traffic volumes was not advised as a stay-at-home order was in effect. Weekday AM and PM peak hour traffic counts were obtained from the SR 49/McKnight Way Intersection Control Evaluation (ICE) that was completed in 2019. These counts represent when schools in the area were in session and no known special events were occurring in the area.

These counts were compared to the Arco AM/PM study performed in 2018 and traffic volumes were found to be within 10 percent. Thus, the counts for SR 49/McKnight Way ICE still closely and accurately represent existing conditions.

Figure 2 presents the *Existing No Project* lane geometrics and intersection control types. **Figure 3** presents the *Existing No Project* traffic volumes at all study locations.

All intersections were analyzed during the weekday AM and PM peak hour periods. The AM peak hour period is defined as the one-hour of peak traffic flow (which is the highest total volume count over four consecutive 15-minute count periods) counted between 7:00 am and 9:00 am on a typical weekday. The PM peak hour is defined as one-hour of peak traffic flow counted between 4:00 pm and 6:00 pm on a typical weekday.

3. Level of Service Methodologies and Guidelines

The following sections outlines the methodology and analysis parameters used to quantify traffic operations at study locations.

3.1 General LOS Methodologies

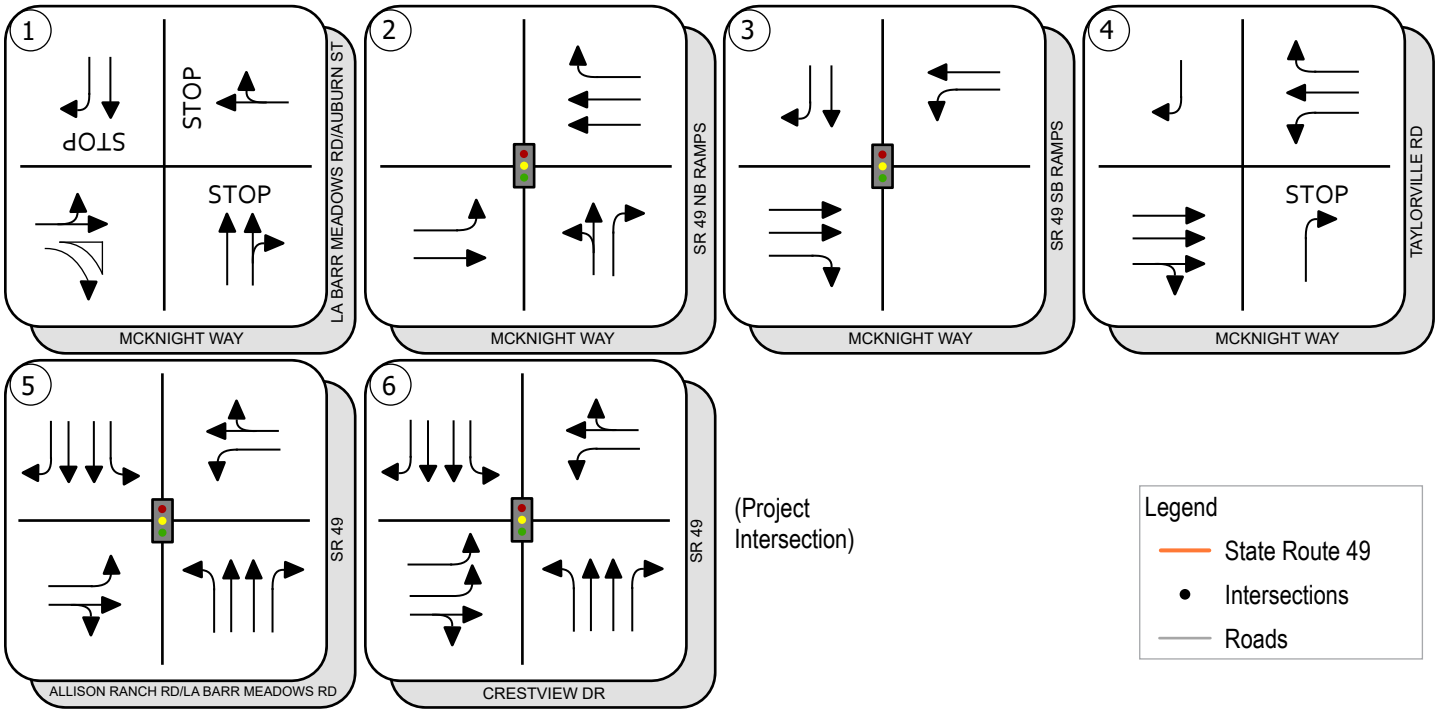
Intersection LOS have been calculated for all control types using the methods documented in the Transportation Research Board publication *Highway Capacity Manual 6th Edition*.

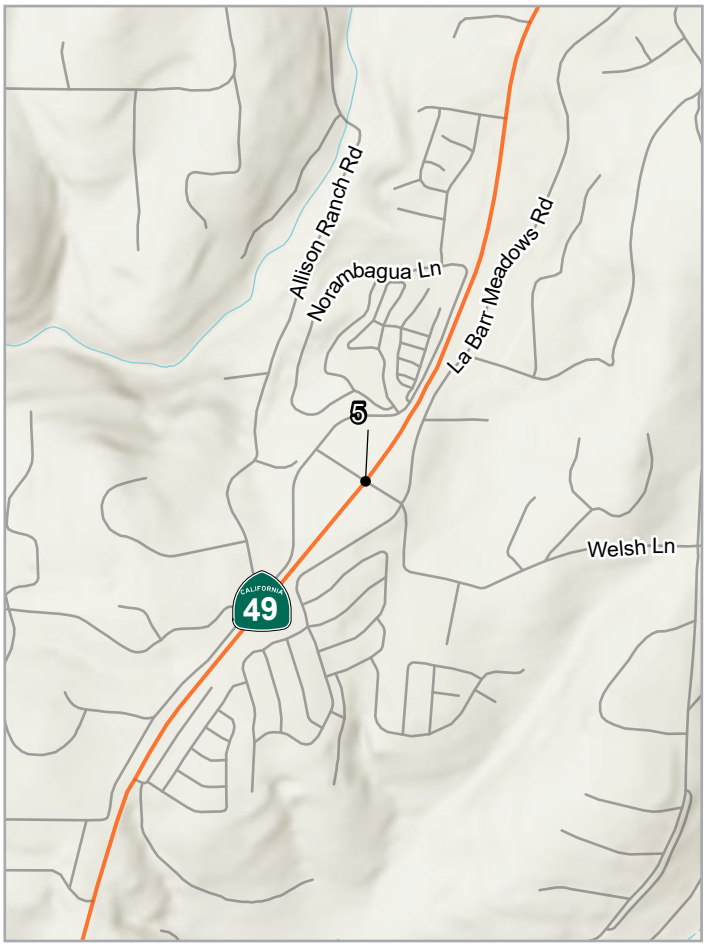
LOS determinations are presented on a letter grade scale from "A" to "F", whereby LOS "A" represents "free flow" conditions and LOS "F" represents over capacity conditions.

3.2 Intersection LOS Methodologies

Levels of Service (LOS) have been calculated for all intersection control types using the methods documented in the Transportation Research Board's *Highway Capacity Manual, Sixth Edition*. Traffic operations have been quantified through the determination of "Level of Service" (LOS). Level of service is a qualitative measure of traffic operating conditions, whereby a letter grade A through F is assigned to an intersection or roadway segment representing progressively worsening traffic conditions.

For signalized intersections and all-way stop-controlled (AWSC) intersections, intersection delays and LOS are average values for all intersection movements. For two-way stop-controlled (TWSC) intersections, the intersection delays and LOS are represented by the worst approach. The delay based LOS criteria for different types of intersection control are outlined in **Table 3.1**.





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Existing Lane Geometrics and Control

Project No. **11219095**
Revision No. **-**
Date **Feb 2021**

FIGURE 2

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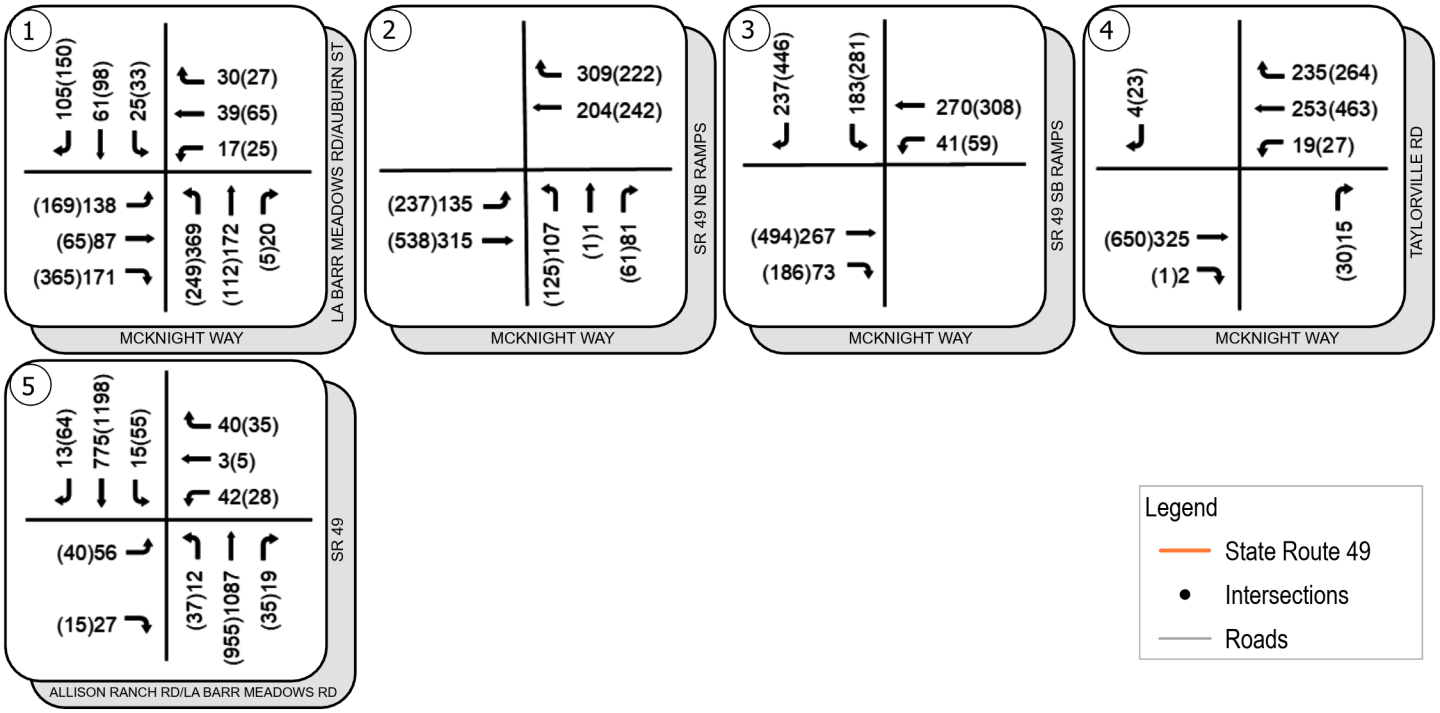
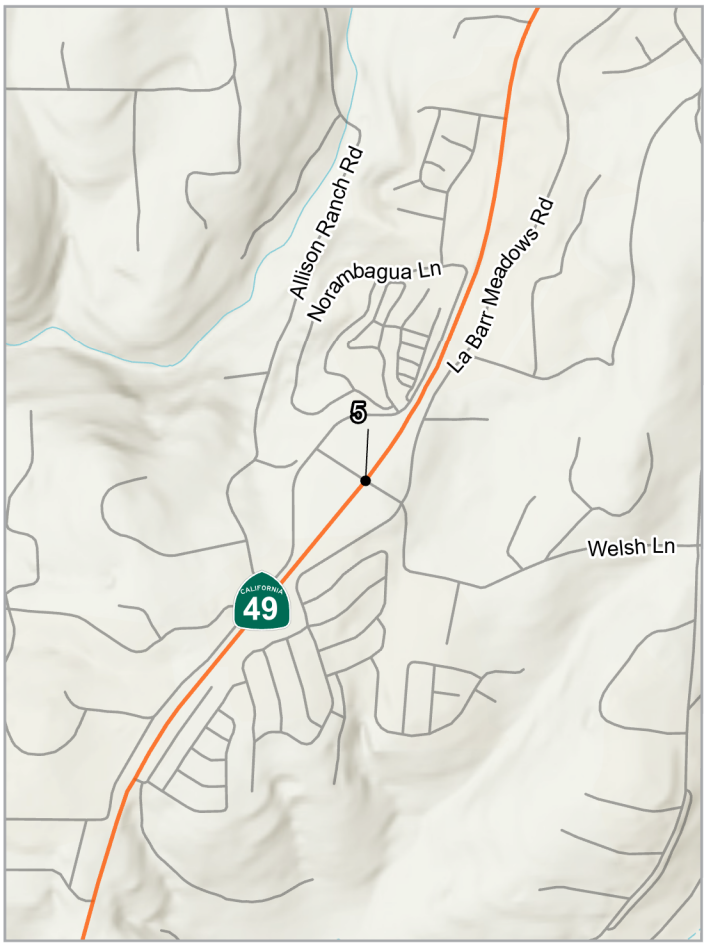


Legend

- State Route 49
- Intersections
- Roads



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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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Existing Peak Hour Traffic Volumes

Project No. **11219095**
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Date **Feb 2021**

FIGURE 3

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Created by: zporteous

Table 3.1 – Level of Service Criteria for Intersections

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle		
				Signalized	Un-signalized	All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	<10.0	<10.0	<10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and <20.0	>10.0 and <15.0	>10.0 and <15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20.0 and <35.0	>15.0 and <25.0	>15.0 and <25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and <55.0	>25.0 and <35.0	>25.0 and <35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and <80.0	>35.0 and <50.0	>35.0 and <50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>80.0	>50.0	>50.0

In addition, the City of Grass Valley has the following methodologies for analysis in traffic studies:

7. **Traffic Impact Analysis** - Unless otherwise noted in the Scoping Agreement, includes evaluation of intersection operation as well as midblock roadway segment operation.

    a. Analysis Methodologies -

        i. Highway Capacity Manual (HCM) methodology must be used. Default HCM values must be used unless noted otherwise below.

        ii. Current signal timing schedules for signalized intersections must be used in the analysis.

        iii. Found roundabouts, micro simulation (SimTraffic for single lane roundabouts and Vissim for multi-lane roundabouts) or SIDRA software must be used.

        iv. For the Brunswick Road Corridor (including Brunswick/E. Main, Brunswick. SR 20/49 on and off ramps, and Brunswick/Sutton intersections) and the McKnight Way corridor (McKnight and SR 49 on and off ramp intersections), Synchro/SimTraffic Version 7 software (or approved equal) micro-simulation software using HCM 2000 methodology must be used to evaluate the corridor as a whole due to the coordinated operation of the closely spaced signalized intersections.

        v. Intersections with non-standard traffic control (i.e. McKnight and South Auburn) should be analyzed using the engineer's best judgment (such as micro-simulation) and are subject to the review and approval of methodology by the Engineering Division.

        vi. Standard lane utilization may not occur at all intersections. This operational aspect is particularly true at SR 20/49 interchanges. The assumed lane utilizations should reflect actual conditions, which may require counts for each lane.

3.3 City of Grass Valley LOS Guidelines

The City of Grass Valley Traffic Studies' guidelines state the following:

> *"Study Intersections and Roadway Segments – LOS A, B, C, and D are considered acceptable LOS's for City intersections and roadway segments except where LOS E is considered acceptable for the following downtown intersections: Mill/Neal, W. Main/Mill, W. Main/Church, W. Main/School, Bank/S. Auburn, SR 20/49 SB Ramp/Bennett. Where project traffic is distributed, the following intersections and roadway segments must be analyzed if they: 1) are currently operating at LOS A, B and C (D for downtown intersections identified above) where project traffic contributes 10 or more peak hour trips; 2) are currently operating LOS D (E for downtown intersections identified above) or worse; and/or 3) are high accident locations (defined as intersections or roadway segments having five or more reported accidents within the most recent 3 year period)*

3.4 Caltrans LOS Guidelines

The Caltrans published Guide for the Preparation of Traffic Impact Studies (dated December 2002) states the following:

> *"Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS."*

3.5 Target LOS Threshold

Consistent with all of the above noted service level policies, an LOS D threshold will be used at all study intersections, roadways, mainlines and ramps as standard acceptable threshold. This LOS threshold was reviewed and approved by City of Grass Valley and Caltrans District 3 staff.

3.6 Intersection Operations Analysis Software

The Synchro/SimTraffic 10 (Trafficware) software suite will be used to implement the HCM 6th Edition analysis methodologies. The McKnight Interchange could not be analyzed by implementing HCM analysis through Synchro due to the non-standard signal timings and clustered intersections. The McKnight interchange was analyzed in SimTraffic 10 (Trafficware).

4. Significance and Improvement Thresholds

The following thresholds of significance were used to determine if the operational deficiency is significant and requires improvement. These thresholds are consistent with the City policy on study intersections and roadway segments:

> *"If the project traffic causes an intersection or roadway segment to worsen from an acceptable LOS to LOS E or worse or is distributed to an intersection or roadway segment currently operating at an unacceptable LOS, the project is determined to cause a significant impact which must be mitigated. It is acceptable to mitigate an intersection or roadway segment from an unacceptable LOS to an acceptable LOS. In the event of a significant impact, cumulative year analyses are required"*

5. Technical Analysis Parameters

This TIAR provides evaluation of traffic operating conditions by incorporating appropriate heavy vehicle adjustment factors, peak hour factors, and signal lost-time factors and reports the resulting intersection delays and LOS as estimated using HCM 2010 based analysis methodologies. The following section describes all technical parameters incorporated into intersection analysis.

Table 5.1 presents parameters which were applied to study intersections during the analysis:

Table 5.1 – Intersection LOS & Technical Analysis Parameters

Technical Parameters[1, 2, 5]	Caltrans Intersections	City Intersections
Grade	Level at all Intersections	Level at all Intersections
% Trucks	From Counts	From Counts
PHF for Existing & Short Term	From Counts	From Counts
PHF for Future Conditions	From Counts	From Counts
Minimum Signal Cycle Length[2]	From Signal Timing Plans	80 seconds
Lost Time per Critical Signal Phase	From Signal Timing Plans	7 seconds
Left Turn Critical Volume[3]	1900 vph	1900 vph
Pedestrian calls per hour[4]	From Counts	From Counts

1) Parameters apply to all study intersection unless specifically indicated otherwise

2)All parameters are same for existing as well as 2040 conditions

3) aka Saturated flowrate

4) Apllied to all approaches at signalized intersections

5) Computer software defaults will be used for all parameters not listed

5.1 Peak Hour Factors

Peak hour factors (PHF) were used in the HCM capacity and LOS analysis to account for the variation in traffic volumes during the peak hour. The adjustment increases the observed hourly volume to account for the peak 15 minutes of traffic. For *Existing* conditions analyses, observed peak hour factors will be used (for both the Caltrans and City intersections). For all scenarios in the *Year 2040*, a PHF of 0.88 will be used at the intersections with observed PHFs less than 0.92 in *Existing* conditions.

5.2 State Facility Parameters

Intersections within Caltrans jurisdiction will follow detailed technical parameters as provided by Caltrans District 3. District 3 provided very specific technical parameters to be applied to study intersections in the HCM capacity analysis. These factors largely affect signal timing to allow for specific pedestrian crossing times and also affect roadway capacity values by adjusting the assumed "saturation flow rate". The full District 3 parameters are attached in the Appendix of this report. These technical parameters were provided by Caltrans for inclusion in the study and are consistent with Caltrans District 3 traffic study requirements.

- Pedestrian Walk time: 7 seconds
- Pedestrian Don't Walk time: 3.5 feet/sec (or slower) pedestrian walk speed
- All-Red time: 1.0 seconds
- Yellow times: Use values per CA MUTCD
- Lead/Lag option: Protected left-turns shall be leading phasing
- Minimum green time: 8 seconds

5.3 Warrant Analysis

A supplemental traffic signal warrant analysis will be completed on unsignalized intersections operating at unacceptable LOS. The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an unsignalized intersection. This study has employed the signal warrant criteria presented in the latest edition of the California Manual on Uniform Traffic Control Devices (MUTCD) for all study intersections. The signal warrant criteria are based upon several factors, including the volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The California MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, the study will utilize the peak hour volume-based Warrant 3.

6. Existing Conditions

The *Existing* conditions present the analysis scenario in which current operations at study locations are analyzed. This scenario establishes the baseline traffic conditions.

6.1 Intersection Operations

Existing No Project weekday AM and PM peak hour intersection traffic operations were quantified utilizing the existing traffic volumes and lane geometrics and controls. **Table 6.1** presents a summary of the *Existing No Project* study intersection LOS conditions.

Table 6.1 – Existing Conditions Level of Service

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	La Barr Meadows Rd/S Auburn St & McKnight Way	TWSC	D	18.5	C	13.6	B
2	SR 49 NB Ramps & McKnight Way	Signal	D	13.0	B	13.3	B
3	SR 49 SB Ramps & McKnight Way	Signal	D	20.0	B	18.8	B
4	Taylorville Rd & McKnight Way	TWSC	D	10.5	B	12.8	B
5	SR 49 & Allison Ranch Rd/La Barr Meadows Rd	Signal	D	16.6	B	18.2	B

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal

As presented in **Table 6.1**, all study intersections are currently found to operate at or above acceptable LOS.

6.2 Intersection Queueing

Tables 6.2 and 6.3 presents a summary of the *Existing* 95th percentile queues for all study intersections.

Table 6.2 – Existing Conditions 95th Percentile Queues

Int. #	Intersection/Approach	Control Type	Existing Conditions 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***La Barr Meadows Rd/S Auburn St & McKnight Way***				
	Eastbound Left/Thru	TWSC	5	9	
	Eastbound Right		36	111	
	Westbound Left/Thru/Right		66	86	
	Northbound Left		***282***	157	215
	Northbound Thru/Right		172	77	
	Southbound Left/Thru/Right		73	126	
	Southbound Right		59	***72***	60
2	***SR 49 NB Ramps & McKnight Way***				
	Eastbound Left	Signal	79	107	180
	Eastbound Thru		34	85	180
	Westbound Thru		39	58	115
	Westbound Thru		86	85	115
	Westbound Right		50	60	60
	Northbound Left/Thru		114	146	
	Northbound Right		113	94	440
3	***SR 49 SB Ramps & McKnight Way***				
	Eastbound Thru	Signal	41	50	80
	Eastbound Thru		46	46	80
	Eastbound Right		29	34	80
	Westbound Thru		64	75	180
	Westbound Right		154	170	180
	Southbound Left/Thru		198	261	
	Southbound Right		105	204	375
4	***Taylorville Rd & McKnight Way***				
	Eastbound Thru	TWSC	***127***	***157***	80
	Eastbound Thru		141	289	
	Eastbound Thru/Right		14	40	170
	Westbound Left		19	33	
	Westbound Thru/Right		32	28	
	Northbound Right		37	79	
	Southbound Right		19	40	

Note: ***Bold*** text indicates queues that exceed available storage

Table 6.3 – Existing Conditions 95th Percentile Queues

Int. #	Intersection/Approach	Control Type	Existing Conditions 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
5	***SR 49 & Allison Ranch Rd/La Barr Meadows Rd***				
	Eastbound Left	Signal	73	60	155
	Eastbound Thru/Right		43	27	
	Westbound Left		57	50	130
	Westbound Thru/Right		46	48	
	Northbound Left		30	57	425
	Northbound Thru		181	183	
	Northbound Thru		138	125	
	Northbound Right		17	25	425
	Southbound Left		39	71	375
	Southbound Thru		155	218	
	Southbound Thru		107	180	
	Southbound Right		11	29	375

Note: ***Bold*** text indicates queues that exceed available storage

As presented in **Tables 6.2 and 6.3**, the following movements are determined to exceed the available storage:

- Intersection 1 – La Barr Meadows Road/S. Auburn Street & McKnight Way
  - AM Peak Hour
    - Northbound Left
  - PM Peak Hour
    - Southbound Right
- Intersection 4 – Taylorville Road & McKnight Way
  - AM Peak Hour
    - Eastbound Through
  - PM Peak Hour
    - Eastbound Through

7. Project Description

The proposed project is projected to cover approximately 405.3 acres and the following land uses have been identified:

- Open Space – 48.6 acres
- Residential

- Low Density – 52 dwelling units
- Medium Density – 327 dwelling units
- High Density – 134 dwelling units

- Commercial – 173,200 square feet
- Manufacturing – 334,300 square feet
- Industrial – 2,593,300 square feet

Figure 4 presents the designated land uses and areas identified for construction.

7.1 Project Site Access

Access to the proposed project will be analyzed at a future date with the construction of the project. Although specific project site access will be identified in future project specific studies, La Barr Meadows Road, Taylorville Road, and the future Crestview Drive connection are expected to be the primary roadways that provide access to the project locations on either side of SR 49.

Additionally, one new signalized intersection is proposed by the project to be built along SR 49 at Crestview Drive presuming the proposed signalization fulfills the following criteria:

- Meets rural MUTCD peak hour signal warrant
- Provides acceptable level of service
- Provides acceptable 95th percentile queue lengths

The construction of the proposed signal shall conform to the California MUTCD, Caltrans Traffic Manual Chapter 9, and the Highway Design Manual for intersection and approach geometry.

7.2 Trip Generation

The proposed project trip generation was calculated using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual 9th Edition*. Internal trip capture and pass-by rates were used based on the *Trip Generation Handbook 3rd Edition* by ITE. The proposed project's trip generation is presented in **Table 7.1**.

Table 7.1 – Proposed Project Trip Generation

Land Use Category (ITE Code)	Unit[1]	Daily Trip Rate/Unit[2]	AM Peak Hour Trip Rate/Unit			PM Peak Hour Trip Rate/Unit		
			Total	In %	Out %	Total	In %	Out %
Open Space - OS (ITE 411)	Acres	2.46	0.02	59%	41%	0.53	55%	45%
Low Density Residential - R-1 (ITE 210)	DU	10.96	0.80	25%	75%	1.04	63%	37%
Medium Density Residential - R-2 (ITE 210)	DU	9.46	0.72	25%	75%	0.97	63%	37%
High Density Residential - R-3 (ITE 220)	DU	7.26	0.47	25%	75%	0.57	63%	37%
C-2 (ITE 820)	ksf	50.43	1.38	62%	38%	4.71	48%	52%
M-1 (ITE 130)	ksf	5.26	0.40	81%	19%	0.40	21%	79%
M-2 (ITE 110)	ksf	3.81	0.19	88%	12%	0.13	13%	87%
Grass Valley Sphere of Influence	**Quantity (Units)**	**Daily Trips**	**AM Peak Hour Trips**			**PM Peak Hour Trips**		
			Total	**In**	**Out**	**Total**	**In**	**Out**
Open Space - OS (ITE 411)	48.6	120	1	1	0	26	14	12
Residential - Low Density (3.36/ac) (ITE 210)	52.0	570	42	10	32	54	34	20
Residential - Medium Density (6/ac) (ITE 210)	327.0	3,093	237	59	178	317	200	117
Residential - High Density (8-20/ac) (ITE 220)	134.0	972	63	16	47	77	48	29
Internal Capture with Commercial			*-3*	*-1*	*-2*	*-149*	*-110*	*-39*
Internal Capture with Manufacturing/Industrial			*-5*	*0*	*-5*	*-14*	*-8*	*-6*
Central Business (ITE 820)	173.2	8,734	238	148	90	816	392	424
Internal Capture with Residential			*-3*	*-2*	*-1*	*-149*	*-39*	*-110*
Internal Capture with Manufacturing/Industrial			*-44*	*-23*	*-21*	*-39*	*-31*	*-8*
Manufacturing/Industrial (ITE 130)	334.3	1,759	134	108	26	134	28	106
General Industrial (ITE110)	2593.3	9,887	496	437	59	349	45	304
Internal Capture with Residential			*-5*	*-5*	*0*	*-14*	*-6*	*-8*
Internal Capture with Commercial			*-44*	*-21*	*-23*	*-39*	*-8*	*-31*
Internal Capture Reduction - Daily	*-10%*	*-2,513*						
Net New Driveway Trips		**22,620**	**1,107**	**727**	**380**	**1,369**	**559**	**810**
Pass-By Trip Reduction	*-15%*	*-933*	*-29*	*-19*	*-10*	*-94*	*-48*	*-46*
Net New Project Trips		**21,687**	**1,078**	**708**	**370**	**1,275**	**511**	**764**

Notes:
1. 1 ksf = 1,000 square feet DU = dwelling unit
2. Trip rates based on ITE Trip Generation Manual 10th edition fitted-curve equations or average rates
3. Daily Internal Capture Reduction consistent with prior study
4. Pass-by reduction only taken for central business use

As presented in **Table 7.1**, the proposed project is projected to generate approximately 21,687 net new daily trips, 1,078 AM and 1,275 PM peak hour trips.

When compared to the previous EIR, this revised proposed project uses less intense land uses, that generates fewer trips to study intersections, and has a lower degradation.

7.2.1 Floor Area Ratio Variations

The proposed project trip generation was calculated using floor area ratios (FAR) of 0.35 for the commercial portion and 0.25 for the industrial portion of the development. This reflects current development trends with respect to building sizes and allows for a greater flexibility with the future development of the accompanying land uses areas. However, the previous EIR used FARs that were lower at 0.25 for commercial and 0.15 for industrial components. Table 7.2 presents the proposed project with a lower FAR.

For analysis purposes, we utilized the information presented in Table 7.1 as it provides for a conservative results.

Table 7.2 – Proposed Project Trip Generation with Lower FAR

Commercial floor area ratio is 0.25 and industrial floor area ratio is 0.15

Land Use Category (ITE Code)	Unit[1]	Daily Trip Rate/Unit[2]	AM Peak Hour Trip Rate/Unit			PM Peak Hour Trip Rate/Unit		
			Total	In %	Out %	Total	In %	Out %
Open Space - OS (ITE 411)	Acres	2.46	0.02	59%	41%	0.53	55%	45%
Low Density Residential - R-1 (ITE 210)	DU	10.96	0.80	25%	75%	1.04	63%	37%
Medium Density Residential - R-2 (ITE 210)	DU	9.42	0.72	25%	75%	0.97	63%	37%
High Density Residential - R-3 (ITE 220)	DU	7.26	0.47	25%	75%	0.57	63%	37%
C-2 (ITE 820)	ksf	56.16	1.73	62%	38%	5.14	48%	52%
M-1 (ITE 130)	ksf	6.72	0.40	81%	19%	0.40	21%	79%
M-2 (ITE 110)	ksf	3.83	0.22	88%	12%	0.16	13%	87%
Grass Valley Sphere of Influence	**Quantity (Units)**	**Daily Trips**	**AM Peak Hour Trips**			**PM Peak Hour Trips**		
			Total	In	Out	Total	In	Out
Open Space - OS (ITE 411)	48.6	120	1	1	0	26	14	12
Residential - Low Density (3.36/ac) (ITE 210)	52.0	570	42	10	32	54	34	20
Residential - Medium Density (6/ac) (ITE 210)	342.6	3,228	248	62	186	332	209	123
Residential - High Density (8-20/ac) (ITE 220)	134.0	972	63	16	47	77	48	29
Internal Capture with Commercial			*-3*	*-1*	*-2*	*-115*	*-85*	*-30*
Internal Capture with Manufacturing/Industrial			*-5*	*0*	*-5*	*-11*	*-5*	*-6*
Central Business (ITE 820)	123.7	6,948	214	132	82	636	305	331
Internal Capture with Residential			*-3*	*-2*	*-1*	*-115*	*-30*	*-85*
Internal Capture with Manufacturing/Industrial			*-29*	*-15*	*-14*	*-30*	*-24*	*-6*
Manufacturing/Industrial (ITE 130)	200.6	1,348	80	65	15	80	17	63
General Industrial (ITE110)	1502.8	5,754	331	292	39	239	31	208
Internal Capture with Residential			*-5*	*-5*	*0*	*-11*	*-6*	*-5*
Internal Capture with Commercial			*-29*	*-14*	*-15*	*-30*	*-6*	*-24*
Internal Capture Reduction - Daily	*-10%*	*-1,894*						
Net New Driveway Trips		**17,046**	**905**	**541**	**364**	**1,132**	**502**	**630**
Pass-By Trip Reduction	*-15%*	*-758*	*-28*	*-18*	*-10*	*-74*	*-38*	*-36*
Net New Project Trips		**16,288**	**877**	**523**	**354**	**1,058**	**464**	**594**

Notes:
1. 1 ksf = 1,000 square feet DU = dwelling unit
2. Trip rates based on ITE Trip Generation Manual 10th edition fitted-curve equations or average rates
3. Daily Internal Capture Reduction consistent with prior study

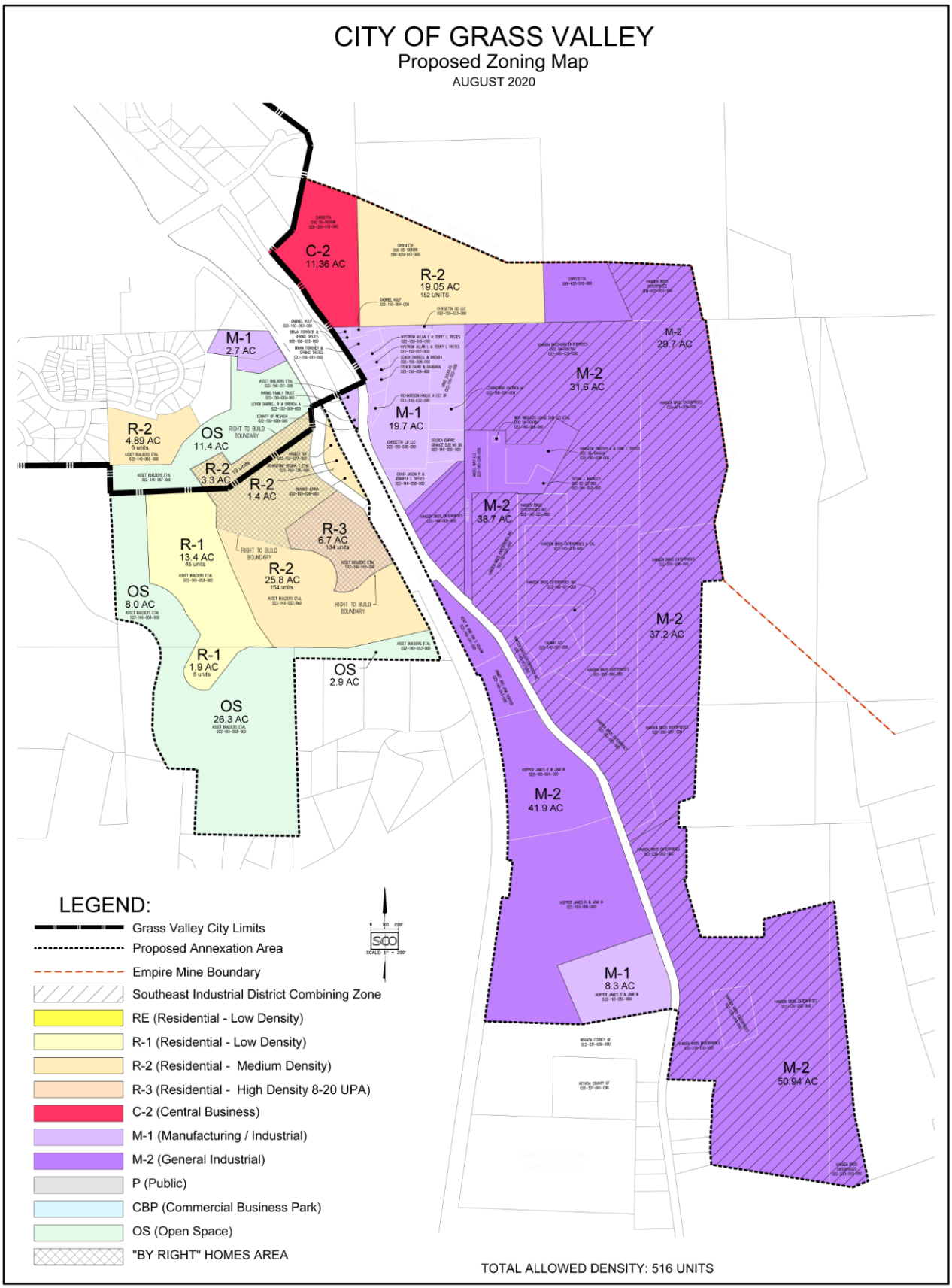
As presented in Table 7.2, the proposed project with the lower FAR is projected to generate approximately 16,288 net new daily trips, 877 AM and 1,058 PM peak hour trips.

When compared to the information presented in Table 7.1, the lower FAR project generates 5,399 fewer daily trips, 201 fewer AM and 217 fewer PM peak hour trips.

CITY OF GRASS VALLEY

Proposed Zoning Map

AUGUST 2020



Paper Size ANSI A

0 250 500 750 1,000

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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Project No. **11219095**
Revision No. -
Date **Feb 2021**

Project Site Plan

FIGURE 4

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Print date: 05 Feb 2021 - 12:19

Data source: World Topographic Map - labelless: World Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community.
Created by: zporteous

7.3 Project Trip Distribution

The *Plus Project* directional trip distribution and specific assignment of project-generated trips were established based on an understanding of existing and projected future traffic flows and travel patterns within the vicinity of the project site and the Nevada County Travel Demand Model.

Currently, the following movements are restricted at the intersection of Taylorville Road & McKnight Way:

- Northbound approach is restricted to right turns only
- Southbound approach is restricted to right turns only
- Eastbound approach is restricted to through and right turn movements only

The projected traffic will be distributed based on the following breakdown:

- 38% to/from the north using SR 49
- 34% to/from the south using SR 49
- 15% to/from the west using McKnight Way
- 13% to/from north using South Auburn Street

Figure 5 presents the plus project Directional trip distribution.

7.4 Multimodal Connections

Nevada County has an adopted Circulation Element, Bicycle Master Plan, and Short Range Transit Development Plan. Multimodal connections in the project vicinity will be evaluated based on these adopted plans and policies ensuring that infrastructure is installed where identified, required, or does not preclude planned infrastructure.

Paper Size ANSI A

0 170 340 510 680

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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Project No. **11219095**
Revision No. **-**
Date **Feb 2021**

Project Directional Distribution

FIGURE 5

C:
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Print date: 05 Feb 2021 - 12:24

Data source: World Imagery: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community. Created by: zporteous

8. Existing Plus Project Conditions

The *Existing Plus Project* conditions is the analysis scenario in which traffic associated with the proposed project are investigated in comparison to the *Existing* conditions.

8.1 Intersection Operations

Existing Plus Project weekday AM and PM peak hour intersection traffic operations were quantified by superimposing traffic generated by the proposed project onto *Existing No Project* conditions. **Figure 6** presents the *Existing Plus Project* intersection traffic volumes.

Table 8.1 presents a summary of the *Existing Plus Project* study intersection LOS conditions.

Table 8.1 – Existing Plus Project Intersection Level of Service

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?[3]	Delay	LOS	Warrant Met?[3]
1	**La Barr Meadows Rd/S Auburn St & McKnight Way**	**TWSC**	**D**	20.0	C	-	**42.0**	**E**	**Yes**
2	SR 49 NB Ramps & McKnight Way	Signal	D	13.0	B	-	20.9	C	-
3	SR 49 SB Ramps & McKnight Way	Signal	D	20.0	B	-	21.3	C	-
4	Taylorville Rd & McKnight Way	TWSC	D	10.7	B	-	14.1	B	-
5	SR 49 & Allison Ranch Rd/La Barr Meadows Rd	Signal	D	17.3	B	-	20.7	C	-
6	SR 49 & Crestview Dr	Signal	D	21.1	C	-	41.1	D	-

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal
3. Warrant = Based on California MUTCD Warrant 3
4. **Bold** = Unacceptable Conditions

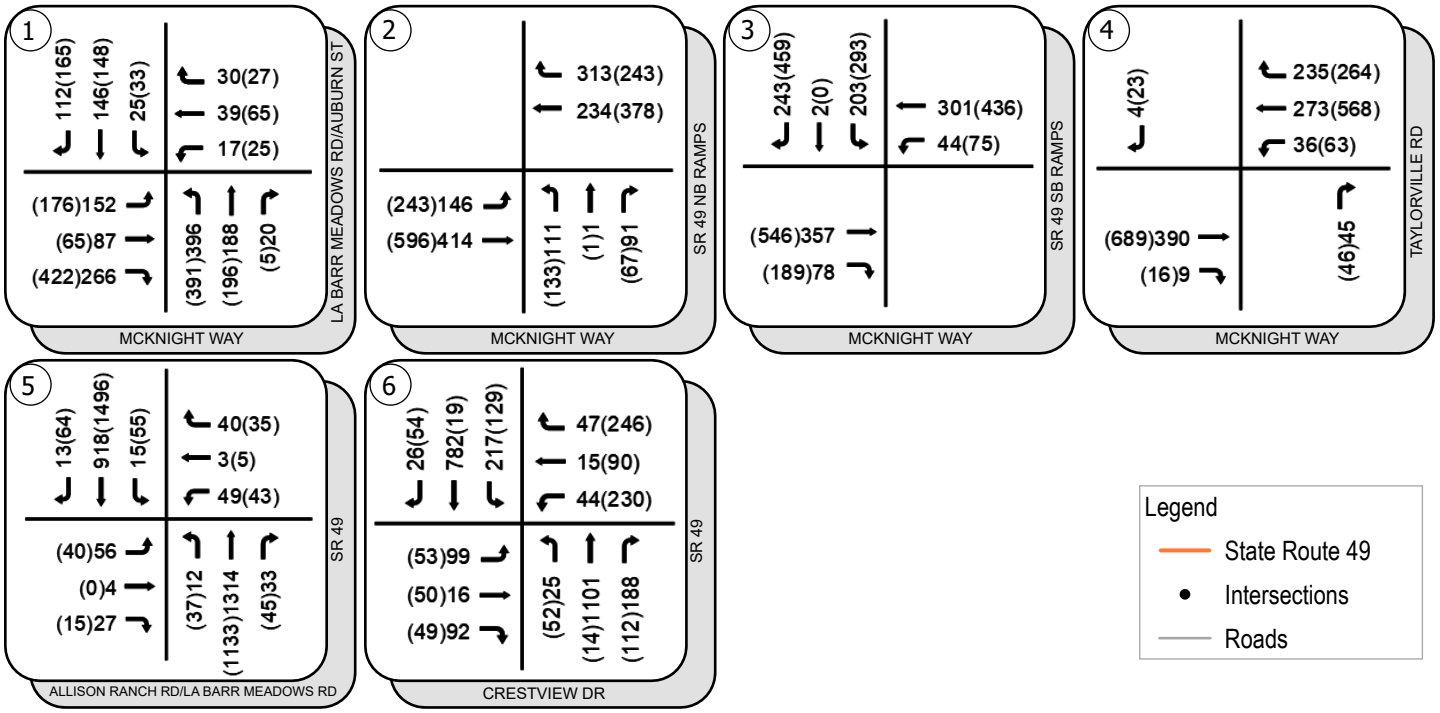
As presented in **Table 8.1**, all study intersections, except the following, are projected to operate at or above the threshold LOS:

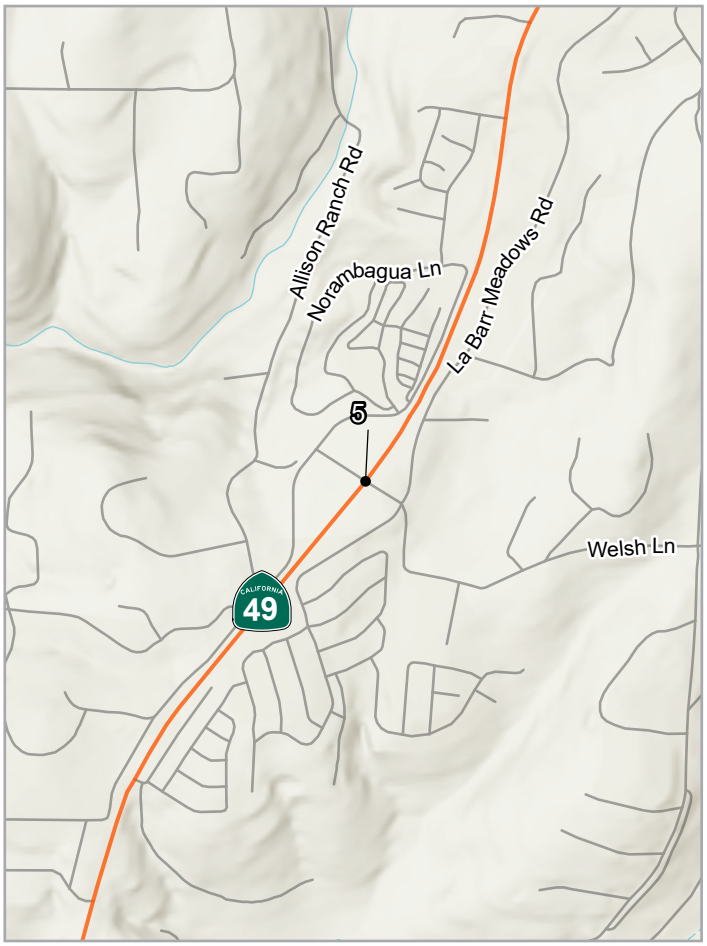
- Intersection 1 – La Barr Meadows Road/S Auburn Street & McKnight Way (increase of 28.4 seconds of delay during the PM peak hour)

Although the lower trip generation and FARs presented in Table 7.2 would be expected to generate less intense impacts; the deficiency identified in Table 8.1 will still be applicable and no changes to the associated improvements would be required.

8.2 Intersection Queueing

Tables 8.2 and 8.3 presents a summary of the *Existing and Existing Plus Project* 95th percentile queues for all study intersections.





Paper Size ANSI A

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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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Existing Plus Project Peak Hour Traffic Volumes

Project No. **11219095**
Revision No. **-**
Date **2/02/2021**

FIGURE 6

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Print date: 05 Feb 2021 - 12:07

Data source: World Topographic Map - labelless: World Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community.
Created by: zporteous

Table 8.2 – Existing and Existing Plus Project Conditions 95th Percentile Queues

Int. #	Intersection/Approach	Control Type	Existing Conditions 95th Percentile Queue (ft)		Existing Plus Project Conditions 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
1	***La Barr Meadows Rd/S Auburn St & McKnight Way***						
	Eastbound Left/Thru	TWSC	5	9	20	52	
	Eastbound Right		36	111	86	132	
	Westbound Left/Thru/Right		66	86	67	86	
	Northbound Left		***282***	157	***282***	***375***	215
	Northbound Thru/Right		172	77	172	550	
	Southbound Left/Thru/Right		73	126	119	290	
	Southbound Right		59	***72***	***72***	***102***	60
2	***SR 49 NB Ramps & McKnight Way***						
	Eastbound Left	Signal	79	107	79	112	180
	Eastbound Thru		34	85	49	170	180
	Westbound Thru		39	58	39	58	115
	Westbound Thru		86	85	89	90	115
	Westbound Right		50	60	50	60	60
	Northbound Left/Thru		114	146	131	313	
	Northbound Right		113	94	118	116	440
3	***SR 49 SB Ramps & McKnight Way***						
	Eastbound Thru	Signal	41	50	46	53	80
	Eastbound Thru		46	46	46	46	80
	Eastbound Right		29	34	30	37	80
	Westbound Thru		64	75	64	75	180
	Westbound Right		154	170	***154***	***208***	180
	Southbound Left/Thru		198	261	208	272	
	Southbound Right		105	204	112	***253***	375
4	***Taylorville Rd & McKnight Way***						
	Eastbound Thru	TWSC	***127***	***157***	***132***	***160***	80
	Eastbound Thru		141	289	193	307	
	Eastbound Thru/Right		14	40	17	55	170
	Westbound Left		19	33	27	41	
	Westbound Thru/Right		32	28	32	28	
	Northbound Right		37	79	99	276	
	Southbound Right		19	40	20	42	

Note: ***Bold*** text indicates queues that exceed available storage

Table 8.3 – Existing and Existing Plus Project Conditions 95th Percentile Queues

Int. #	Intersection/Approach	Control Type	Existing Conditions 95th Percentile Queue (ft)		Existing Plus Project Conditions 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
5	***SR 49 & Allison Ranch Rd/La Barr Meadows Rd***						
	Eastbound Left	Signal	73	60	76	63	155
	Eastbound Thru/Right		43	27	43	31	
	Westbound Left		57	50	67	70	130
	Westbound Thru/Right		46	48	49	49	
	Northbound Left		30	57	31	57	425
	Northbound Thru		181	183	214	216	
	Northbound Thru		138	125	172	176	
	Northbound Right		17	25	19	25	425
	Southbound Left		39	71	39	75	375
	Southbound Thru		155	218	174	273	
	Southbound Thru		107	180	123	244	
	Southbound Right		11	29	17	29	375
6	***SR 49 & Crestview Dr***						
	Eastbound Left	Signal	Plus Project Intersection Only		110	81	130
	Eastbound Thru/Right				88	103	
	Westbound Left				67	***292***	130
	Westbound Thru/Right				71	554	
	Northbound Left				36	100	375
	Northbound Thru				264	294	
	Northbound Thru				238	255	
	Northbound Right				72	55	375
	Southbound Left				195	159	375
	Southbound Thru				143	324	
	Southbound Thru				127	297	
	Southbound Right				20	43	375

Note: ***Bold*** text indicates queues that exceed available storage

As presented in Table 8.2 and 8.3, the following movements are determined to exceed the available storage:

- Intersection 1 – La Barr Meadows Road/S. Auburn Street & McKnight Way
  - AM Peak Hour
    - Northbound Left
    - Southbound Right
  - PM Peak Hour
    - Northbound Left
    - Southbound Right
- Intersection 3 – State Route 49 SB Ramps & McKnight Way
  - AM Peak Hour

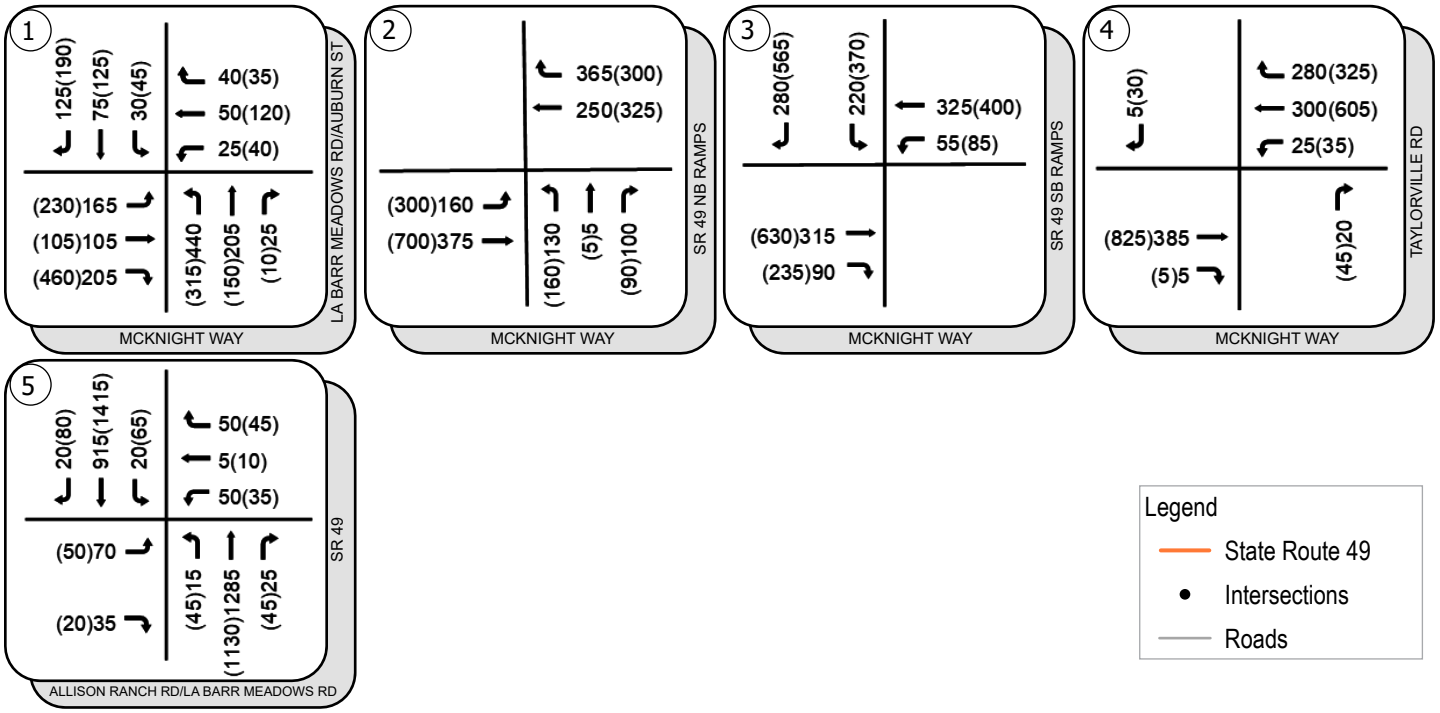
        - Westbound Right
    - PM Peak Hour
        - Westbound Right
        - Southbound Right
- Intersection 4 – Taylorville Road & McKnight Way
    - AM Peak Hour
        - Eastbound Through
    - PM Peak Hour
        - Eastbound Through
- Intersection 6 – State Route 49 & Crestview Drive (Plus Project Only)
    - PM Peak Hour
        - Westbound Left

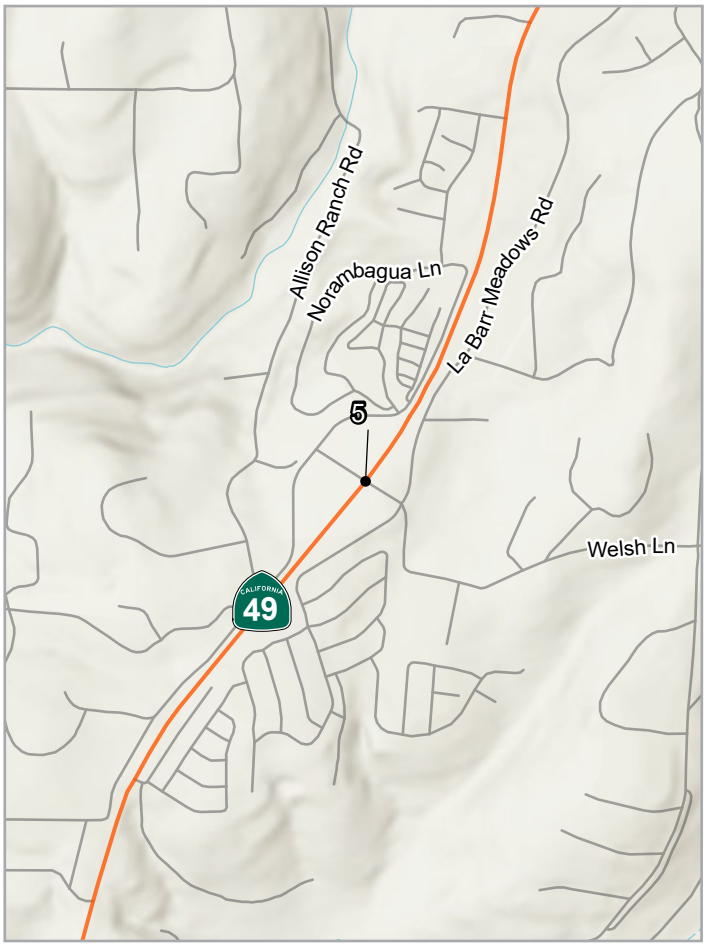
Although the lower trip generation and FARs presented in Table 7.2 would be expected to generate less intense queuing impacts; the queuing deficiencies identified in Tables 8.2 and 8.3 would still be applicable and no changes to the associated improvements would be required.

9. Cumulative (Year 2040) Conditions

The long term future year traffic forecasts for this study have been developed using the Year 2040 Nevada County Travel Demand Model. **Figure 7** presents the Year 2040 No Project weekday AM and PM traffic volumes.

Year 2040 No Project conditions is alternatively referred to as the Cumulative "No Project" conditions where the proposed development remains undeveloped through Year 2040.





Paper Size ANSI A

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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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City of Grass Valley Southern SOI

Year 2040 No Project Peak Hour Traffic Volumes

Project No. **11219095**
Revision No. **-**
Date **Feb 2021**

FIGURE 7

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Print date: 08 Feb 2021 - 08:46

Data source: World Topographic Map - labelless: World Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community.
Created by: zporteous

10. Year 2040 No Project Conditions

The Year 2040 No Project conditions is the analysis scenario in which future operations at study locations, assuming no project development, are analyzed.

10.1 Year 2040 No Project Intersection Operations

Table 10.1 presents a summary of the Year 2040 No Project study intersection LOS conditions.

Table 10.1 – Year 2040 No Project Intersection Level of Service

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?[3]	Delay	LOS	Warrant Met?[3]
1	**La Barr Meadows Rd/S Auburn St & McKnight Way**	**TWSC**	**D**	**52.2**	**F**		**115.6**	**F**	
2	SR 49 NB Ramps & McKnight Way	Signal	D	13.5	B	-	17.8	B	-
3	SR 49 SB Ramps & McKnight Way	Signal	D	19.3	B	-	37.4	D	-
4	Taylorville Rd & McKnight Way	TWSC	D	11.0	B	-	15.2	C	-
5	SR 49 & Allison Ranch Rd/La Barr Meadows Rd	Signal	D	18.5	B	-	21.2	C	-

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal
3. Warrant = Based on California MUTCD Warrant 3
4. **Bold** = Unacceptable Conditions

As presented in **Table 10.1**, all study intersections, except the following, are projected to operate at or above the threshold LOS:

- Intersection 1 – La Barr Meadows Road/S Auburn Street & McKnight Way

10.2 Intersection Queueing

Tables 10.2 and 10.3 presents a summary of the *Year 2040 No Project* 95th percentile queues for all study intersections.

Table 10.2 – Year 2040 No Project 95th Percentile Queues

Int. #	Intersection/Approach	Control Type	Yr 2040 Conditions 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***La Barr Meadows Rd/S Auburn St & McKnight Way***				
	Eastbound Left/Thru	TWSC	9	23	
	Eastbound Right		45	119	
	Westbound Left/Thru/Right		75	175	
	Northbound Left		***521***	***489***	215
	Northbound Thru/Right		629	545	
	Southbound Left/Thru/Right		106	352	
	Southbound Right		***75***	***110***	60
2	***SR 49 NB Ramps & McKnight Way***				
	Eastbound Left	Signal	79	140	180
	Eastbound Thru		45	183	180
	Westbound Thru		49	64	115
	Westbound Thru		93	85	115
	Westbound Right		60	69	60
	Northbound Left/Thru		153	193	
	Northbound Right		119	147	440
3	***SR 49 SB Ramps & McKnight Way***				
	Eastbound Thru	Signal	42	57	80
	Eastbound Thru		47	50	80
	Eastbound Right		30	41	80
	Westbound Thru		67	84	180
	Westbound Right		169	209	180
	Southbound Left/Thru		211	498	
	Southbound Right		133	502	375
4	***Taylorville Rd & McKnight Way***				
	Eastbound Thru	TWSC	***137***	***207***	80
	Eastbound Thru		178	289	
	Eastbound Thru/Right		20	90	170
	Westbound Left		22	33	
	Westbound Thru/Right		34	28	
	Northbound Right		54	449	
	Southbound Right		21	45	

Note: ***Bold*** text indicates queues that exceed available storage

Table 10.3 – Year 2040 No Project 95th Percentile Queues

Int. #	Intersection/Approach	Control Type	Yr 2040 Conditions 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
5	***SR 49 & Allison Ranch Rd/La Barr Meadows Rd***				
	Eastbound Left	Signal	77	70	155
	Eastbound Thru/Right		49	34	
	Westbound Left		75	63	130
	Westbound Thru/Right		59	56	
	Northbound Left		41	66	425
	Northbound Thru		229	229	
	Northbound Thru		198	194	
	Northbound Right		18	28	425
	Southbound Left		39	83	375
	Southbound Thru		179	280	
	Southbound Thru		127	239	
	Southbound Right		20	32	375

Note: ***Bold*** text indicates queues that exceed available storage

As presented in **Tables 10.2 and 10.3**, the following movements are determined to exceed the available storage:

- Intersection 1 – La Barr Meadows Road/S. Auburn Street & McKnight Way
  - AM Peak Hour
    - Northbound Left
    - Southbound Right
  - PM Peak Hour
    - Northbound Left
    - Southbound Right
- Intersection 4 – Taylorville Road & McKnight Way
  - AM Peak Hour
    - Eastbound Through
  - PM Peak Hour
    - Eastbound Through

11. Year 2040 Plus Project Conditions

Year 2040 Plus Project conditions were simulated by superimposing traffic generated by full build-out of the proposed project onto Year 2040 No Project traffic volumes. **Figure 8** presents the Year 2040 Plus Project peak hour traffic volumes.

11.1 Year 2040 Plus Project Intersection Operations

Table 11.1 presents a summary of the Year 2040 Plus Project study intersection LOS conditions.

Table 11.1 – Year 2040 Plus Project Intersection Level of Service

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?[3]	Delay	LOS	Warrant Met?[3]
1	**La Barr Meadows Rd/S Auburn St & McKnight Way**	**TWSC**	**D**	**82.3**	**F**	**Yes**	**243.9**	**F**	**Yes**
2	SR 49 NB Ramps & McKnight Way	Signal	D	13.8	B	-	22.0	C	-
3	SR 49 SB Ramps & McKnight Way	Signal	D	19.6	B	-	37.4	D	-
4	Taylorville Rd & McKnight Way	TWSC	D	11.2	B	-	17.0	C	-
5	SR 49 & Allison Ranch Rd/La Barr Meadows Rd	Signal	D	20.1	C	-	26.7	C	-
6	SR 49 & Crestview Dr	Signal	D	23.8	C	-	54.6	D	-

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal
3. Warrant = Based on California MUTCD Warrant 3
4. **Bold** = Unacceptable Conditions

As presented in **Table 11.1**, all study intersections, except the following, are projected to operate at or above the threshold LOS:

- Intersection 1 – La Barr Meadows Road/S Auburn Street & McKnight Way (increase of 79.9 seconds of delay during the AM peak hour and over 300 seconds of delay during the PM peak hour)

Although the lower trip generation and FARs presented in Table 7.2 would be expected to generate less intense impacts; the deficiency identified in Table 11.1 will still be applicable and no changes to the associated improvements would be required.

11.2 Intersection Queueing

Tables 11.2 and 11.3 presents a summary of the *Year 2040 Plus Project* 95th percentile queues for all study intersections.

Table 11.2 – Year 2040 Plus Project 95th Percentile Queues

Int. #	Intersection/Approach	Control Type	Yr 2040 Conditions 95th Percentile Queue (ft)		Yr 2040 Plus Project Conditions 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
1	***La Barr Meadows Rd/S Auburn St & McKnight Way***						
	Eastbound Left/Thru	TWSC	9	23	9	23	
	Eastbound Right		45	119	99	126	
	Westbound Left/Thru/Right		75	175	77	193	
	Northbound Left		***521***	***489***	***621***	***646***	215
	Northbound Thru/Right		629	545	903	1597	
	Southbound Left/Thru/Right		106	352	138	408	
	Southbound Right		***75***	***110***	***80***	***118***	60
2	***SR 49 NB Ramps & McKnight Way***						
	Eastbound Left	Signal	79	140	79	140	180
	Eastbound Thru		45	***183***	60	***239***	180
	Westbound Thru		49	64	49	69	115
	Westbound Thru		93	85	93	85	115
	Westbound Right		60	***69***	***66***	***69***	60
	Northbound Left/Thru		153	193	175	288	
	Northbound Right		119	147	140	171	440
3	***SR 49 SB Ramps & McKnight Way***						
	Eastbound Thru	Signal	42	57	43	75	80
	Eastbound Thru		47	50	47	68	80
	Eastbound Right		30	41	33	57	80
	Westbound Thru		67	84	69	92	180
	Westbound Right		***169***	***209***	***169***	***209***	180
	Southbound Left/Thru		211	498	212	516	
	Southbound Right		133	***502***	141	***502***	375
4	***Taylorville Rd & McKnight Way***						
	Eastbound Thru	TWSC	***137***	***207***	***145***	***211***	80
	Eastbound Thru		178	289	211	289	
	Eastbound Thru/Right		20	90	25	90	170
	Westbound Left		22	33	25	33	
	Westbound Thru/Right		34	28	34	30	
	Northbound Right		54	449	133	1106	
	Southbound Right		21	45	21	50	

Note: ***Bold*** text indicates queues that exceed available storage

Table 11.3 – Year 2040 Plus Project 95th Percentile Queues

Int. #	Intersection/Approach	Control Type	Yr 2040 Conditions 95th Percentile Queue (ft)		Yr 2040 Plus Project Conditions 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
5	***SR 49 & Allison Ranch Rd/La Barr Meadows Rd***						
	Eastbound Left	Signal	77	70	94	70	155
	Eastbound Thru/Right		49	34	49	36	
	Westbound Left		75	63	83	82	130
	Westbound Thru/Right		59	56	59	59	
	Northbound Left		41	66	41	66	425
	Northbound Thru		229	229	267	253	
	Northbound Thru		198	194	227	210	
	Northbound Right		18	28	28	28	425
	Southbound Left		39	83	41	83	375
	Southbound Thru		179	280	201	324	
	Southbound Thru		127	239	157	297	
	Southbound Right		20	32	20	34	375
6	***SR 49 & Crestview Dr***						
	Eastbound Left	Signal	Plus Project Intersection Only		108	71	130
	Eastbound Thru/Right				95	118	
	Westbound Left				13	***156***	130
	Westbound Left				56	***319***	130
	Westbound Thru/Right				74	740	
	Northbound Left				37	106	375
	Northbound Thru				381	381	
	Northbound Thru				366	337	
	Northbound Right				114	60	375
	Southbound Left				194	196	375
	Southbound Thru				168	465	
	Southbound Thru				158	436	
	Southbound Right				24	39	375

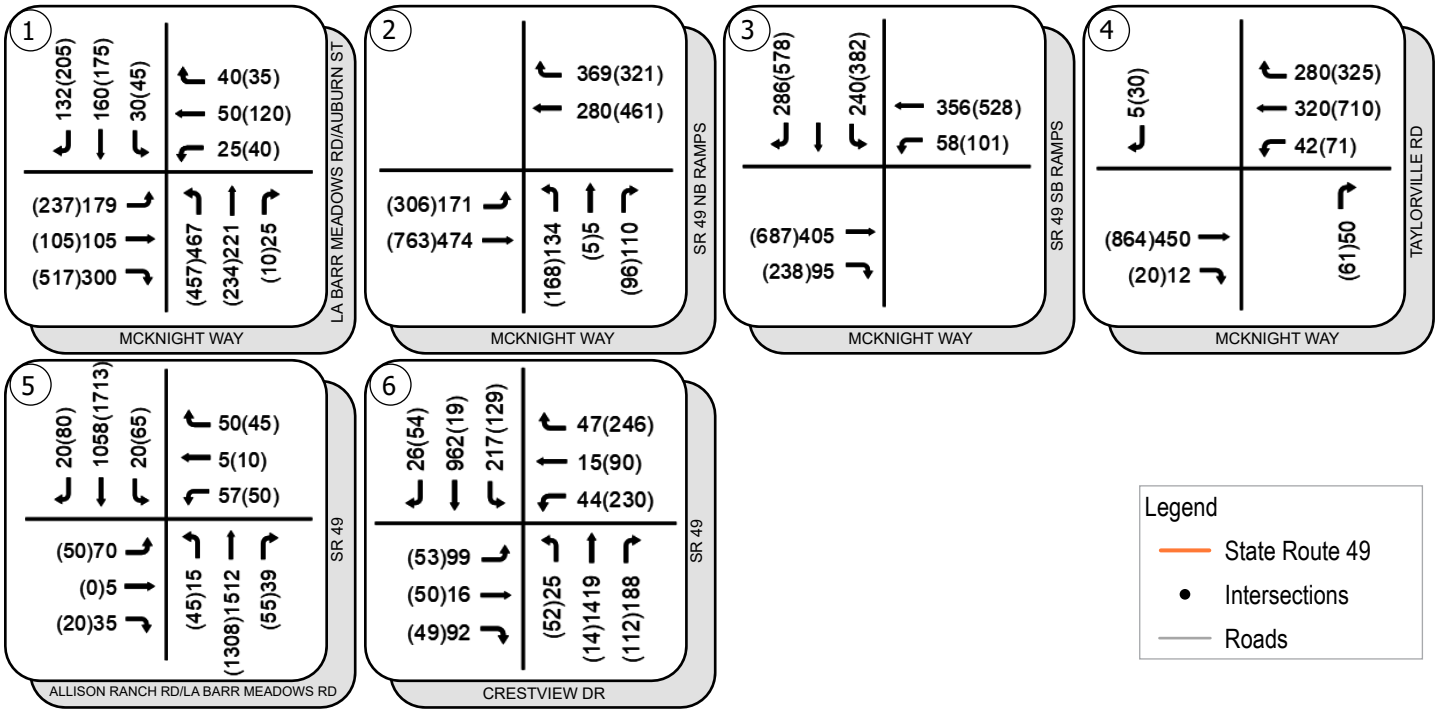
Note: ***Bold*** text indicates queues that exceed available storage

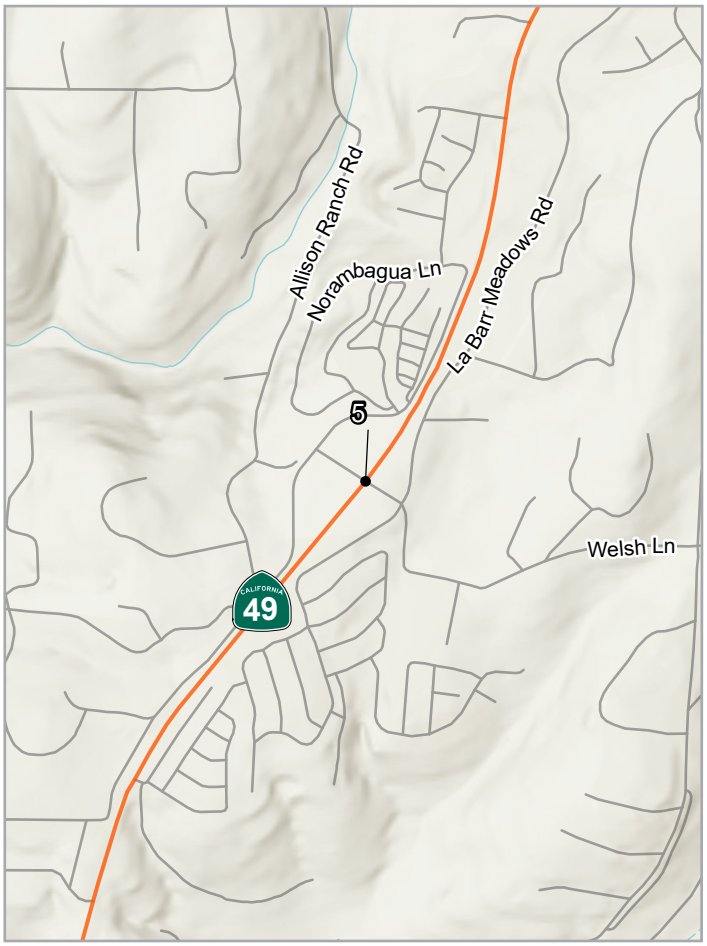
As presented in **Tables 11.2 and 11.3**, the following movements are determined to exceed the available storage:

- Intersection 1 – La Barr Meadows Road/S. Auburn Street & McKnight Way
  - AM Peak Hour
    - Northbound Left
    - Southbound Right
  - PM Peak Hour
    - Westbound Left/Thru/Right
    - Northbound Left
    - Southbound Right

- Intersection 2 – State Route 49 NB Ramps & McKnight Way
    - AM Peak Hour
        - Westbound Right
    - PM Peak Hour
        - Eastbound Through
        - Westbound Right
- Intersection 3 – State Route 49 SB Ramps & McKnight Way
    - AM Peak Hour
        - Westbound Right
    - PM Peak Hour
        - Westbound Right
        - Southbound Right
- Intersection 4 – Taylorville Road & McKnight Way
    - AM Peak Hour
        - Eastbound Through
    - PM Peak Hour
        - Eastbound Through
- Intersection 6 – State Route 49 & Crestview Drive (Plus Project Only)
    - PM Peak Hour
        - Westbound Left

Although the lower trip generation and FARs presented in Table 7.2 would be expected to generate less intense queuing impacts; the queuing deficiencies identified in Tables 11.2 and 11.3 would still be applicable and no changes to the associated improvements would be required.





Paper Size ANSI A

0 425 850 1,275 1,700

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

N

GHD

Ascent Environmental, Inc
City of Grass Valley Southern SOI

Year 2040
Plus Project Peak
Hour Traffic Volumes

Project No. **11219095**
Revision No. **-**
Date **Feb 2021**

FIGURE 8

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Print date: 08 Feb 2021 - 09:01

Data source: World Topographic Map - labelless: World Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community.
Created by: zporteous

12. Alternative Transportation Modes

The following sections discusses the alternative transportation modes present within the project area.

12.1 Pedestrian Facilities

The following presents the existing pedestrian facilities and examines the effects of the project on the existing infrastructure.

12.1.1 Existing Pedestrian Facilities

Within the study area, sidewalks are currently provided as follows:

- La Barr Meadows Road
    - South of McKnight Way on both sides of the roadway for approximately 425 feet
- South Auburn Street
    - Discontinuous sidewalks are currently provided on the west and east side of the roadway.
    - Specifically, sidewalks are present on the east side of the roadway for approximately 485 feet.
- Taylorville Road
    - South of McKnight Way on the west side of the roadway for approximately 1,175 feet
- McKnight Way
    - Both sides of the roadway between Taylorville Road and Freeman Lane
    - Sidewalks are only present on the southside of the roadway from Taylorville Road to S. Auburn Street/La Barr Meadows Road

Within the project vicinity, no sidewalks are identified along or near the intersection of SR 49 & Allison Ranch Road/La Barr Meadows Road.

Crosswalks are identified on McKnight Way along the south side of the roadway across Taylorville Road, SR 49 WB on-ramp, SR 29 EB off-ramp, and La Barr Meadows Road. No crosswalks are identified on La Barr Meadows Road or Taylorville Road.

12.1.2 Project Effects to Pedestrian Facilities

The proposed project includes housing, commercial, and employment centers. With the proposed project, pedestrian facilities should be provided and connect to existing facilities to promote walking between land uses. Additionally, Crestview Drive should provide crosswalks across the westbound and eastbound approaches as well as a minimum of one crosswalk across SR 49. Sidewalks

should connect from the proposed project to these crosswalks to provide safe and comfortable pedestrian activity within the area.

12.2 Bicycle Facilities

The following presents the existing bicycle facilities and examines the effects of the project on the existing infrastructure.

12.2.1 Existing Bicycle Facilities

In the vicinity of the project, the following bicycle facilities exist:

- Class II: bike lanes currently exist along McKnight Way from Freeman Lane to La Barr Meadows Road
- No bicycle facilities are present along Taylorville Road, La Barr Meadows Road, S. Auburn Street, or SR 49.

The Nevada County Transportation Commission provides safe and efficient regional systems of bicycle routes for commuter, school, and recreational use. Within the City of Grass Valley, this study identifies the existing bike facilities with classifications from the California Streets and Highways code as follows:

> *(a) Bike paths or shared use paths, also referred to as "Class I bikeways," which provide a completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with cross-flows by motorists minimized.*
>
> *(b) Bike lanes, also referred to as "Class II bikeways", which provide a restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.*
>
> *(c) Bike routes, also referred to as "Class III bikeways," which provide a right-of-way on street or off-street, designated by signs or permanent markings and shared with pedestrians and motorists.*
>
> *(d) Cycle tracks or separated bikeways, also referred to as "Class IV bikeways," which promote active transportation and provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and which are separated from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.*

12.2.2 Project Effects on Bicycle Facilities

Under existing conditions, the study roadways have very light bicycle use. With the development of the proposed project, the bicycle traffic is expected to increase slightly due to the commercial/retail and manufacturing/industrial employment uses coupled with close proximity to surrounding existing and proposed residential developments.

12.2.2.1 Off-Site Improvements

All off-site roadway improvements on Taylorville Road and La Barr Meadows Road will be designed to accommodate bicycle traffic consistent with the City and County adopted plans.

Additionally, the proposed project should look at accommodating bicycle facilities between the residential development and employment centers with accompanying facilities across SR 49 to ensure complete connectivity within the proposed project area.

12.2.2.2 On-Site Improvements

- Implement the City's development standards to satisfy on-site transportation needs of cyclists
- Install bike racks at store and business fronts
- Install bicycle designated pathways between businesses

12.3 Transit Services

The following presents the existing transit services and examines the effects of the project on these existing facilities.

12.3.1 Existing Transit Services

City of Grass Valley is currently served by the following two public transportation services:

- Gold Country Stage: A fixed route system serving populated centers in western Nevada County plus Colfax (https://mynevadacounty.com/2257/Transit-Services)
- Gold Country Lift: Private, non-profit system for handicapped and elderly patrons, using cars and similar vehicles to transport passengers to shopping and medical appointments (http://goldcountrylift.com/)

The following route serves intersections within the immediate vicinity of the proposed project:

Grass Valley Route: This bus service operates within Grass Valley, with bus stops at S Auburn St at Adams Lane and Whiting Street at Church of Christ on the east side of SR 49. The bus stop near the project on the west side is located at Freeman Lane at Pine Creek Center The service operates hourly for six days a week.

Detailed bus schedules are available from the Gold Country Stage website.

12.3.2 Project Effects on Transit Services

The proposed project is expected to generate a moderate increase in demand on existing transit services. As this increase in ridership is expected to be satisfied by the current services, no additional transit routes or stops are anticipated to be installed. The expected increase in ridership with the proposed project should be accommodate.

12.3.3 Off-Site

Bus stops should be considered as part of the design of the proposed project to promote the use of the transit system. Bus routes should be reevaluated with the project buildout as modification to the existing route within the area could promote additional users as the anticipated job creation from the east development would stimulate transit demand.

13. Deficient Intersections and Proposed Improvements

This section presents recommended project-related improvements measures at the study intersections, developed based on the findings from the analyses presented in the prior sections of this report. The Improvements are provided for both *Existing* conditions and *Year 2040* conditions separately, so it may be possible that the same Improvements at one location are applicable to both conditions.

13.1 Deficient Intersection Significance Criteria

In accordance with the February 2012 City of Grass Valley Traffic Study Guidelines, the following thresholds of significance are used to determine if the proposed project causes a significant deficiency at study intersections and requires improvement:

13.1.1 Intersections

- An intersection or roadway segment deteriorates from an acceptable LOS to LOS E or worse, or
- Distributes a project trip to an intersection or roadway segment currently operating at an unacceptable LOS

In the event of a significant deficiency at a study intersection, cumulative year analysis is required. Proposed improvements to intersections should improve traffic operations from an unacceptable LOS to an acceptable LOS.

13.2 Existing Plus Project Deficient Intersections

Table 13.1 presents the La Barr Meadows/S. Auburn Street and McKnight Way intersection as the only location projected to operate at unacceptable levels of service under *Existing Plus Project* conditions.

Table 13.1 – Existing Plus Project Significant Deficient Intersections

		PM Peak Hour								
#	Intersection	Control Type[1,2]	Target LOS	Existing LOS	Existing Plus Project	Existing Delay (D1)	Existing Plus Project	Delay Increase (D2-D1)	Signal Warrant Met?	Significant Impact?
1	**La Barr Meadows Rd/S Auburn St & McKnight Way**	**TWSC**	**D**	B	**E**	13.6	**42.0**	**28.4**	**Yes**	**Yes**

1.TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections
3. Warrant = Based on California MUTCD Warrant 3
4. **Bold** = Unacceptable Conditions

13.3 Existing Plus Project Improvements

The following improvements are proposed to provide acceptable operations at La Barr Meadows/S. Auburn Street and McKnight Way intersection where a project's effects are determined to be significant:

13.3.1 Intersection 1 – La Barr Meadows Road/S Auburn Street & McKnight Way

The proposed project creates a significant deficiency in the weekday PM peak hour by adding a project trip to an intersection operating unacceptably between the *Existing No Project* and *Existing Plus Project* conditions. The following improvements are proposed to restore the intersection to acceptable LOS for the weekday PM peak hour:

- Construct a roundabout combining the intersection of La Barr Meadows Road/S Auburn Street & McKnight Way with SR 49 NB Ramps & McKnight Way.

There are queuing impacts under existing conditions that are exacerbated with the addition of the proposed project. Furthermore, the closely spaced intersections along the McKnight Way corridor act as a system. For the roundabout at intersections 1 and 2 to operate effectively, a second roundabout at intersections 3 and 4 would be necessary.

These intersections have been identified by previous studies to be converted to roundabouts. The identified improvement is consistent with these previous studies and the City's General Plan.

13.3.2 Significance After Improvement

Table 13.2 presents the mitigated LOS operations assuming the stated improvements are implemented.

Table 13.2 – Existing Plus Project After Improvements Intersection Level of Service

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	La Barr Meadows Rd/S Auburn St & McKnight Way	RNDBT	D	12.2	B	14.8	B
2	SR 49 NB Ramps & McKnight Way	Combined with Intersection 1					
3	SR 49 SB Ramps & McKnight Way	RNDBT	D	6.9	A	8.3	A
4	Taylorville Rd & McKnight Way	Combined with Intersection 3					

Notes:
1. RNDBT = Roundabout
2. LOS = Delay based on average of all approaches for RNDBT

As presented in **Table 13.2**, the proposed improvement for Intersection 1 is projected to elevate the LOS from F to B for the PM peak hour of the *Existing Plus Project* conditions. AM peak hour was evaluated to ensure the improvement would operate acceptable. The project AM peak hour for Existing Plus Project conditions is LOS B.as the improvement is expected to decrease the delay which is already acceptable.

13.4 Year 2040 Plus Project Deficient Intersections

Table 13.3 presents the intersections projected to operate at unacceptable levels of service under the *Year 2040 Plus Project* conditions.

Table 13.3 – Year 2040 Plus Project Significant Deficient Intersections

AM Peak Hour										
#	Intersection	Control Type[1,2]	Target LOS	Year 2040 LOS	Plus Project LOS	2040 Delay (D1)	Plus Project Delay (D2)	Delay Increase (D2-D1)	Signal Warrant Met?	Significant Impact?
1	**La Barr Meadows Rd/S Auburn St & McKnight Way**	**TWSC**	**D**	**F**	**F**	**52.2**	**82.3**	**30.1**	**Yes**	**Yes**

Notes:

PM Peak Hour										
#	Intersection	Control Type[1,2]	Target LOS	Year 2040 LOS	Year 2040 Plus Project	Year 2040 Delay	Year 2040 Plus Project	Delay Increase (D2-D1)	Signal Warrant Met?	Significant Impact?
1	**La Barr Meadows Rd/S Auburn St & McKnight Way**	**TWSC**	**D**	**F**	**F**	**115.6**	**243.9**	**128.3**	**Yes**	**Yes**

1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections
3. Warrant = Based on California MUTCD Warrant 3
4. **Bold** = Unacceptable Conditions

13.5 Year 2040 Plus Project Improvements

The following improvements are proposed to provide acceptable operations at La Barr Meadows/S. Auburn Street and McKnight Way intersection where a project's effects are determined to be significant:

13.5.1 Intersection 1 – La Barr Meadows Road/S Auburn Street & McKnight Way

The proposed project creates a significant deficiency in the weekday AM and PM peak hour by adding a project trip to an intersection operating unacceptably between the *Year 2040 No Project* and *Year 2040 Plus Project* conditions. The following improvements are proposed to restore the intersection to acceptable LOS for the weekday AM and PM peak hour:

- Construct a roundabout combining the intersection of La Barr Meadows Road/S Auburn Street & McKnight Way with SR 49 NB Ramps & McKnight Way.

There are queuing impacts under Year 2040 conditions that are exacerbated with the addition of the proposed project. Furthermore, the closely spaced intersections along the McKnight Way corridor act as a system. For the roundabout at intersections 1 and 2 to operate effectively, a second roundabout at intersections 3 and 4 would be necessary.

These intersections have been identified by previous studies to be converted to roundabouts. The identified improvement is consistent with these previous studies and the City's General Plan.

13.5.2 Significance After Improvement

Table 13.4 presents the mitigated LOS operations assuming the stated improvements are implemented.

Table 13.4 – Year 2040 Plus Project Significant Deficient Intersections

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	La Barr Meadows Rd/S Auburn St & McKnight Way	RNDBT	D	23.3	C	26.6	C
2	SR 49 NB Ramps & McKnight Way	Combined with Intersection 1					
3	SR 49 SB Ramps & McKnight Way	Signal	D	7.3	A	10.0	A
4	Taylorville Rd & McKnight Way	Combined with Intersection 3					

Notes:
1. RNDBT = Roundabout
2. LOS = Delay based on average of all approaches for RNDBT

As presented in **Table 13.4**, the proposed improvement for Intersection 1 is projected to elevate the LOS from F to C for the AM and PM peak hour of the *Cumulative Plus Project* conditions.

Appendix Index

Appendix A Synchro and Sidra Printouts

1: La Barr Meadows Rd/S Auburn St & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.4	0.1	0.5
Denied Del/Veh (s)	0.0	0.1	2.4	1.6	1.4
Total Delay (hr)	0.1	0.2	3.0	0.4	3.6
Total Del/Veh (s)	0.6	8.9	18.5	7.6	10.4
Stop Delay (hr)	0.0	0.2	2.6	0.3	3.2
Stop Del/Veh (s)	0.3	7.3	16.5	6.3	9.1

2: SR 49 NB Ramps & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	1.8	0.3
Total Delay (hr)	1.3	1.3	1.6	4.3
Total Del/Veh (s)	10.7	8.8	30.7	13.0
Stop Delay (hr)	1.2	1.2	1.5	4.0
Stop Del/Veh (s)	9.6	8.1	29.2	12.1

3: SR 49 SB Ramps & McKnight Way Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.3	0.3
Denied Del/Veh (s)	0.0	0.0	2.3	0.9
Total Delay (hr)	1.9	1.8	2.3	6.0
Total Del/Veh (s)	19.2	21.4	19.6	20.0
Stop Delay (hr)	1.8	1.5	2.1	5.4
Stop Del/Veh (s)	18.3	18.4	17.8	18.2

Intersection: 1: La Barr Meadows Rd/S Auburn St & McKnight Way

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	LTR	R
Maximum Queue (ft)	9	65	87	341	226	108	74
Average Queue (ft)	0	8	39	134	64	38	32
95th Queue (ft)	5	36	66	282	172	73	59
Link Distance (ft)	63	63	334		880	521	
Upstream Blk Time (%)		0					
Queuing Penalty (veh)		0					
Storage Bay Dist (ft)				215			60
Storage Blk Time (%)				6		2	1
Queuing Penalty (veh)				12		1	1

Intersection: 2: SR 49 NB Ramps & McKnight Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	LT	R
Maximum Queue (ft)	87	51	58	76	74	152	141
Average Queue (ft)	40	10	13	46	14	56	53
95th Queue (ft)	79	34	39	86	50	114	113
Link Distance (ft)	219	219	63	63	63	950	
Upstream Blk Time (%)			0	9	1		
Queuing Penalty (veh)			0	16	1		
Storage Bay Dist (ft)							440
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: SR 49 SB Ramps & McKnight Way

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	LT	R
Maximum Queue (ft)	41	42	41	84	186	235	147
Average Queue (ft)	27	33	14	25	79	106	59
95th Queue (ft)	41	46	29	64	154	198	105
Link Distance (ft)	21	21	21	219	219	681	
Upstream Blk Time (%)	60	55	3		0		
Queuing Penalty (veh)	68	63	3		0		
Storage Bay Dist (ft)							375
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Taylorville Rd & McKnight Way

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	T	T	TR	L	TR	R	R
Maximum Queue (ft)	124	181	30	26	63	40	34
Average Queue (ft)	68	60	2	4	4	12	3
95th Queue (ft)	127	141	14	19	32	37	19
Link Distance (ft)		202	202	21	21	968	390
Upstream Blk Time (%)		1		0	0		
Queuing Penalty (veh)		1		1	0		
Storage Bay Dist (ft)	100						
Storage Blk Time (%)	5	3					
Queuing Penalty (veh)	6	4					

Intersection: 5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	92	63	66	55	38	210	178	21	57	212	176	20
Average Queue (ft)	36	17	26	23	9	102	63	4	12	81	39	2
95th Queue (ft)	73	43	57	46	30	181	138	17	39	155	107	11
Link Distance (ft)		319		323		774	774			727	727	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	155		130		425			425	375			375
Storage Blk Time (%)												
Queuing Penalty (veh)												

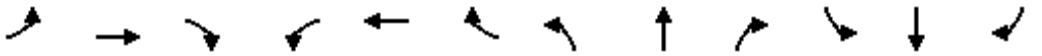
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	325	2	19	253	235	0	0	15	0	0	4
Future Vol, veh/h	0	325	2	19	253	235	0	0	15	0	0	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	100	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	0	339	2	20	264	245	0	0	16	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	341	0	0	-	-	171	-	-	387
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	5.33	-	-	-	-	7.13	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.119	-	-	-	-	3.919	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	805	-	-	0	0	718	0	0	660
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	805	-	-	-	-	718	-	-	660
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	10.1	10.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	718	-	-	805	-	-	660
HCM Lane V/C Ratio	0.022	-	-	0.025	-	-	0.006
HCM Control Delay (s)	10.1	-	-	9.6	-	-	10.5
HCM Lane LOS	B	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	4	27	42	3	40	12	1087	19	15	775	13
Future Volume (veh/h)	56	4	27	42	3	40	12	1087	19	15	775	13
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	60	4	29	45	3	43	13	1169	20	16	833	14
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	145	29	211	124	14	205	55	1758	784	65	1779	794
Arrive On Green	0.08	0.15	0.15	0.07	0.14	0.14	0.03	0.50	0.50	0.04	0.51	0.51
Sat Flow, veh/h	1753	193	1397	1753	103	1473	1753	3497	1560	1753	3497	1560
Grp Volume(v), veh/h	60	0	33	45	0	46	13	1169	20	16	833	14
Grp Sat Flow(s),veh/h/ln	1753	0	1589	1753	0	1576	1753	1749	1560	1753	1749	1560
Q Serve(g_s), s	2.6	0.0	1.5	2.0	0.0	2.1	0.6	20.1	0.5	0.7	12.4	0.4
Cycle Q Clear(g_c), s	2.6	0.0	1.5	2.0	0.0	2.1	0.6	20.1	0.5	0.7	12.4	0.4
Prop In Lane	1.00		0.88	1.00		0.93	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	145	0	240	124	0	220	55	1758	784	65	1779	794
V/C Ratio(X)	0.41	0.00	0.14	0.36	0.00	0.21	0.24	0.66	0.03	0.24	0.47	0.02
Avail Cap(c_a), veh/h	326	0	591	326	0	586	435	2601	1160	435	2601	1160
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	0.0	29.7	35.7	0.0	30.8	38.1	15.0	10.1	37.7	12.8	9.8
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.7	0.0	0.2	0.8	0.9	0.0	0.7	0.4	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	1.1	0.0	0.5	0.9	0.0	0.8	0.2	6.5	0.2	0.3	3.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	0.0	29.8	36.4	0.0	30.9	39.0	15.9	10.1	38.4	13.2	9.8
LnGrp LOS	D	A	C	D	A	C	D	B	B	D	B	A
Approach Vol, veh/h		93			91			1202			863	
Approach Delay, s/veh		33.7			33.6			16.1			13.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	47.0	9.8	16.8	6.6	47.5	10.8	15.9
Change Period (Y+Rc), s	4.1	6.4	4.1	4.6	4.1	6.4	4.1	4.6
Max Green Setting (Gmax), s	20.0	60.0	15.0	30.0	20.0	60.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	2.7	22.1	4.0	3.5	2.6	14.4	4.6	4.1
Green Ext Time (p_c), s	0.0	18.4	0.0	0.1	0.0	12.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

1: La Barr Meadows Rd/S Auburn St & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.3	0.1	0.4
Denied Del/Veh (s)	0.0	0.2	2.5	1.3	1.0
Total Delay (hr)	0.3	0.4	1.4	0.9	3.0
Total Del/Veh (s)	1.8	12.1	13.6	11.2	7.8
Stop Delay (hr)	0.3	0.3	1.2	0.8	2.6
Stop Del/Veh (s)	1.5	10.2	11.6	9.5	6.6

2: SR 49 NB Ramps & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	1.3	0.2
Total Delay (hr)	2.0	1.2	2.2	5.4
Total Del/Veh (s)	9.0	8.9	43.3	13.3
Stop Delay (hr)	1.6	1.1	2.1	4.8
Stop Del/Veh (s)	7.3	8.3	41.2	11.9

3: SR 49 SB Ramps & McKnight Way Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.5	0.5
Denied Del/Veh (s)	0.0	0.0	2.6	1.1
Total Delay (hr)	2.8	2.7	4.0	9.4
Total Del/Veh (s)	14.6	26.1	19.2	18.8
Stop Delay (hr)	2.6	2.3	3.5	8.5
Stop Del/Veh (s)	13.7	22.7	17.0	16.9

Intersection: 1: La Barr Meadows Rd/S Auburn St & McKnight Way

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	LTR	R
Maximum Queue (ft)	14	124	120	198	99	168	85
Average Queue (ft)	1	49	46	87	45	66	37
95th Queue (ft)	9	111	86	157	77	126	72
Link Distance (ft)	53	53	334		801	540	
Upstream Blk Time (%)	0	7					
Queuing Penalty (veh)	0	21					
Storage Bay Dist (ft)				215			60
Storage Blk Time (%)				1		9	1
Queuing Penalty (veh)				1		7	1

Intersection: 2: SR 49 NB Ramps & McKnight Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	LT	R
Maximum Queue (ft)	124	127	72	77	58	171	110
Average Queue (ft)	51	29	21	53	22	77	42
95th Queue (ft)	107	85	58	85	60	146	94
Link Distance (ft)	224	224	53	53	53	903	
Upstream Blk Time (%)		0	2	15	2		
Queuing Penalty (veh)		0	2	23	3		
Storage Bay Dist (ft)							440
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: SR 49 SB Ramps & McKnight Way

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	LT	R
Maximum Queue (ft)	48	52	42	98	194	288	262
Average Queue (ft)	40	38	17	32	94	155	120
95th Queue (ft)	50	46	34	75	170	261	204
Link Distance (ft)	29	29	29	224	224	692	
Upstream Blk Time (%)	54	60	2		0		
Queuing Penalty (veh)	123	135	5		0		
Storage Bay Dist (ft)							375
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Intersection: 4: Taylorville Rd & McKnight Way

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	T	T	TR	L	TR	R	R
Maximum Queue (ft)	124	246	52	34	60	92	34
Average Queue (ft)	96	168	13	10	4	35	16
95th Queue (ft)	157	289	40	33	28	79	40
Link Distance (ft)		233	233	29	29	947	390
Upstream Blk Time (%)		7		2	0		
Queuing Penalty (veh)		25		8	1		
Storage Bay Dist (ft)	100						
Storage Blk Time (%)	10	22					
Queuing Penalty (veh)	22	48					

Intersection: 5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	73	28	61	60	67	213	158	32	92	227	209	39
Average Queue (ft)	27	9	19	22	27	103	62	8	32	123	84	10
95th Queue (ft)	60	27	50	48	57	183	125	25	71	218	180	29
Link Distance (ft)		314		309		764	764			796	796	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	155		130		425			425	375			375
Storage Blk Time (%)												
Queuing Penalty (veh)												

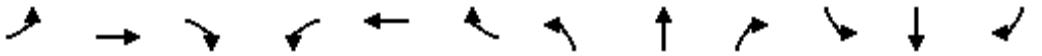
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	650	1	27	463	264	0	0	30	0	0	23
Future Vol, veh/h	0	650	1	27	463	264	0	0	30	0	0	23
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	100	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	0	677	1	28	482	275	0	0	31	0	0	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	678	0	0	-	-	339	-	-	620
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	5.33	-	-	-	-	7.13	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.119	-	-	-	-	3.919	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	559	-	-	0	0	561	0	0	487
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	559	-	-	-	-	561	-	-	487
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	11.8	12.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	561	-	-	559	-	-	487
HCM Lane V/C Ratio	0.056	-	-	0.05	-	-	0.049
HCM Control Delay (s)	11.8	-	-	11.8	-	-	12.8
HCM Lane LOS	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	0	15	28	5	35	37	955	35	55	1198	64
Future Volume (veh/h)	40	0	15	28	5	35	37	955	35	55	1198	64
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	0	16	31	5	38	41	1049	38	60	1316	70
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	0	211	96	23	171	127	1817	811	154	1871	835
Arrive On Green	0.07	0.00	0.13	0.05	0.12	0.12	0.07	0.51	0.51	0.09	0.53	0.53
Sat Flow, veh/h	1781	0	1585	1781	188	1426	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	44	0	16	31	0	43	41	1049	38	60	1316	70
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1614	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.1	0.0	0.8	1.5	0.0	2.2	2.0	18.3	1.1	2.8	24.9	2.0
Cycle Q Clear(g_c), s	2.1	0.0	0.8	1.5	0.0	2.2	2.0	18.3	1.1	2.8	24.9	2.0
Prop In Lane	1.00		1.00	1.00		0.88	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	0	211	96	0	194	127	1817	811	154	1871	835
V/C Ratio(X)	0.37	0.00	0.08	0.32	0.00	0.22	0.32	0.58	0.05	0.39	0.70	0.08
Avail Cap(c_a), veh/h	299	0	533	299	0	542	399	2388	1065	399	2388	1065
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	0.0	33.9	40.7	0.0	35.5	39.4	15.1	10.9	38.5	15.9	10.5
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.7	0.0	0.2	0.5	0.6	0.1	0.6	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.3	0.7	0.0	0.8	0.8	6.2	0.4	1.2	8.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	0.0	34.0	41.4	0.0	35.7	39.9	15.7	11.0	39.1	17.1	10.6
LnGrp LOS	D	A	C	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		60			74			1128			1446	
Approach Delay, s/veh		38.8			38.1			16.5			17.7	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	52.1	8.9	16.5	10.5	53.4	10.1	15.3
Change Period (Y+Rc), s	4.1	6.4	4.1	4.6	4.1	6.4	4.1	4.6
Max Green Setting (Gmax), s	20.0	60.0	15.0	30.0	20.0	60.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	4.8	20.3	3.5	2.8	4.0	26.9	4.1	4.2
Green Ext Time (p_c), s	0.0	16.5	0.0	0.0	0.0	20.2	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

1: La Barr Meadows Rd/S Auburn St & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.4	0.1	0.5
Denied Del/Veh (s)	0.0	0.2	2.4	1.1	1.2
Total Delay (hr)	0.2	0.2	3.3	0.9	4.6
Total Del/Veh (s)	1.7	10.0	20.0	11.6	11.5
Stop Delay (hr)	0.2	0.2	3.0	0.7	4.1
Stop Del/Veh (s)	1.5	8.3	18.1	9.5	10.1

2: SR 49 NB Ramps & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.1	1.7	0.3
Total Delay (hr)	1.0	1.3	2.2	4.6
Total Del/Veh (s)	6.7	9.2	35.7	12.7
Stop Delay (hr)	0.9	1.3	2.1	4.2
Stop Del/Veh (s)	5.6	8.6	34.0	11.6

3: SR 49 SB Ramps & McKnight Way Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.3	0.3
Denied Del/Veh (s)	0.1	0.0	2.3	0.9
Total Delay (hr)	2.2	2.0	2.4	6.6
Total Del/Veh (s)	18.5	20.3	19.2	19.3
Stop Delay (hr)	2.1	1.7	2.2	5.9
Stop Del/Veh (s)	17.6	17.3	17.3	17.4

4: Taylorville Rd & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	2.4	0.1	0.8	0.0	3.3
Total Del/Veh (s)	22.0	0.9	61.7	3.8	12.2
Stop Delay (hr)	2.1	0.1	0.8	0.0	3.0
Stop Del/Veh (s)	19.8	0.4	61.4	3.6	11.0

5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.1	0.1	0.1	0.1	0.3
Denied Del/Veh (s)	2.7	2.2	0.3	0.2	0.5
Total Delay (hr)	0.5	0.5	3.8	2.3	7.1
Total Del/Veh (s)	20.6	19.6	10.1	8.6	10.2
Stop Delay (hr)	0.5	0.5	1.2	0.9	3.1
Stop Del/Veh (s)	19.1	18.4	3.3	3.3	4.4

6: SR 49 & Crestview Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.1	0.1	0.2	0.2	0.7
Denied Del/Veh (s)	2.0	1.5	0.6	0.8	0.9
Total Delay (hr)	1.5	0.9	7.1	4.1	13.6
Total Del/Veh (s)	24.6	25.8	18.3	13.9	17.5
Stop Delay (hr)	1.4	0.9	3.5	2.7	8.4
Stop Del/Veh (s)	22.7	24.3	9.0	9.1	10.8

83: Dwy & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.0	0.2	0.1
Total Delay (hr)	0.1	0.1	0.3	0.5
Total Del/Veh (s)	1.1	1.8	6.1	2.4
Stop Delay (hr)	0.0	0.1	0.3	0.4
Stop Del/Veh (s)	0.5	0.7	5.8	1.7

Total Network Performance

Denied Delay (hr)	1.9
Denied Del/Veh (s)	0.9
Total Delay (hr)	46.6
Total Del/Veh (s)	22.3
Stop Delay (hr)	29.7
Stop Del/Veh (s)	14.3

Intersection: 1: La Barr Meadows Rd/S Auburn St & McKnight Way

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	LTR	R
Maximum Queue (ft)	33	100	89	310	163	150	85
Average Queue (ft)	1	32	36	136	61	63	35
95th Queue (ft)	20	86	67	261	96	119	72
Link Distance (ft)	63	63	334		889	538	
Upstream Blk Time (%)	0	2					
Queuing Penalty (veh)	0	6					
Storage Bay Dist (ft)				215			60
Storage Blk Time (%)				6		10	0
Queuing Penalty (veh)				13		5	1

Intersection: 2: SR 49 NB Ramps & McKnight Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	LT	R
Maximum Queue (ft)	74	74	46	74	69	151	154
Average Queue (ft)	27	17	13	49	18	71	63
95th Queue (ft)	63	49	37	89	56	131	118
Link Distance (ft)	219	219	63	63	63	948	
Upstream Blk Time (%)			0	10	1		
Queuing Penalty (veh)			0	18	1		
Storage Bay Dist (ft)							440
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: SR 49 SB Ramps & McKnight Way

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	LT	R
Maximum Queue (ft)	44	46	40	74	180	268	134
Average Queue (ft)	29	35	15	23	85	113	66
95th Queue (ft)	46	45	30	58	154	208	112
Link Distance (ft)	21	21	21	219	219	742	
Upstream Blk Time (%)	59	69	2		0		
Queuing Penalty (veh)	85	100	4		0		
Storage Bay Dist (ft)							375
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Taylorville Rd & McKnight Way

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	T	T	TR	L	TR	R	R
Maximum Queue (ft)	124	201	30	30	58	133	30
Average Queue (ft)	63	100	3	7	2	44	4
95th Queue (ft)	132	193	17	27	24	99	20
Link Distance (ft)		202	202	21	21	962	390
Upstream Blk Time (%)		2		1	0		
Queuing Penalty (veh)		4		3	0		
Storage Bay Dist (ft)	100						
Storage Blk Time (%)	4	12					
Queuing Penalty (veh)	5	15					

Intersection: 5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	97	50	82	61	43	286	223	27	44	225	178	34
Average Queue (ft)	38	17	32	22	10	115	78	5	9	91	48	3
95th Queue (ft)	76	43	67	49	31	214	172	19	29	174	123	17
Link Distance (ft)		319		323		774	774			727	727	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	155		130		425			425	375			375
Storage Blk Time (%)	0											
Queuing Penalty (veh)	0											

Intersection: 6: SR 49 & Crestview Dr

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	135	107	77	95	58	299	259	99	222	194	199	30
Average Queue (ft)	59	44	29	33	11	171	145	37	113	72	56	4
95th Queue (ft)	110	88	67	71	36	264	238	72	195	143	127	20
Link Distance (ft)		649		577		1334	1334			1170	1170	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130		130		375			375	375			375
Storage Blk Time (%)	1	0	0	0								
Queuing Penalty (veh)	1	0	0	0								

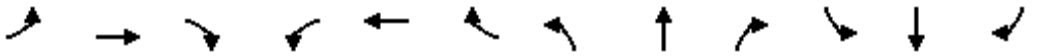
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	390	9	36	273	235	0	0	45	0	0	4
Future Vol, veh/h	0	390	9	36	273	235	0	0	45	0	0	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	100	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	0	406	9	38	284	245	0	0	47	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	415	0	0	-	-	208	-	-	407
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	5.33	-	-	-	-	7.13	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.119	-	-	-	-	3.919	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	743	-	-	0	0	680	0	0	643
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	743	-	-	-	-	680	-	-	643
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	10.7	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	680	-	-	743	-	-	643
HCM Lane V/C Ratio	0.069	-	-	0.05	-	-	0.006
HCM Control Delay (s)	10.7	-	-	10.1	-	-	10.6
HCM Lane LOS	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	4	27	49	3	40	12	1314	33	15	918	13
Future Volume (veh/h)	56	4	27	49	3	40	12	1314	33	15	918	13
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	60	4	29	53	3	43	13	1413	35	16	987	14
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	135	25	183	128	13	187	54	1919	856	64	1939	865
Arrive On Green	0.08	0.13	0.13	0.07	0.13	0.13	0.03	0.55	0.55	0.04	0.55	0.55
Sat Flow, veh/h	1753	193	1397	1753	103	1473	1753	3497	1560	1753	3497	1560
Grp Volume(v), veh/h	60	0	33	53	0	46	13	1413	35	16	987	14
Grp Sat Flow(s),veh/h/ln	1753	0	1589	1753	0	1576	1753	1749	1560	1753	1749	1560
Q Serve(g_s), s	3.0	0.0	1.7	2.6	0.0	2.4	0.7	27.9	0.9	0.8	16.0	0.4
Cycle Q Clear(g_c), s	3.0	0.0	1.7	2.6	0.0	2.4	0.7	27.9	0.9	0.8	16.0	0.4
Prop In Lane	1.00		0.88	1.00		0.93	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	0	209	128	0	200	54	1919	856	64	1939	865
V/C Ratio(X)	0.44	0.00	0.16	0.41	0.00	0.23	0.24	0.74	0.04	0.25	0.51	0.02
Avail Cap(c_a), veh/h	289	0	523	289	0	519	385	2303	1027	385	2303	1027
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	35.1	40.4	0.0	35.8	43.1	15.6	9.5	42.7	12.6	9.1
Incr Delay (d2), s/veh	0.8	0.0	0.1	0.8	0.0	0.2	0.8	1.5	0.0	0.7	0.4	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	1.3	0.0	0.7	1.2	0.0	0.9	0.3	9.2	0.3	0.3	5.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	0.0	35.2	41.2	0.0	36.0	44.0	17.1	9.5	43.4	13.1	9.1
LnGrp LOS	D	A	D	D	A	D	D	B	A	D	B	A
Approach Vol, veh/h		93			99			1461			1017	
Approach Delay, s/veh		39.0			38.8			17.2			13.5	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	56.4	10.7	16.6	6.9	56.9	11.1	16.2
Change Period (Y+Rc), s	4.1	6.4	4.1	4.6	4.1	6.4	4.1	4.6
Max Green Setting (Gmax), s	20.0	60.0	15.0	30.0	20.0	60.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	2.8	29.9	4.6	3.7	2.7	18.0	5.0	4.4
Green Ext Time (p_c), s	0.0	20.1	0.0	0.1	0.0	15.3	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	17.3
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	16	92	44	15	65	25	1197	188	217	810	26
Future Volume (veh/h)	99	16	92	44	15	65	25	1197	188	217	810	26
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	104	17	97	46	16	68	26	1260	198	228	853	27
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	29	165	58	24	102	39	1562	697	275	2032	906
Arrive On Green	0.08	0.12	0.12	0.03	0.08	0.08	0.02	0.44	0.44	0.15	0.57	0.57
Sat Flow, veh/h	1781	242	1380	1781	311	1322	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	104	0	114	46	0	84	26	1260	198	228	853	27
Grp Sat Flow(s),veh/h/ln	1781	0	1622	1781	0	1632	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.4	0.0	5.1	2.0	0.0	3.8	1.1	23.7	6.2	9.5	10.4	0.6
Cycle Q Clear(g_c), s	4.4	0.0	5.1	2.0	0.0	3.8	1.1	23.7	6.2	9.5	10.4	0.6
Prop In Lane	1.00		0.85	1.00		0.81	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	0	194	58	0	126	39	1562	697	275	2032	906
V/C Ratio(X)	0.78	0.00	0.59	0.79	0.00	0.67	0.66	0.81	0.28	0.83	0.42	0.03
Avail Cap(c_a), veh/h	262	0	207	262	0	208	132	1973	880	503	2713	1210
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	0.0	32.0	36.9	0.0	34.5	37.3	18.7	13.8	31.5	9.3	7.2
Incr Delay (d2), s/veh	9.2	0.0	3.8	20.9	0.0	6.0	17.1	2.0	0.2	6.3	0.1	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	2.2	0.0	2.2	1.2	0.0	1.7	0.6	8.2	2.1	4.2	2.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	35.9	57.8	0.0	40.5	54.4	20.7	14.0	37.9	9.4	7.2
LnGrp LOS	D	A	D	E	A	D	D	C	B	D	A	A
Approach Vol, veh/h		218			130			1484			1108	
Approach Delay, s/veh		39.8			46.6			20.4			15.2	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	40.3	6.2	14.4	5.8	50.5	9.5	11.1
Change Period (Y+Rc), s	4.1	6.5	3.7	5.2	4.1	6.5	3.7	5.2
Max Green Setting (Gmax), s	11.9	42.7	11.3	9.8	5.7	58.7	11.3	9.8
Max Q Clear Time (g_c+I1), s	11.5	25.7	4.0	7.1	3.1	12.4	6.4	5.8
Green Ext Time (p_c), s	0.4	8.1	0.0	0.1	0.0	6.0	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

1: La Barr Meadows Rd/S Auburn St & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.2	0.1	0.4
Denied Del/Veh (s)	0.0	0.2	1.8	1.0	0.8
Total Delay (hr)	0.6	0.5	5.8	2.9	9.8
Total Del/Veh (s)	3.2	14.0	42.0	29.9	21.5
Stop Delay (hr)	0.5	0.4	5.6	2.8	9.3
Stop Del/Veh (s)	2.8	12.0	40.2	28.7	20.4

2: SR 49 NB Ramps & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	1.2	0.2
Total Delay (hr)	2.6	1.4	5.6	9.5
Total Del/Veh (s)	11.0	9.4	75.1	20.9
Stop Delay (hr)	2.1	1.3	5.3	8.7
Stop Del/Veh (s)	8.9	8.8	72.1	19.2

3: SR 49 SB Ramps & McKnight Way Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.6	0.6
Denied Del/Veh (s)	0.1	0.1	2.6	1.1
Total Delay (hr)	3.0	3.9	5.2	12.1
Total Del/Veh (s)	14.7	26.9	23.7	21.3
Stop Delay (hr)	2.8	3.3	4.6	10.7
Stop Del/Veh (s)	13.8	22.5	21.3	18.9

4: Taylorville Rd & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	6.3	0.3	4.6	0.0	11.2
Total Del/Veh (s)	30.6	1.2	381.5	5.1	23.2
Stop Delay (hr)	5.7	0.1	4.6	0.0	10.4
Stop Del/Veh (s)	27.7	0.4	382.8	4.9	21.6

5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.1	0.2	0.4
Denied Del/Veh (s)	2.8	2.0	0.4	0.5	0.5
Total Delay (hr)	0.4	0.5	3.6	5.7	10.3
Total Del/Veh (s)	27.5	22.1	10.7	12.5	12.3
Stop Delay (hr)	0.4	0.5	1.6	2.3	4.8
Stop Del/Veh (s)	26.4	20.9	4.7	5.0	5.7

6: SR 49 & Crestview Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.1	0.7	0.2	0.3	1.2
Denied Del/Veh (s)	1.5	4.0	0.6	0.6	1.3
Total Delay (hr)	1.7	10.1	7.5	9.9	29.2
Total Del/Veh (s)	42.1	54.6	22.2	23.3	29.6
Stop Delay (hr)	1.6	8.9	4.4	5.5	20.5
Stop Del/Veh (s)	39.3	47.8	13.2	13.0	20.7

83: Dwy & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.1	0.0	4.2	4.3
Denied Del/Veh (s)	0.7	0.0	57.0	10.7
Total Delay (hr)	1.7	0.6	2.7	5.0
Total Del/Veh (s)	10.9	3.4	37.9	12.5
Stop Delay (hr)	1.3	0.4	2.8	4.4
Stop Del/Veh (s)	8.0	2.2	39.3	11.1

Total Network Performance

Denied Delay (hr)	7.0
Denied Del/Veh (s)	2.7
Total Delay (hr)	96.4
Total Del/Veh (s)	36.1
Stop Delay (hr)	70.0
Stop Del/Veh (s)	26.2

Intersection: 1: La Barr Meadows Rd/S Auburn St & McKnight Way

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	LTR	R
Maximum Queue (ft)	126	131	105	282	320	302	85
Average Queue (ft)	8	72	48	160	137	132	51
95th Queue (ft)	52	132	84	375	550	290	102
Link Distance (ft)	54	54	334		1142	582	
Upstream Blk Time (%)	0	15			0		
Queuing Penalty (veh)	0	51			0		
Storage Bay Dist (ft)				215			60
Storage Blk Time (%)				12		37	1
Queuing Penalty (veh)				24		30	3

Intersection: 2: SR 49 NB Ramps & McKnight Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	LT	R
Maximum Queue (ft)	121	235	68	78	56	360	152
Average Queue (ft)	55	58	23	63	14	169	55
95th Queue (ft)	112	170	56	90	47	313	116
Link Distance (ft)	224	224	54	54	54	913	
Upstream Blk Time (%)		1	2	21	1		
Queuing Penalty (veh)		4	3	36	1		
Storage Bay Dist (ft)							440
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: SR 49 SB Ramps & McKnight Way

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	LT	R
Maximum Queue (ft)	50	56	54	88	224	306	298
Average Queue (ft)	40	39	19	33	137	168	156
95th Queue (ft)	53	46	37	71	208	272	253
Link Distance (ft)	31	31	31	224	224	686	
Upstream Blk Time (%)	58	66	2		1		
Queuing Penalty (veh)	142	161	5		2		
Storage Bay Dist (ft)							375
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Taylorville Rd & McKnight Way

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	T	T	TR	L	TR	R	R
Maximum Queue (ft)	125	248	81	42	50	254	40
Average Queue (ft)	108	207	19	16	5	127	17
95th Queue (ft)	160	307	55	41	28	276	42
Link Distance (ft)		233	233	31	31	949	390
Upstream Blk Time (%)		21		4	0		
Queuing Penalty (veh)		76		20	1		
Storage Bay Dist (ft)	100						
Storage Blk Time (%)	17	37					
Queuing Penalty (veh)	40	85					

Intersection: 5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	69	38	81	62	69	249	219	28	90	318	299	38
Average Queue (ft)	28	11	29	23	24	119	82	7	36	155	121	10
95th Queue (ft)	63	31	70	49	55	216	176	24	75	273	244	28
Link Distance (ft)		314		309		764	764			796	796	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	155		130		425			425	375			375
Storage Blk Time (%)			0							0	0	
Queuing Penalty (veh)			0							0	0	

Intersection: 6: SR 49 & Crestview Dr

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	98	121	250	546	130	317	284	59	183	360	338	54
Average Queue (ft)	38	51	178	295	46	205	158	28	93	218	191	17
95th Queue (ft)	81	103	292	554	100	294	255	55	159	324	297	43
Link Distance (ft)		552		558		896	896			1021	1021	
Upstream Blk Time (%)				7								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	130		130		375			375	375			375
Storage Blk Time (%)	0	0	20	40						0	0	
Queuing Penalty (veh)	0	0	87	92						0	0	

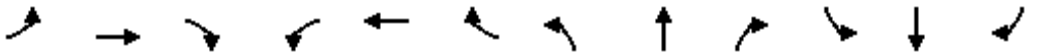
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	689	16	63	568	264	0	0	46	0	0	23
Future Vol, veh/h	0	689	16	63	568	264	0	0	46	0	0	23
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	100	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	0	718	17	66	592	275	0	0	48	0	0	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	735	0	0	-	-	368	-	-	730
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	5.33	-	-	-	-	7.13	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.119	-	-	-	-	3.919	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	526	-	-	0	0	538	0	0	421
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	526	-	-	-	-	538	-	-	421
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	12.3	14.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	-	-	526	-	-	421
HCM Lane V/C Ratio	0.089	-	-	0.125	-	-	0.057
HCM Control Delay (s)	12.3	-	-	12.8	-	-	14.1
HCM Lane LOS	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	0.4	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	0	15	43	5	35	37	1133	45	55	1496	64
Future Volume (veh/h)	40	0	15	43	5	35	37	1133	45	55	1496	64
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	0	16	47	5	38	41	1245	49	60	1644	70
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	0	179	117	22	164	121	1954	871	144	2000	892
Arrive On Green	0.06	0.00	0.11	0.07	0.11	0.11	0.07	0.55	0.55	0.08	0.56	0.56
Sat Flow, veh/h	1781	0	1585	1781	188	1426	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	44	0	16	47	0	43	41	1245	49	60	1644	70
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1614	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.4	0.0	0.9	2.5	0.0	2.4	2.2	24.4	1.4	3.2	37.8	2.0
Cycle Q Clear(g_c), s	2.4	0.0	0.9	2.5	0.0	2.4	2.2	24.4	1.4	3.2	37.8	2.0
Prop In Lane	1.00		1.00	1.00		0.88	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	113	0	179	117	0	185	121	1954	871	144	2000	892
V/C Ratio(X)	0.39	0.00	0.09	0.40	0.00	0.23	0.34	0.64	0.06	0.42	0.82	0.08
Avail Cap(c_a), veh/h	266	0	473	266	0	482	355	2123	947	355	2123	947
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.2	0.0	39.9	45.0	0.0	40.4	44.7	15.7	10.5	43.9	17.9	10.0
Incr Delay (d2), s/veh	0.8	0.0	0.1	0.8	0.0	0.2	0.6	0.9	0.1	0.7	3.0	0.1
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	1.1	0.0	0.4	1.1	0.0	1.0	0.9	8.4	0.5	1.4	13.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	0.0	40.0	45.9	0.0	40.7	45.3	16.6	10.6	44.6	20.9	10.1
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	C	B
Approach Vol, veh/h		60			90			1335			1774	
Approach Delay, s/veh		44.4			43.4			17.2			21.3	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	61.6	10.7	15.9	10.9	62.9	10.5	16.1
Change Period (Y+Rc), s	4.1	6.4	4.1	4.6	4.1	6.4	4.1	4.6
Max Green Setting (Gmax), s	20.0	60.0	15.0	30.0	20.0	60.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	5.2	26.4	4.5	2.9	4.2	39.8	4.4	4.4
Green Ext Time (p_c), s	0.0	18.9	0.0	0.0	0.0	16.7	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	50	49	230	90	343	52	1044	112	129	1336	54
Future Volume (veh/h)	53	50	49	230	90	343	52	1044	112	129	1336	54
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	53	52	242	95	361	55	1099	118	136	1406	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	113	110	279	84	319	71	1452	648	168	1646	734
Arrive On Green	0.04	0.13	0.13	0.16	0.25	0.25	0.04	0.41	0.41	0.09	0.46	0.46
Sat Flow, veh/h	1781	867	850	1781	341	1296	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	56	0	105	242	0	456	55	1099	118	136	1406	57
Grp Sat Flow(s),veh/h/ln	1781	0	1717	1781	0	1637	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.9	0.0	5.2	12.3	0.0	22.8	2.8	24.5	4.4	6.9	32.5	1.9
Cycle Q Clear(g_c), s	2.9	0.0	5.2	12.3	0.0	22.8	2.8	24.5	4.4	6.9	32.5	1.9
Prop In Lane	1.00		0.50	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	0	223	279	0	403	71	1452	648	168	1646	734
V/C Ratio(X)	0.78	0.00	0.47	0.87	0.00	1.13	0.78	0.76	0.18	0.81	0.85	0.08
Avail Cap(c_a), veh/h	102	0	223	352	0	403	133	1746	779	229	1938	864
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	0.0	37.3	38.1	0.0	34.9	44.1	23.4	17.5	41.1	22.1	13.8
Incr Delay (d2), s/veh	21.5	0.0	1.5	16.7	0.0	85.6	16.7	1.6	0.1	14.2	3.5	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	1.7	0.0	2.3	6.6	0.0	18.4	1.5	9.2	1.6	3.5	12.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.5	0.0	38.9	54.9	0.0	120.5	60.7	25.0	17.6	55.3	25.5	13.9
LnGrp LOS	E	A	D	D	A	F	E	C	B	E	C	B
Approach Vol, veh/h		161			698			1272			1599	
Approach Delay, s/veh		48.1			97.8			25.9			27.6	
Approach LOS		D			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	44.3	18.2	17.2	7.8	49.4	7.4	28.0
Change Period (Y+Rc), s	4.1	6.5	3.7	5.2	4.1	6.5	3.7	5.2
Max Green Setting (Gmax), s	11.9	45.5	18.3	9.8	6.9	50.5	5.3	22.8
Max Q Clear Time (g_c+I1), s	7.3	26.5	14.3	7.2	4.8	34.5	4.9	24.8
Green Ext Time (p_c), s	0.1	7.1	0.3	0.1	0.0	8.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

1: La Barr Meadows Rd/S Auburn St & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.6	0.1	0.7
Denied Del/Veh (s)	0.0	0.1	3.0	1.5	1.6
Total Delay (hr)	0.1	0.3	10.0	0.8	11.3
Total Del/Veh (s)	0.8	11.8	52.2	12.1	26.6
Stop Delay (hr)	0.1	0.3	9.9	0.7	11.0
Stop Del/Veh (s)	0.5	10.1	51.9	10.4	25.9

2: SR 49 NB Ramps & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	1.6	0.3
Total Delay (hr)	1.4	1.5	2.4	5.3
Total Del/Veh (s)	9.1	8.4	36.4	13.5
Stop Delay (hr)	1.2	1.4	2.3	4.9
Stop Del/Veh (s)	8.0	7.8	34.5	12.4

3: SR 49 SB Ramps & McKnight Way Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.3	0.3
Denied Del/Veh (s)	0.0	0.0	2.4	0.9
Total Delay (hr)	2.0	2.4	2.6	7.0
Total Del/Veh (s)	17.8	21.9	18.5	19.3
Stop Delay (hr)	1.9	2.0	2.4	6.3
Stop Del/Veh (s)	16.9	18.5	16.7	17.3

Intersection: 1: La Barr Meadows Rd/S Auburn St & McKnight Way

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	LTR	R
Maximum Queue (ft)	15	71	90	464	577	146	85
Average Queue (ft)	1	12	42	278	206	55	39
95th Queue (ft)	9	45	75	521	629	106	75
Link Distance (ft)	63	63	334		880	521	
Upstream Blk Time (%)	0	0			3		
Queuing Penalty (veh)	0	1			0		
Storage Bay Dist (ft)				215			60
Storage Blk Time (%)				42	0	7	1
Queuing Penalty (veh)				96	1	4	2

Intersection: 2: SR 49 NB Ramps & McKnight Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	LT	R
Maximum Queue (ft)	87	65	70	78	71	184	147
Average Queue (ft)	39	15	16	51	21	81	64
95th Queue (ft)	79	45	49	93	60	153	119
Link Distance (ft)	219	219	63	63	63	950	
Upstream Blk Time (%)			1	13	1		
Queuing Penalty (veh)			2	27	2		
Storage Bay Dist (ft)							440
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: SR 49 SB Ramps & McKnight Way

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	LT	R
Maximum Queue (ft)	45	52	36	84	192	256	180
Average Queue (ft)	28	35	15	29	97	113	76
95th Queue (ft)	42	47	30	67	169	211	133
Link Distance (ft)	21	21	21	219	219	681	
Upstream Blk Time (%)	61	61	3		0		
Queuing Penalty (veh)	82	82	4		0		
Storage Bay Dist (ft)							375
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Taylorville Rd & McKnight Way

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	T	T	TR	L	TR	R	R
Maximum Queue (ft)	124	208	38	26	51	64	29
Average Queue (ft)	78	83	4	5	4	20	4
95th Queue (ft)	137	178	20	22	34	54	21
Link Distance (ft)		202	202	21	21	968	390
Upstream Blk Time (%)		1		1	0		
Queuing Penalty (veh)		3		3	0		
Storage Bay Dist (ft)	100						
Storage Blk Time (%)	8	7					
Queuing Penalty (veh)	10	9					

Intersection: 5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	98	61	89	83	53	263	231	25	54	216	180	35
Average Queue (ft)	43	22	36	28	14	132	97	4	13	99	57	5
95th Queue (ft)	77	49	75	59	41	229	198	18	38	179	127	20
Link Distance (ft)		319		323		774	774			727	727	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	155		130		425			425	375			375
Storage Blk Time (%)			0									
Queuing Penalty (veh)			0									

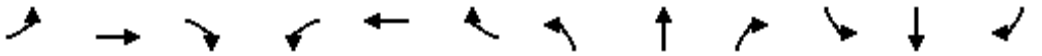
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	385	5	25	300	280	0	0	20	0	0	5
Future Vol, veh/h	0	385	5	25	300	280	0	0	20	0	0	5
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	100	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	0	401	5	26	313	292	0	0	21	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	406	0	0	-	-	203	-	-	459
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	5.33	-	-	-	-	7.13	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.119	-	-	-	-	3.919	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	751	-	-	0	0	685	0	0	601
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	751	-	-	-	-	685	-	-	601
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	10.4	11
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	685	-	-	751	-	-	601
HCM Lane V/C Ratio	0.03	-	-	0.035	-	-	0.009
HCM Control Delay (s)	10.4	-	-	10	-	-	11
HCM Lane LOS	B	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	5	35	50	5	50	15	1285	25	20	915	20
Future Volume (veh/h)	70	5	35	50	5	50	15	1285	25	20	915	20
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	75	5	38	54	5	54	16	1382	27	22	984	22
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	146	25	193	128	17	184	64	1873	836	82	1909	851
Arrive On Green	0.08	0.14	0.14	0.07	0.13	0.13	0.04	0.54	0.54	0.05	0.55	0.55
Sat Flow, veh/h	1753	185	1403	1753	134	1446	1753	3497	1560	1753	3497	1560
Grp Volume(v), veh/h	75	0	43	54	0	59	16	1382	27	22	984	22
Grp Sat Flow(s),veh/h/ln	1753	0	1588	1753	0	1580	1753	1749	1560	1753	1749	1560
Q Serve(g_s), s	3.8	0.0	2.2	2.7	0.0	3.1	0.8	28.1	0.8	1.1	16.5	0.6
Cycle Q Clear(g_c), s	3.8	0.0	2.2	2.7	0.0	3.1	0.8	28.1	0.8	1.1	16.5	0.6
Prop In Lane	1.00		0.88	1.00		0.92	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	146	0	218	128	0	201	64	1873	836	82	1909	851
V/C Ratio(X)	0.51	0.00	0.20	0.42	0.00	0.29	0.25	0.74	0.03	0.27	0.52	0.03
Avail Cap(c_a), veh/h	284	0	515	284	0	512	379	2266	1011	379	2266	1011
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	0.0	35.4	41.0	0.0	36.6	43.4	16.5	10.2	42.6	13.3	9.7
Incr Delay (d2), s/veh	1.0	0.0	0.2	0.8	0.0	0.3	0.8	1.5	0.0	0.6	0.5	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	1.7	0.0	0.9	1.2	0.0	1.2	0.3	9.4	0.3	0.5	5.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	0.0	35.6	41.9	0.0	36.9	44.1	18.1	10.2	43.3	13.7	9.7
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	B	A
Approach Vol, veh/h		118			113			1425			1028	
Approach Delay, s/veh		39.5			39.3			18.2			14.3	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	56.0	10.9	17.3	7.5	56.9	11.8	16.4
Change Period (Y+Rc), s	4.1	6.4	4.1	4.6	4.1	6.4	4.1	4.6
Max Green Setting (Gmax), s	20.0	60.0	15.0	30.0	20.0	60.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	3.1	30.1	4.7	4.2	2.8	18.5	5.8	5.1
Green Ext Time (p_c), s	0.0	19.5	0.0	0.1	0.0	15.3	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

1: La Barr Meadows Rd/S Auburn St & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	18.7	1.3	20.0
Denied Del/Veh (s)	0.0	0.3	139.1	12.6	39.5
Total Delay (hr)	0.5	1.9	15.1	4.9	22.5
Total Del/Veh (s)	2.5	33.4	115.6	47.7	44.5

2: SR 49 NB Ramps & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Delay (hr)	3.5	1.7	3.9	9.1
Total Del/Veh (s)	13.2	9.7	55.2	17.8

3: SR 49 SB Ramps & McKnight Way Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	13.7	13.7
Denied Del/Veh (s)	0.0	0.0	52.1	22.2
Total Delay (hr)	3.4	3.7	16.1	23.1
Total Del/Veh (s)	15.2	27.4	61.3	37.4

4: Taylorville Rd & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	5.0	0.0	5.1
Denied Del/Veh (s)	0.0	0.0	432.7	0.1	10.0
Total Delay (hr)	7.6	0.3	11.6	0.0	19.6
Total Del/Veh (s)	34.3	1.2	1493.0	5.6	39.0

83: McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	2.0	0.0	33.0	35.0
Denied Del/Veh (s)	11.4	0.0	443.1	81.9
Total Delay (hr)	4.1	0.8	4.1	9.0
Total Del/Veh (s)	22.6	4.8	68.5	21.6

Total Network Performance

Denied Delay (hr)	73.8
Denied Del/Veh (s)	81.9
Total Delay (hr)	84.9
Total Del/Veh (s)	94.9

Intersection: 1: La Barr Meadows Rd/S Auburn St & McKnight Way

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	LTR	R
Maximum Queue (ft)	52	125	205	411	406	347	85
Average Queue (ft)	3	61	96	353	305	178	64
95th Queue (ft)	23	119	175	489	545	352	110
Link Distance (ft)	52	52	334	374	374	312	
Upstream Blk Time (%)	0	12		70	58	16	
Queuing Penalty (veh)	1	49		0	0	0	
Storage Bay Dist (ft)							60
Storage Blk Time (%)						56	3
Queuing Penalty (veh)						53	7

Intersection: 2: SR 49 NB Ramps & McKnight Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	LT	R
Maximum Queue (ft)	138	203	71	77	65	236	179
Average Queue (ft)	71	74	31	59	31	107	71
95th Queue (ft)	140	183	64	76	69	193	147
Link Distance (ft)	227	227	52	52	52	339	339
Upstream Blk Time (%)		1	3	25	4		
Queuing Penalty (veh)		5	7	51	8		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: SR 49 SB Ramps & McKnight Way

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	LT	R
Maximum Queue (ft)	65	60	53	93	228	416	433
Average Queue (ft)	43	38	19	44	126	336	360
95th Queue (ft)	57	50	41	84	209	498	502
Link Distance (ft)	28	28	28	227	227	384	384
Upstream Blk Time (%)	67	69	3		1	15	61
Queuing Penalty (veh)	195	200	8		1	0	0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Taylorville Rd & McKnight Way

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	T	T	TR	L	TR	R	R
Maximum Queue (ft)	179	180	137	16	16	359	47
Average Queue (ft)	139	166	34	3	1	260	20
95th Queue (ft)	207	190	90	11	7	449	45
Link Distance (ft)	159	159	159	28	28	350	388
Upstream Blk Time (%)	18	35	0	0	0	49	
Queuing Penalty (veh)	49	97	0	0	1	0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 83: McKnight Way

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	312	153	81	128
Average Queue (ft)	241	67	20	103
95th Queue (ft)	359	126	59	131
Link Distance (ft)	270	159	91	91
Upstream Blk Time (%)	19	0	1	83
Queuing Penalty (veh)	0	1	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 735

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	0	825	5	35	605	325	0	0	45	0	0	30
Future Vol, veh/h	0	825	5	35	605	325	0	0	45	0	0	30
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	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	0	859	5	36	630	339	0	0	47	0	0	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	864	0	0	-	-	432	-	-	800
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	5.33	-	-	-	-	7.13	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.119	-	-	-	-	3.919	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	456	-	-	0	0	489	0	0	384
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	456	-	-	-	-	489	-	-	384
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	13.1	15.2
HCM LOS			B	C

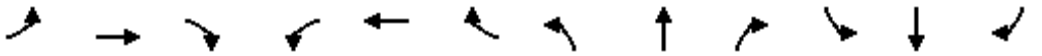
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	489	-	-	456	-	-	384
HCM Lane V/C Ratio	0.096	-	-	0.08	-	-	0.081
HCM Control Delay (s)	13.1	-	-	13.6	-	-	15.2
HCM Lane LOS	B	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	0.3	-	-	0.3

5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.1	0.0	0.1	0.2	0.5
Denied Del/Veh (s)	2.9	1.7	0.4	0.5	0.6
Total Delay (hr)	0.6	0.6	4.5	5.7	11.3
Total Del/Veh (s)	27.9	22.1	13.0	13.4	13.9
Stop Delay (hr)	0.5	0.5	2.1	2.6	5.7
Stop Del/Veh (s)	26.6	20.8	6.1	6.0	7.0

Intersection: 5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	87	42	73	72	78	260	244	32	96	320	271	40
Average Queue (ft)	35	12	27	27	30	134	98	9	42	160	122	12
95th Queue (ft)	70	34	63	56	66	229	194	28	83	280	239	32
Link Distance (ft)		314		309		764	764			796	796	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	155		130		425			425	375			375
Storage Blk Time (%)										0		
Queuing Penalty (veh)										0		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	0	20	35	10	45	45	1130	45	65	1415	80
Future Volume (veh/h)	50	0	20	35	10	45	45	1130	45	65	1415	80
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	0	22	38	11	49	49	1242	49	71	1555	88
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	0	201	104	34	154	132	1910	852	153	1951	870
Arrive On Green	0.07	0.00	0.13	0.06	0.12	0.12	0.07	0.54	0.54	0.09	0.55	0.55
Sat Flow, veh/h	1781	0	1585	1781	299	1332	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	55	0	22	38	0	60	49	1242	49	71	1555	88
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1631	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.0	0.0	1.2	2.1	0.0	3.4	2.6	25.0	1.5	3.8	35.2	2.7
Cycle Q Clear(g_c), s	3.0	0.0	1.2	2.1	0.0	3.4	2.6	25.0	1.5	3.8	35.2	2.7
Prop In Lane	1.00		1.00	1.00		0.82	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	0	201	104	0	188	132	1910	852	153	1951	870
V/C Ratio(X)	0.44	0.00	0.11	0.36	0.00	0.32	0.37	0.65	0.06	0.46	0.80	0.10
Avail Cap(c_a), veh/h	266	0	474	266	0	487	355	2123	947	355	2123	947
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.8	0.0	38.8	45.5	0.0	40.8	44.3	16.5	11.1	43.7	18.2	10.8
Incr Delay (d2), s/veh	0.9	0.0	0.1	0.8	0.0	0.4	0.6	1.0	0.1	0.8	2.5	0.1
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	1.3	0.0	0.5	0.9	0.0	1.4	1.1	8.7	0.5	1.6	12.5	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	0.0	38.9	46.3	0.0	41.2	44.9	17.5	11.1	44.5	20.7	10.9
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	C	B
Approach Vol, veh/h		77			98			1340			1714	
Approach Delay, s/veh		43.7			43.1			18.3			21.2	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	60.4	10.0	17.4	11.6	61.5	11.2	16.2
Change Period (Y+Rc), s	4.1	6.4	4.1	4.6	4.1	6.4	4.1	4.6
Max Green Setting (Gmax), s	20.0	60.0	15.0	30.0	20.0	60.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	5.8	27.0	4.1	3.2	4.6	37.2	5.0	5.4
Green Ext Time (p_c), s	0.0	18.7	0.0	0.0	0.0	17.9	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

1: La Barr Meadows Rd/S Auburn St & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	2.5	0.1	2.6
Denied Del/Veh (s)	0.0	0.2	13.2	1.2	5.6
Total Delay (hr)	0.4	0.4	16.0	1.2	18.1
Total Del/Veh (s)	2.3	12.4	82.3	14.2	37.9

2: SR 49 NB Ramps & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	1.7	0.3
Total Delay (hr)	1.3	1.5	3.1	5.8
Total Del/Veh (s)	7.2	8.6	42.9	13.8

3: SR 49 SB Ramps & McKnight Way Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.3	0.4
Denied Del/Veh (s)	0.0	0.0	2.3	0.9
Total Delay (hr)	2.3	2.6	2.9	7.8
Total Del/Veh (s)	16.7	22.9	19.6	19.6

4: Taylorville Rd & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	3.0	0.2	1.4	0.0	4.5
Total Del/Veh (s)	23.3	1.0	100.3	3.1	14.2

5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.1	0.1	0.2	0.1	0.4
Denied Del/Veh (s)	2.7	2.2	0.4	0.3	0.5
Total Delay (hr)	0.8	0.7	5.3	2.8	9.6
Total Del/Veh (s)	24.7	24.3	12.1	8.9	11.8

6: SR 49 & Crestview Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.1	0.1	0.3	0.3	0.7
Denied Del/Veh (s)	2.0	1.5	0.6	0.8	0.8
Total Delay (hr)	1.6	1.0	11.7	4.6	19.0
Total Del/Veh (s)	26.5	28.5	25.3	14.0	21.3

Intersection: 1: La Barr Meadows Rd/S Auburn St & McKnight Way

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	LTR	R
Maximum Queue (ft)	10	115	91	514	782	165	85
Average Queue (ft)	1	44	45	367	363	75	42
95th Queue (ft)	7	99	77	621	903	138	80
Link Distance (ft)	63	63	334		889	538	
Upstream Blk Time (%)		4			11		
Queuing Penalty (veh)		12			0		
Storage Bay Dist (ft)				215			60
Storage Blk Time (%)				64	0	15	1
Queuing Penalty (veh)				157	1	10	2

Intersection: 2: SR 49 NB Ramps & McKnight Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	LT	R
Maximum Queue (ft)	97	98	67	74	74	200	163
Average Queue (ft)	34	18	17	52	23	97	74
95th Queue (ft)	78	60	48	89	66	175	140
Link Distance (ft)	219	219	63	63	63	948	
Upstream Blk Time (%)			1	12	1		
Queuing Penalty (veh)			2	25	3		
Storage Bay Dist (ft)							440
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: SR 49 SB Ramps & McKnight Way

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	LT	R
Maximum Queue (ft)	41	50	46	87	184	235	170
Average Queue (ft)	29	36	16	29	96	131	77
95th Queue (ft)	43	45	33	69	162	212	141
Link Distance (ft)	21	21	21	219	219	742	
Upstream Blk Time (%)	63	69	3		0		
Queuing Penalty (veh)	106	115	5		0		
Storage Bay Dist (ft)							375
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Taylorville Rd & McKnight Way

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	T	T	TR	L	TR	R	R
Maximum Queue (ft)	125	205	44	27	26	161	30
Average Queue (ft)	79	121	5	7	2	56	4
95th Queue (ft)	145	211	25	25	23	133	21
Link Distance (ft)		202	202	21	21	962	390
Upstream Blk Time (%)		3		1	0		
Queuing Penalty (veh)		8		5	0		
Storage Bay Dist (ft)	100						
Storage Blk Time (%)	7	14					
Queuing Penalty (veh)	10	21					

Intersection: 5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	117	66	107	71	63	318	281	47	56	248	242	28
Average Queue (ft)	48	22	39	27	9	151	113	7	14	107	64	4
95th Queue (ft)	94	49	83	57	35	267	227	28	41	201	157	17
Link Distance (ft)		319		323		774	774			727	727	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	155		130		425			425	375			375
Storage Blk Time (%)	0		0									
Queuing Penalty (veh)	0		0									

Intersection: 6: SR 49 & Crestview Dr

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	130	130	27	67	91	50	423	442	176	237	234	234
Average Queue (ft)	57	45	2	23	31	12	240	223	43	113	83	69
95th Queue (ft)	108	95	13	56	74	37	381	366	114	194	168	158
Link Distance (ft)		647			576		1328	1328			1164	1164
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130		130	130		375			375	375		
Storage Blk Time (%)	1	0			0		1	1			0	0
Queuing Penalty (veh)	1	0			0		0	2			0	0

Intersection: 6: SR 49 & Crestview Dr

Movement	SB
Directions Served	R
Maximum Queue (ft)	39
Average Queue (ft)	6
95th Queue (ft)	24
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	375
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 83: Dwy & McKnight Way

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	200	82	68	87
Average Queue (ft)	17	31	27	43
95th Queue (ft)	92	64	53	75
Link Distance (ft)	271	202	101	101
Upstream Blk Time (%)	0		0	0
Queuing Penalty (veh)	0		0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 486

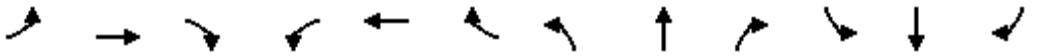
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	450	12	42	320	280	0	0	50	0	0	5
Future Vol, veh/h	0	450	12	42	320	280	0	0	50	0	0	5
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	100	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	0	469	13	44	333	292	0	0	52	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	482	0	0	-	-	241	-	-	479
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	5.33	-	-	-	-	7.13	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.119	-	-	-	-	3.919	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	692	-	-	0	0	648	0	0	586
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	692	-	-	-	-	648	-	-	586
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	11	11.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	648	-	-	692	-	-	586
HCM Lane V/C Ratio	0.08	-	-	0.063	-	-	0.009
HCM Control Delay (s)	11	-	-	10.6	-	-	11.2
HCM Lane LOS	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-	-	0



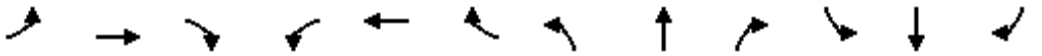
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	5	35	57	5	50	15	1512	39	20	1058	20
Future Volume (veh/h)	70	5	35	57	5	50	15	1512	39	20	1058	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	75	5	38	61	5	54	16	1626	42	22	1138	22
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	138	23	174	129	16	172	63	1973	880	80	2008	895
Arrive On Green	0.08	0.12	0.12	0.07	0.12	0.12	0.04	0.56	0.56	0.05	0.57	0.57
Sat Flow, veh/h	1753	185	1403	1753	134	1446	1753	3497	1560	1753	3497	1560
Grp Volume(v), veh/h	75	0	43	61	0	59	16	1626	42	22	1138	22
Grp Sat Flow(s),veh/h/ln	1753	0	1588	1753	0	1580	1753	1749	1560	1753	1749	1560
Q Serve(g_s), s	4.1	0.0	2.4	3.3	0.0	3.4	0.9	37.8	1.2	1.2	20.5	0.6
Cycle Q Clear(g_c), s	4.1	0.0	2.4	3.3	0.0	3.4	0.9	37.8	1.2	1.2	20.5	0.6
Prop In Lane	1.00		0.88	1.00		0.92	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	0	197	129	0	188	63	1973	880	80	2008	895
V/C Ratio(X)	0.54	0.00	0.22	0.47	0.00	0.31	0.25	0.82	0.05	0.27	0.57	0.02
Avail Cap(c_a), veh/h	263	0	477	263	0	475	351	2102	937	351	2102	937
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	0.0	39.4	44.4	0.0	40.3	46.8	17.7	9.7	46.0	13.4	9.2
Incr Delay (d2), s/veh	1.2	0.0	0.2	1.0	0.0	0.4	0.8	3.1	0.0	0.7	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.0	1.5	0.0	1.3	0.4	13.1	0.4	0.5	6.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.5	0.0	39.6	45.4	0.0	40.6	47.6	20.8	9.8	46.7	14.0	9.2
LnGrp LOS	D	A	D	D	A	D	D	C	A	D	B	A
Approach Vol, veh/h		118			120			1684			1182	
Approach Delay, s/veh		43.3			43.0			20.8			14.5	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	62.7	11.4	17.0	7.7	63.7	12.0	16.5
Change Period (Y+Rc), s	4.1	6.4	4.1	4.6	4.1	6.4	4.1	4.6
Max Green Setting (Gmax), s	20.0	60.0	15.0	30.0	20.0	60.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	3.2	39.8	5.3	4.4	2.9	22.5	6.1	5.4
Green Ext Time (p_c), s	0.0	16.5	0.0	0.1	0.0	17.7	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	16	92	44	15	65	25	1419	188	217	962	26
Future Volume (veh/h)	99	16	92	44	15	65	25	1419	188	217	962	26
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	104	17	97	46	16	68	26	1494	198	228	1013	27
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	29	163	107	23	98	38	1675	747	270	2138	953
Arrive On Green	0.07	0.12	0.12	0.03	0.07	0.07	0.02	0.47	0.47	0.15	0.60	0.60
Sat Flow, veh/h	1781	242	1380	3456	311	1322	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	104	0	114	46	0	84	26	1494	198	228	1013	27
Grp Sat Flow(s),veh/h/ln	1781	0	1622	1728	0	1632	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.9	0.0	5.7	1.1	0.0	4.3	1.2	32.8	6.5	10.7	13.6	0.6
Cycle Q Clear(g_c), s	4.9	0.0	5.7	1.1	0.0	4.3	1.2	32.8	6.5	10.7	13.6	0.6
Prop In Lane	1.00		0.85	1.00		0.81	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	133	0	192	107	0	122	38	1675	747	270	2138	953
V/C Ratio(X)	0.78	0.00	0.59	0.43	0.00	0.69	0.68	0.89	0.27	0.84	0.47	0.03
Avail Cap(c_a), veh/h	235	0	192	456	0	187	119	1772	790	451	2436	1086
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	35.8	40.7	0.0	38.7	41.6	20.7	13.7	35.3	9.5	6.9
Incr Delay (d2), s/veh	9.5	0.0	4.9	2.7	0.0	6.8	18.8	6.0	0.2	7.3	0.2	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	2.5	0.0	2.5	0.5	0.0	1.9	0.7	12.4	2.2	4.8	3.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	0.0	40.7	43.4	0.0	45.5	60.4	26.6	13.9	42.6	9.7	6.9
LnGrp LOS	D	A	D	D	A	D	E	C	B	D	A	A
Approach Vol, veh/h		218			130			1718			1268	
Approach Delay, s/veh		44.4			44.8			25.7			15.5	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	46.9	6.4	15.3	5.9	58.0	10.1	11.6
Change Period (Y+Rc), s	4.1	6.5	3.7	5.2	4.1	6.5	3.7	5.2
Max Green Setting (Gmax), s	21.7	42.7	11.3	9.8	5.7	58.7	11.3	9.8
Max Q Clear Time (g_c+I1), s	12.7	34.8	3.1	7.7	3.2	15.6	6.9	6.3
Green Ext Time (p_c), s	0.4	5.5	0.0	0.1	0.0	7.6	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

1: La Barr Meadows Rd/S Auburn St & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	24.0	23.4	47.4
Denied Del/Veh (s)	0.0	0.3	142.0	195.6	84.3
Total Delay (hr)	0.8	2.1	36.4	12.0	51.3
Total Del/Veh (s)	3.8	37.7	243.9	111.1	96.5

2: SR 49 NB Ramps & McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	1.3	0.2
Total Delay (hr)	3.8	1.6	6.0	11.4
Total Del/Veh (s)	14.3	9.9	65.3	22.0

3: SR 49 SB Ramps & McKnight Way Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.8	0.8
Denied Del/Veh (s)	0.1	0.0	3.0	1.3
Total Delay (hr)	4.6	4.0	11.2	19.8
Total Del/Veh (s)	22.1	25.1	41.0	30.8

4: Taylorville Rd & McKnight Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	1.2	0.0	1.2
Denied Del/Veh (s)	0.0	0.0	71.9	0.1	2.3
Total Delay (hr)	7.6	0.5	27.8	0.1	36.0
Total Del/Veh (s)	35.8	1.6	1667.1	6.7	67.0

83: McKnight Way Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	8.4	0.0	84.0	92.4
Denied Del/Veh (s)	44.4	0.0	984.6	192.8
Total Delay (hr)	6.1	1.1	4.9	12.1
Total Del/Veh (s)	32.0	5.4	104.1	27.4

Total Network Performance

Denied Delay (hr)	141.9
Denied Del/Veh (s)	141.5
Total Delay (hr)	132.3
Total Del/Veh (s)	138.8

Intersection: 1: La Barr Meadows Rd/S Auburn St & McKnight Way

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	LTR	R
Maximum Queue (ft)	32	124	226	515	1241	364	85
Average Queue (ft)	2	71	99	459	859	318	74
95th Queue (ft)	14	126	193	646	1597	408	118
Link Distance (ft)	53	53	332		1195	312	
Upstream Blk Time (%)	0	18			47	86	
Queuing Penalty (veh)	1	76			0	0	
Storage Bay Dist (ft)				215			60
Storage Blk Time (%)				90	0	95	2
Queuing Penalty (veh)				219	1	97	6

Intersection: 2: SR 49 NB Ramps & McKnight Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	LT	R
Maximum Queue (ft)	134	241	75	78	61	329	192
Average Queue (ft)	63	104	31	62	21	169	85
95th Queue (ft)	133	239	69	80	59	288	171
Link Distance (ft)	227	227	53	53	53	994	
Upstream Blk Time (%)		3	4	25	3		
Queuing Penalty (veh)		15	9	57	6		
Storage Bay Dist (ft)							440
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: SR 49 SB Ramps & McKnight Way

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	LT	R
Maximum Queue (ft)	65	78	60	104	220	610	478
Average Queue (ft)	59	58	33	46	140	261	284
95th Queue (ft)	75	68	57	92	198	516	488
Link Distance (ft)	41	41	41	227	227	768	
Upstream Blk Time (%)	66	73	4		0	1	
Queuing Penalty (veh)	204	225	13		1	0	
Storage Bay Dist (ft)							375
Storage Blk Time (%)						3	9
Queuing Penalty (veh)						17	33

Intersection: 4: Taylorville Rd & McKnight Way

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	T	T	TR	L	TR	R	R
Maximum Queue (ft)	186	182	83	45	59	999	56
Average Queue (ft)	131	168	12	12	5	635	21
95th Queue (ft)	211	191	49	33	30	1106	50
Link Distance (ft)	159	159	159	41	41	1000	388
Upstream Blk Time (%)	15	44		1	1	15	
Queuing Penalty (veh)	46	129		5	4	0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 83: McKnight Way

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	302	166	50	88	134
Average Queue (ft)	265	77	2	22	107
95th Queue (ft)	349	149	27	74	127
Link Distance (ft)	270	159	159	91	91
Upstream Blk Time (%)	37	1	0	4	97
Queuing Penalty (veh)	0	4	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 1168

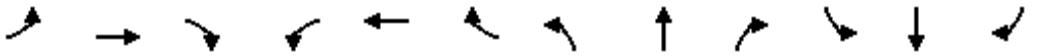
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	864	20	71	710	325	0	0	61	0	0	30
Future Vol, veh/h	0	864	20	71	710	325	0	0	61	0	0	30
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	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	0	900	21	74	740	339	0	0	64	0	0	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	921	0	0	-	-	461	-	-	910
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	5.33	-	-	-	-	7.13	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.119	-	-	-	-	3.919	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	428	-	-	0	0	469	0	0	332
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	428	-	-	-	-	469	-	-	332
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1	13.9	17
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	469	-	-	428	-	-	332
HCM Lane V/C Ratio	0.135	-	-	0.173	-	-	0.094
HCM Control Delay (s)	13.9	-	-	15.2	-	-	17
HCM Lane LOS	B	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.5	-	-	0.6	-	-	0.3



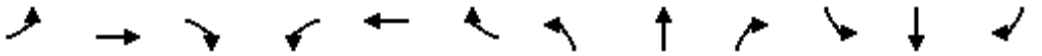
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	0	20	50	10	45	45	1308	55	65	1713	80
Future Volume (veh/h)	50	0	20	50	10	45	45	1308	55	65	1713	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	0	22	55	11	49	49	1437	60	71	1882	88
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	0	177	122	33	149	129	1972	880	148	2010	897
Arrive On Green	0.07	0.00	0.11	0.07	0.11	0.11	0.07	0.55	0.55	0.08	0.57	0.57
Sat Flow, veh/h	1781	0	1585	1781	299	1332	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	55	0	22	55	0	60	49	1437	60	71	1882	88
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1631	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.1	0.0	1.3	3.1	0.0	3.6	2.8	31.9	1.8	4.0	51.6	2.7
Cycle Q Clear(g_c), s	3.1	0.0	1.3	3.1	0.0	3.6	2.8	31.9	1.8	4.0	51.6	2.7
Prop In Lane	1.00		1.00	1.00		0.82	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	0	177	122	0	182	129	1972	880	148	2010	897
V/C Ratio(X)	0.45	0.00	0.12	0.45	0.00	0.33	0.38	0.73	0.07	0.48	0.94	0.10
Avail Cap(c_a), veh/h	253	0	451	253	0	464	338	2021	902	338	2021	902
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	0.0	42.2	47.2	0.0	43.2	46.7	17.5	10.9	46.2	21.1	10.5
Incr Delay (d2), s/veh	1.0	0.0	0.1	1.0	0.0	0.4	0.7	1.7	0.1	0.9	9.2	0.1
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	1.4	0.0	0.5	1.4	0.0	1.5	1.2	11.4	0.6	1.7	20.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.2	0.0	42.3	48.2	0.0	43.6	47.4	19.2	10.9	47.1	30.3	10.6
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	C	B
Approach Vol, veh/h		77			115			1546			2041	
Approach Delay, s/veh		46.5			45.8			19.8			30.1	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	64.9	11.3	16.4	11.7	66.1	11.3	16.4
Change Period (Y+Rc), s	4.1	6.4	4.1	4.6	4.1	6.4	4.1	4.6
Max Green Setting (Gmax), s	20.0	60.0	15.0	30.0	20.0	60.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	6.0	33.9	5.1	3.3	4.8	53.6	5.1	5.6
Green Ext Time (p_c), s	0.0	18.6	0.0	0.0	0.0	6.1	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	50	49	230	90	343	52	1234	112	129	1579	54
Future Volume (veh/h)	53	50	49	230	90	343	52	1234	112	129	1579	54
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	53	52	242	95	361	55	1299	118	136	1662	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	137	135	319	69	261	71	1646	734	165	1833	818
Arrive On Green	0.05	0.16	0.16	0.09	0.20	0.20	0.04	0.46	0.46	0.09	0.52	0.52
Sat Flow, veh/h	1781	867	850	3456	341	1296	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	56	0	105	242	0	456	55	1299	118	136	1662	57
Grp Sat Flow(s),veh/h/ln	1781	0	1717	1728	0	1637	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.3	0.0	5.9	7.4	0.0	21.8	3.3	33.5	4.7	8.1	46.1	2.0
Cycle Q Clear(g_c), s	3.3	0.0	5.9	7.4	0.0	21.8	3.3	33.5	4.7	8.1	46.1	2.0
Prop In Lane	1.00		0.50	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	0	272	319	0	329	71	1646	734	165	1833	818
V/C Ratio(X)	0.63	0.00	0.39	0.76	0.00	1.38	0.78	0.79	0.16	0.83	0.91	0.07
Avail Cap(c_a), veh/h	161	0	272	631	0	329	97	1741	777	202	1951	870
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	0.0	40.9	48.0	0.0	43.3	51.6	24.6	16.9	48.3	23.9	13.2
Incr Delay (d2), s/veh	7.3	0.0	0.9	3.7	0.0	191.0	23.2	2.4	0.1	20.1	6.4	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	1.7	0.0	2.6	3.3	0.0	26.2	1.9	13.0	1.7	4.3	18.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	41.8	51.8	0.0	234.3	74.8	27.0	17.0	68.4	30.2	13.2
LnGrp LOS	E	A	D	D	A	F	E	C	B	E	C	B
Approach Vol, veh/h		161			698			1472			1855	
Approach Delay, s/veh		47.4			171.0			28.0			32.5	
Approach LOS		D			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	56.7	15.2	22.4	8.4	62.4	10.6	27.0
Change Period (Y+Rc), s	4.1	6.5	5.2	5.2	4.1	6.5	5.2	5.2
Max Green Setting (Gmax), s	12.3	53.1	19.8	14.8	5.9	59.5	9.8	21.8
Max Q Clear Time (g_c+I1), s	10.1	35.5	9.4	7.9	5.3	48.1	5.3	23.8
Green Ext Time (p_c), s	0.1	8.3	0.6	0.2	0.0	7.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.1	0.1	0.2	0.3	0.6
Denied Del/Veh (s)	2.8	2.0	0.4	0.6	0.6
Total Delay (hr)	0.6	0.8	4.9	7.4	13.8
Total Del/Veh (s)	31.2	27.3	12.5	14.4	14.4
Stop Delay (hr)	0.6	0.8	2.2	3.0	6.5
Stop Del/Veh (s)	29.8	25.7	5.5	5.7	6.8

6: SR 49 & Crestview Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.1	11.1	0.2	0.3	11.7
Denied Del/Veh (s)	1.5	60.7	0.6	0.6	10.5
Total Delay (hr)	1.8	18.3	10.4	15.1	45.7
Total Del/Veh (s)	42.4	99.3	26.6	30.1	40.7
Stop Delay (hr)	1.7	16.6	6.2	8.3	32.7
Stop Del/Veh (s)	39.6	89.9	15.7	16.5	29.2

Total Zone Performance

Denied Delay (hr)	12.3
Denied Del/Veh (s)	5.9
Total Delay (hr)	59.5
Total Del/Veh (s)	2712.2
Stop Delay (hr)	39.3
Stop Del/Veh (s)	1788.8

Intersection: 5: SR 49 & Allison Ranch Rd/La Barr Meadows Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	78	45	97	78	87	291	234	41	93	351	332	46
Average Queue (ft)	34	14	37	30	31	148	105	9	43	185	153	12
95th Queue (ft)	68	36	82	59	65	253	210	28	83	324	297	34
Link Distance (ft)		314		309		764	764			796	796	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	155		130		425			425	375			375
Storage Blk Time (%)			0							0	0	
Queuing Penalty (veh)			0							0	0	

Intersection: 6: SR 49 & Crestview Dr

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	86	146	168	250	601	122	401	360	79	264	562	503
Average Queue (ft)	35	58	76	213	459	48	272	225	29	104	311	285
95th Queue (ft)	71	118	156	319	740	106	381	337	60	196	465	436
Link Distance (ft)		553			558		890	890			1016	1016
Upstream Blk Time (%)					41							
Queuing Penalty (veh)					0							
Storage Bay Dist (ft)	130		130	130		375			375	375		
Storage Blk Time (%)		1	3	11	65		1	0			4	2
Queuing Penalty (veh)		1	11	47	150		0	0			5	1

Intersection: 6: SR 49 & Crestview Dr

Movement	SB
Directions Served	R
Maximum Queue (ft)	40
Average Queue (ft)	16
95th Queue (ft)	39
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	375
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 216

LANE SUMMARY

Site: 101 [E+P AM (Site Folder: La Bar Meadows/S Auburn St/ SR 49 NB Ramps/McKnight)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - La Barr Meadows Rd													
Lane 1[d]	604	2.0	810	0.746	100	20.0	LOS C	11.8	299.2	Full	1600	0.0	0.0
Approach	604	2.0		0.746		20.0	LOS C	11.8	299.2				
East: WB - McKnight Way													
Lane 1[d]	89	2.0	465	0.191	100	10.6	LOS B	1.3	33.4	Full	500	0.0	0.0
Approach	89	2.0		0.191		10.6	LOS B	1.3	33.4				
North: SB - S Auburn St													
Lane 1[d]	292	2.0	652	0.448	100	12.2	LOS B	3.5	89.2	Full	1300	0.0	0.0
Approach	292	2.0		0.448		12.2	LOS B	3.5	89.2				
West: EB - McKnight Way													
Lane 1[d]	352	2.0	1325	0.265	100	5.0	LOS A	1.8	46.7	Full	200	0.0	0.0
Lane 2	226	2.0	1109	0.204	100	5.1	LOS A	1.3	32.5	Short	50	0.0	NA
Approach	577	2.0		0.265		5.1	LOS A	1.8	46.7				
SouthWest: NE - SR 49 NB Off Ramp													
Lane 1[d]	216	2.0	662	0.327	100	9.7	LOS A	2.1	53.2	Full	700	0.0	0.0
Approach	216	2.0		0.327		9.7	LOS A	2.1	53.2				
Intersection	1778	2.0		0.746		12.2	LOS B	11.8	299.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB - La Barr Meadows Rd

Mov. From S To Exit:	L2 W	L1 NW	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	167	223	194	21	604	2.0	810	0.746	100	NA	NA
Approach	167	223	194	21	604	2.0		0.746			
East: WB - McKnight Way											

Mov. From E To Exit:	L2 S	T1 W	R1 NW	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	18	18	23	31	89	2.0	465	0.191	100	NA	NA
Approach	18	18	23	31	89	2.0		0.191			

North: SB - S Auburn St

Mov. From N To Exit:	L2 E	T1 S	R2 W	R3 NW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	26	151	49	66	292	2.0	652	0.448	100	NA	NA
Approach	26	151	49	66	292	2.0		0.448			

West: EB - McKnight Way

Mov. From W To Exit:	L3 NW	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	151	128	73	-	352	2.0	1325	0.265	100	NA	NA
Lane 2	-	-	-	226	226	2.0	1109	0.204	100	0.0	1
Approach	151	128	73	226	577	2.0		0.265			

SouthWest: NE - SR 49 NB Off Ramp

Mov. From SW To Exit:	L3 W	L2 NW	L1 N	R1 E	R3 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	122	1	29	16	48	216	2.0	662	0.327	100	NA	NA
Approach	122	1	29	16	48	216	2.0		0.327			

	Total	%HV	Deg.Satn (v/c)
Intersection	1778	2.0	0.746

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB - La Barr Meadows Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB - S Auburn St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
NorthWest Exit: SE - SR 49 On Ramp Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [E+P AM (Site Folder: Taylorville Rd/SR 49 SB Ramps/ McKnight Way)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Taylorville Rd													
Lane 1[d]	58	2.0	754	0.077	100	7.0	LOS A	0.3	7.5	Full	1600	0.0	0.0
Approach	58	2.0		0.077		7.0	LOS A	0.3	7.5				
East: McKnight Way													
Lane 1[d]	363	2.0	1331	0.273	100	5.3	LOS A	1.8	45.1	Full	1600	0.0	0.0
Approach	363	2.0		0.273		5.3	LOS A	1.8	45.1				
NorthEast: SR 49 SB Ramps													
Lane 1	233	2.0	1048	0.222	100	12.8	LOS B	1.3	31.9	Full	880	0.0	0.0
Lane 2[d]	239	2.0	1223	0.195	100	5.7	LOS A	1.1	28.5	Full	880	0.0	0.0
Approach	472	2.0		0.222		9.2	LOS A	1.3	31.9				
North: Taylorville Rd													
Lane 1[d]	20	2.0	812	0.025	100	8.7	LOS A	0.1	2.4	Full	1335	0.0	0.0
Approach	20	2.0		0.025		8.7	LOS A	0.1	2.4				
West: McKnight Way													
Lane 1[d]	389	2.0	1246	0.313	100	5.8	LOS A	2.1	52.7	Full	860	0.0	0.0
Lane 2	83	2.0	803	0.104	100	6.1	LOS A	0.5	13.5	Short	190	0.0	NA
Approach	473	2.0		0.313		5.9	LOS A	2.1	52.7				
Intersection	1385	2.0		0.313		6.9	LOS A	2.1	52.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Taylorville Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	R3 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	35	13	58	2.0	754	0.077	100	NA	NA
Approach	5	5	35	13	58	2.0		0.077			

East: McKnight Way												
Mov. From E To Exit:	L3 SE	L2 S	T1 W	R2 N	Total	%HV		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	46	21	159	137	363	2.0		1331	0.273	100	NA	NA
Approach	46	21	159	137	363	2.0			0.273			
NorthEast: SR 49 SB Ramps												
Mov. From NE To Exit:	L3 E	L2 SE	L1 S	R1 W	R3 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	214	2	17	-	-	233	2.0	1048	0.222	100	NA	NA
Lane 2	-	-	-	128	111	239	2.0	1223	0.195	100	NA	NA
Approach	214	2	17	128	111	472	2.0		0.222			
North: Taylorville Rd												
Mov. From N To Exit:	L2 E	L1 SE	T1 S	R2 W	Total	%HV		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	5	4	20	2.0		812	0.025	100	NA	NA
Approach	5	5	5	4	20	2.0			0.025			
West: McKnight Way												
Mov. From W To Exit:	L2 N	T1 E	R1 SE	R2 S	Total	%HV		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	384	-	-	389	2.0		1246	0.313	100	NA	NA
Lane 2	-	-	74	9	83	2.0		803	0.104	100	0.0	1
Approach	5	384	74	9	473	2.0			0.313			

	Total	%HV	Deg.Satn (v/c)
Intersection	1385	2.0	0.313

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Taylorville Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
SouthEast Exit: SR 49 SB Ramps Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: Taylorville Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: McKnight Way												

LANE SUMMARY

Site: 101 [E+P PM (Site Folder: La Bar Meadows/S Auburn St/ SR 49 NB Ramps/McKnight)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - La Barr Meadows Rd													
Lane 1[d]	510	2.0	674	0.757	100	23.8	LOS C	11.1	281.0	Full	1600	0.0	0.0
Approach	510	2.0		0.757		23.8	LOS C	11.1	281.0				
East: WB - McKnight Way													
Lane 1[d]	121	2.0	410	0.294	100	14.0	LOS B	2.1	53.4	Full	500	0.0	0.0
Approach	121	2.0		0.294		14.0	LOS B	2.1	53.4				
North: SB - S Auburn St													
Lane 1[d]	357	2.0	595	0.600	100	17.7	LOS B	6.1	153.9	Full	1300	0.0	0.0
Approach	357	2.0		0.600		17.7	LOS B	6.1	153.9				
West: EB - McKnight Way													
Lane 1[d]	473	2.0	1301	0.364	100	6.2	LOS A	2.8	70.6	Full	200	0.0	0.0
Lane 2	392	2.0	1129	0.347	100	6.6	LOS A	2.5	63.8	Short	50	0.0	NA
Approach	865	2.0		0.364		6.4	LOS A	2.8	70.6				
SouthWest: NE - SR 49 NB Off Ramp													
Lane 1[d]	268	2.0	456	0.588	100	21.6	LOS C	5.6	142.7	Full	700	0.0	0.0
Approach	268	2.0		0.588		21.6	LOS C	5.6	142.7				
Intersection	2121	2.0		0.757		14.8	LOS B	11.1	281.0				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB - La Barr Meadows Rd

Mov. From S To Exit:	L2 W	L1 NW	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	184	120	202	5	510	2.0	674	0.757	100	NA	NA
Approach	184	120	202	5	510	2.0		0.757			
East: WB - McKnight Way											

Mov.	L2	T1	R1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane
From E To Exit:	S	W	NW	N			veh/h	v/c	%	%	No.
Lane 1	26	41	26	28	121	2.0	410	0.294	100	NA	NA
Approach	26	41	26	28	121	2.0		0.294			

North: SB - S Auburn St

Mov.	L2	T1	R2	R3	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane
From N To Exit:	E	S	W	NW			veh/h	v/c	%	%	No.
Lane 1	34	153	104	66	357	2.0	595	0.600	100	NA	NA
Approach	34	153	104	66	357	2.0		0.600			

West: EB - McKnight Way

Mov.	L3	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane
From W To Exit:	NW	N	E	S			veh/h	v/c	%	%	No.
Lane 1	251	163	60	-	473	2.0	1301	0.364	100	NA	NA
Lane 2	-	-	-	392	392	2.0	1129	0.347	100	12.7	1
Approach	251	163	60	392	865	2.0		0.364			

SouthWest: NE - SR 49 NB Off Ramp

Mov.	L3	L2	L1	R1	R3	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane
From SW To Exit:	W	NW	N	E	S			veh/h	v/c	%	%	No.
Lane 1	198	1	19	7	43	268	2.0	456	0.588	100	NA	NA
Approach	198	1	19	7	43	268	2.0		0.588			

	Total	%HV	Deg.Satn (v/c)
Intersection	2121	2.0	0.757

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB - La Barr Meadows Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB - S Auburn St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
NorthWest Exit: SE - SR 49 On Ramp Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [E+P PM (Site Folder: Taylorville Rd/SR 49 SB Ramps/ McKnight Way)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - Taylorville Rd													
Lane 1[d]	51	2.0	530	0.095	100	8.3	LOS A	0.4	10.4	Full	1600	0.0	0.0
Approach	51	2.0		0.095		8.3	LOS A	0.4	10.4				
East: WB - McKnight Way													
Lane 1[d]	539	2.0	1349	0.399	100	5.4	LOS A	3.2	81.3	Full	1600	0.0	0.0
Approach	539	2.0		0.399		5.4	LOS A	3.2	81.3				
NorthEast: SR 49 SB Ramps													
Lane 1	343	2.0	899	0.382	100	14.5	LOS B	2.4	60.9	Full	880	0.0	0.0
Lane 2[d]	449	2.0	1110	0.405	100	7.1	LOS A	2.8	69.9	Full	880	0.0	0.0
Approach	793	2.0		0.405		10.3	LOS B	2.8	69.9				
North: SB - Taylorville Rd													
Lane 1[d]	27	2.0	603	0.045	100	8.1	LOS A	0.2	4.9	Full	1335	0.0	0.0
Approach	27	2.0		0.045		8.1	LOS A	0.2	4.9				
West: EB - McKnight Way													
Lane 1[d]	692	2.0	1105	0.626	100	8.6	LOS A	6.6	168.1	Full	860	0.0	0.0
Lane 2	202	2.0	743	0.272	100	7.3	LOS A	1.6	41.4	Short	190	0.0	NA
Approach	894	2.0		0.626		8.3	LOS A	6.6	168.1				
Intersection	2303	2.0		0.626		8.3	LOS A	6.6	168.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB - Taylorville Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	R3 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	1	35	14	51	2.0	530	0.095	100	NA	NA
Approach	1	1	35	14	51	2.0		0.095			

East: WB - McKnight Way												
Mov. From E To Exit:	L3 SE	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	79	33	292	136	539	2.0	1349	0.399	100	NA	NA	
Approach	79	33	292	136	539	2.0		0.399				

NorthEast: SR 49 SB Ramps												
Mov. From NE To Exit:	L3 E	L2 SE	L1 S	R1 W	R3 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	308	1	34	-	-	343	2.0	899	0.382	100	NA	NA
Lane 2	-	-	-	306	143	449	2.0	1110	0.405	100	NA	NA
Approach	308	1	34	306	143	793	2.0		0.405			

North: SB - Taylorville Rd												
Mov. From N To Exit:	L2 E	L1 SE	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	1	1	1	24	27	2.0	603	0.045	100	NA	NA	
Approach	1	1	1	24	27	2.0		0.045				

West: EB - McKnight Way												
Mov. From W To Exit:	L2 N	T1 E	R1 SE	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	1	691	-	-	692	2.0	1105	0.626	100	NA	NA	
Lane 2	-	-	185	17	202	2.0	743	0.272	100	0.0	1	
Approach	1	691	185	17	894	2.0		0.626				

	Total	%HV	Deg.Satn (v/c)
Intersection	2303	2.0	0.626

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB - Taylorville Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
SouthEast Exit: SR 49 SB Ramps Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: SB - Taylorville Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB - McKnight Way												

LANE SUMMARY

Site: 101 [C+P AM (Site Folder: La Bar Meadows/S Auburn St/ SR 49 NB Ramps/McKnight)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - La Barr Meadows Rd													
Lane 1[d]	716	2.0	745	0.962	100	47.7	LOS D	28.6	727.2	Full	1600	0.0	0.0
Approach	716	2.0		0.962		47.7	LOS D	28.6	727.2				
East: WB - McKnight Way													
Lane 1[d]	119	2.0	341	0.347	100	17.8	LOS B	2.7	67.9	Full	500	0.0	0.0
Approach	119	2.0		0.347		17.8	LOS B	2.7	67.9				
North: SB - S Auburn St													
Lane 1[d]	332	2.0	579	0.573	100	17.1	LOS B	5.7	145.5	Full	1300	0.0	0.0
Approach	332	2.0		0.573		17.1	LOS B	5.7	145.5				
West: EB - McKnight Way													
Lane 1[d]	448	2.0	1350	0.332	100	5.7	LOS A	2.5	63.6	Full	200	0.0	0.0
Lane 2	216	2.0	1059	0.204	100	5.3	LOS A	1.3	32.9	Short	50	0.0	NA
Approach	665	2.0		0.332		5.5	LOS A	2.5	63.6				
SouthWest: NE - SR 49 NB Off Ramp													
Lane 1[d]	264	2.0	620	0.426	100	12.2	LOS B	3.2	82.1	Full	700	0.0	0.0
Approach	264	2.0		0.426		12.2	LOS B	3.2	82.1				
Intersection	2096	2.0		0.962		23.3	LOS C	28.6	727.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB - La Barr Meadows Rd

Mov. From S To Exit:	L2 W	L1 NW	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	200	263	228	26	716	2.0	745	0.962	100	NA	NA
Approach	200	263	228	26	716	2.0		0.962			
East: WB - McKnight Way											

Mov. From E To Exit:	L2 S	T1 W	R1 NW	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	26	23	29	41	119	2.0	341	0.347	100	NA	NA
Approach	26	23	29	41	119	2.0		0.347			

North: SB - S Auburn St

Mov. From N To Exit:	L2 E	T1 S	R2 W	R3 NW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	31	165	59	77	332	2.0	579	0.573	100	NA	NA
Approach	31	165	59	77	332	2.0		0.573			

West: EB - McKnight Way

Mov. From W To Exit:	L3 NW	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	176	185	88	-	448	2.0	1350	0.332	100	NA	NA
Lane 2	-	-	-	216	216	2.0	1059	0.204	100	0.0	1
Approach	176	185	88	216	665	2.0		0.332			

SouthWest: NE - SR 49 NB Off Ramp

Mov. From SW To Exit:	L3 W	L2 NW	L1 N	R1 E	R3 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	145	5	43	21	49	264	2.0	620	0.426	100	NA	NA
Approach	145	5	43	21	49	264	2.0		0.426			

	Total	%HV	Deg.Satn (v/c)
Intersection	2096	2.0	0.962

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB - La Barr Meadows Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB - S Auburn St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
NorthWest Exit: SE - SR 49 On Ramp Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [C+P AM (Site Folder: Taylorville Rd/SR 49 SB Ramps/ McKnight Way)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - Taylorville Rd													
Lane 1[d]	63	2.0	725	0.087	100	7.2	LOS A	0.3	8.6	Full	1600	0.0	0.0
Approach	63	2.0		0.087		7.2	LOS A	0.3	8.6				
East: WB - McKnight Way													
Lane 1[d]	436	2.0	1331	0.327	100	5.4	LOS A	2.3	58.1	Full	1600	0.0	0.0
Approach	436	2.0		0.327		5.4	LOS A	2.3	58.1				
NorthEast: SR 49 SB Ramps													
Lane 1	278	2.0	988	0.281	100	13.4	LOS B	1.7	42.5	Full	880	0.0	0.0
Lane 2[d]	282	2.0	1166	0.242	100	6.2	LOS A	1.5	37.1	Full	880	0.0	0.0
Approach	560	2.0		0.281		9.8	LOS A	1.7	42.5				
North: SB - Taylorville Rd													
Lane 1[d]	21	2.0	758	0.028	100	8.9	LOS A	0.1	2.7	Full	1335	0.0	0.0
Approach	21	2.0		0.028		8.9	LOS A	0.1	2.7				
West: EB - McKnight Way													
Lane 1[d]	395	2.0	1185	0.333	100	6.2	LOS A	2.3	58.1	Short	190	0.0	NA
Lane 2	97	2.0	760	0.127	100	6.6	LOS A	0.7	17.2	Full	860	0.0	0.0
Approach	492	2.0		0.333		6.3	LOS A	2.3	58.1				
Intersection	1572	2.0		0.333		7.3	LOS A	2.3	58.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB - Taylorville Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	R3 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	37	16	63	2.0	725	0.087	100	NA	NA
Approach	5	5	37	16	63	2.0		0.087			

East: WB - McKnight Way												
Mov. From E To Exit:	L3 SE	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	61	24	187	163	436	2.0	1331	0.327	100	NA	NA	
Approach	61	24	187	163	436	2.0		0.327				

NorthEast: SR 49 SB Ramps												
Mov. From NE To Exit:	L3 E	L2 SE	L1 S	R1 W	R3 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	253	5	20	-	-	278	2.0	988	0.281	100	NA	NA
Lane 2	-	-	-	151	132	282	2.0	1166	0.242	100	NA	NA
Approach	253	5	20	151	132	560	2.0		0.281			

North: SB - Taylorville Rd											
Mov. From N To Exit:	L2 E	L1 SE	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	5	5	21	2.0	758	0.028	100	NA	NA
Approach	5	5	5	5	21	2.0		0.028			

West: EB - McKnight Way												
Mov. From W To Exit:	L2 N	T1 E	R1 SE	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	5	389	-	-	395	2.0	1185	0.333	100	0.0	2	
Lane 2	-	-	84	13	97	2.0	760	0.127	100	NA	NA	
Approach	5	389	84	13	492	2.0		0.333				

	Total	%HV	Deg.Satn (v/c)
Intersection	1572	2.0	0.333

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB - Taylorville Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
SouthEast Exit: SR 49 SB Ramps Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: SB - Taylorville Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB - McKnight Way												

LANE SUMMARY

Site: 101 [C+P PM (Site Folder: La Bar Meadows/S Auburn St/ SR 49 NB Ramps/McKnight)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - La Barr Meadows Rd													
Lane 1[d]	623	2.0	665	0.936	100	49.0	LOS D	23.4	594.6	Full	1600	0.0	0.0
Approach	623	2.0		0.936		49.0	LOS D	23.4	594.6				
East: WB - McKnight Way													
Lane 1[d]	201	2.0	270	0.743	100	77.1	LOS E	10.1	256.0	Full	500	0.0	0.0
Approach	201	2.0		0.743		77.1	LOS E	10.1	256.0				
North: SB - S Auburn St													
Lane 1[d]	438	2.0	617	0.711	100	28.2	LOS C	10.3	262.0	Full	1300	0.0	0.0
Approach	438	2.0		0.711		28.2	LOS C	10.3	262.0				
West: EB - McKnight Way													
Lane 1[d]	629	2.0	1327	0.474	100	9.7	LOS A	4.1	103.2	Full	200	0.0	0.0
Lane 2	473	2.0	1091	0.434	100	4.4	LOS A	3.4	85.7	Short	50	0.0	NA
Approach	1102	2.0		0.474		7.4	LOS A	4.1	103.2				
SouthWest: NE - SR 49 NB Off Ramp													
Lane 1[d]	338	2.0	628	0.539	100	15.8	LOS B	3.3	84.0	Full	700	0.0	0.0
Approach	338	2.0		0.539		15.8	LOS B	3.3	84.0				
Intersection	2702	2.0		0.936		26.6	LOS C	23.4	594.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB - La Barr Meadows Rd

Mov. From S To Exit:	L2 W	L1 NW	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	216	155	241	10	623	2.0	665	0.936	100	NA	NA
Approach	216	155	241	10	623	2.0		0.936			
East: WB - McKnight Way											

Mov. From E To Exit:	L2 S	T1 W	R1 NW	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	41	72	52	36	201	2.0	270	0.743	100	NA	NA
Approach	41	72	52	36	201	2.0		0.743			

North: SB - S Auburn St

Mov. From N To Exit:	L2 E	T1 S	R2 W	R3 NW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	46	180	124	88	438	2.0	617	0.711	100	NA	NA
Approach	46	180	124	88	438	2.0		0.711			

West: EB - McKnight Way

Mov. From W To Exit:	L3 NW	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	315	218	96	-	629	2.0	1327	0.474	100	NA	NA
Lane 2	-	-	-	473	473	2.0	1091	0.434	100	24.3	1
Approach	315	218	96	473	1102	2.0		0.474			

SouthWest: NE - SR 49 NB Off Ramp

Mov. From SW To Exit:	L3 W	L2 NW	L1 N	R1 E	R3 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	234	5	27	12	60	338	2.0	628	0.539	100	NA	NA
Approach	234	5	27	12	60	338	2.0		0.539			

	Total	%HV	Deg.Satn (v/c)
Intersection	2702	2.0	0.936

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB - La Barr Meadows Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB - S Auburn St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
NorthWest Exit: SE - SR 49 On Ramp Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [C+P PM (Site Folder: Taylorville Rd/SR 49 SB Ramps/ McKnight Way)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - Taylorville Rd													
Lane 1[d]	66	2.0	511	0.130	100	8.5	LOS A	0.6	14.7	Full	1600	0.0	0.0
Approach	66	2.0		0.130		8.5	LOS A	0.6	14.7				
East: WB - McKnight Way													
Lane 1[d]	662	2.0	1389	0.477	100	5.5	LOS A	4.3	110.4	Full	1600	0.0	0.0
Approach	662	2.0		0.477		5.5	LOS A	4.3	110.4				
NorthEast: SR 49 SB Ramps													
Lane 1	442	2.0	832	0.531	100	17.7	LOS B	4.5	113.6	Full	880	0.0	0.0
Lane 2[d]	569	2.0	1066	0.534	100	9.3	LOS A	4.8	121.3	Full	880	0.0	0.0
Approach	1012	2.0		0.534		13.0	LOS B	4.8	121.3				
North: SB - Taylorville Rd													
Lane 1[d]	35	2.0	516	0.067	100	9.2	LOS A	0.3	7.9	Full	1335	0.0	0.0
Approach	35	2.0		0.067		9.2	LOS A	0.3	7.9				
West: EB - McKnight Way													
Lane 1[d]	677	2.0	1013	0.668	100	10.8	LOS B	8.1	206.6	Short	190	0.0	NA
Lane 2	255	2.0	728	0.350	100	8.1	LOS A	2.3	59.5	Full	860	0.0	0.0
Approach	932	2.0		0.668		10.1	LOS B	8.1	206.6				
Intersection	2706	2.0		0.668		10.0	LOS A	8.1	206.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB - Taylorville Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	R3 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	1	47	17	66	2.0	511	0.130	100	NA	NA
Approach	1	1	47	17	66	2.0		0.130			

East: WB - McKnight Way												
Mov. From E To Exit:	L3 SE	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	106	36	357	163	662	2.0	1389	0.477	100	NA	NA	
Approach	106	36	357	163	662	2.0		0.477				

NorthEast: SR 49 SB Ramps												
Mov. From NE To Exit:	L3 E	L2 SE	L1 S	R1 W	R3 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	402	1	39	-	-	442	2.0	832	0.531	100	NA	NA
Lane 2	-	-	-	391	179	569	2.0	1066	0.534	100	NA	NA
Approach	402	1	39	391	179	1012	2.0		0.534			

North: SB - Taylorville Rd											
Mov. From N To Exit:	L2 E	L1 SE	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	1	1	32	35	2.0	516	0.067	100	NA	NA
Approach	1	1	1	32	35	2.0		0.067			

West: EB - McKnight Way											
Mov. From W To Exit:	L2 N	T1 E	R1 SE	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	676	-	-	677	2.0	1013	0.668	100	7.5	2
Lane 2	-	-	234	21	255	2.0	728	0.350	100	NA	NA
Approach	1	676	234	21	932	2.0		0.668			

	Total	%HV	Deg.Satn (v/c)
Intersection	2706	2.0	0.668

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

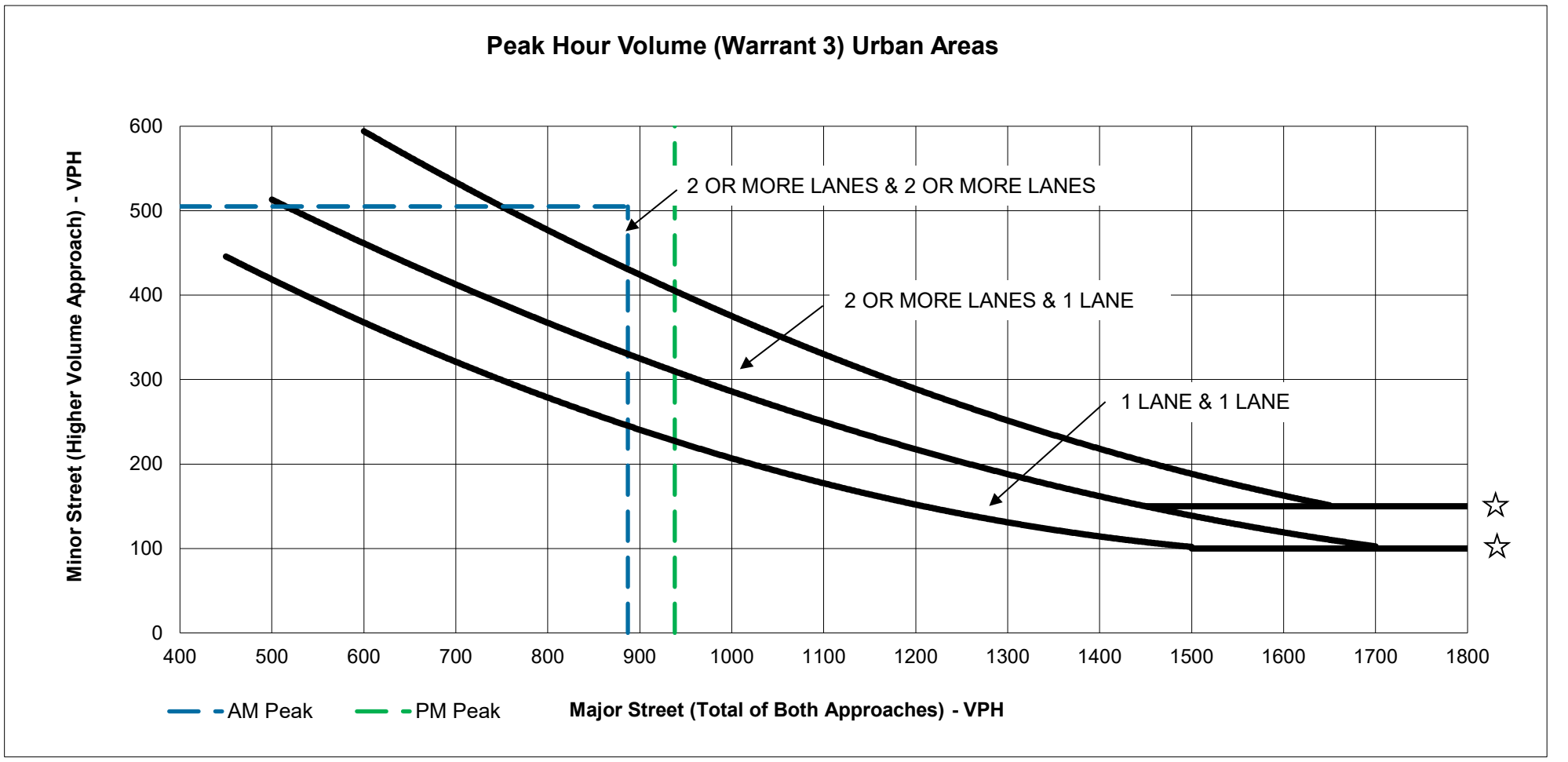
Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB - Taylorville Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
SouthEast Exit: SR 49 SB Ramps Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB - McKnight Way Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: SB - Taylorville Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB - McKnight Way												

Appendix B Signal Warrant Worksheets

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

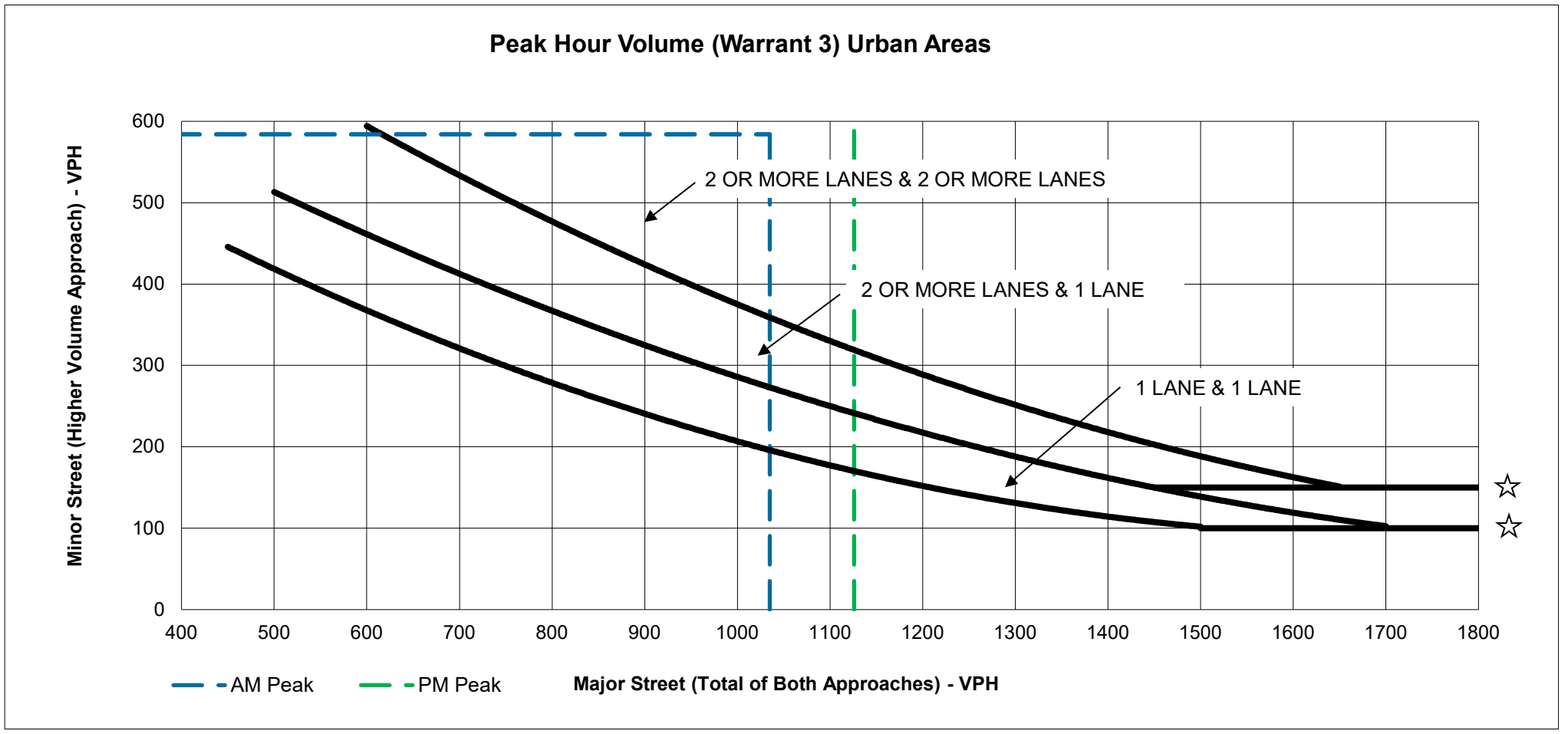


☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Existing Plus Project		
		Number of Lanes
Major Approach	S Auburn St/La Barr Meadows Rd	1
Minor Approach	McKnight Way	1
	AM Peak	PM Peak
Major St. Volume:	887	938
Minor St. Volume:	505	663
Warrant Met?:	Yes	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Cumulative Plus Project		
		Number of Lanes
Major Approach	S Auburn St/La Barr Meadows Rd	1
Minor Approach	McKnight Way	1
	AM Peak	PM Peak
Major St. Volume:	1,035	1,126
Minor St. Volume:	584	859
Warrant Met?:	Yes	Yes

about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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