

TRAFFIC IMPACT STUDY

For

Rowley Property Sketch Plan El Paso County, Colorado SKP262

April 2026
Revised August 2026

Prepared for:

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25-112535

Traffic Engineer's Statement

The attached traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



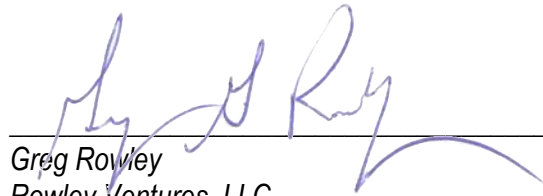
Brandon Wilson, P.E. #68282

08/31/2026

Date

Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.



Greg Rowley
Rowley Ventures, LLC
7765 Venture Street
Colorado Springs, Colorado 80951

8/31/2026

Date

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I. Introduction

Project Overview

This traffic impact study is provided as a planning document and addresses the capacity, geometric, and control requirements associated with the development entitled Rowley Property Sketch Plan. This analysis was prepared in accordance with Appendix B of the County's Engineering Criteria Manual (ECM)¹.

This traffic impact study has been revised to address County review comments made to the April 2026 version regarding updates to intersection control conditions and corresponding updates to figures and tables.

This proposed mixed-use development consists of commercial, industrial, and residential land uses. The development is located west of Marksheffel Road between U.S. Highway 24 and Constitution Avenue in El Paso County, Colorado.

Study Area Boundaries

The study area to be examined in this analysis encompasses Marksheffel Road from U.S. Highway 24 to Constitution Avenue, Hannah Ridge Drive intersections with Constitution Avenue and Palmer Park Boulevard, the intersection of Colorado Tech Drive and Reed Grass Way, as well as proposed site accesses.

Consistent with Section B.2.3.B of Appendix B – Transportation Impact Study Guidelines from the County's Engineering Criteria Manual (ECM), the study area did not extend outside of the analyzed intersections since the development's trip distribution does not anticipate much, if any, site traffic travelling to/from outside of this area.

Figure 1 illustrates location of the site and study intersections.

Site Description

Land for the development is partially occupied by outdoor storage for trailers, RV's and boats. The area is surrounded by commercial, industrial, institutional, recreational, and residential land uses.

¹ El Paso County Engineering Criteria Manual, El Paso County, January 9, 2025.

The proposed development will rezone the northern portion of the site (an approximate 34.99-acre site with 26.48 acres of developable area) to RM-12 (Residential Multi-Dwelling), a zoning district intended to accommodate moderate density single-family attached homes and low-density multifamily homes. The southern portion of the site (an approximate 23.1-acre site with 19.55 acres of developable area) will rezone to RS-5000 (Residential Suburban), a zoning district intended to accommodate single-family residential development.

The proposed development is conceptual and no specific land uses have been determined. However, for purposes of this analysis, there is assumed to be construction for approximately 315,000 square feet of general light industrial, 86 single-family detached homes, 96,000 square feet of strip retail plaza, 2,800 square feet of fast-food restaurants with drive-through windows, and a 4,200 square foot gas station convenience store with 12 vehicle fueling positions.

Existing access to the development is provided via one right-in / right-out access onto Marksheffel Road (referred to as Right-in / Right-out Access). Proposed access to the development is provided at the following locations: one full-movement access onto Venture Street serving the commercial portion of this development (referred to as Access A) and via the extension of Reed Grass Way past its current termination to serve the proposed residential portion of the development.

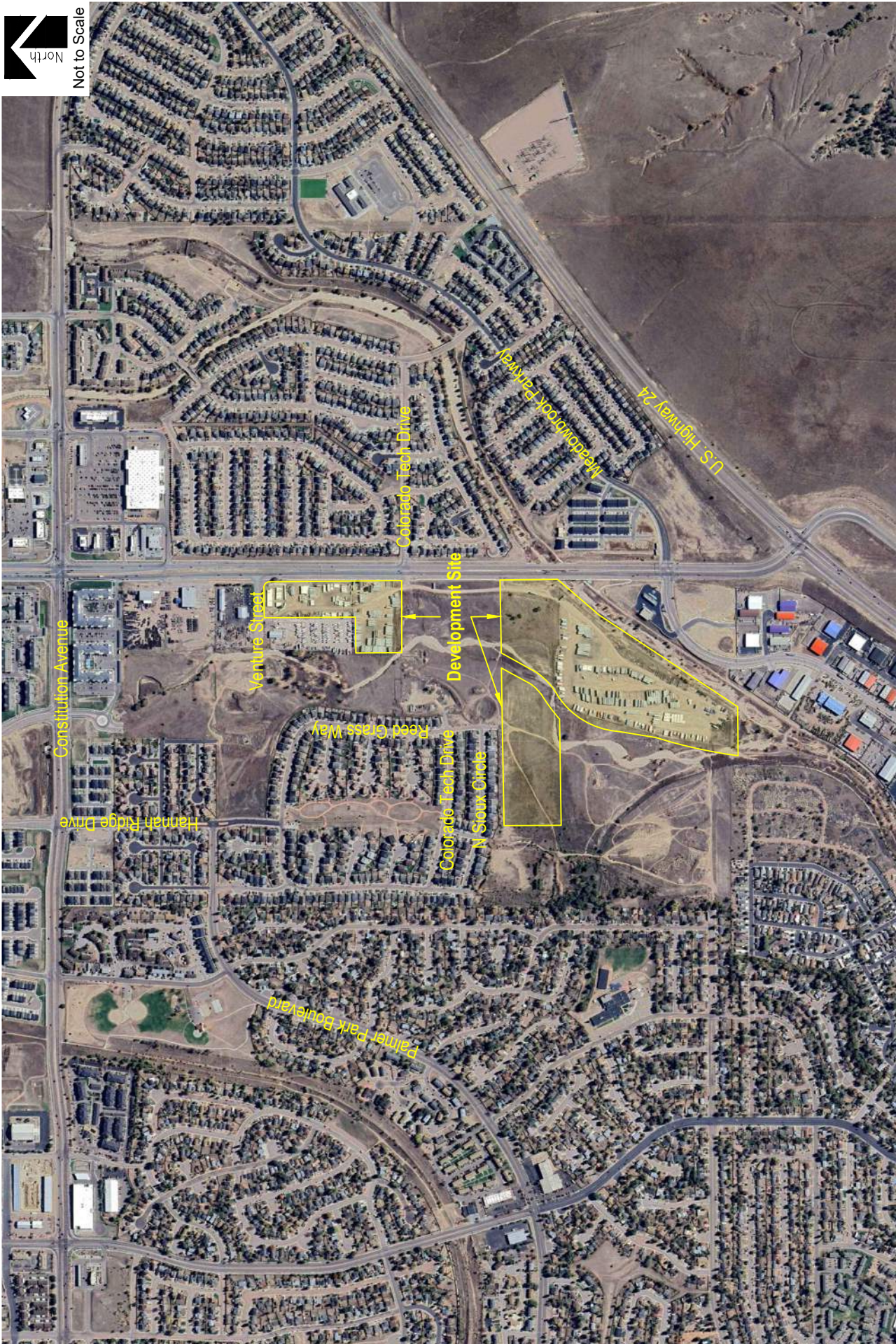
For purposes of this study, it is anticipated that development construction would be completed by end of Year 2031.

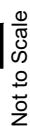
General site and access locations are shown on Figure 1.

A Sketch Plan, as prepared by N.E.S., is shown in Figure 2. This plan is provided for illustrative purposes only.



Not to Scale





Existing and Committed Surface Transportation Network

Within the study area, regional access to the proposed development area is provided by way of Marksheffel Road, Constitution Avenue, Meadow Brook Parkway and U.S. Highway 24 while local access is provided via Colorado Tech Drive, Venture Street, Hannah Ridge Drive, Palmer Park Boulevard, and Reed Grass Way. A brief description of each roadway, based on the County's Major Transportation Corridors Plan (MTCP)², the County's ECM, the City of Colorado Springs's Major Thoroughfare Plan (MTP)³, and the City's Traffic Criteria Manual⁴, is provided below:

Marksheffel Road is a generally a north-south principal arterial roadway generally providing four through lanes (two lanes in each direction) with exclusive turn lanes at the intersections within the study area. Marksheffel Road is City-owned from Vollmer Road south to Peaceful Valley Road and provides a posted speed limit of 50 MPH.

Constitution Avenue is an east-west principal arterial roadway having six through lanes (three lanes in each direction) with exclusive turn lanes at the intersection within the study area. Constitution Avenue provides a posted speed limit of 50 MPH. Constitution Avenue is a City of Colorado Springs-owned roadway east of Marksheffel Road and an El Paso County-owned roadway west of Marksheffel Road.

Meadowbrook Parkway is an east-west major collector roadway having two through lanes (one lane in each direction) with exclusive turn lanes at the intersection within the study area. Meadow Brook Parkway provides a posted speed limit of 35 MPH.

U.S. Highway 24 is an east-west state roadway having four through lanes (two lanes in each direction) with a combination of shared and exclusive turn lanes at the intersection within the study area. The Colorado Department of Transportation (CDOT) categorizes the adjacent segment of U.S. Highway 24 as an Expressway (E-X) and provides a posted speed limit of 65 MPH.

Colorado Tech Drive east of Marksheffel Road is an east-west major collector roadway having two through lanes (one lane in each direction) with exclusive turn lanes at the intersection within the study area. Per Section 2.3.2, Table 2-7, of the County's ECM, Colorado Tech Drive is expected to provide a posted speed limit of 35 MPH.

West of Reed Grass Way, Colorado Tech Drive is an east-west local roadway, having two through lanes, (one lane in each direction) with shared turn lanes at the intersection within the study area. Per Section 2.3.2, Table 2-7, of the County's ECM, Colorado Tech Drive is expected to provide a posted speed limit of 25 MPH.

² El Paso County Major Transportation Corridors Plan, Felsburg Holt & Ullevig, July 18, 2024.

³ City of Colorado Springs Major Thoroughfare Plan, City of Colorado Springs, Department of Public Works, May 16, 2025.

⁴ Engineering Criteria Manual, Section III: Traffic Criteria Manual, City of Colorado Springs City Engineering, July 2010.

Venture Street is an east-west local roadway having two through lanes (one lane in each direction) with exclusive turn lanes at the intersection within the study area. Per Section 2.3.2, Table 2-7, of the County's ECM, Venture Street is expected to provide a posted speed limit of 25 MPH.

Hannah Ridge Drive is north-south major collector roadway having two through lanes (one lane in each direction) with combination of shared and exclusive turn lanes at the intersection within the study area. Per Section 2.3.2, Table 2-7, of the County's ECM, Hannah Ridge Drive is expected to provide a posted speed limit of 35 MPH.

Palmer Park Boulevard is an east-west major collector roadway having two through lanes (one lanes in each direction) with shared turn lanes at the intersection within the study area. Palmer Park Boulevard provides a posted speed limit of 25 MPH.

Reed Grass Way is a generally a north-south local roadway having two through lanes (one lane in each direction) with shared turn lanes at the intersection within the study area. Per Section 2.3.2, Table 2-7, of the County's ECM, Reed Grass Way is expected to provide a posted speed limit of 25 MPH.

The study Marksheffel Road intersections with U.S. Highway 24, Meadowbrook Parkway, and Constitution Avenue are signalized. All other study intersections operate under a stop-controlled condition. A stop-controlled intersection is defined as a roadway intersection where vehicle rights-of-way are controlled by one or more "STOP" signs.

In coordination with County Staff, it is understood that there are plans to install a traffic signal at the intersection of Constitution Avenue and Hannah Ridge Drive. This improvement is anticipated to occur by Year 2031 and is therefore included in this analysis.

In review of the City's PlanCOS Comprehensive Plan⁵ project list, it is indicated that a long-range transportation plan is currently being evaluated for the U.S. Highway 24 corridor from Interstate 25 east to Falcon. It is therefore unknown at this time what improvements are being planned for adjacent to the proposed development. As such, no improvements to U.S. Highway 24 within the study area were included within this analysis.

Upon review of the County's MTCP, no other regional or specific improvements for the above-described roadways are known to be planned or committed at this time.

⁵ PlanCOS, City of Colorado Springs, January 2019.

II. Existing Traffic Conditions

Morning (AM) and afternoon (PM) peak hour traffic counts were collected at the following intersections:

- Marksheffel Road and Meadowbrook Parkway
- Marksheffel Road and Right-in / Right-out Access
- Marksheffel Road and Colorado Tech Drive
- Marksheffel Road and Venture Street
- Marksheffel Road and Constitution Avenue
- Constitution Avenue and Hannah Ridge Drive
- Hannah Ridge Drive and Palmer Park Boulevard
- Reed Grass Way and Colorado Tech Drive

Average daily traffic (ADT) volumes were collected over a 24-hour period on the following roadways:

- Marksheffel Road
- Constitution Avenue
- Hannah Ridge Drive
- Palmer Park Boulevard
- Reed Grass Way

Counts were collected on Thursday, January 29, 2026, with AM peak hour counts being collected during the period of 7:00 a.m. to 9:00 a.m. and PM peak hour counts being collected during the period of 4:00 p.m. to 6:00 p.m.

Peak hour traffic counts volumes for the intersection of U.S. Highway 24 and Marksheffel Road were referenced from 725 Peterson Multifamily Traffic Impact Study⁶. These counts were then grown to Year 2026 using historical traffic count data provided by CDOT's Traffic Count Database System (TCDS)⁷ along the adjacent segment of U.S. Highway 24, which anticipates a 20-year growth rate between one and two percent. Therefore, in order to provide for a conservative analysis, a growth rate of two percent was applied to existing traffic volumes.

The study area intersections and ADT volumes are shown on Figure 3. Newly collected intersection counts and intersection geometry are shown in Figure 4 and Figure 5, respectively. Traffic count data is included for reference in Appendix A.

Existing signal timing parameters for the Marksheffel Road intersections with U.S. Highway 24, Meadowbrook Parkway, and Constitution Avenue were obtained from CDOT and the City of Colorado Springs and used throughout this study to the best extent possible in order to remain consistent with existing signal coordination plans. CDOT and City signal timing information received is included for reference in Appendix A.

⁶ 725 Peterson Multifamily: Traffic Impact Study, SM ROCHA, LLC, September 2025.

⁷ Transportation Data Management System, MS2, 2021.

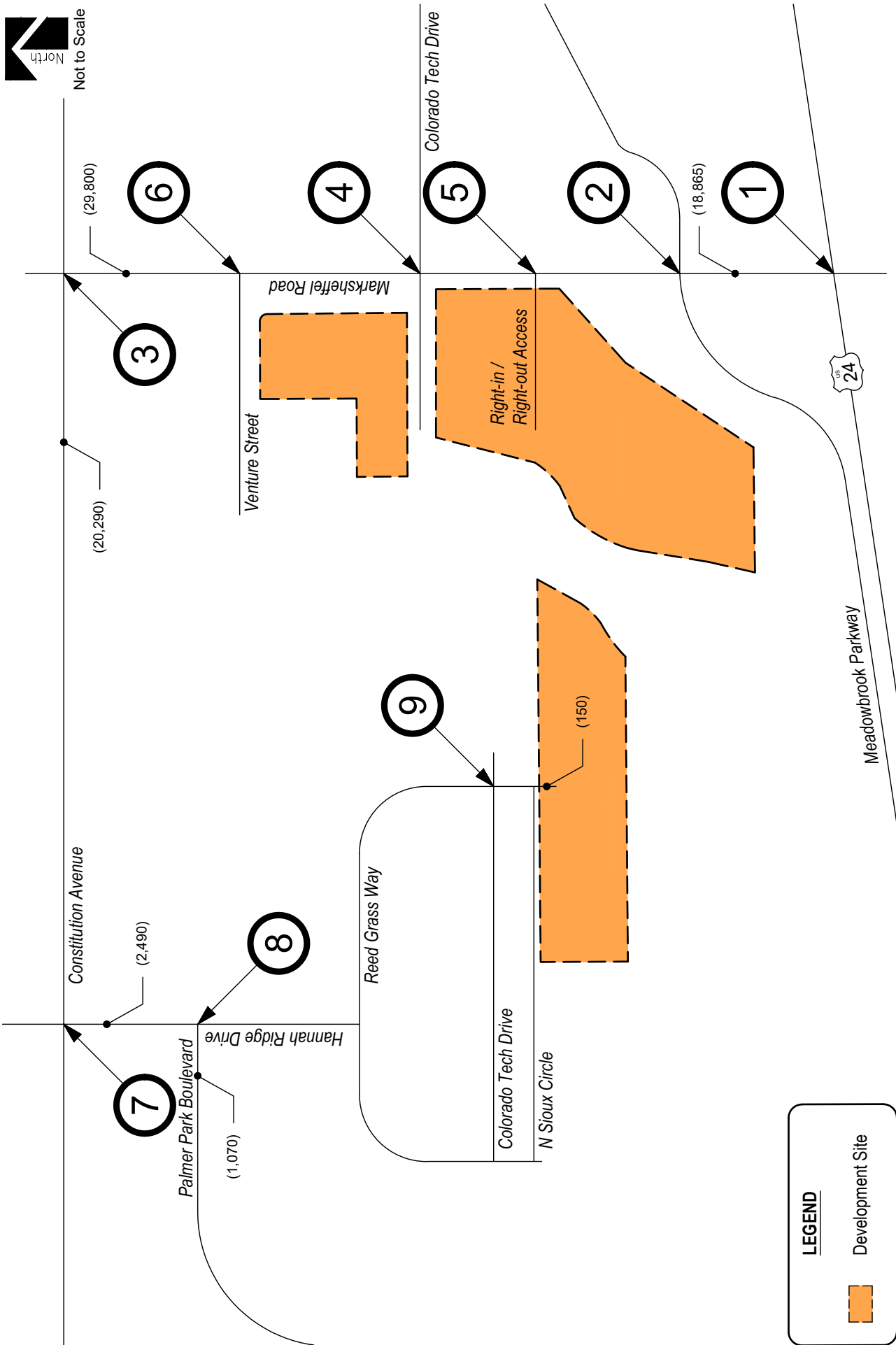
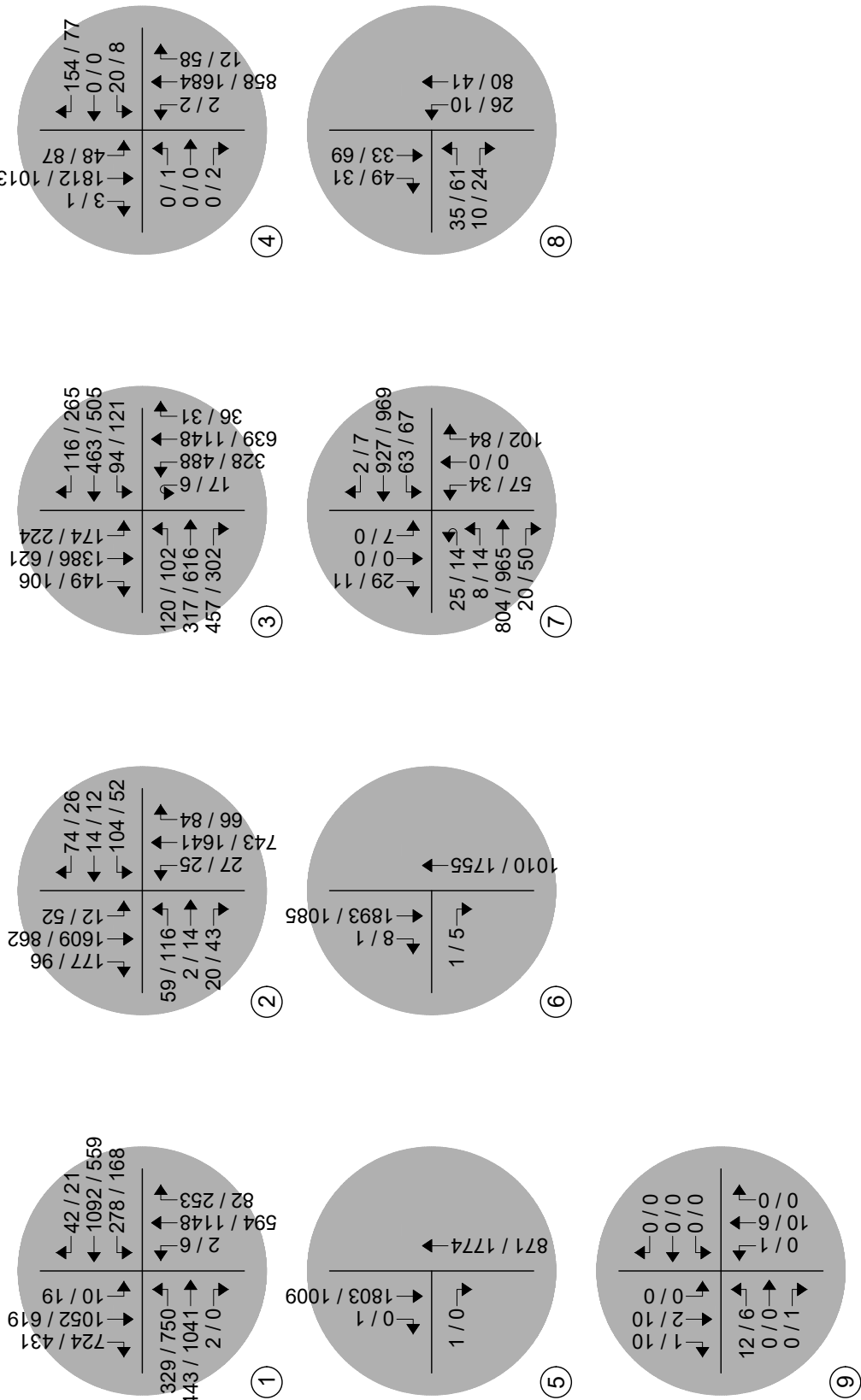


Figure 3
EXISTING TRAFFIC
Volumes
(ADT) : Average Daily Traffic

ROWLEY PROPERTY SKETCH PLAN
Traffic Impact Study

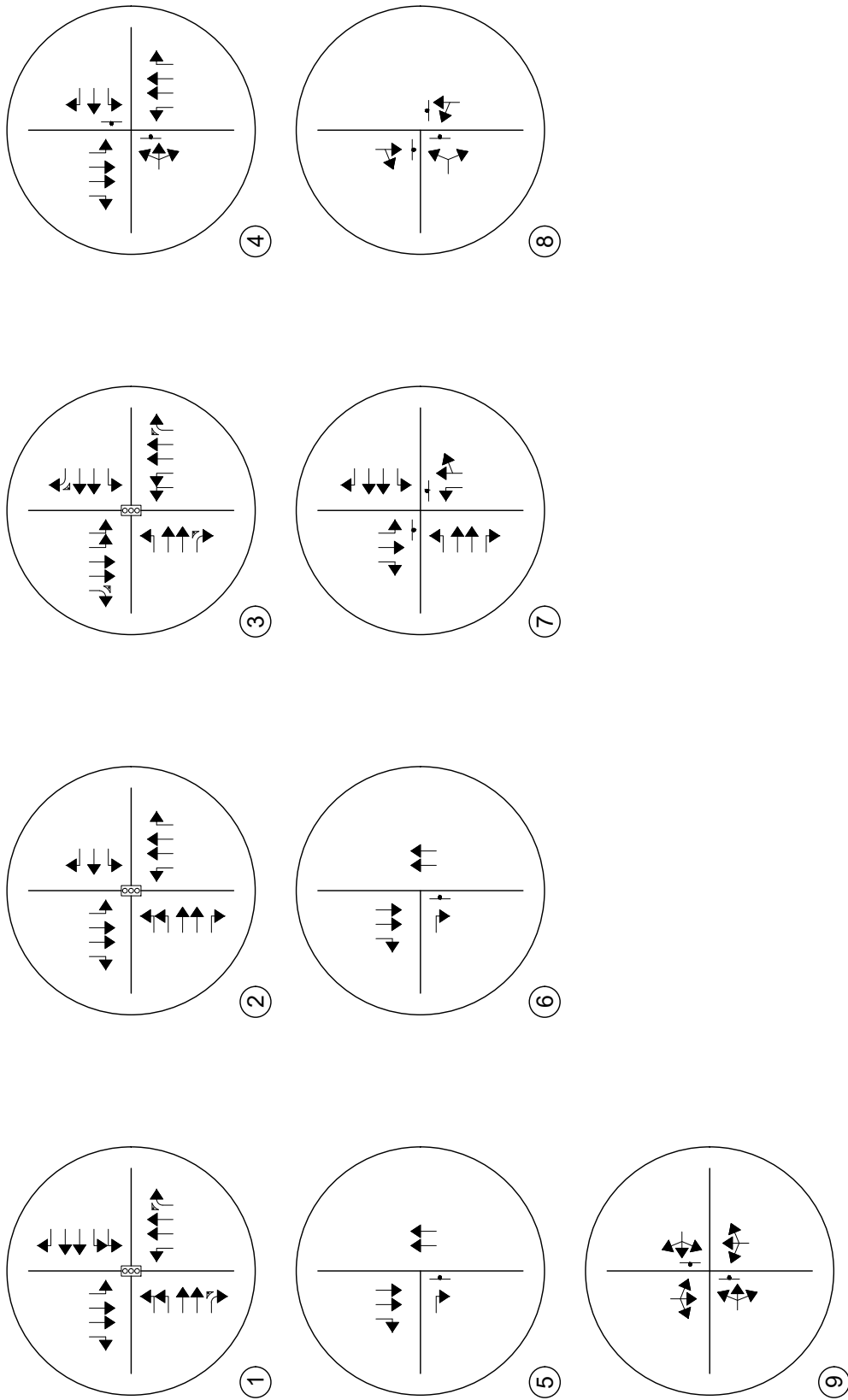


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Traffic & Transportation Engineering



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Study Intersection
Volumes



LEGEND

Study Intersection

Lane Geometry

Peak Hour Intersection Levels of Service – Existing Traffic

The Signalized and Unsignalized Intersection Analysis techniques, as published in the Highway Capacity Manual (HCM), 7th Edition, by the Transportation Research Board and as incorporated into the SYNCHRO computer program, were used to analyze the study intersections for existing and future traffic conditions. These nationally accepted techniques allow for the determination of intersection level of service (LOS) based on the congestion and delay of each traffic movement.

Pursuant to Section B.4.1.A of the County's ECM, the design objective for each scenario of this study shall be level of service "D". Level of service is a method of measurement used by transportation professionals to quantify a driver's perception of travel conditions that include travel time, number of stops, and total amount of stopped delay experienced on a roadway network. The HCM categorizes level of service into a range from "A" which indicates little, if any, vehicle delay, to "F" which indicates a level of operation considered unacceptable to most drivers. These levels of service grades with brief descriptions of the operating condition, for unsignalized and signalized intersections, are included for reference in Appendix B and have been used throughout this study.

The level of service analyses results for existing conditions are summarized in Table 1.

Intersection capacity worksheets developed for this study are provided in Appendix C.

Table 1 – Intersection Capacity Analysis Summary – Existing Traffic

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
U.S. Highway 24 / Marksheffel Road (Signalized)	D (44.9)	F (143.3)
Marksheffel Road / Meadowbrook Parkway (Signalized)	A (8.3)	C (24.4)
Marksheffel Road / Constitution Avenue (Signalized)	D (45.5)	D (42.2)
Constitution Avenue / Hannah Ridge Drive (Stop-Controlled)		
Eastbound Left	C	B
Westbound Left	B	B
Northbound Left	F	F
Northbound Through and Right	B	B
Southbound Left	F	A
Southbound Through	A	A
Southbound Right	B	B
Marksheffel Road / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through and Right	A	F
Westbound Left	F	F
Westbound Through	A	A
Westbound Right	B	C
Northbound Left	C	B
Southbound Left	B	C
Marksheffel Road / Right-in / Right-out Access (Stop-Controlled)		
Eastbound Right	C	A
Marksheffel Road / Venture Street (Stop-Controlled)		
Eastbound Right	C	B
Hannah Ridge Drive / Palmer Park Boulevard (Stop-Controlled)		
Eastbound Left and Right	A	A
Northbound Left and Through	A	A
Southbound Through and Right	A	A
Reed Grass Way / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through, and Right	A	A
Westbound Left, Through, and Right	A	A
Northbound Left, Through, and Right	A	A
Southbound Left, Through, and Right	A	A

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)

Stop-Controlled Intersection: Level of Service

Existing Traffic Analysis Results

Under existing conditions, operational analysis shows that the signalized intersection of U.S. Highway 24 and Marksheffel Road has overall operations at LOS D during the morning peak traffic hour and LOS F during the afternoon peak traffic hour.

The signalized intersection of Marksheffel Road and Meadowbrook Parkway has overall operations at LOS A during the morning peak traffic hour and LOS C during the afternoon peak traffic hour.

The signalized intersection of Marksheffel Road and Constitution Avenue has overall operations at LOS D during the morning and afternoon peak traffic hours.

The stop-controlled intersection of Constitution Avenue and Hannah Ridge Drive has turn movement operations at LOS C or better during the morning peak traffic hour and LOS B or better during the afternoon peak traffic hour. Exceptions would include the northbound left turn movement and the southbound left turn movement which operate at LOS F during their respective peak traffic hour. These operations are attributed to the through traffic volume along Constitution Avenue.

The unsignalized intersection of Marksheffel Road and Colorado Tech Drive has turn movement operations at LOS C or better during the morning and afternoon peak traffic hours. Exceptions would include the westbound left turn movement and eastbound turning movements which operate at LOS F during their respective peak traffic hour. The LOS F operations are attributed to the through traffic volume along Marksheffel Road and the stop-controlled nature of the intersection.

The stop-controlled intersection of Marksheffel Road and the Right-in / Right-out access has turn movement operations at LOS C during the morning peak traffic hour and LOS A during the afternoon peak traffic hour.

The stop-controlled intersection of Marksheffel Road and Venture Street has turn movement operations at LOS C during the morning peak traffic hour and LOS B during the afternoon peak traffic hour.

All other stop-controlled intersections have turn movement operations at LOS A during the morning and afternoon peak traffic hours.

It is to be noted that it is not uncommon for unsignalized movements to or from an arterial roadway, in urban areas, to operate with noticeable delays during peak traffic hours. It is, however, likely that turn movements will operate better than the results obtained with this HCM Two-Way Stop-Control (TWSC) level of service analysis would indicate, as the HCM analysis may not accurately account for the effect of vehicle platooning and gaps caused by upstream signals. Upstream signal controls along Marksheffel Road will tend to create additional gaps in the traffic stream for turning movements at Colorado Tech Drive and which would most likely provide mitigation to the LOS F operation projected during both peak traffic hours.

III. Future Traffic Conditions Without Proposed Development

Background traffic is the traffic projected to be on area roadways without consideration of the proposed development. Background traffic includes traffic generated by development of vacant parcels in the area.

To account for projected increases in background traffic for Years 2031 and 2045, a compounded annual growth rate was determined using historical traffic data for the surrounding area provided by CDOT's OTIS along the adjacent segment of U.S. Highway 24, which anticipates a 20-year growth rate between one and two percent. Therefore, in order to provide for a conservative analysis, a growth rate of two percent was applied to existing traffic volumes.

Pursuant to the non-committed area roadway improvements discussed in Section I, Year 2031 and Year 2045 background traffic conditions assume the signalization of the intersection of Constitution Avenue and Hannah Ridge Drive.

The study area intersections and projected short-term background ADT volumes are shown on Figure 6. Projected background intersection traffic volumes and intersection geometry for Year 2031 are shown in Figure 7 and Figure 8, respectively.

Study area intersections and projected long-term background ADT volumes are shown in Figure 9. Projected background intersection traffic volumes and intersection geometry for Year 2045 are shown in Figure 10 and Figure 11, respectively.

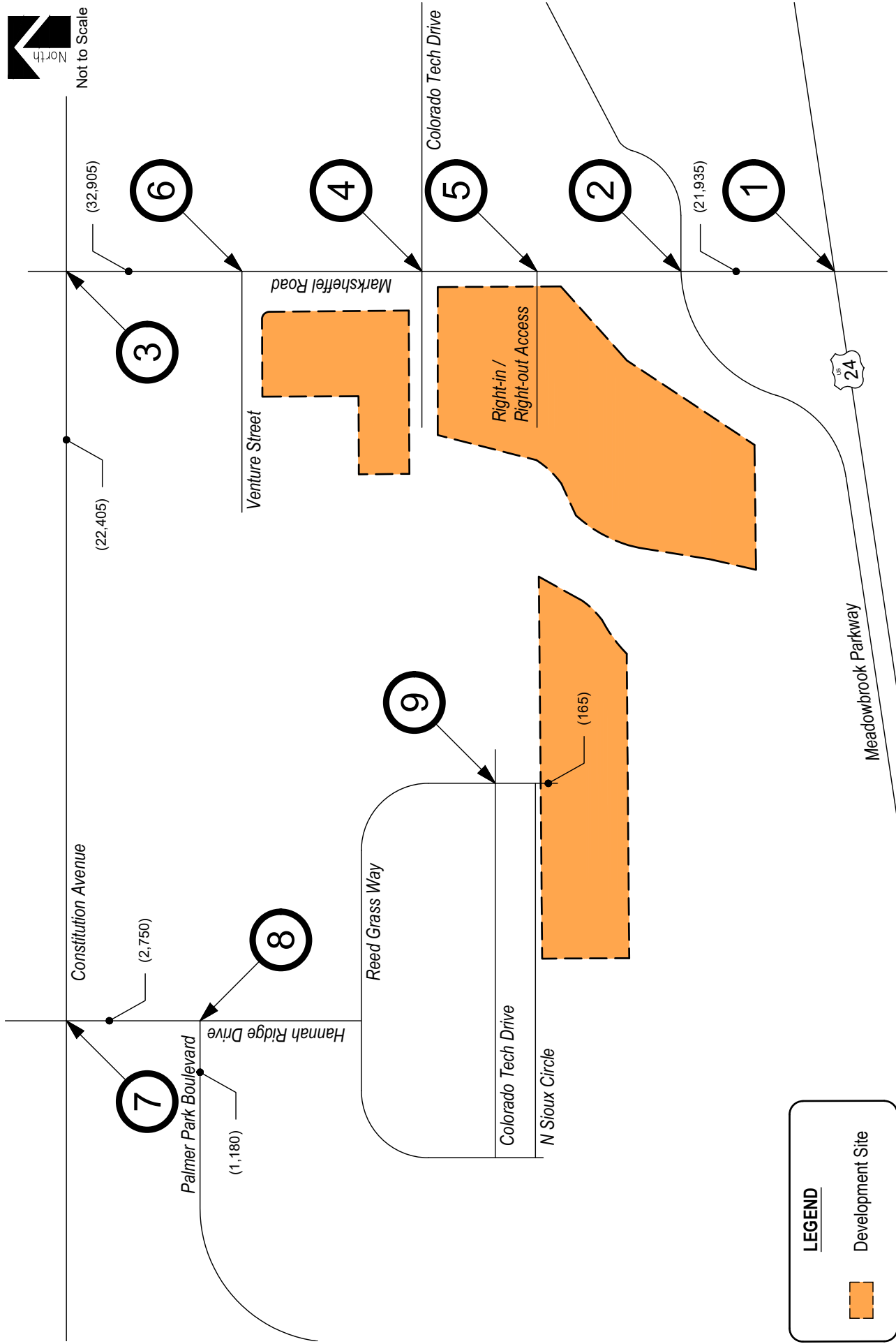
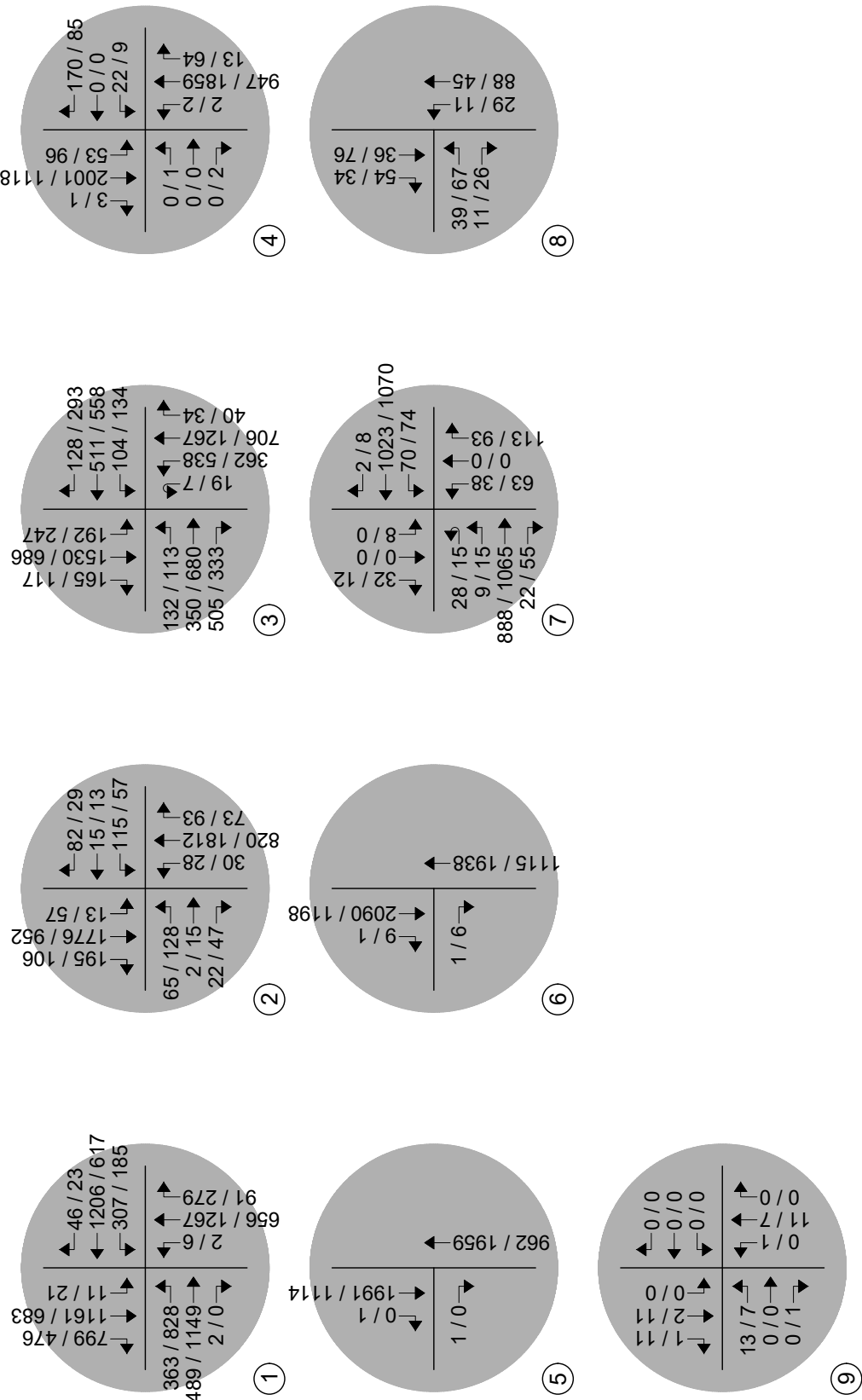


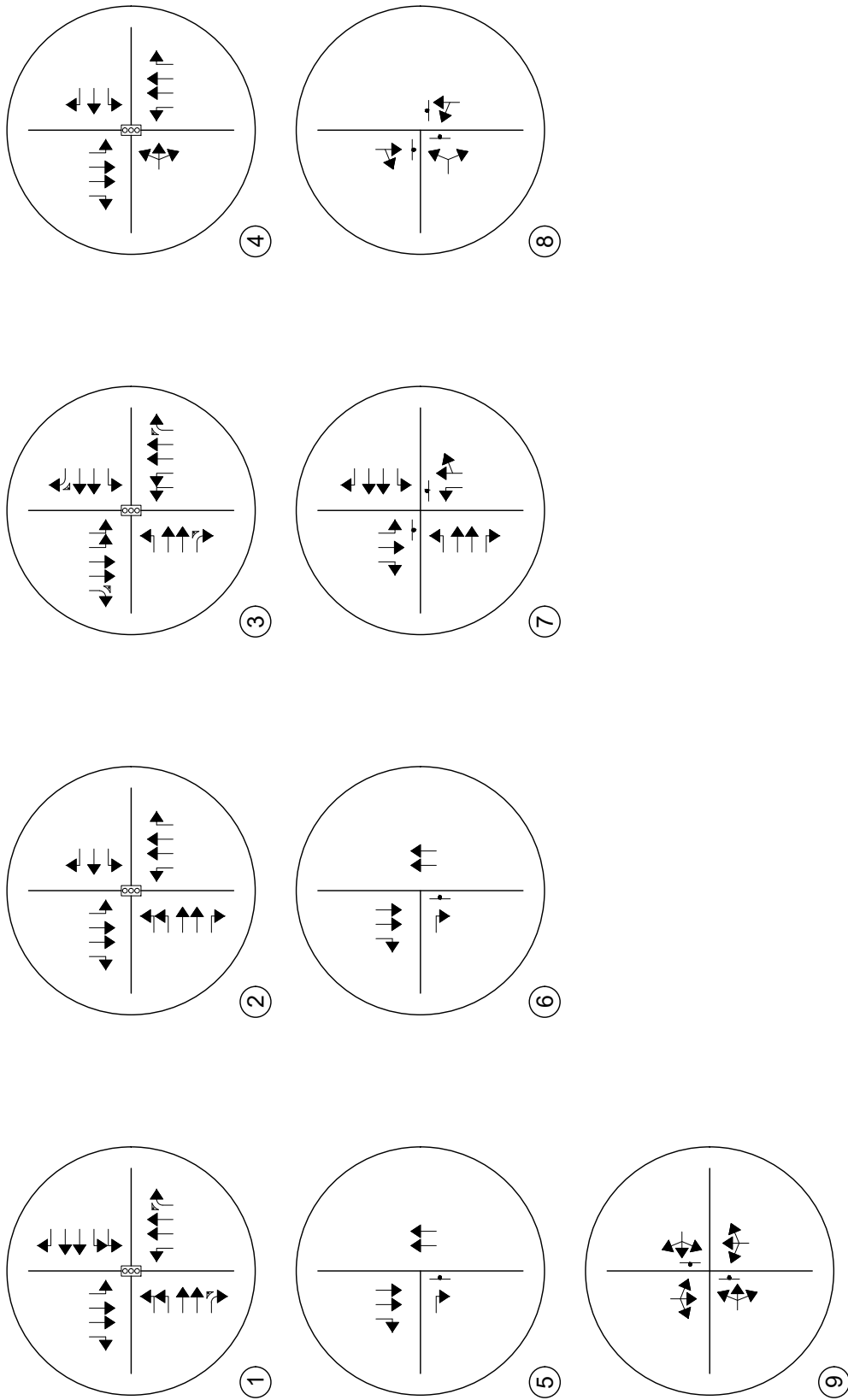
Figure 6
BACKGROUND TRAFFIC - YEAR 2031
 (ADT) : Average Daily Traffic



LEGEND

Study Intersection

Volumes



LEGEND

Study Intersection

Lane Geometry

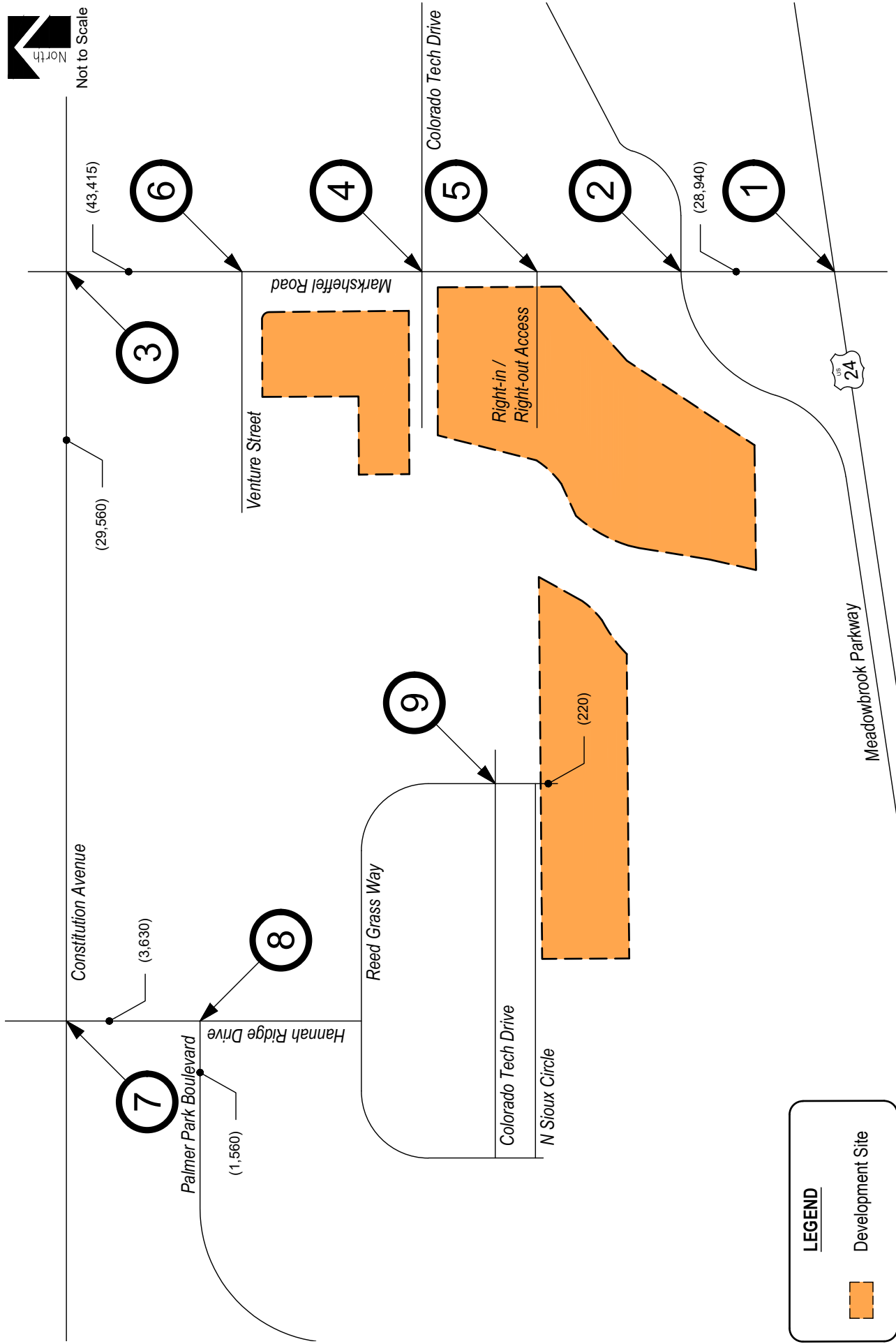
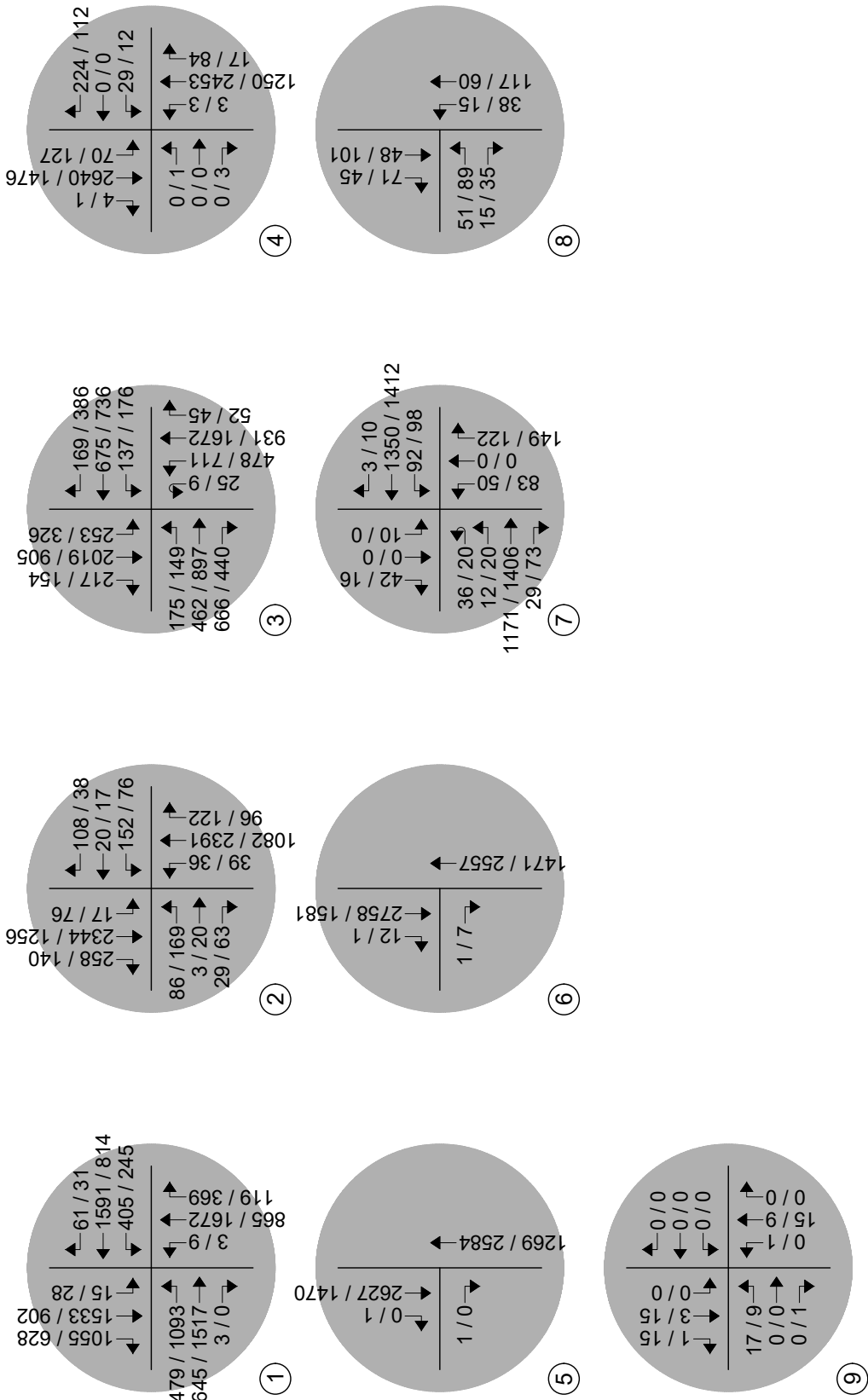


Figure 9
BACKGROUND TRAFFIC - YEAR 2045
 Volumes
 (ADT) : Average Daily Traffic

ROWLEY PROPERTY SKETCH PLAN
 Traffic Impact Study

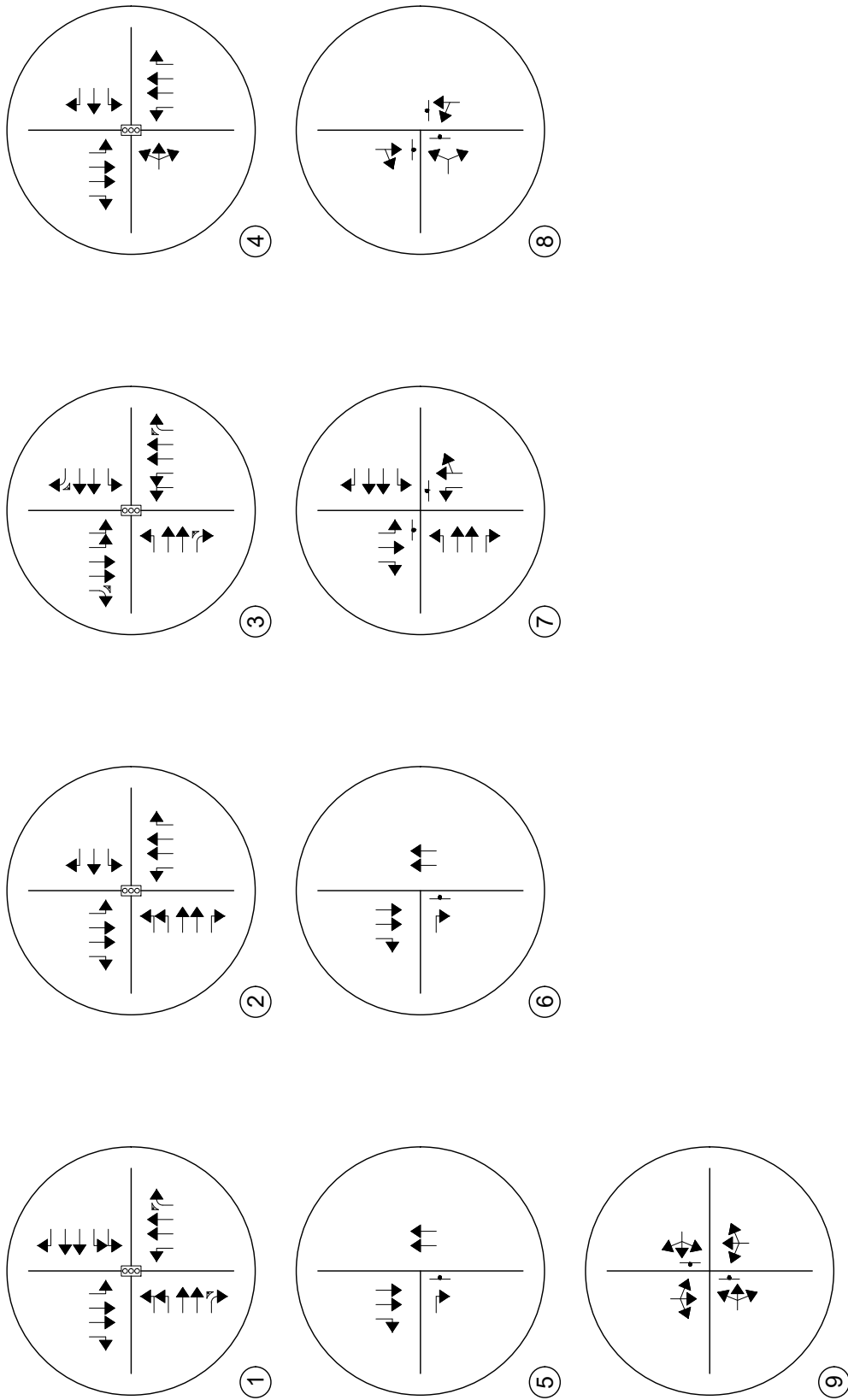
SM ROCHA, LLC
 Traffic & Transportation Engineering



LEGEND

Study Intersection

Volumes



LEGEND

Study Intersection

Lane Geometry

Peak Hour Intersection Levels of Service – Background Traffic

As with existing traffic conditions, the operations of study intersections were analyzed under background conditions, without the proposed development, using the SYNCHRO computer program.

Background traffic level of service analysis results for Year 2031 are listed in Table 2. Year 2045 operational results are summarized in Table 3.

Definitions of levels of service are given in Appendix B. Intersection capacity worksheets are provided in Appendix C.

Table 2 – Intersection Capacity Analysis Summary – Background Traffic – Year 2031

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
U.S. Highway 24 / Marksheffel Road (Signalized)	E (58.7)	F (170.9)
Marksheffel Road / Meadowbrook Parkway (Signalized)	B (12.3)	C (27.1)
Marksheffel Road / Constitution Avenue (Signalized)	E (60.9)	D (46.7)
Constitution Avenue / Hannah Ridge Drive (Signalized)	A (7.2)	B (10.9)
Marksheffel Road / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through and Right	A	F
Westbound Left	F	F
Westbound Through	A	A
Westbound Right	C	D
Northbound Left	C	B
Southbound Left	B	D
Marksheffel Road / Right-in / Right-out Access (Stop-Controlled)		
Eastbound Right	C	A
Marksheffel Road / Venture Street (Stop-Controlled)		
Eastbound Right	C	B
Hannah Ridge Drive / Palmer Park Boulevard (Stop-Controlled)		
Eastbound Left and Right	A	A
Northbound Left and Through	A	A
Southbound Through and Right	A	A
Reed Grass Way / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through, and Right	A	A
Westbound Left, Through, and Right	A	A
Northbound Left, Through, and Right	A	A
Southbound Left, Through, and Right	A	A

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)
Stop-Controlled Intersection: Level of Service

Background Traffic Analysis Results – Year 2031

Year 2031 background traffic analysis indicates that the signalized intersection of U.S. Highway 24 and Marksheffel Road has overall operations at LOS E during the morning peak traffic hour and LOS F during the afternoon peak traffic hour.

The signalized intersection of Marksheffel Road and Meadowbrook Parkway projects operations at LOS B during the morning peak traffic hour and LOS C during the afternoon peak traffic hour.

The signalized intersection of Marksheffel Road and Constitution Avenue anticipates overall operations at LOS E during the morning peak traffic hour and LOS D during the afternoon peak traffic hour.

The signalized intersection of Constitution Avenue and Hannah Ridge Drive expects overall operations at LOS A during the morning peak traffic hour and LOS B during the afternoon peak traffic hour.

The stop-controlled intersection of Marksheffel Road and Colorado Tech Drive projects turn movement operations at LOS C or better during the morning peak traffic hour and LOS D or better during the afternoon peak traffic hour. Exceptions still include the westbound left turn movement and the eastbound turning movements which operate at LOS F during their respective peak traffic hour. The LOS F operations are attributed to the through traffic volume along Marksheffel Road and the stop-controlled nature of the intersection.

The stop-controlled intersection of Marksheffel Road and the Right-in / Right-out Access anticipates turn movement operations at LOS C during the morning peak traffic hour and LOS A during the afternoon peak traffic hour.

The stop-controlled intersection of Marksheffel Road and Venture Street projects turn movement operations at LOS C during the morning peak traffic hour and LOS B during the afternoon peak traffic hour.

All other stop-controlled intersections continue to provide turn movement operations at LOS A during the morning and afternoon peak traffic hours.

Table 3 – Intersection Capacity Analysis Summary – Background Traffic – Year 2045

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
U.S. Highway 24 / Marksheffel Road (Signalized)	F (115.1)	F (150.9)
Marksheffel Road / Meadowbrook Parkway (Signalized)	C (25.0)	C (31.6)
Marksheffel Road / Constitution Avenue (Signalized)	F (105.1)	F (84.2)
Constitution Avenue / Hannah Ridge Drive (Signalized)	B (11.9)	B (10.8)
Marksheffel Road / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through and Right	A	A
Westbound Left	F	F
Westbound Through	A	A
Westbound Right	D	F
Northbound Left	D	B
Southbound Left	B	F
Marksheffel Road / Right-in / Right-out Access (Stop-Controlled)		
Eastbound Right	D	A
Marksheffel Road / Venture Street (Stop-Controlled)		
Eastbound Right	E	C
Hannah Ridge Drive / Palmer Park Boulevard (Stop-Controlled)		
Eastbound Left and Right	A	A
Northbound Left and Through	A	A
Southbound Through and Right	A	A
Reed Grass Way / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through, and Right	A	A
Westbound Left, Through, and Right	A	A
Northbound Left, Through, and Right	A	A
Southbound Left, Through, and Right	A	A

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)
 Stop-Controlled Intersection: Level of Service

Background Traffic Analysis Results – Year 2045

By Year 2045 and without the proposed development, the study intersection of U.S. Highway 24 with Marksheffel Road experiences LOS F operations during the morning and afternoon peak traffic hours. As discussed in Section I, the City's ConnectCOS project list indicates a long-range transportation plan is currently being evaluated for the U.S. Highway 24 corridor. However, it is unknown at this time what improvements are being planned adjacent to the proposed development. Analysis suggests that widening both U.S. Highway 24 and Marksheffel Road to accommodate six-lane cross-sections will allow for LOS E operations during peak periods of traffic. And as discussed within the HCM, LOS E operations indicate that while vehicular delay may be unfavorable, the intersection is still within capacity.

The signalized intersection of Marksheffel Road and Meadowbrook Parkway anticipates overall operations at LOS C during the morning and afternoon peak traffic hours.

The signalized intersection of Marksheffel Road and Constitution Avenue projects turn movement operations at LOS F during the morning and afternoon peak traffic hours.

The signalized intersection of Constitution Avenue and Hannah Ridge Drive expects overall operations at LOS B during the morning and afternoon peak traffic hours.

The stop-controlled intersection of Marksheffel Road and Colorado Tech Drive anticipates turn movement operations at LOS D or better during the morning peak traffic hour and LOS B or better during the afternoon peak traffic hour. Exceptions include the eastbound, westbound, and southbound left turn movements which operate at LOS F during their respective peak traffic hour. The LOS F operations are attributed to the through traffic volume along Marksheffel Road and the stop-controlled nature of the intersection.

The stop-controlled intersection of Marksheffel Road and Right-in / Right-out Access is expected to provide turn movement operations at LOS D during the morning peak traffic hour and LOS A during the afternoon peak traffic hour.

The stop-controlled intersection of Marksheffel Road and Venture Street projects turn movement operations at LOS E during the morning peak traffic hour and LOS C during the afternoon peak traffic hour. The LOS E operation is attributed to the southbound through volume. As discussed previously, while LOS E operations indicate that the vehicular delay may be unfavorable, the intersection is still within capacity.

All other stop-controlled intersections continue to operate at LOS A during the morning and afternoon peak traffic hours.

IV. Proposed Project Traffic

Trip Generation

Standard traffic generation characteristics compiled by the Institute of Transportation Engineers (ITE) in their report entitled Trip Generation Manual, 12th Edition, were applied to the proposed land use in order to estimate average daily traffic (ADT), AM Peak Hour, and PM Peak Hour vehicle trips. A vehicle trip is defined as a one-way vehicle movement from a point of origin to a point of destination.

The ITE land use codes 110 (General Light Industrial), 210 (Single-Family Detached Housing), 822 (Strip Retail Plaza (<40k)), 934 (Fast-Food Restaurant with Drive-Through Window), and 945 (Convenience Store / Gas Station (GFA 4-5.5k)) were used for estimating trip generation because of their best fit to the proposed land use description.

Due to the conceptual nature of the proposed development, no specific land uses nor densities have been determined. As such, in review of Section 5.4 of the El Paso County Land Development Code⁸ and in coordination with the developer, a conservative floor-area-ratio (FAR) of 0.35 was applied to industrial land use areas of development, a conservative FAR of 0.25 was applied to commercial land use areas of development, and a density of 8 dwelling units per acres was applied to residential land use areas of development.

As actual land uses, densities, or site plans within the Rowley Property development become defined over time, it is expected that traffic generation characteristics considered within this study will need to be updated by more specific traffic analyses or studies to help assess if transportation improvements are needed to mitigate potential traffic impacts.

Trip generation rates used in this study are presented in Table 4.

Table 4 – Trip Generation Rates

ITE CODE			TRIP GENERATION RATES						
			24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
110	General Light Industrial	KSF	3.60	0.41	0.07	0.48	0.12	0.37	0.49
210	Single-Family Detached Housing	DU	9.09	0.19	0.51	0.70	0.58	0.35	0.93
822	Strip Retail Plaza (<40k)	KSF	54.45	2.16	1.77	3.93	3.15	3.15	6.29
934	Fast-Food Restaurant w/DTW	KSF	448.12	16.95	16.29	33.24	16.43	15.17	31.60
945	Convenience Store/Gas Station (GFA 4-5.5k)	VFP	203.49	10.15	9.76	19.91	9.58	9.58	19.15

Key: KSF = Thousand Square Feet Gross Floor Area. DU = Dwelling Units. VFP = Vehicle Fueling Positions.

Note: All data and calculations above are subject to being rounded to nearest value.

Table 5 illustrates projected ADT, AM Peak Hour, and PM Peak Hour traffic volumes likely generated by the proposed development upon build-out.

⁸ Land Development Code of El Paso County, Colorado, El Paso County Development, August 22, 2024.

Table 5 – Trip Generation Summary

ITE CODE	LAND USE	SIZE	TOTAL TRIPS GENERATED						
			24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
110	General Light Industrial	440.2 KSF	1,585	182	30	211	52	164	216
210	Single-Family Detached Housing	86 DU	782	16	44	60	50	30	80
822	Strip Retail Plaza (<40k) *	96.0 KSF	5,226	207	170	377	302	302	604
934	Fast-Food Restaurant w/DTW	2.8 KSF	1,255	47	46	93	46	42	88
945	Convenience Store/Gas Station (GFA 4-5.5k)	12 VFP	2,442	122	117	239	115	115	230
Total:			11,289	575	406	981	564	654	1,218

Key: KSF = Thousand Square Feet Gross Floor Area. DU = Dwelling Units. VFP = Vehicle Fueling Positions.
 Note: All data and calculations above are subject to being rounded to nearest value.
 * = Multiple commercial buildings <40 KSF each were assumed.

Upon build-out, Table 5 illustrates that the proposed development has the potential to generate approximately 11,289 daily vehicle trips with 981 of those occurring during the morning peak hour and 1,218 during the afternoon peak hour.

Adjustments to Trip Generation Rates

While a mixed-use development of this type is likely to attract pass-by trips from the adjacent roadway system, no trip reduction was taken in this analysis due to its conceptual nature. This assumption provides for a conservative analysis.

Trip Distribution

The overall directional distribution of site-generated traffic was determined based on the location of development site within the County, proposed and existing area land uses, allowed turning movements, and available roadway network, and in reference to historical traffic count data provided by CDOT's Traffic Count Database System (TCDS)⁹.

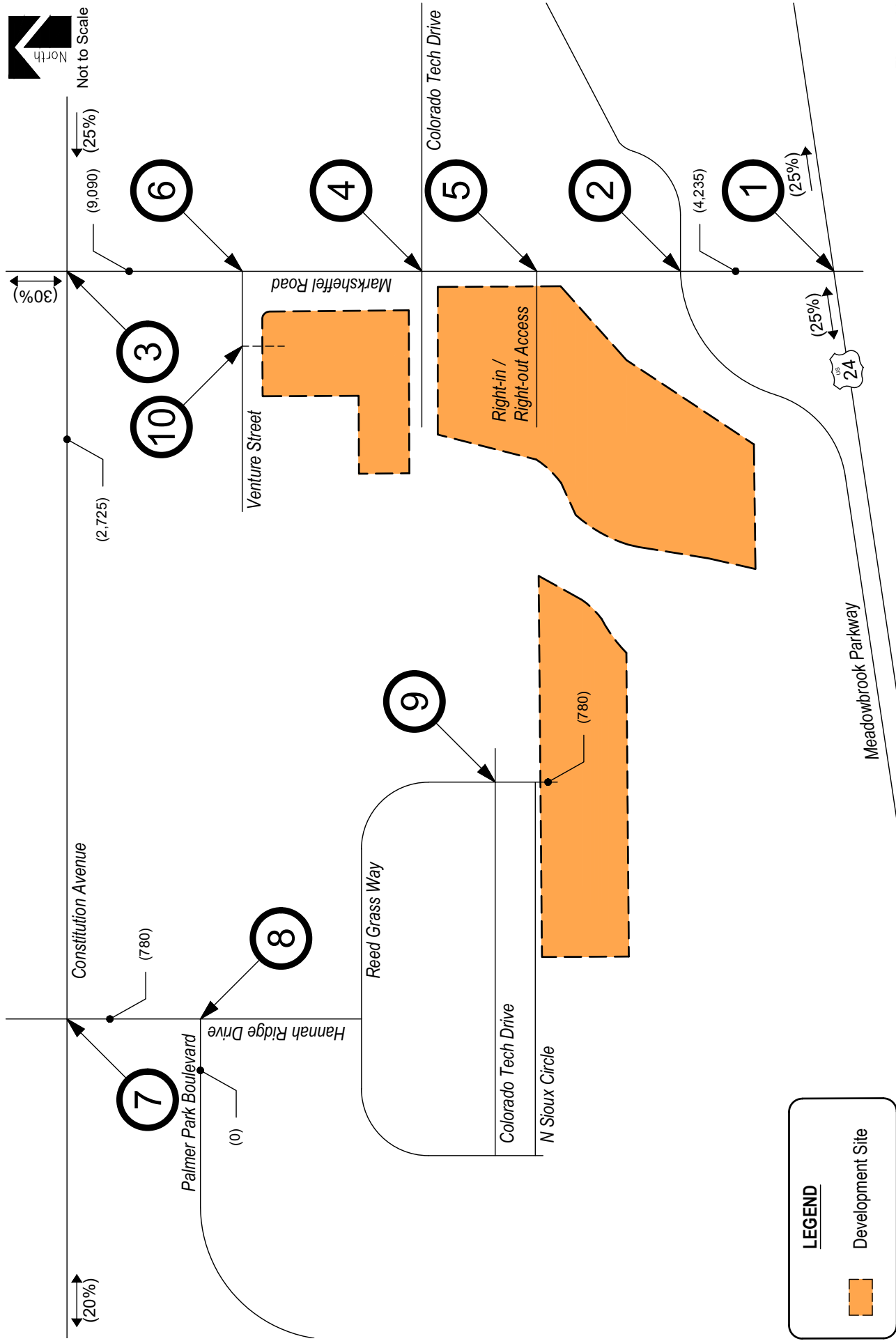
Overall trip distribution patterns for the development are shown on Figure 6.

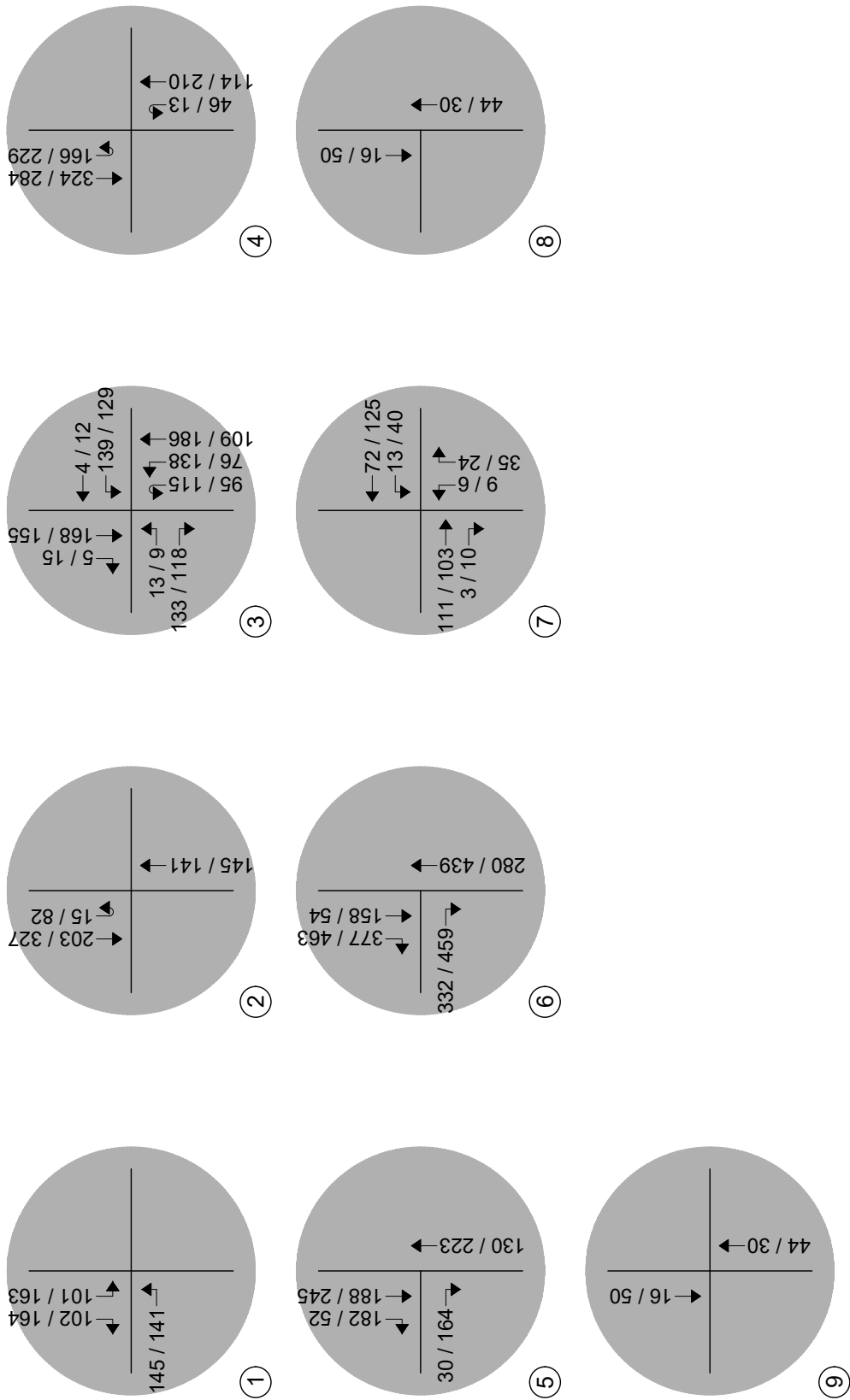
Trip Assignment

Traffic assignment is how generated and distributed vehicle trips are expected to be loaded onto the available roadway network.

Applying trip distribution patterns to site-generated traffic provides the overall site-generated trip assignments shown on Figure 6.

⁹ Transportation Data Management System, MS2, 2026.





LEGEND

Study Intersection

Volumes

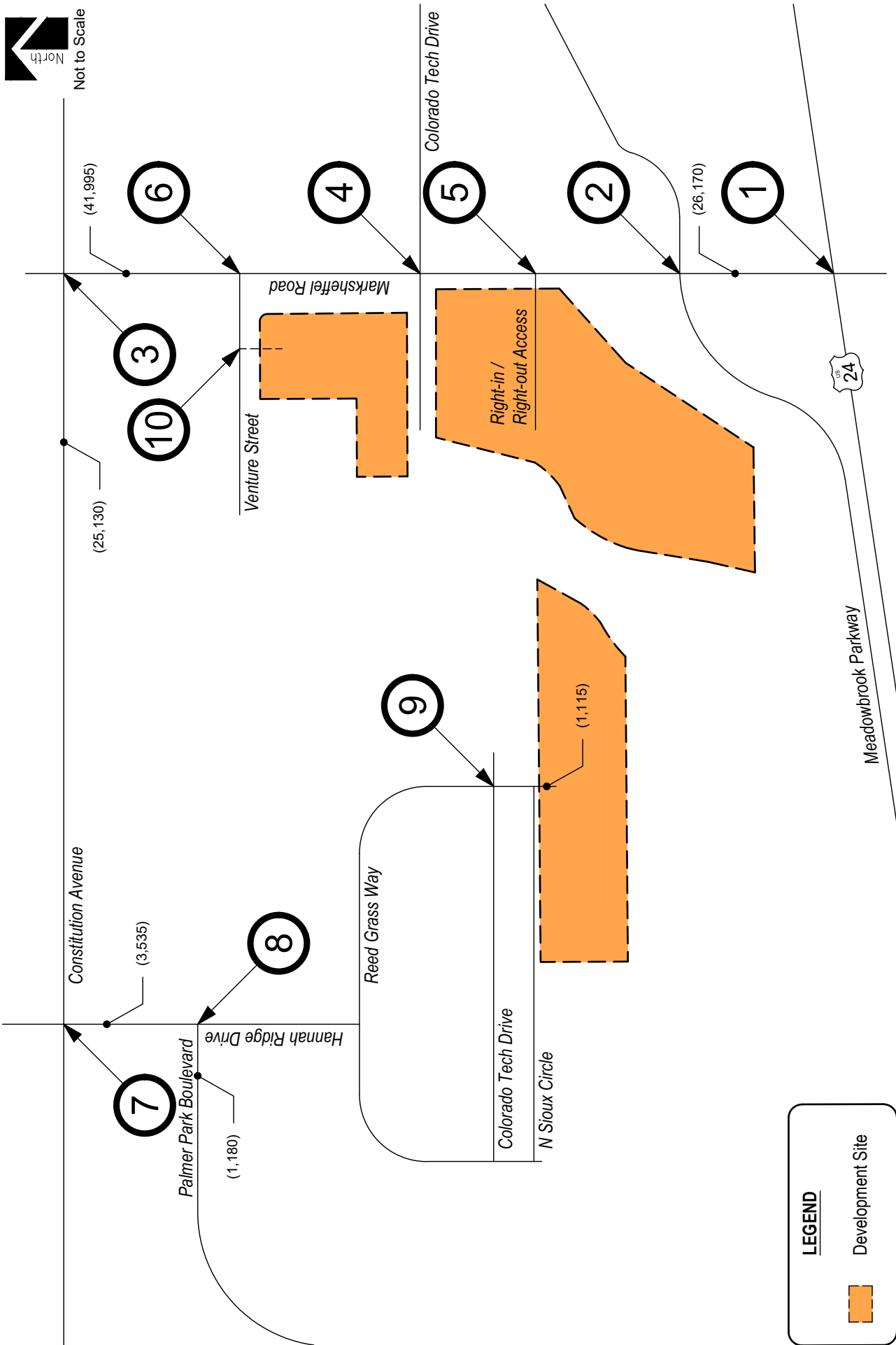
V. Future Traffic Conditions With Proposed Development

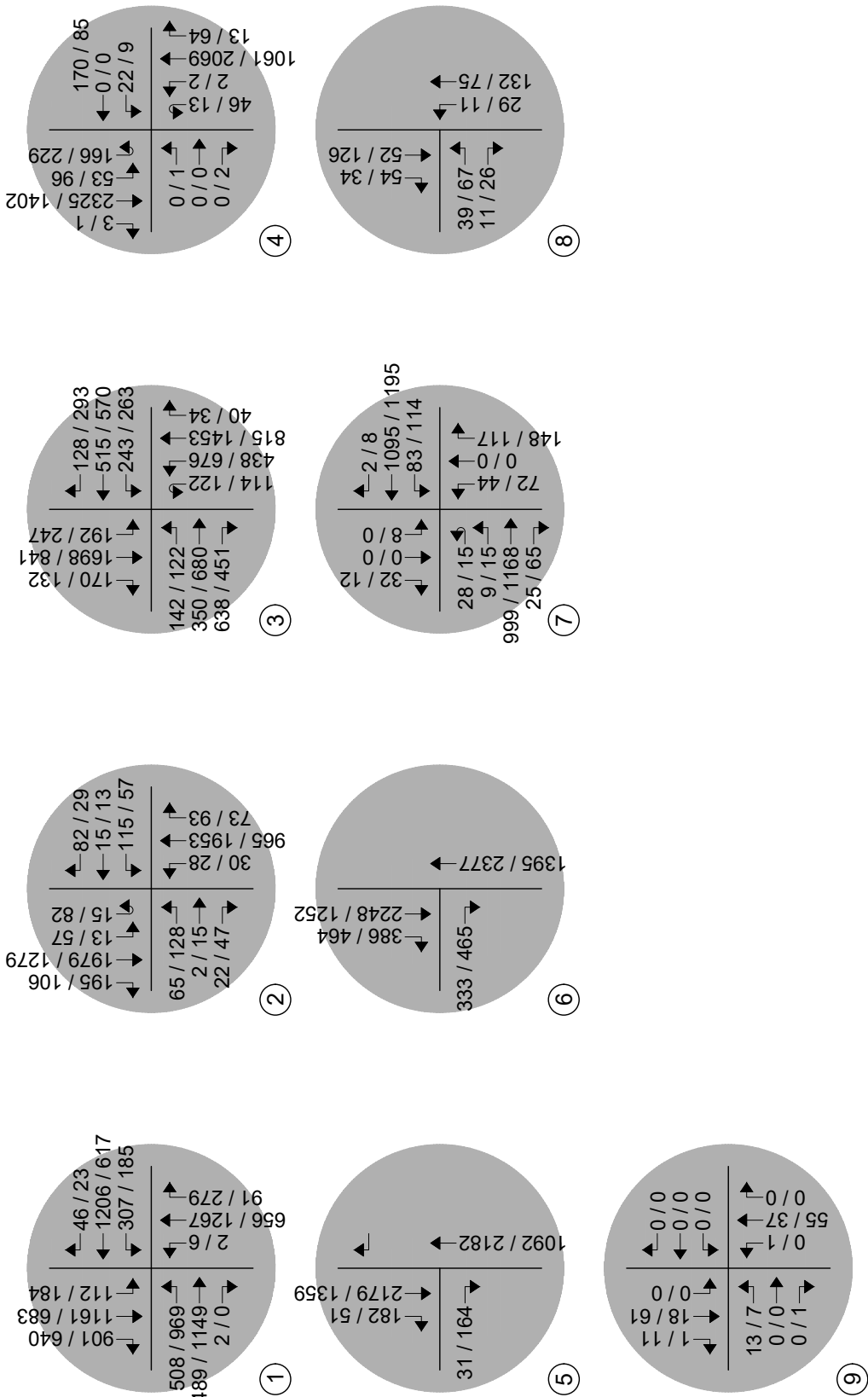
Total traffic is the traffic projected to be on area roadways with consideration of the proposed development. Total traffic includes background traffic projections for Years 2031 and 2045 with consideration of site-generated traffic. For analysis purposes, it was assumed that development construction would be completed by end of Year 2031.

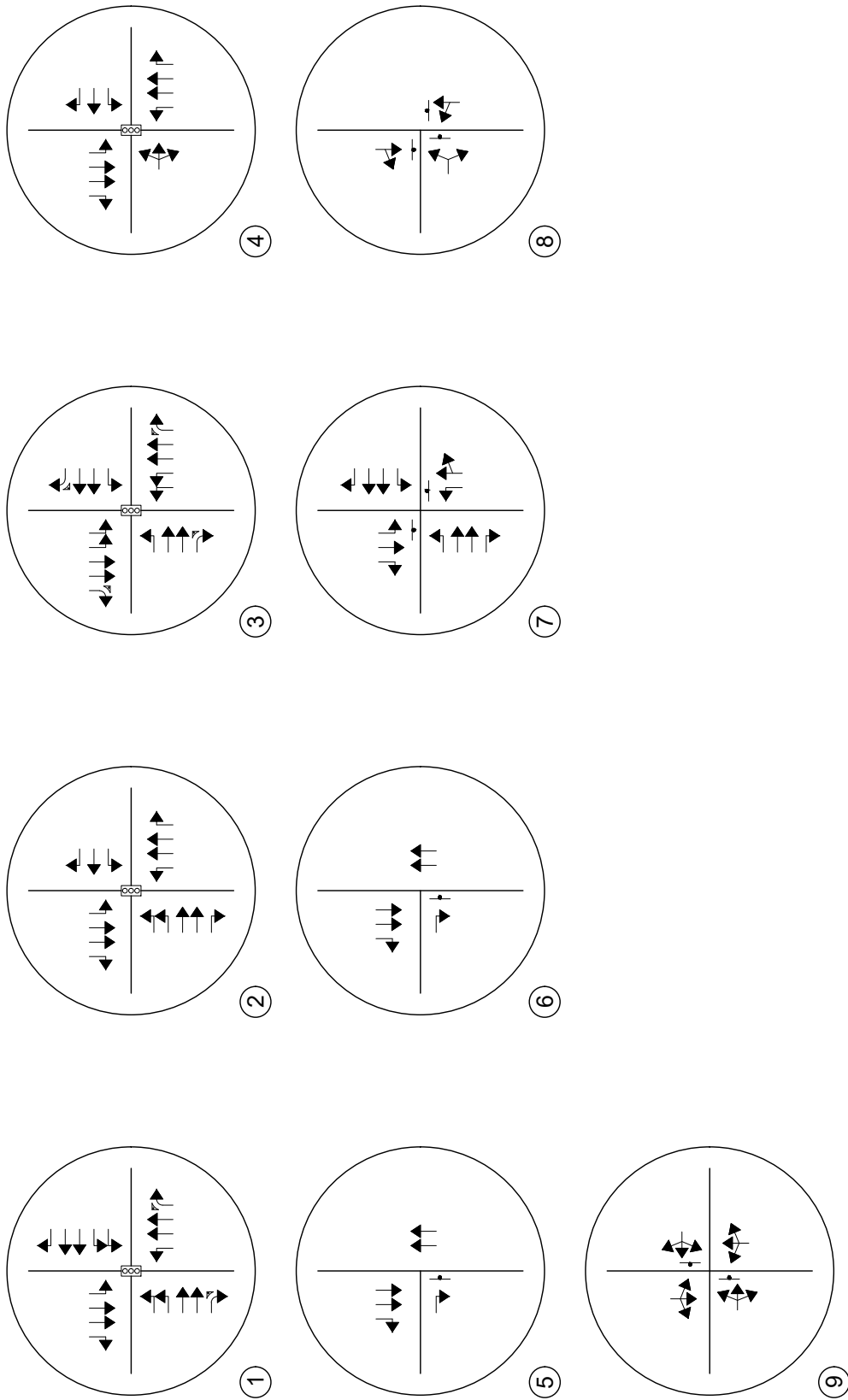
Pursuant to area roadway improvement discussions provided in Section III, Year 2031 and Year 2045 total traffic conditions assume no roadway improvements to accommodate regional transportation demands. Roadway improvements associated with site development are expected to be limited to site access and frontage as required by the governing agency.

The study area intersections and projected short-term total ADT volumes are shown in Figure 14. Projected Year 2031 total intersection traffic volumes and intersection geometry are shown in Figure 15 and Figure 16, respectively.

The study area intersections and projected long-term total ADT volumes are shown in Figure 17. Figure 18 and Figure 19 shows projected total intersection traffic volumes and intersection geometry for Year 2045, respectively.







LEGEND

○

Study Intersection

Lane Geometry

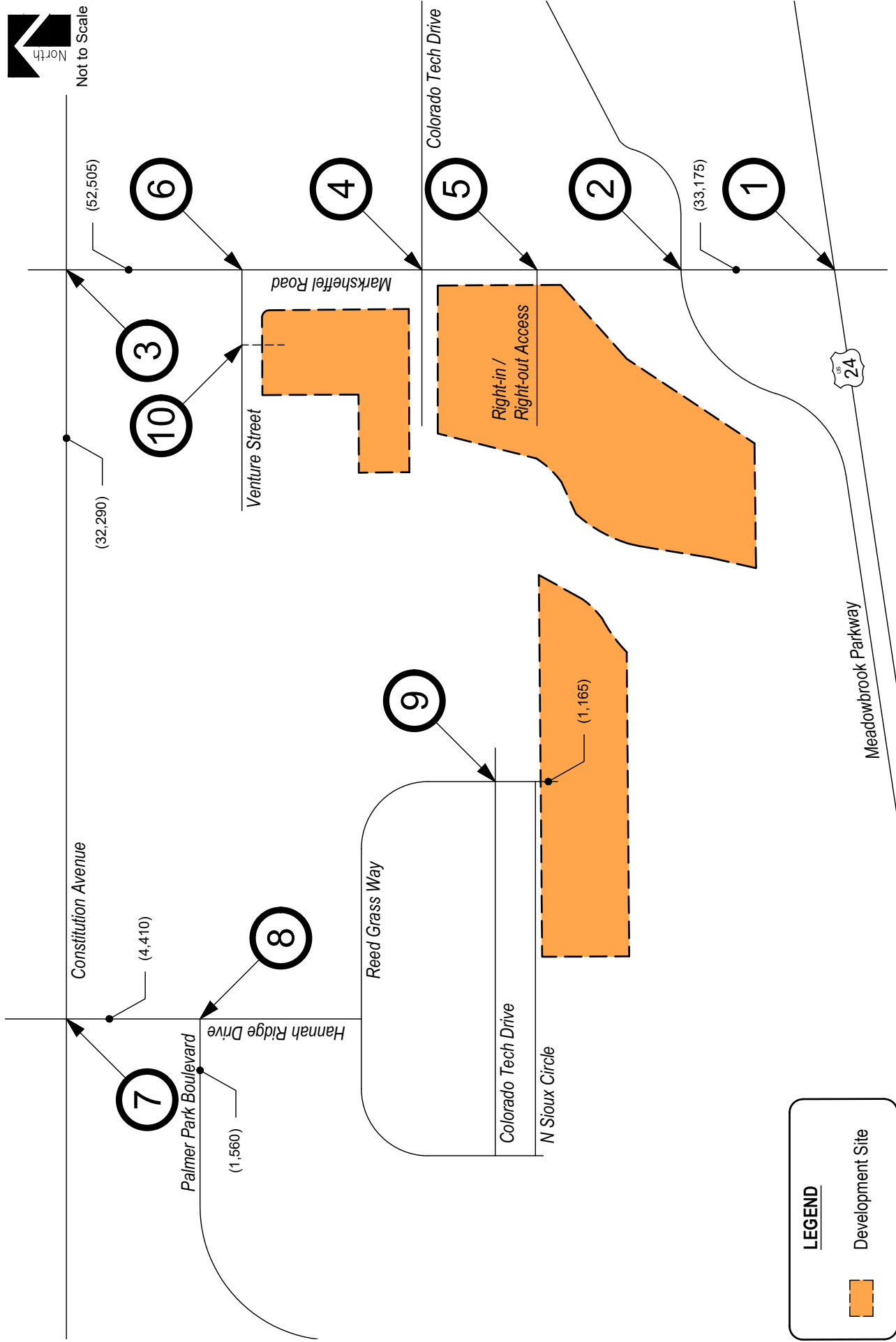


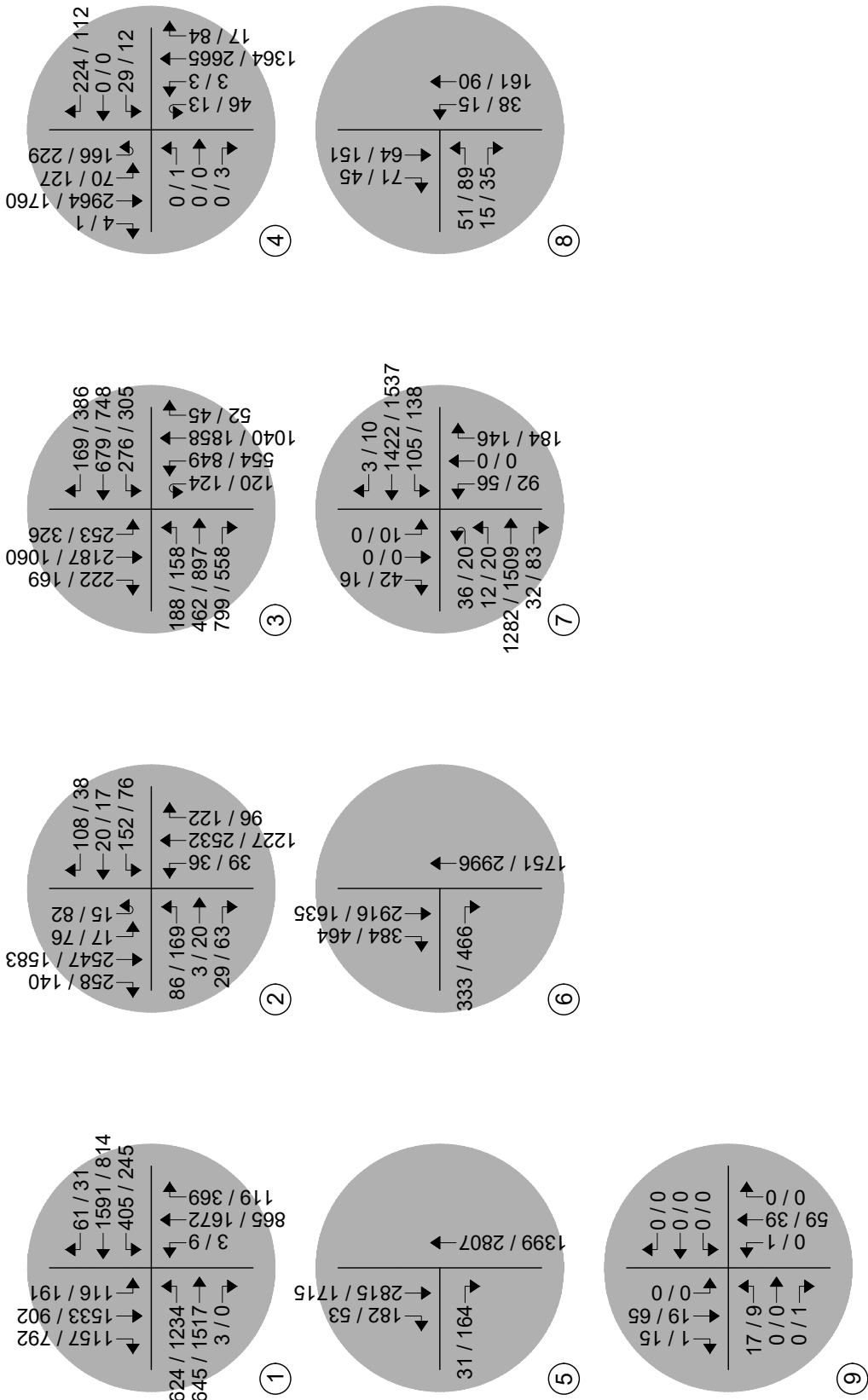
Figure 17
TOTAL TRAFFIC - YEAR 2045
Volumes
(ADT) : Average Daily Traffic

ROWLEY PROPERTY SKETCH PLAN
Traffic Impact Study

SM ROCHA, LLC

Traffic & Transportation Engineering

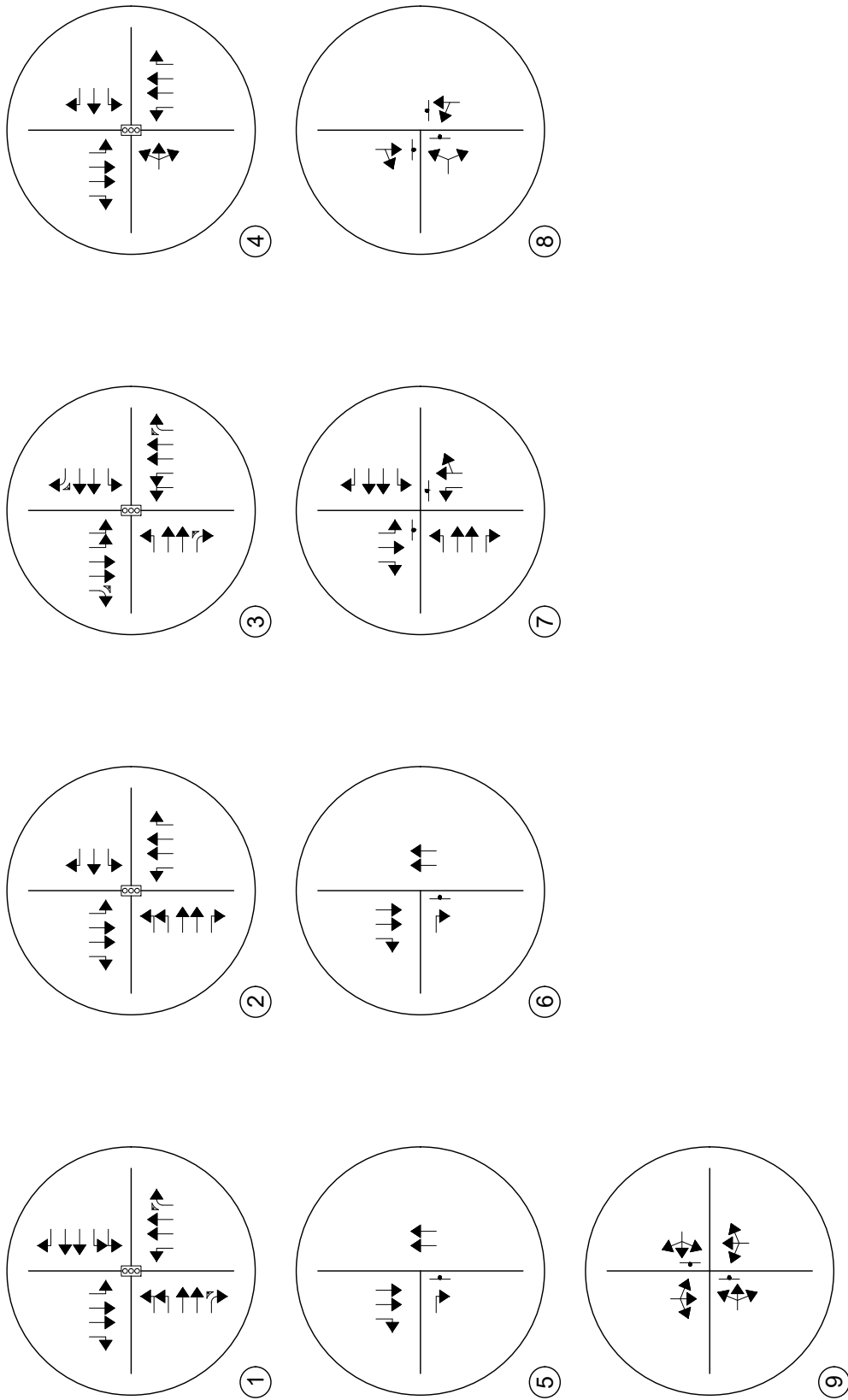
August 2026
Page 33



LEGEND

Study Intersection

Volumes



LEGEND

Study Intersection

Lane Geometry

Peak Hour Intersection Levels of Service – Total Traffic

As with background traffic, the operations of the study intersections were analyzed under projected total traffic conditions using the SYNCHRO computer program. The analyses and procedures were performed in accordance with the latest HCM and are based upon the worst-case conditions that occur during a typical weekday upon build-out of site development and analyzed land uses. Therefore, study intersections are likely to operate with traffic conditions better than those described within this study, which represent the peak hours of weekday operations only.

Total traffic level of service analysis results for Years 2031 and 2045 are summarized in Table 6 and Table 7, respectively. Definitions of levels of service are given in Appendix B. Intersection capacity worksheets are provided in Appendix C.

Table 6 – Intersection Capacity Analysis Summary – Total Traffic – Year 2031

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
U.S. Highway 24 / Marksheffel Road (Signalized)	E (74.8)	F (242.7)
Marksheffel Road / Meadowbrook Parkway (Signalized)	B (16.4)	C (31.7)
Marksheffel Road / Constitution Avenue (Signalized)	F (90.0)	F (86.2)
Constitution Avenue / Hannah Ridge Drive (Signalized)	B (10.2)	B (11.5)
Marksheffel Road / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through and Right	A	F
Westbound Left	F	F
Westbound Through	A	A
Westbound Right	F	F
Northbound Left	F	D
Southbound Left	F	F
Marksheffel Road / Right-in / Right-out Access (Stop-Controlled)		
Eastbound Right	D	C
Marksheffel Road / Venture Street (Stop-Controlled)		
Eastbound Right	F	F
Hannah Ridge Drive / Palmer Park Boulevard (Stop-Controlled)		
Eastbound Left and Right	A	A
Northbound Left and Through	A	A
Southbound Through and Right	A	A
Reed Grass Way / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through, and Right	A	A
Westbound Left, Through, and Right	A	A
Northbound Left, Through, and Right	A	A
Southbound Left, Through, and Right	A	A

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)
Stop-Controlled Intersection: Level of Service

Table 7 – Intersection Capacity Analysis Summary – Total Traffic – Year 2045

INTERSECTION LANE GROUPS	LEVEL OF SERVICE	
	AM PEAK HOUR	PM PEAK HOUR
U.S. Highway 24 / Marksheffel Road (Signalized)	F (141.4)	F (201.4)
Marksheffel Road / Meadowbrook Parkway (Signalized)	D (36.4)	D (49.9)
Marksheffel Road / Constitution Avenue (Signalized)	F (155.9)	F (137.5)
Constitution Avenue / Hannah Ridge Drive (Signalized)	B (14.8)	B (13.6)
Marksheffel Road / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through and Right	A	F
Westbound Left	F	F
Westbound Through	A	A
Westbound Right	F	F
Northbound Left	F	F
Southbound Left	F	F
Marksheffel Road / Right-in / Right-out Access (Stop-Controlled)		
Eastbound Right	F	E
Marksheffel Road / Venture Street (Stop-Controlled)		
Eastbound Right	F	F
Hannah Ridge Drive / Palmer Park Boulevard (Stop-Controlled)		
Eastbound Left and Right	A	A
Northbound Left and Through	A	A
Southbound Through and Right	A	A
Reed Grass Way / Colorado Tech Drive (Stop-Controlled)		
Eastbound Left, Through, and Right	A	A
Westbound Left, Through, and Right	A	A
Northbound Left, Through, and Right	A	A
Southbound Left, Through, and Right	A	A

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)
 Stop-Controlled Intersection: Level of Service

Total Traffic Analysis Results Upon Development Build-Out

Table 7 illustrates how, by Year 2045 and upon development build-out, the signalized intersection of U.S. Highway 24 with Marksheffel Road continues to have overall LOS F operations during the morning and afternoon peak traffic hours. Compared to the background traffic analysis, the traffic generated by the proposed development is not expected to significantly change the operations of the study intersection.

As discussed in Section III, widening both U.S. Highway 24 and Marksheffel Road to accommodate six-lane cross-sections is anticipated to allow for LOS E operations during peak periods of traffic. The HCM describes how signalized intersections that experience LOS E operations are still within capacity, although motorists do experience unfavorable delay times.

The signalized intersection of Marksheffel Road and Meadowbrook Parkway is anticipated to have overall operations at LOS D during the morning and afternoon peak traffic hours.

The signalized intersection of Marksheffel Road and Constitution Avenue is projected to have overall operations at LOS F during the morning and afternoon peak traffic hours.

The signalized intersection of Constitution Avenue and Hannah Ridge Drive is expected to continue providing overall operations at LOS B during both the morning and afternoon peak traffic hours.

The stop-controlled intersection of Marksheffel Road and Colorado Tech Drive continues to experience failing operations during peak traffic periods. As with background traffic conditions, the LOS F operations are attributed to the through traffic volume along Marksheffel Road and the stop-controlled nature of the intersection. In order to successfully mitigate the LOS F operations projected, signalization is one possible solution. Analysis suggests that traffic signal control would result in LOS D and E operations during peak traffic periods.

The stop-controlled intersection of Marksheffel Road and the Right-in / Right-out Access is projected to have turn movement operations at LOS F during the morning peak traffic hour and LOS E during the afternoon peak traffic hour.

The stop-controlled intersection of Marksheffel Road and Venture Street is anticipated to have turn movement operations at LOS F during the morning and afternoon peak traffic hours.

All other stop-controlled intersections are anticipated to have turn movement operations at LOS A during the morning and afternoon peak traffic hours.

It is emphasized that it is not uncommon for unsignalized movements to or from an arterial roadway, in urban areas, to operate with noticeable delays during peak traffic hours. It is, however, likely that turn movements will operate better than the results obtained with this HCM Two-Way Stop-Control (TWSC) level of service analysis would indicate, as the HCM analysis may not accurately account for the effect of vehicle platooning and gaps caused by upstream signals. Upstream signal controls along Marksheffel Road will tend to create additional gaps in the traffic stream for turning movements at the study area intersections which would most likely provide mitigation to poor operation projected during both peak traffic hours.

VI. Project Impacts

It is emphasized that the analyses and procedures described in this study were performed in accordance with the latest HCM and are based upon the worst-case conditions that occur during a typical weekday upon build-out of site development and analyzed land uses. Therefore, study intersections are likely to operate with traffic conditions better than those described within this study, which represent the peak hours of weekday operations only.

Queue Length Analysis

Queue lengths for the study intersections were analyzed using Year 2045 background and total background conditions. The analysis yields estimate of 95th percentile queue lengths, which have only a five percent probability of being exceeded during the analysis time period. An average length of 25 feet was assumed. Queue lengths were modeled and are included with the Synchro worksheets in Appendix C.

In general, auxiliary lane lengths are recommended to accommodate City and CDOT's minimum turn lane lengths or accommodate long-term 95th percentile vehicle queues, whichever is greater.

Table 8 summarizes the 95th percentile queue results in comparison to the projected storage requirements for turn movements within study area for Year 2045.

Table 8 – Turn Lane Queues and Storage Requirements – Total Traffic – Year 2045

Intersection	Turn Movement	Existing Turn Lane Length (feet)	Background 2045		Total 2045		Recommended Turn Lane Length (feet)	
			AM Peak Hour (feet)	PM Peak Hour (feet)	AM Peak Hour (feet)	PM Peak Hour (feet)		
Signalized Intersections								
U.S. Highway 24 / Marksheffel Road	EB	L	1000' x2	445'	920'	609'	1071'	1000' x2
		T	-	377'	1111'	377'	1111'	-
		R	635'	0'	0'	0'	0'	635'
	WB	L	950'	259'	255'	259'	255'	950'
		T	-	1242'	641'	1242'	641'	-
		R	705'	0'	0'	0'	0'	705'
	NB	L	300'	14'	30'	14'	30'	300'
		T	-	516'	1376'	516'	1376'	-
		R	75'	0'	0'	0'	0'	75'
	SB	L	375' x2	16'	66'	190'	518'	375' x2
		T	-	1193'	557'	1067'	550'	-
		R	-	0'	0'	0'	7'	-
Marksheffel Road / Meadowbrook Parkway	EB	L	220' x2	69'	146'	69'	146'	220' x2
		T	-	14'	55'	14'	55'	-
		R	200'	0'	13'	0'	13'	200'
	WB	L	230'	274'	158'	274'	158'	275'
		T	-	51'	45'	51'	45'	-
		R	195'	65'	0'	65'	0'	195'
	NB	L	405'	9'	6'	5'	5'	405'
		T	-	6'	585'	38'	591'	-
		R	-	1'	5'	0'	4'	-
	SB	L	340'	4'	51'	7'	187'	340'
		T	-	1044'	517'	1034'	529'	-
		R	335'	28'	16'	23'	8'	335'
Marksheffel Road / Constitution Avenue	EB	L	435'	353'	278'	385'	302'	435'
		T	-	323'	693'	323'	694'	-
		R	200'	64'	0'	206'	0'	200'
	WB	L	225'	231'	349'	572'	662'	665'
		T	-	579'	533'	584'	547'	-
		R	225'	0'	0'	0'	0'	225'
	NB	L	425' x2	465'	433'	644'	657'	425' x2
		T	-	237'	1076'	352'	1162'	-
		R	325'	0'	0'	0'	0'	325'
	SB	L	430' x2	177'	309'	177'	309'	430' x2
		T	-	1457'	542'	1638'	730'	-
		R	260'	0'	0'	0'	0'	260'

Note: Turn Lane Length does not include taper length.
x2 = Dual Turn Lanes.

Table 8 (cont.) – Turn Lane Queues and Storage Requirements – Total Traffic – Year 2045

Intersection	Turn Movement	Existing Turn Lane Length (feet)	Background 2045		Total 2045		Recommended Turn Lane Length (feet)	
			AM Peak Hour (feet)	PM Peak Hour (feet)	AM Peak Hour (feet)	PM Peak Hour (feet)		
Signalized Intersections								
Constitution Avenue / Hannah Ridge Drive	EB	L	345'	19'	13'	23'	13'	345'
		T	-	360'	419'	468'	558'	-
		R	235'	0'	2'	0'	6'	235'
	WB	L	185'	3'	34'	10'	65'	185'
		T	-	68'	286'	78'	290'	-
		R	215'	0'	0'	0'	0'	215'
	NB	L	130'	132'	92'	139'	101'	155'
		T,R	-	49'	50'	107'	81'	-
	SB	L	215'	28'	0'	27'	0'	215'
		T	-	0'	0'	0'	0'	-
R		140'	0'	0'	0'	0'	140'	
Stop-Controlled Intersections								
Marksheffel Road / Colorado Tech Drive	EB	L,T,R	-	*	*	*	*	-
		L	150'	135'	*	*	*	150'
	WB	T	-	*	*	*	*	-
		R	150'	100'	*	*	*	150'
	NB	L	375'	3'	0'	193'	15'	375'
		T	-	*	*	*	*	-
		R	260'	*	*	*	*	260'
	SB	L	350'	13'	175'	673'	*	675'
		T	-	*	*	*	*	-
		R	500'	*	*	*	*	500'
Marksheffel Road / Right-in / Right-out Access	EB	R	-	0'	0'	30'	108'	-
	NB	T	-	0'	0'	0'	0'	-
	SB	T	-	0'	0'	0'	0'	-
		R	280'	0'	0'	0'	0'	280'
Marksheffel Road / Venture Street	EB	R	-	0'	3'	920'	830'	-
	NB	T	-	0'	0'	0'	0'	-
	SB	T	-	0'	0'	0'	0'	-
		R	300'	0'	0'	0'	0'	300'
Hannah Ridge Drive / Palmer Park Boulevard	EB	L,R	-	8'	15'	8'	15'	-
	NB	L,T	-	18'	8'	25'	13'	-
	SB	T,R	-	13'	18'	15'	25'	-
Reed Grass Way / Colorado Tech Drive	EB	L,T,R	-	3'	0'	3'	0'	-
	WB	L,T,R	-	0'	0'	0'	0'	-
	NB	L,T,R	-	0'	0'	0'	0'	-
	SB	L,T,R	-	0'	0'	0'	0'	-

Note: Turn Lane Length does not include taper length.

* = SYNCHRO did not provide outputs due to excessive delay

As Table 8 shows, the majority of turn lane lengths at the study intersections have sufficient storage to accommodate future traffic volumes. However, at the Marksheffel Road intersections with Meadowbrook Parkway, Constitution Avenue, and Colorado Tech Drive, multiple movements reported vehicle queueing that has the potential to extend beyond the existing turn lane lengths. The greatest queue length along Marksheffel Road and Constitution Avenue occurs during the afternoon peak traffic hour. SYNCHRO's analysis results indicate the queue length is approximately 25-30 vehicles for the westbound movement.

It is noted that significant vehicle queueing exists during the background traffic conditions without the proposed development.

Pedestrian Circulation & Safety Analysis

In accordance with Appendix B.2.4 of the County's ECM, an assessment of pedestrian connectivity and safety was considered.

The study area already accommodates pedestrians and bicyclists with the following treatments and infrastructure:

- Attached and detached sidewalks along Constitution Avenue, Marksheffel Road, Meadowbrook Parkway, Hannah Ridge Drive, Colorado Tech Drive, Palmer Park Boulevard, and Reed Grass Way.

The proposed development would accommodate pedestrians and bicyclists with the following improvements:

- Attached and detached sidewalks along Colorado Tech Drive across the property's frontage and internal to the development site.
- ADA parking spaces nearest to the building entrances.
- Pedestrian crosswalks internal to development site, connecting proposed on-site parking spaces with internal sidewalks.

With the assumption that the sketch plan for the proposed development was designed per the County's Engineering Criteria Manual, and pursuant to the Federal Highway Administration's (FHWA) Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations¹⁰, pedestrian safety is not expected to be of concern. Moreover, traffic calming and pedestrian crossing treatments are not applicable, and traffic calming is not recommended for the proposed conditions.

¹⁰ Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations, Federal Highway Administration, July 2018.

Development Impacts

Analysis of future traffic conditions indicates that the addition of site-generated traffic is expected to create minimal negative impact to traffic operations for the existing and surrounding roadway system upon roadway and intersection control improvements assumed within this analysis. With all conservative assumptions defined in this analysis, the study intersections are projected to operate at future levels of service comparable to Year 2045 background traffic conditions.

Recommended Improvements

Roadway and intersection improvement recommendations were assessed pursuant to roadway descriptions discussed in Section I, projected peak hour traffic volumes, level of service results, projected 95th percentile queue lengths, and per requirements defined within the County's EMC.

It is important to note that, since this study only reflects a sketch plan application, only major improvements are being recommended at this time. It is therefore expected that more specific details on roadway and intersection improvement recommendations can be evaluated at later stages of development once land uses and densities become defined.

As discussed throughout, the Marksheffel Road intersections with Constitution Avenue, Colorado Tech Drive, and U.S. Highway 24 experience failing operations during their respective peak traffic periods. These failing operations exist today or as a result of regional growth without consideration of the proposed sketch plan. As a result, roadway widenings and intersection traffic control improvements are recommended in order to alleviate excessive vehicle delays reported throughout this study.

VII. Conclusion

This traffic impact study addressed the capacity, geometric, and control requirements associated with the development entitled Rowley Property Sketch Plan. This proposed mixed-use development consisted of 315,000 square feet of general light industrial, 86 single-family detached homes, 96,000 square feet of strip retail plaza, 2,800 square feet of fast-food restaurants with drive-through windows and a 4,200 square foot gas station convenience store with 12 vehicle fueling positions.

The study area to be examined in this analysis encompassed Marksheffel Road from U.S. Highway 24 to Constitution Avenue, Hannah Ridge Drive intersections with Constitution Avenue and Palmer Park Boulevard, the intersection of Colorado Tech Drive and Reed Grass Way, as well as proposed site accesses.

Analysis was conducted for critical AM Peak Hour and PM Peak Hour traffic operations for existing traffic conditions, Year 2031 and Year 2045 background traffic conditions, and Year 2031 and Year 2045 total traffic conditions.

Analysis of existing traffic conditions indicates that all signalized intersections operate under LOS D or better conditions during their respective peak hour periods with the exception of U.S. Highway 24 and Marksheffel Road. All stop-controlled intersections operate with turn movements at or better than LOS C during their respective peak traffic periods. Exceptions include the intersection of Marksheffel Road with Colorado Tech Drive, as well as the intersection of Constitution Avenue with Hannah Ridge Drive.

Under Year 2031 and 2045 background traffic conditions, operational analysis shows that all signalized intersections are projected to operate with LOS F or better operations during peak traffic periods. All stop-controlled intersections anticipate turn movement operations at or better than LOS D during their respective peak traffic periods. Exceptions include the intersections of Marksheffel Road with Colorado Tech Drive and Venture Street, as well as the intersection of Hannah Ridge Drive and Palmer Park Boulevard.

Analysis of future traffic conditions indicates that the addition of site-generated traffic is expected to create minimal impact to traffic operations for the existing and surrounding roadway system upon roadway and intersection control improvements assumed within this analysis. With all conservative assumptions defined in this analysis, the study intersections are projected to operate at future levels of service comparable to Year 2045 background traffic conditions.

It is emphasized that this traffic study reflects a sketch plan application with no known land uses nor densities. As a result, only major intersection and roadway improvements are being identified and recommended at this time. It is therefore expected that more specific details on roadway and intersection improvements can be evaluated at later stages of development once land uses and densities become defined.

Add discussion somewhere that contributions may be necessary for signal at Constitution/Hannah Ridge. Those costs will be provided with later submittals.

APPENDIX A

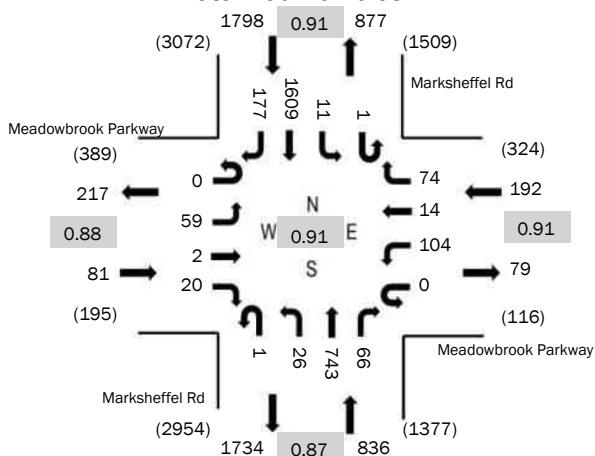
**Traffic Count Data
Signal Timing Information**



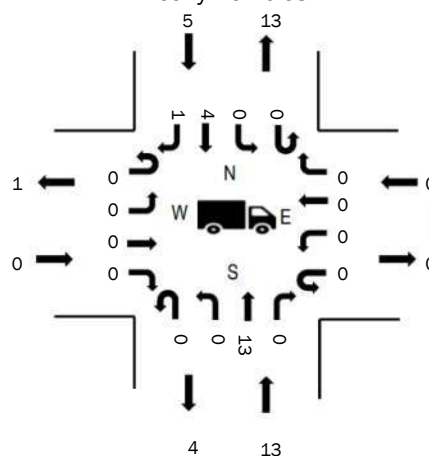
Location: 1
Date: Thursday, January 29, 2026
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour

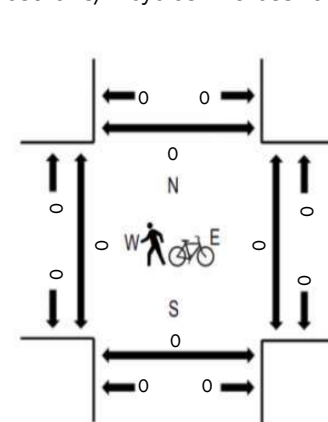
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parantheses

	HV%	PHF
EB	0.0%	0.88
WB	0.0%	0.91
NB	0.02%	0.87
SB	0.0%	0.91
All	0.01%	0.91

Traffic Counts -Motorized vehicles

Interval	Meadowbrook Parkway Eastbound				Meadowbrook Parkway Westbound				Marksheffel Rd Northbound				Marksheffel Rd Southbound				Total	Rolling Hour
	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right		
07:00 AM	0	12	0	6	0	29	1	12	1	6	173	9	0	2	392	30	673	2907
07:15 AM	0	19	1	3	0	31	2	20	0	6	182	11	0	0	441	36	752	2848
07:30 AM	0	15	0	7	0	21	6	19	0	8	208	23	0	4	440	50	801	2628
07:45 AM	0	13	1	4	0	23	5	23	0	6	180	23	1	5	336	61	681	2312
08:00 AM	0	14	2	7	0	31	8	19	0	5	130	5	1	3	329	60	614	2061
08:15 AM	0	19	1	7	0	15	0	8	0	6	136	4	0	8	308	20	532	
08:30 AM	0	24	0	8	0	15	2	17	0	3	103	5	0	3	275	30	485	
08:45 AM	0	23	0	9	0	8	2	7	0	8	131	5	0	1	208	28	430	
Count Total	0	139	5	51	0	173	26	125	1	48	1243	85	2	26	2729	315	4968	
Peak Hour	0	59	2	20	0	104	14	74	1	26	743	66	1	11	1609	177	2907	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

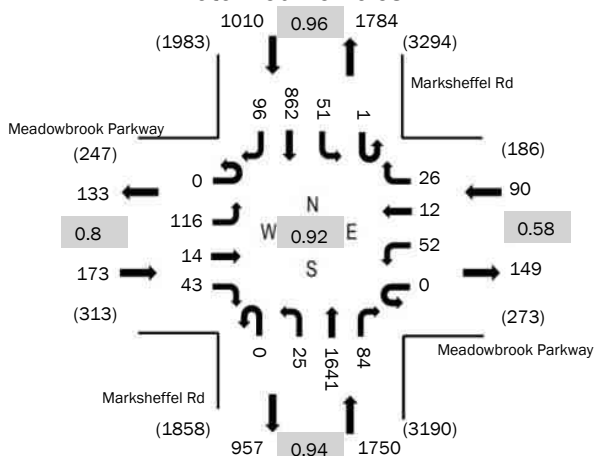
Heavy Vehicles						Bicycles on Roadway						Pedestrians/Bicycles on Crosswalk					
Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total
07:00 AM	0	0	2	1	3	07:00 AM	0	0	0	0	0	07:00 AM	0	0	0	0	0
07:15 AM	0	0	6	2	8	07:15 AM	0	0	0	0	0	07:15 AM	0	0	0	0	0
07:30 AM	0	0	3	0	3	07:30 AM	0	0	0	0	0	07:30 AM	0	0	0	0	0
07:45 AM	0	0	2	2	4	07:45 AM	0	0	0	0	0	07:45 AM	0	0	0	0	0
08:00 AM	1	0	4	5	10	08:00 AM	0	0	0	0	0	08:00 AM	0	0	0	0	0
08:15 AM	0	0	2	3	5	08:15 AM	0	0	0	0	0	08:15 AM	0	0	0	0	0
08:30 AM	0	0	2	2	4	08:30 AM	0	0	0	1	1	08:30 AM	0	0	0	0	0
08:45 AM	0	0	4	2	6	08:45 AM	0	0	0	0	0	08:45 AM	0	0	0	0	0
Count Total	1	0	25	17	43	Count Total	0	0	0	1	1	Count Total	0	0	0	0	0
Peak Hour	0	0	13	5	18	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0



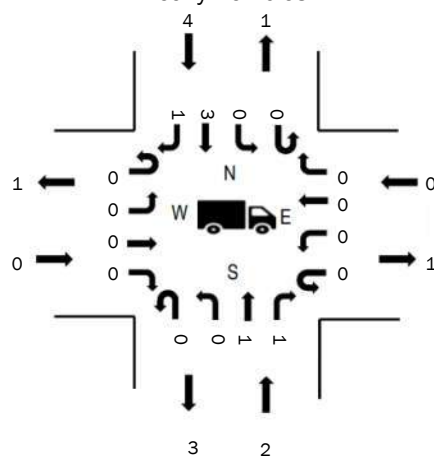
Location: 1
Date: Thursday, January 29, 2026
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

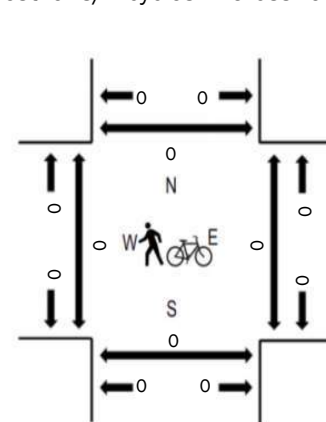
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parantheses

	HV%	PHF
EB	0.0%	0.8
WB	0.0%	0.58
NB	0.0%	0.94
SB	0.0%	0.96
All	0.0%	0.92

Traffic Counts -Motorized vehicles

Interval	Meadowbrook Parkway Eastbound				Meadowbrook Parkway Westbound				Marksheffel Rd Northbound				Marksheffel Rd Southbound				Total	Rolling Hour
	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right		
04:00 PM	0	27	2	7	0	17	2	8	0	4	358	16	1	15	212	18	687	2993
04:15 PM	0	23	2	9	0	6	1	7	0	4	423	21	0	7	220	19	742	3023
04:30 PM	0	41	3	9	0	23	4	12	0	6	429	30	0	21	216	26	820	2955
04:45 PM	0	20	4	8	0	10	4	7	0	5	424	16	0	11	202	33	744	2839
05:00 PM	0	32	5	17	0	13	3	0	0	10	365	17	1	12	224	18	717	2679
05:15 PM	0	44	5	6	0	13	3	8	0	6	334	17	0	9	205	24	674	
05:30 PM	0	21	2	2	0	11	1	11	0	3	382	11	0	11	221	28	704	
05:45 PM	0	17	4	3	0	10	2	10	0	3	289	17	0	15	194	20	584	
Count Total	0	225	27	61	0	103	20	63	0	41	3004	145	2	101	1694	186	5672	
Peak Hour	0	116	14	43	0	52	12	26	0	25	1641	84	1	51	862	96	3023	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

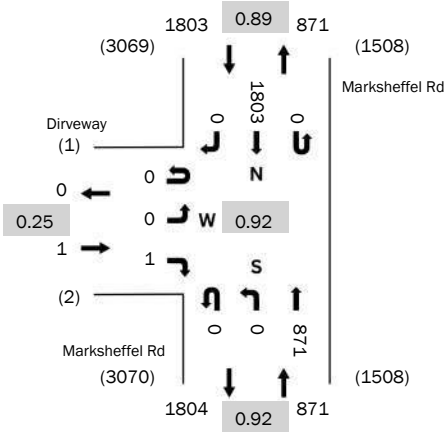
Heavy Vehicles						Bicycles on Roadway						Pedestrians/Bicycles on Crosswalk					
Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total
04:00 PM	0	0	0	1	1	04:00 PM	0	0	0	0	0	04:00 PM	0	0	0	0	0
04:15 PM	0	0	0	1	1	04:15 PM	0	0	0	0	0	04:15 PM	0	0	0	0	0
04:30 PM	0	0	0	2	2	04:30 PM	0	0	0	0	0	04:30 PM	0	0	0	0	0
04:45 PM	0	0	0	0	0	04:45 PM	0	0	0	0	0	04:45 PM	0	0	0	0	0
05:00 PM	0	0	2	1	3	05:00 PM	0	0	0	0	0	05:00 PM	0	0	0	0	0
05:15 PM	0	0	0	0	0	05:15 PM	0	0	0	0	0	05:15 PM	0	0	0	0	0
05:30 PM	0	0	1	0	1	05:30 PM	0	0	0	0	0	05:30 PM	0	0	0	0	0
05:45 PM	0	0	0	0	0	05:45 PM	0	0	0	0	0	05:45 PM	0	0	0	0	0
Count Total	0	0	3	5	8	Count Total	0	0	0	0	0	Count Total	0	0	0	0	0
Peak Hour	0	0	2	4	6	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0



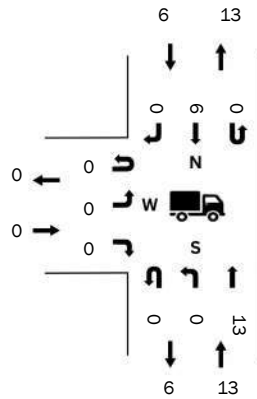
Location: 2
Date: Thursday, January 29, 2026
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour

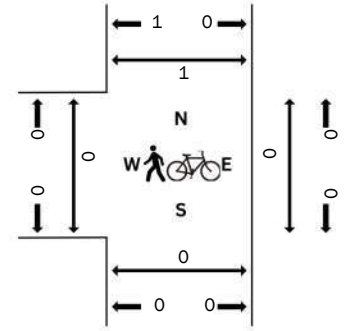
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note:Total study counts contained in parantheses

	HV%	PHF
EB	0.0%	0.25
NB	0.01%	0.92
SB	0.0%	0.89
All	0.01%	0.92

Traffic Counts -Motorized vehicles

Interval	Dirveay Eastbound			Marksheffel Rd Northbound			Marksheffel Rd Southbound			Total	Rolling Hour
	U-turn	Left	Right	U-turn	Left	Thru	U-turn	Thru	Right		
07:00 AM	0	0	0	0	0	196	0	417	0	613	2675
07:15 AM	0	0	1	0	0	221	0	505	0	727	2608
07:30 AM	0	0	0	0	0	236	0	485	0	721	2386
07:45 AM	0	0	0	0	0	218	0	396	0	614	2123
08:00 AM	0	0	1	0	0	155	0	390	0	546	1904
08:15 AM	0	0	0	0	0	174	0	330	1	505	
08:30 AM	0	0	0	0	0	150	0	308	0	458	
08:45 AM	0	0	0	0	0	158	0	237	0	395	
Count Total	0	0	2	0	0	1508	0	3068	1	4579	
Peak Hour	0	0	1	0	0	871	0	1803	0	2675	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

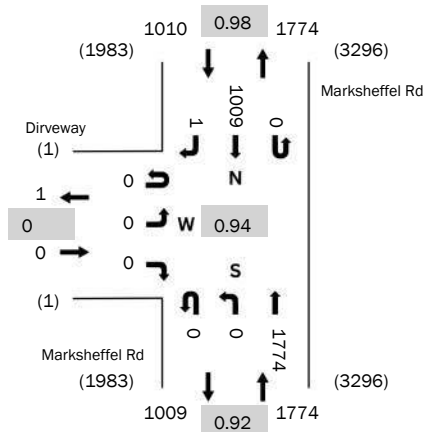
Interval	Heavy Vehicles				Interval	Bicycles on Roadway				Interval	Pedestrians/Bicycles on Crosswalk				
	EB	NB	SB	Total		EB	NB	SB	Total		EB	WB	NB	SB	Total
07:00 AM	0	2	1	3	07:00 AM	0	0	0	0	07:00 AM	0	0	0	0	0
07:15 AM	0	6	3	9	07:15 AM	0	0	0	0	07:15 AM	0	0	0	0	0
07:30 AM	0	3	1	4	07:30 AM	0	0	0	0	07:30 AM	0	0	0	0	0
07:45 AM	0	2	1	3	07:45 AM	0	0	0	0	07:45 AM	0	0	0	1	1
08:00 AM	0	3	4	7	08:00 AM	0	0	0	0	08:00 AM	0	0	0	0	0
08:15 AM	0	2	3	5	08:15 AM	0	0	0	0	08:15 AM	0	0	0	0	0
08:30 AM	0	3	2	5	08:30 AM	0	0	1	1	08:30 AM	0	0	0	0	0
08:45 AM	0	3	2	5	08:45 AM	0	0	0	0	08:45 AM	0	0	0	0	0
Count Total	0	24	17	41	Count Total	0	0	1	1	Count Total	0	0	0	1	1
Peak Hour	0	13	6	19	Peak Hour	0	0	0	0	Peak Hour	0	0	0	1	1



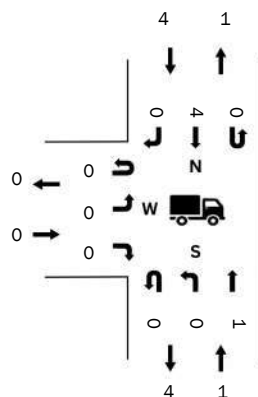
Location: 2
Date: Thursday, January 29, 2026
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

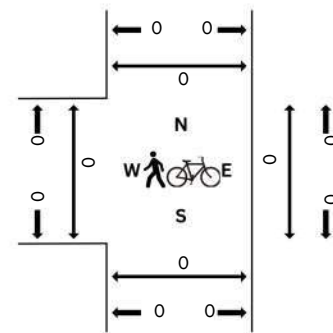
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses

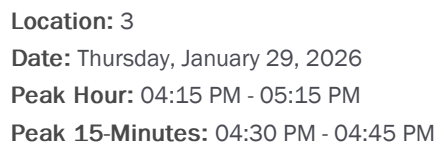
	HV%	PHF
EB	0%	0.0
NB	0.0%	0.92
SB	0.0%	0.98
All	0.0%	0.94

Traffic Counts -Motorized vehicles

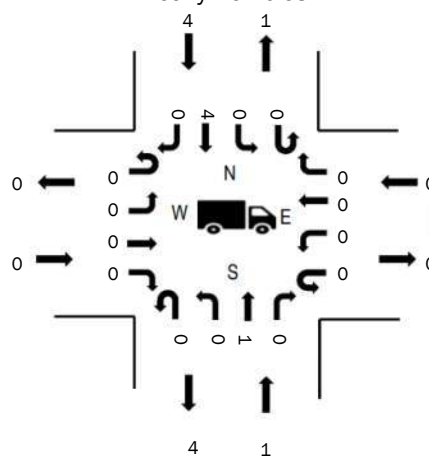
Interval Start Time	Dirveyway Eastbound			Marksheffel Rd Northbound			Marksheffel Rd Southbound			Total	Rolling Hour
	U-turn	Left	Right	U-turn	Left	Thru	U-turn	Thru	Right		
04:00 PM	0	0	1	0	0	399	0	244	0	644	2783
04:15 PM	0	0	0	0	0	445	0	250	1	696	2784
04:30 PM	0	0	0	0	0	484	0	257	0	741	2728
04:45 PM	0	0	0	0	0	447	0	255	0	702	2651
05:00 PM	0	0	0	0	0	398	0	247	0	645	2497
05:15 PM	0	0	0	0	0	396	0	244	0	640	
05:30 PM	0	0	0	0	0	412	0	252	0	664	
05:45 PM	0	0	0	0	0	315	0	233	0	548	
Count Total	0	0	1	0	0	3296	0	1982	1	5280	
Peak Hour	0	0	0	0	0	1774	0	1009	1	2784	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Heavy Vehicles					Bicycles on Roadway					Pedestrians/Bicycles on Crosswalk					
Interval Start Time	EB	NB	SB	Total	Interval Start Time	EB	NB	SB	Total	Interval Start Time	EB	WB	NB	SB	Total
04:00 PM	0	0	1	1	04:00 PM	0	0	0	0	04:00 PM	1	0	0	0	1
04:15 PM	0	0	1	1	04:15 PM	0	0	0	0	04:15 PM	0	0	0	0	0
04:30 PM	0	0	2	2	04:30 PM	0	0	0	0	04:30 PM	0	0	0	0	0
04:45 PM	0	0	0	0	04:45 PM	0	0	0	0	04:45 PM	0	0	0	0	0
05:00 PM	0	1	1	2	05:00 PM	0	0	0	0	05:00 PM	0	0	0	0	0
05:15 PM	0	0	0	0	05:15 PM	0	0	0	0	05:15 PM	0	0	0	0	0
05:30 PM	0	1	0	1	05:30 PM	0	0	0	0	05:30 PM	0	0	0	0	0
05:45 PM	0	1	0	1	05:45 PM	0	0	0	0	05:45 PM	0	0	0	0	0
Count Total	0	3	5	8	Count Total	0	0	0	0	Count Total	1	0	0	0	1
Peak Hour	0	1	4	5	Peak Hour	0	0	0	0	Peak Hour	0	0	0	0	0



Motorized Vehicles



	HV%	PHF
EB	0.0%	0.75
WB	0.0%	0.85
NB	0.0%	0.94
SB	0.0%	0.98
All	0.0%	0.96

Interval	Dirveaway				Colorado Tech Dr				Marksheffel Rd				Marksheffel Rd				Total	Rolling Hour
	Eastbound				Westbound				Northbound				Southbound					
Start Time	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right		
04:00 PM	0	0	0	1	0	1	0	15	1	1	391	17	2	20	228	0	677	2920
04:15 PM	0	0	0	1	0	4	0	20	2	0	413	14	1	20	254	0	729	2933
04:30 PM	0	1	0	0	0	0	0	18	0	0	451	14	1	23	255	1	764	2866
04:45 PM	0	0	0	0	0	2	0	23	0	0	429	16	0	20	260	0	750	2769
05:00 PM	0	0	0	1	0	2	0	16	0	0	391	14	5	17	244	0	690	2646
05:15 PM	0	0	0	0	0	5	0	13	0	0	376	13	0	15	240	0	662	
05:30 PM	0	0	0	0	0	1	0	14	0	0	378	15	1	15	243	0	667	
05:45 PM	0	0	0	0	0	4	0	16	0	0	349	9	1	15	233	0	627	
Count Total	0	1	0	3	0	19	0	135	3	1	3178	112	11	145	1957	1	5566	
Peak Hour	0	1	0	2	0	8	0	77	2	0	1684	58	7	80	1013	1	2933	

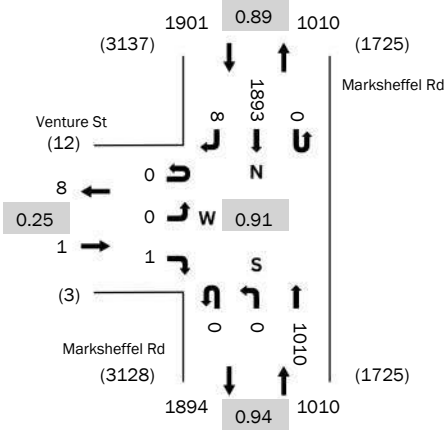
Interval	Heavy Vehicles					Interval	Bicycles on Roadway					Interval	Pedestrians/Bicycles on Crosswalk				
Start Time	EB	WB	NB	SB	Total	Start Time	EB	WB	NB	SB	Total	Start Time	EB	WB	NB	SB	Total
04:00 PM	0	0	0	1	1	04:00 PM	0	0	0	0	0	04:00 PM	0	0	0	0	0
04:15 PM	0	0	0	1	1	04:15 PM	0	0	0	0	0	04:15 PM	0	0	0	0	0
04:30 PM	0	0	0	2	2	04:30 PM	0	0	0	0	0	04:30 PM	0	1	0	0	1
04:45 PM	0	0	0	0	0	04:45 PM	0	0	0	0	0	04:45 PM	0	0	0	0	0
05:00 PM	0	0	1	1	2	05:00 PM	0	0	0	0	0	05:00 PM	0	0	0	0	0
05:15 PM	0	0	0	0	0	05:15 PM	0	0	0	0	0	05:15 PM	0	0	0	0	0
05:30 PM	0	0	1	0	1	05:30 PM	0	0	0	0	0	05:30 PM	0	0	0	0	0
05:45 PM	0	0	0	0	0	05:45 PM	0	0	0	0	0	05:45 PM	0	0	0	0	0
Count Total	0	0	2	5	7	Count Total	0	0	0	0	0	Count Total	0	1	0	0	1
Peak Hour	0	0	1	4	5	Peak Hour	0	0	0	0	0	Peak Hour	0	1	0	0	1



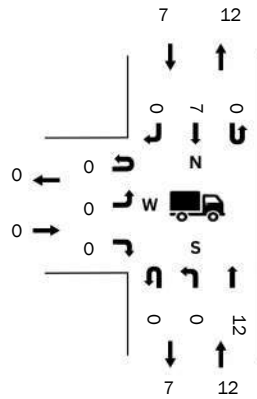
Location: 4
Date: Thursday, January 29, 2026
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour

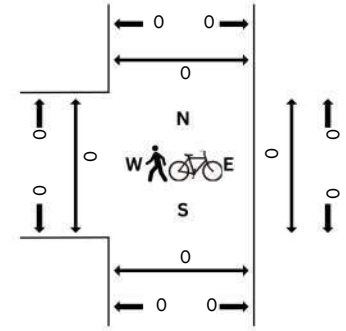
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses

	HV%	PHF
EB	0.0%	0.25
NB	0.01%	0.94
SB	0.0%	0.89
All	0.01%	0.91

Traffic Counts -Motorized vehicles

Interval	Venture St Eastbound			Marksheffel Rd Northbound			Marksheffel Rd Southbound			Total	Rolling Hour
	U-turn	Left	Right	U-turn	Left	Thru	U-turn	Thru	Right		
07:00 AM	0	0	1	0	0	210	0	431	1	643	2912
07:15 AM	0	0	0	0	0	268	0	533	0	801	2820
07:30 AM	0	0	0	0	0	269	0	508	2	779	2540
07:45 AM	0	0	0	0	0	263	0	421	5	689	2244
08:00 AM	0	0	0	0	0	190	0	361	0	551	1953
08:15 AM	0	0	0	0	0	195	0	324	2	521	
08:30 AM	0	0	1	0	0	163	0	318	1	483	
08:45 AM	0	0	1	0	0	167	0	229	1	398	
Count Total	0	0	3	0	0	1725	0	3125	12	4865	
Peak Hour	0	0	1	0	0	1010	0	1893	8	2912	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

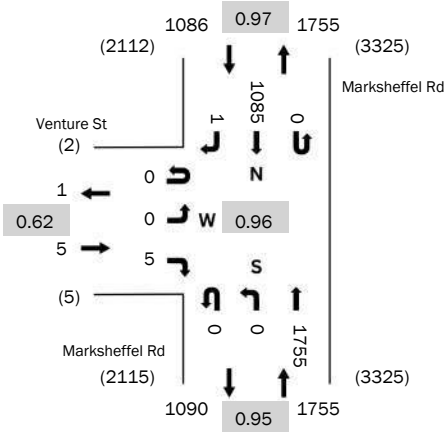
Heavy Vehicles					Bicycles on Roadway					Pedestrians/Bicycles on Crosswalk					
Interval	EB	NB	SB	Total	Interval	EB	NB	SB	Total	Interval	EB	WB	NB	SB	Total
07:00 AM	0	2	2	4	07:00 AM	0	0	0	0	07:00 AM	0	0	0	0	0
07:15 AM	0	4	3	7	07:15 AM	0	0	0	0	07:15 AM	0	0	0	0	0
07:30 AM	0	4	1	5	07:30 AM	0	0	0	0	07:30 AM	0	0	0	0	0
07:45 AM	0	2	1	3	07:45 AM	0	0	0	0	07:45 AM	0	0	0	0	0
08:00 AM	0	4	5	9	08:00 AM	0	0	0	0	08:00 AM	0	0	0	0	0
08:15 AM	0	2	1	3	08:15 AM	0	0	0	0	08:15 AM	0	0	0	0	0
08:30 AM	0	3	2	5	08:30 AM	0	0	1	1	08:30 AM	0	0	0	0	0
08:45 AM	0	3	2	5	08:45 AM	0	0	0	0	08:45 AM	0	0	0	0	0
Count Total	0	24	17	41	Count Total	0	0	1	1	Count Total	0	0	0	0	0
Peak Hour	0	12	7	19	Peak Hour	0	0	0	0	Peak Hour	0	0	0	0	0



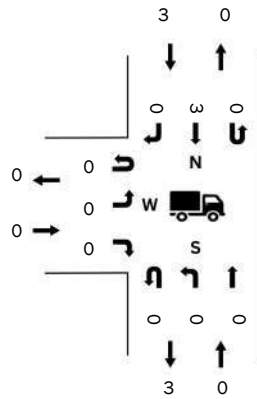
Location: 4
Date: Thursday, January 29, 2026
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

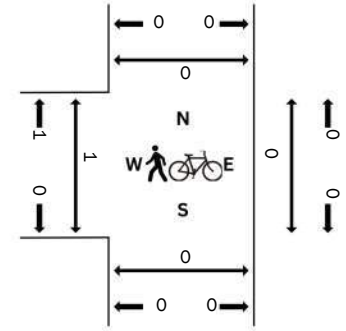
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note:Total study counts contained in parantheses

	HV%	PHF
EB	0.0%	0.62
NB	0.0%	0.95
SB	0.0%	0.97
All	0.0%	0.96

Traffic Counts -Motorized vehicles

Interval	Venture St Eastbound			Marksheffel Rd Northbound			Marksheffel Rd Southbound			Total	Rolling Hour
	U-turn	Left	Right	U-turn	Left	Thru	U-turn	Thru	Right		
04:00 PM	0	0	1	0	0	418	0	258	0	677	2846
04:15 PM	0	0	1	0	0	422	0	267	0	690	2824
04:30 PM	0	0	2	0	0	461	0	279	1	743	2813
04:45 PM	0	0	1	0	0	454	0	281	0	736	2711
05:00 PM	0	0	0	0	0	399	0	255	1	655	2596
05:15 PM	0	0	0	0	0	408	0	271	0	679	
05:30 PM	0	0	0	0	0	394	0	247	0	641	
05:45 PM	0	0	0	0	0	369	0	252	0	621	
Count Total	0	0	5	0	0	3325	0	2110	2	5442	
Peak Hour	0	0	5	0	0	1755	0	1085	1	2846	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

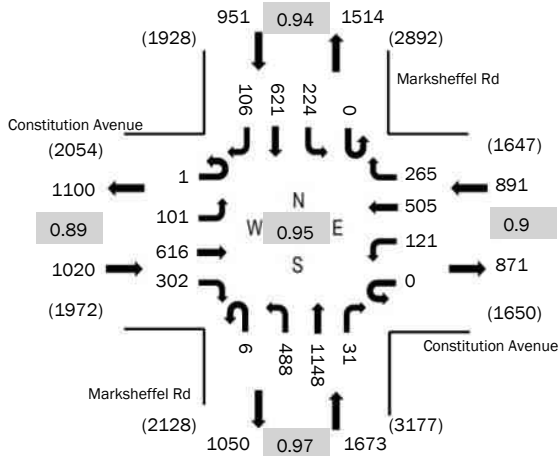
Heavy Vehicles					Bicycles on Roadway					Pedestrians/Bicycles on Crosswalk					
Interval	EB	NB	SB	Total	Interval	EB	NB	SB	Total	Interval	EB	WB	NB	SB	Total
04:00 PM	0	0	0	0	04:00 PM	0	0	0	0	04:00 PM	1	0	0	0	1
04:15 PM	0	0	1	1	04:15 PM	0	0	0	0	04:15 PM	0	0	0	0	0
04:30 PM	0	0	2	2	04:30 PM	0	0	0	0	04:30 PM	0	0	0	0	0
04:45 PM	0	0	0	0	04:45 PM	0	0	0	0	04:45 PM	0	0	0	0	0
05:00 PM	0	1	2	3	05:00 PM	0	0	0	0	05:00 PM	0	0	0	0	0
05:15 PM	0	0	0	0	05:15 PM	0	0	0	0	05:15 PM	0	0	0	0	0
05:30 PM	0	1	0	1	05:30 PM	0	0	0	0	05:30 PM	0	0	0	0	0
05:45 PM	0	1	0	1	05:45 PM	0	0	0	0	05:45 PM	0	0	0	0	0
Count Total	0	3	5	8	Count Total	0	0	0	0	Count Total	1	0	0	0	1
Peak Hour	0	0	3	3	Peak Hour	0	0	0	0	Peak Hour	1	0	0	0	1



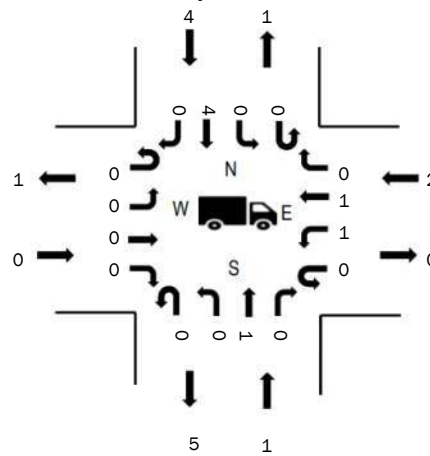
Location: 5
Date: Thursday, January 29, 2026
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

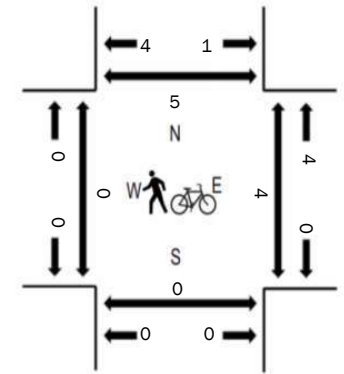
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parantheses

	HV%	PHF
EB	0.0%	0.89
WB	0.0%	0.9
NB	0.0%	0.97
SB	0.0%	0.94
All	0.0%	0.95

Traffic Counts -Motorized vehicles

Interval	Constitution Avenue Eastbound				Constitution Avenue Westbound				Marksheffel Rd Northbound				Marksheffel Rd Southbound				Total	Rolling Hour
	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right		
04:00 PM	1	27	133	68	1	26	101	54	2	99	294	2	0	53	194	27	1082	4426
04:15 PM	0	23	173	92	0	27	108	71	3	116	269	7	0	59	135	28	1111	4535
04:30 PM	0	20	124	81	0	30	115	65	3	128	294	4	0	59	177	18	1118	4510
04:45 PM	0	22	140	63	0	40	133	74	0	113	299	9	0	42	152	28	1115	4431
05:00 PM	1	36	179	66	0	24	149	55	0	131	286	11	0	64	157	32	1191	4298
05:15 PM	0	21	137	66	0	30	122	56	0	100	287	7	0	53	182	25	1086	
05:30 PM	0	33	143	83	0	31	127	44	4	105	247	9	1	49	128	35	1039	
05:45 PM	0	15	134	91	0	19	100	45	0	87	254	7	0	51	154	25	982	
Count Total	2	197	1163	610	1	227	955	464	12	879	2230	56	1	430	1279	218	8724	
Peak Hour	1	101	616	302	0	121	505	265	6	488	1148	31	0	224	621	106	4535	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

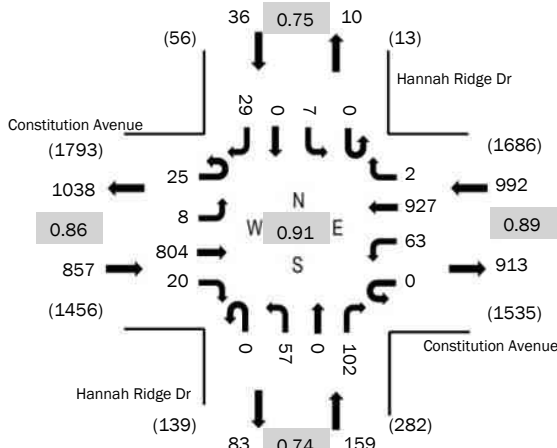
Heavy Vehicles						Bicycles on Roadway						Pedestrians/Bicycles on Crosswalk					
Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total
04:00 PM	0	1	0	0	1	04:00 PM	0	0	0	0	0	04:00 PM	2	0	3	0	5
04:15 PM	0	0	0	1	1	04:15 PM	0	0	0	0	0	04:15 PM	0	2	0	2	4
04:30 PM	0	0	0	2	2	04:30 PM	0	0	0	0	0	04:30 PM	0	0	0	1	1
04:45 PM	0	1	0	0	1	04:45 PM	0	0	0	0	0	04:45 PM	0	1	0	1	2
05:00 PM	0	1	1	1	3	05:00 PM	0	0	0	0	0	05:00 PM	0	1	0	1	2
05:15 PM	0	0	1	0	1	05:15 PM	0	0	0	0	0	05:15 PM	0	0	0	0	0
05:30 PM	0	0	0	0	0	05:30 PM	0	0	0	0	0	05:30 PM	0	0	0	0	0
05:45 PM	0	0	1	0	1	05:45 PM	0	0	0	0	0	05:45 PM	0	0	0	0	0
Count Total	0	3	3	4	10	Count Total	0	0	0	0	0	Count Total	2	4	3	5	14
Peak Hour	0	2	1	4	7	Peak Hour	0	0	0	0	0	Peak Hour	0	4	0	5	9



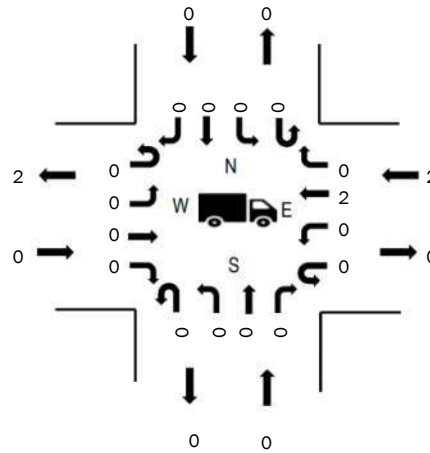
Location: 6
Date: Thursday, January 29, 2026
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

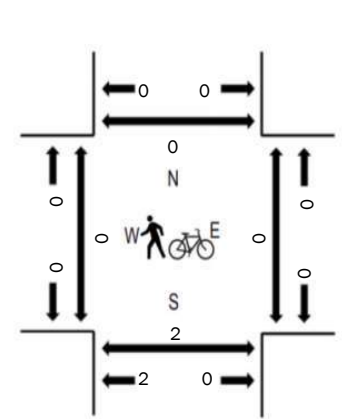
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parantheses

	HV%	PHF
EB	0.0%	0.86
WB	0.0%	0.89
NB	0.0%	0.74
SB	0.0%	0.75
All	0.0%	0.91

Traffic Counts -Motorized vehicles

Interval	Constitution Avenue Eastbound				Constitution Avenue Westbound				Hannah Ridge Dr Northbound				Hannah Ridge Dr Southbound				Total	Rolling Hour
	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right		
07:00 AM	8	1	148	1	0	12	234	0	0	22	0	16	0	4	0	7	453	2041
07:15 AM	8	1	170	7	0	6	224	0	0	22	0	32	0	1	0	11	482	2044
07:30 AM	8	3	204	5	0	15	263	0	0	16	0	29	0	1	0	3	547	1918
07:45 AM	5	2	239	3	0	18	252	2	0	8	0	20	0	1	0	9	559	1722
08:00 AM	4	2	191	5	0	24	188	0	0	11	0	21	0	4	0	6	456	1439
08:15 AM	4	0	147	5	0	11	156	0	0	14	0	15	0	2	0	2	356	
08:30 AM	5	2	147	12	0	5	145	0	0	13	0	18	0	1	0	3	351	
08:45 AM	3	0	111	5	0	5	126	0	0	12	0	13	0	0	0	1	276	
Count Total	45	11	1357	43	0	96	1588	2	0	118	0	164	0	14	0	42	3480	
Peak Hour	25	8	804	20	0	63	927	2	0	57	0	102	0	7	0	29	2044	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

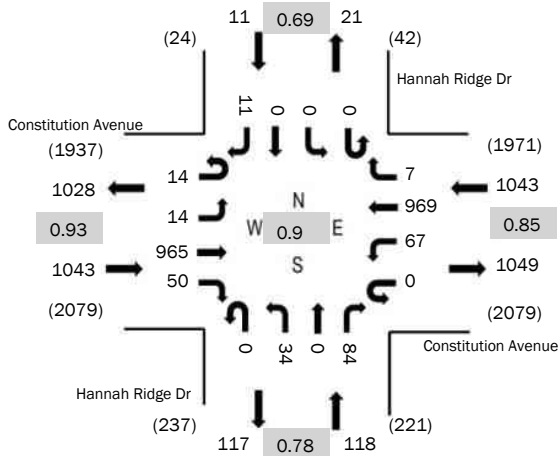
Heavy Vehicles						Bicycles on Roadway						Pedestrians/Bicycles on Crosswalk					
Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total
07:00 AM	0	1	0	0	1	07:00 AM	0	0	0	0	0	07:00 AM	0	0	0	0	0
07:15 AM	0	0	0	0	0	07:15 AM	0	0	0	0	0	07:15 AM	0	0	0	0	0
07:30 AM	0	0	0	0	0	07:30 AM	0	0	0	0	0	07:30 AM	0	0	2	0	2
07:45 AM	0	0	0	0	0	07:45 AM	0	0	0	0	0	07:45 AM	0	0	0	0	0
08:00 AM	0	2	0	0	2	08:00 AM	0	0	0	0	0	08:00 AM	0	0	0	0	0
08:15 AM	0	1	0	0	1	08:15 AM	0	0	0	0	0	08:15 AM	0	0	0	0	0
08:30 AM	0	1	0	0	1	08:30 AM	0	0	0	0	0	08:30 AM	0	0	0	0	0
08:45 AM	0	0	0	0	0	08:45 AM	0	0	0	0	0	08:45 AM	0	0	1	0	1
Count Total	0	5	0	0	5	Count Total	0	0	0	0	0	Count Total	0	0	3	0	3
Peak Hour	0	2	0	0	2	Peak Hour	0	0	0	0	0	Peak Hour	0	0	2	0	2



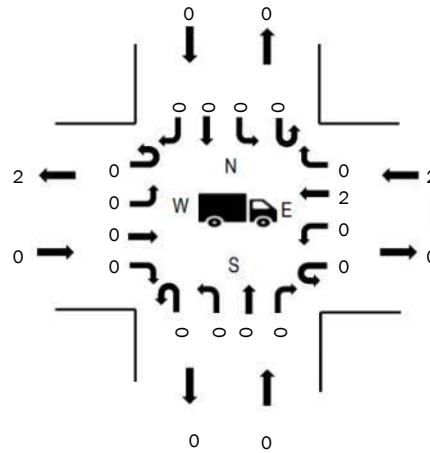
Location: 6
Date: Thursday, January 29, 2026
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

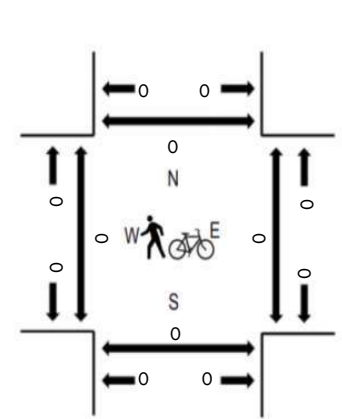
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parantheses

	HV%	PHF
EB	0.0%	0.93
WB	0.0%	0.85
NB	0.0%	0.78
SB	0.0%	0.69
All	0.0%	0.9

Traffic Counts -Motorized vehicles

Interval	Constitution Avenue Eastbound				Constitution Avenue Westbound				Hannah Ridge Dr Northbound				Hannah Ridge Dr Southbound				Total	Rolling Hour
	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right		
04:00 PM	3	3	245	19	0	16	236	2	0	4	0	24	0	1	0	2	555	2146
04:15 PM	6	4	256	8	0	17	213	0	0	10	0	17	0	1	0	0	532	2209
04:30 PM	4	4	237	8	0	17	233	0	0	3	0	22	0	0	0	3	531	2215
04:45 PM	2	5	223	13	0	15	234	1	0	12	0	21	0	0	0	2	528	2208
05:00 PM	3	3	246	16	0	19	286	3	0	10	0	28	0	0	0	4	618	2149
05:15 PM	5	2	259	13	0	16	216	3	0	9	0	13	0	0	0	2	538	
05:30 PM	4	6	233	16	0	17	216	0	0	7	0	19	0	1	0	5	524	
05:45 PM	3	6	216	8	0	19	192	0	0	7	0	15	0	2	0	1	469	
Count Total	30	33	1915	101	0	136	1826	9	0	62	0	159	0	5	0	19	4295	
Peak Hour	14	14	965	50	0	67	969	7	0	34	0	84	0	0	0	11	2215	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

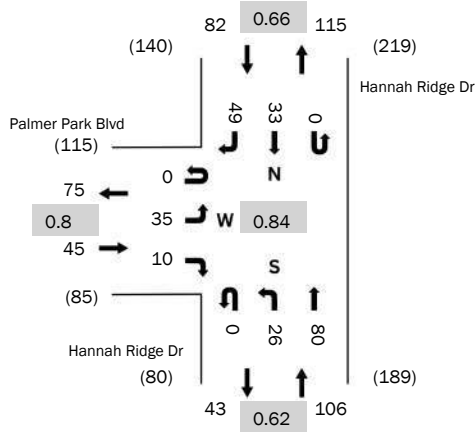
Interval	Heavy Vehicles					Interval	Bicycles on Roadway					Interval	Pedestrians/Bicycles on Crosswalk				
	EB	WB	NB	SB	Total		EB	WB	NB	SB	Total		EB	WB	NB	SB	Total
04:00 PM	1	0	0	0	1	04:00 PM	1	0	0	0	1	04:00 PM	0	0	0	0	0
04:15 PM	0	0	0	0	0	04:15 PM	0	0	0	0	0	04:15 PM	0	0	0	2	2
04:30 PM	0	0	0	0	0	04:30 PM	0	0	0	0	0	04:30 PM	0	0	0	0	0
04:45 PM	0	1	0	0	1	04:45 PM	0	0	0	0	0	04:45 PM	0	0	0	0	0
05:00 PM	0	0	0	0	0	05:00 PM	0	0	0	0	0	05:00 PM	0	0	0	0	0
05:15 PM	0	1	0	0	1	05:15 PM	0	0	0	0	0	05:15 PM	0	0	0	0	0
05:30 PM	0	0	0	0	0	05:30 PM	0	0	0	0	0	05:30 PM	0	0	0	0	0
05:45 PM	0	0	0	0	0	05:45 PM	0	0	0	0	0	05:45 PM	1	0	0	0	1
Count Total	1	2	0	0	3	Count Total	1	0	0	0	1	Count Total	1	0	0	2	3
Peak Hour	0	2	0	0	2	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0



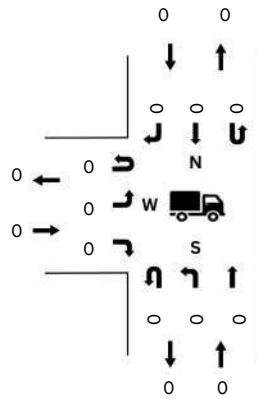
Location: 7
Date: Thursday, January 29, 2026
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour

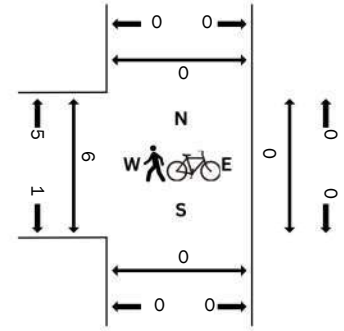
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses

	HV%	PHF
EB	0.0%	0.8
NB	0.0%	0.62
SB	0.0%	0.66
All	0.0%	0.84

Traffic Counts -Motorized vehicles

Interval Start Time	Palmer Park Blvd Eastbound			Hannah Ridge Dr Northbound			Hannah Ridge Dr Southbound			Total	Rolling Hour
	U-turn	Left	Right	U-turn	Left	Thru	U-turn	Thru	Right		
07:00 AM	0	5	1	0	4	27	0	3	10	50	222
07:15 AM	0	10	1	0	11	32	0	6	10	70	233
07:30 AM	0	9	1	0	6	21	0	4	12	53	213
07:45 AM	0	7	3	0	7	13	0	8	11	49	202
08:00 AM	0	9	5	0	2	14	0	15	16	61	192
08:15 AM	0	12	2	0	3	16	0	9	8	50	
08:30 AM	0	12	2	0	2	11	0	10	5	42	
08:45 AM	0	3	3	0	2	18	0	7	6	39	
Count Total	0	67	18	0	37	152	0	62	78	414	
Peak Hour	0	35	10	0	26	80	0	33	49	233	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

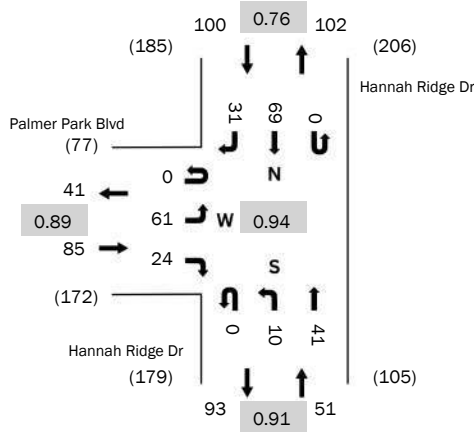
Heavy Vehicles					Bicycles on Roadway					Pedestrians/Bicycles on Crosswalk					
Interval Start Time	EB	NB	SB	Total	Interval Start Time	EB	NB	SB	Total	Interval Start Time	EB	WB	NB	SB	Total
07:00 AM	0	0	0	0	07:00 AM	0	0	0	0	07:00 AM	0	0	0	0	0
07:15 AM	0	0	0	0	07:15 AM	0	0	0	0	07:15 AM	2	0	0	0	2
07:30 AM	0	0	0	0	07:30 AM	0	1	0	1	07:30 AM	0	0	0	0	0
07:45 AM	0	0	0	0	07:45 AM	0	0	0	0	07:45 AM	4	0	0	0	4
08:00 AM	0	0	0	0	08:00 AM	0	0	0	0	08:00 AM	0	0	0	0	0
08:15 AM	0	0	0	0	08:15 AM	0	0	0	0	08:15 AM	0	0	0	0	0
08:30 AM	0	0	0	0	08:30 AM	0	0	0	0	08:30 AM	0	0	0	0	0
08:45 AM	0	0	0	0	08:45 AM	0	0	0	0	08:45 AM	0	0	0	0	0
Count Total	0	0	0	0	Count Total	0	1	0	1	Count Total	6	0	0	0	6
Peak Hour	0	0	0	0	Peak Hour	0	1	0	1	Peak Hour	6	0	0	0	6



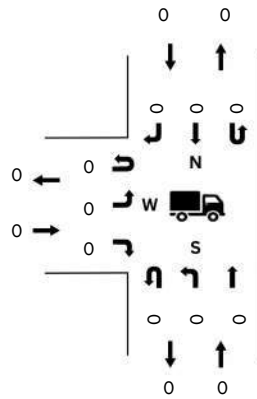
Location: 7
Date: Thursday, January 29, 2026
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour

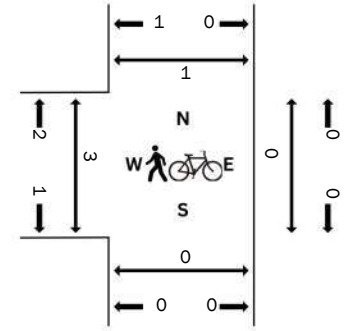
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses

	HV%	PHF
EB	0.0%	0.89
NB	0.0%	0.91
SB	0.0%	0.76
All	0.0%	0.94

Traffic Counts -Motorized vehicles

Interval Start Time	Palmer Park Blvd Eastbound			Hannah Ridge Dr Northbound			Hannah Ridge Dr Southbound			Total	Rolling Hour
	U-turn	Left	Right	U-turn	Left	Thru	U-turn	Thru	Right		
04:00 PM	0	14	5	0	4	11	0	21	4	59	231
04:15 PM	0	16	7	0	4	14	0	13	7	61	230
04:30 PM	0	18	6	0	5	9	0	16	4	58	231
04:45 PM	0	15	4	0	2	12	0	14	6	53	236
05:00 PM	0	18	5	0	0	13	0	20	2	58	231
05:15 PM	0	16	8	0	6	7	0	15	10	62	
05:30 PM	0	12	7	0	2	9	0	20	13	63	
05:45 PM	0	15	6	0	0	7	0	12	8	48	
Count Total	0	124	48	0	23	82	0	131	54	462	
Peak Hour	0	61	24	0	10	41	0	69	31	236	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

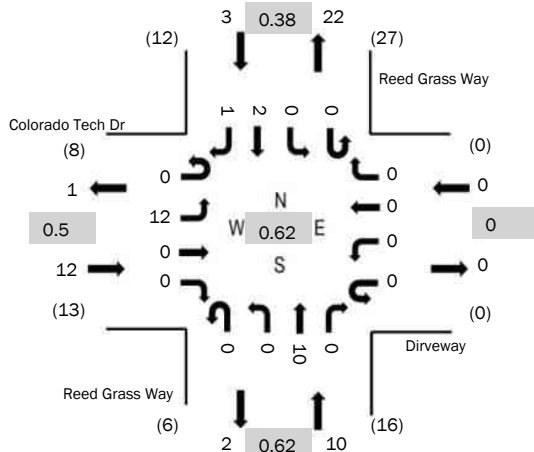
Heavy Vehicles					Bicycles on Roadway					Pedestrians/Bicycles on Crosswalk					
Interval Start Time	EB	NB	SB	Total	Interval Start Time	EB	NB	SB	Total	Interval Start Time	EB	WB	NB	SB	Total
04:00 PM	0	0	0	0	04:00 PM	0	0	0	0	04:00 PM	0	0	0	0	0
04:15 PM	0	0	0	0	04:15 PM	0	0	0	0	04:15 PM	0	0	0	0	0
04:30 PM	0	0	0	0	04:30 PM	0	0	0	0	04:30 PM	0	0	0	0	0
04:45 PM	0	0	0	0	04:45 PM	0	0	0	0	04:45 PM	0	0	0	1	1
05:00 PM	0	0	0	0	05:00 PM	0	0	0	0	05:00 PM	0	0	0	0	0
05:15 PM	0	0	0	0	05:15 PM	0	0	0	0	05:15 PM	3	0	0	0	3
05:30 PM	0	0	0	0	05:30 PM	0	0	0	0	05:30 PM	0	0	0	0	0
05:45 PM	0	0	0	0	05:45 PM	0	0	0	0	05:45 PM	0	0	0	0	0
Count Total	0	0	0	0	Count Total	0	0	0	0	Count Total	3	0	0	1	4
Peak Hour	0	0	0	0	Peak Hour	0	0	0	0	Peak Hour	3	0	0	1	4



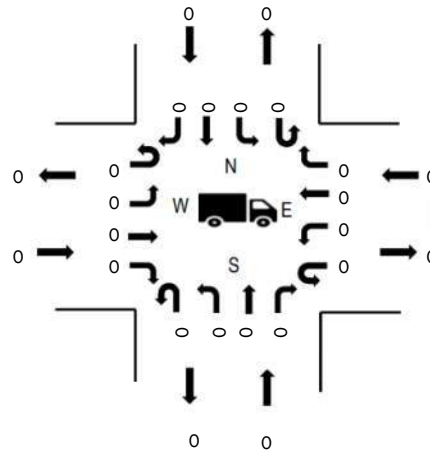
Location: 8
Date: Thursday, January 29, 2026
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour

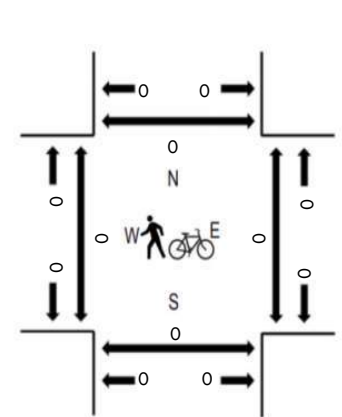
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parantheses

	HV%	PHF
EB	0.0%	0.5
WB	0%	0.0
NB	0.0%	0.62
SB	0.0%	0.38
All	0.0%	0.62

Traffic Counts -Motorized vehicles

Interval	Colorado Tech Dr				Diriveway				Reed Grass Way				Reed Grass Way				Total	Rolling Hour
	Eastbound				Westbound				Northbound				Southbound					
Start Time	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right		
07:00 AM	0	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	6	25
07:15 AM	0	6	0	0	0	0	0	0	0	0	3	0	0	0	1	0	10	21
07:30 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	15
07:45 AM	0	3	0	0	0	0	0	0	0	0	2	0	0	0	1	1	7	18
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	16
08:15 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	1	0	4	
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	
08:45 AM	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	2	5	
Count Total	0	13	0	0	0	0	0	0	0	2	14	0	0	0	6	6	41	
Peak Hour	0	12	0	0	0	0	0	0	0	0	10	0	0	0	2	1	25	

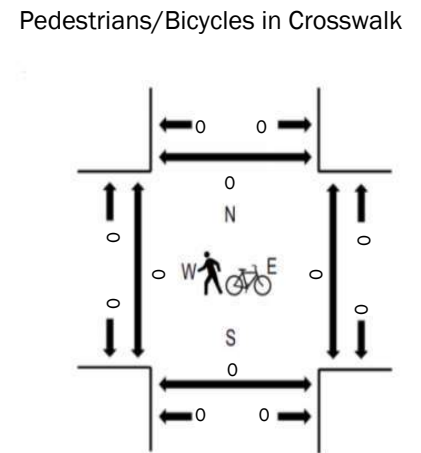
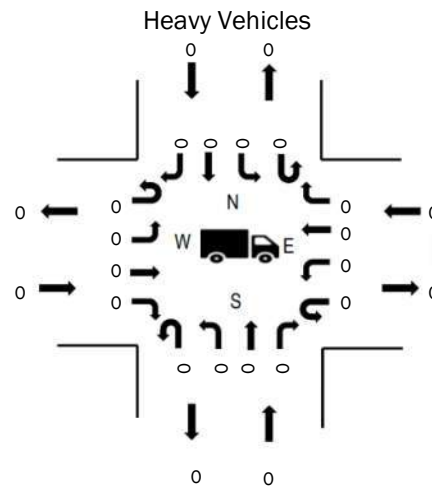
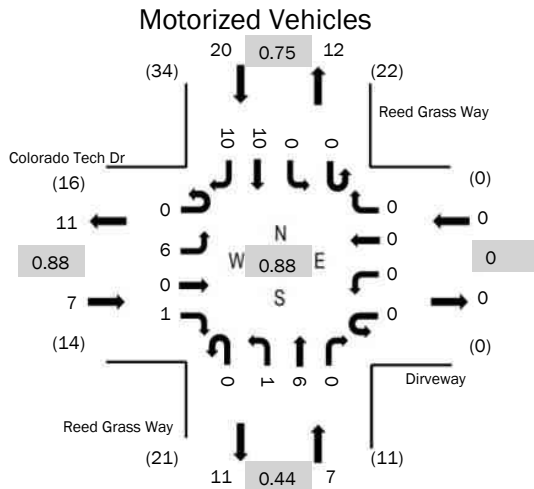
Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Heavy Vehicles						Bicycles on Roadway						Pedestrians/Bicycles on Crosswalk					
Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total	Interval	EB	WB	NB	SB	Total
Start Time						Start Time						Start Time					
07:00 AM	0	0	0	0	0	07:00 AM	0	0	0	0	0	07:00 AM	0	0	0	0	0
07:15 AM	0	0	0	0	0	07:15 AM	0	0	0	0	0	07:15 AM	0	0	0	0	0
07:30 AM	0	0	0	0	0	07:30 AM	0	0	0	0	0	07:30 AM	0	0	0	0	0
07:45 AM	0	0	0	0	0	07:45 AM	0	0	0	0	0	07:45 AM	0	0	0	0	0
08:00 AM	0	0	0	0	0	08:00 AM	0	0	0	0	0	08:00 AM	0	0	0	0	0
08:15 AM	0	0	0	0	0	08:15 AM	0	0	0	0	0	08:15 AM	0	0	0	0	0
08:30 AM	0	0	0	0	0	08:30 AM	0	0	0	0	0	08:30 AM	0	0	0	0	0
08:45 AM	0	0	0	0	0	08:45 AM	0	0	0	0	0	08:45 AM	0	0	0	0	0
Count Total	0	0	0	0	0	Count Total	0	0	0	0	0	Count Total	0	0	0	0	0
Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0



Location: 8
 Date: Thursday, January 29, 2026
 Peak Hour: 04:45 PM - 05:45 PM
 Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour



Note: Total study counts contained in parantheses

	HV%	PHF
EB	0.0%	0.88
WB	0%	0.0
NB	0.0%	0.44
SB	0.0%	0.75
All	0.0%	0.88

Traffic Counts -Motorized vehicles

Interval	Colorado Tech Dr				Diriveway				Reed Grass Way				Reed Grass Way				Total	Rolling Hour
	Eastbound				Westbound				Northbound				Southbound					
Start Time	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right	U-turn	Left	Thru	Right		
04:00 PM	0	1	0	1	0	0	0	0	0	0	2	0	0	0	4	1	9	31
04:15 PM	0	2	0	0	0	0	0	0	0	0	1	0	0	0	1	3	7	30
04:30 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	4	1	8	32
04:45 PM	0	2	0	0	0	0	0	0	0	0	1	0	0	0	1	3	7	34
05:00 PM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	3	3	8	28
05:15 PM	0	2	0	0	0	0	0	0	0	0	4	0	0	0	2	1	9	
05:30 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	4	3	10	
05:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
Count Total	0	12	0	2	0	0	0	0	0	1	10	0	0	0	19	15	59	
Peak Hour	0	6	0	1	0	0	0	0	0	1	6	0	0	0	10	10	34	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Heavy Vehicles						Bicycles on Roadway						Pedestrians/Bicycles on Crosswalk					
Interval						Interval						Interval					
Start Time	EB	WB	NB	SB	Total	Start Time	EB	WB	NB	SB	Total	Start Time	EB	WB	NB	SB	Total
04:00 PM	0	0	0	0	0	04:00 PM	0	0	0	0	0	04:00 PM	0	0	0	0	0
04:15 PM	0	0	0	0	0	04:15 PM	0	0	0	0	0	04:15 PM	0	0	0	0	0
04:30 PM	0	0	0	0	0	04:30 PM	0	0	0	0	0	04:30 PM	0	1	1	0	2
04:45 PM	0	0	0	0	0	04:45 PM	0	0	0	1	1	04:45 PM	0	0	0	0	0
05:00 PM	0	0	0	0	0	05:00 PM	0	0	0	0	0	05:00 PM	0	0	0	0	0
05:15 PM	0	0	0	0	0	05:15 PM	0	0	0	0	0	05:15 PM	0	0	0	0	0
05:30 PM	0	0	0	0	0	05:30 PM	0	0	0	0	0	05:30 PM	0	0	0	0	0
05:45 PM	0	0	0	0	0	05:45 PM	0	0	0	0	0	05:45 PM	0	0	0	0	0
Count Total	0	0	0	0	0	Count Total	0	0	0	1	1	Count Total	0	1	1	0	2
Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	1	1	Peak Hour	0	0	0	0	0

CDOT

MaxTime Timing Sheet

2.0.16 Update

Administration**Unit Information**

Controller ID	0
Main St.	24G
Side St.	Marksheffel

Adapter	IP Address	Subnet Mask	Default Gateway	ARP	Mode
1	10.77.24.35	255.255.255.0	10.77.24.1	Disable	Static
2	10.20.30.1	255.255.255.0	0.0.0.0	Disable	Static

Serial Ports:

Port	Description	Function	Address	Baud	Bits	Stop	Parity	Flow	CTS	RTS
1	Port 2/C21S	None	1	9600	8	1	None	None	0	0
2	Aux P3/C22S	None	1	9600	8	1	None	None	0	0
3	SDLC Port 1	None	1	9600	8	1	None	None	0	0
4	Com A/C50S	None	1	9600	8	1	None	None	0	0
5	FIO	None	1	9600	8	1	None	None	0	0
6	DISPLAY/C60M	None	1	9600	8	1	None	None	0	0
7	SP7	None	1	9600	8	1	None	None	0	0
8	SP8/Com B	None	1	9600	8	1	None	None	0	0

Unit Parameters

Startup Flash	0	Auto Ped Clr	Enable	Red Revert	4.0	Backup Time	600	Ext Mode	Disable
All Red Exit	0	Grn Flash Freq.	60	Yel Flash Freq.	60	MCE Enable	Enable	Free Seq.	1
MCE Seq.	1	Start Yellow	0.0	Start Red	0.0	Start Clear Hold	6		
Master By TOD	Disable	Flash CVM	Disable	All Red Flash	Enable	3 Phs Dia Seq			
				Auto Ped Clear	Enable	4 Phs Dia Seq			

Phase Parameters

Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Walk Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clear Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Don't Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Green	6	20	4	6	6	20	5	6	1	1	1	1	1	1	1	1	1	1	1	1
Min Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Passage	2.0	2.0	2.0	2.0	5.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max-1	16	37	6	32	15	40	6	31	0	0	0	0	0	0	0	0	0	0	0	0
Max-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conditional Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yel Change	3.5	6.0	3.5	4.5	3.5	6.0	3.5	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	3.0	1.0	3.0	1.5	3.0	1.0	3.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Add Red Clear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red Revert	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time B4 Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars B4 Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dyn Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dyn Max Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advance Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Ped	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt Ped Clr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ped Service Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre Green	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre Clearance	0.0	6.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Pre Clearance 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Clear Ext Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Clear Ext Pass	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Jump	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adv Warning Ext	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Options

Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Enable	X	X	X	X	X	X	X	X												
Auto Flash Ent.		X				X														
Auto Flash Exit		X				X														
Non Actuated I																				
Non Actuated II																				
Non Lock Mem	X	X	X	X	X	X	X	X												
Min Veh Recall																				
Max Veh Recall																				
Ped Recall																				
Soft Veh Recall																				
Dual Entry				X				X												
Sim Gap Dis																				
Guaranteed Pass																				
Act Rest Walk																				
Cond Service																				
Add Initial																				
Ped Clr During Yel																				
Ped Clr During Red																				
Cond Reservice																				
Yel Min Override																				
No Startup Call																				
Adv. Warn Flasher		X				X														
No Ped Str Up Call																				
Ped Clr OVTG																				
Flash Exit Call																				
Flash Exit Ped Call																				
MinGreen2																				
MaxGreen2																				
MaxGreen3																				
Ped2																				
Ped Clear Pre Clear																				
Ped NA+ Mode																				
Red Rest																				
Serve Evy Oth Even																				
Serve Evy Oth Odd																				
Coord Ped Yield																				
Ped Recycle																				
Countdown																				

No Serve Phases

Sequence 1		Sequence 2		Sequence 3		Sequence 4	
Ph.	No Serve Phases	Ph.	No Serve Phases	Ph.	No Serve Phases	Ph.	No Serve Phases
1		1		1		1	
2		2		2		2	
3		3		3		3	
4		4		4		4	
5		5		5		5	
6		6		6		6	

7	
8	

7	
8	

7	
8	

7	
8	

Sequence 1		Sequence 2		Sequence 3		Sequence 4	
9		9		9		9	
10		10		10		10	
11		11		11		11	
12		12		12		12	
13		13		13		13	
14		14		14		14	
15		15		15		15	
16		16		16		16	

Phase Configuration

Ph.	Startup	Ring	Concurrent	Startup Min	Description
1	Phase Not On	1	5,6	0	
2	Green No Walk	1	5,6	0	
3	Phase Not On	1	8,7	0	
4	Phase Not On	1	8,7	0	
5	Phase Not On	2	1,2	0	
6	Green No Walk	2	1,2	0	
7	Phase Not On	2	4,3	0	
8	Phase Not On	2	4,3	0	
9	None	0		0	
10	None	0		0	
11	None	0		0	
12	None	0		0	
13	None	0		0	
14	None	0		0	
15	None	0		0	
16	None	0		0	
17	None	0		0	
18	None	0		0	
19	None	0		0	
20	None	0		0	

Sequence Configuration

Sequence 1		Sequence 2		Sequence 3		Sequence 4	
Ring	Phases	Ring	Phases	Ring	Phases	Ring	Phases
1	1,2,a,3,4,b	1	1,2,a,4,3,b	1	2,1,a,4,3,b	1	2,1,a,4,3,b
2	5,6,a,7,8,b	2	5,6,a,8,7,b	2	6,5,a,8,7,b	2	5,6,a,7,8,b
3		3		3		3	
4		4		4		4	
5		5		5		5	
6		6		6		6	
7		7		7		7	
8		8		8		8	
9		9		9		9	
10		10		10		10	
11		11		11		11	
12		12		12		12	
13		13		13		13	
14		14		14		14	
15		15		15		15	
16		16		16		16	

Sequence 5		Sequence 6		Sequence 7		Sequence 8	
Ring	Phases	Ring	Phases	Ring	Phases	Ring	Phases
1	1,2,a,3,4,b	1	2,1,a,3,4,b	1	1,2,a,4,3,b	1	2,1,a,4,3,b
2	6,5,a,7,8,b	2	6,5,a,7,8,b	2	6,5,a,7,8,b	2	6,5,a,7,8,b

3	
4	
5	
6	

3	
4	
5	
6	

3	
4	
5	
6	

3	
4	
5	
6	

Sequence 5

7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 6

7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 7

7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 8

7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 9

Ring	Phases
1	1,2,a,3,4,b
2	5,6,a,8,7,b
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 10

Ring	Phases
1	2,1,a,3,4,b
2	5,6,a,8,7,b
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 11

Ring	Phases
1	1,2,a,4,3,b
2	5,6,a,8,7,b
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 12

Ring	Phases
1	2,1,a,4,3,b
2	5,6,a,8,7,b
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 13

Ring	Phases
1	1,2,a,3,4,b
2	6,5,a,8,7,b
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 14

Ring	Phases
1	2,1,a,3,4,b
2	6,5,a,8,7,b
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 15

Ring	Phases
1	1,2,a,4,3,b
2	6,5,a,8,7,b
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 16

Ring	Phases
1	2,1,a,4,3,b
2	6,5,a,8,7,b
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Sequence 17

Ring	Phases
1	
2	
3	
4	
5	

Sequence 18

Ring	Phases
1	
2	
3	
4	
5	

Sequence 19

Ring	Phases
1	
2	
3	
4	
5	

Sequence 20

Ring	Phases
1	
2	
3	
4	
5	

6	
7	
8	

6	
7	
8	

6	
7	
8	

6	
7	
8	

Sequence 17

9	
10	
11	
12	
13	
14	
15	
16	

Sequence 18

9	
10	
11	
12	
13	
14	
15	
16	

Sequence 19

9	
10	
11	
12	
13	
14	
15	
16	

Sequence 20

9	
10	
11	
12	
13	
14	
15	
16	

Global Phase Recalls

[illegible]

Global Veh Det Diagnostics

Global No Activity	0
Global Max Presence	0
Global Erractic Count	0
Global Failed Recall	None
Detector Reset Enable	Enabled

Global Ped Det Diagnostics

Global No Activity	0
Global Max Presence	0
Global Erractic Count	0

Global Pri/Pre Det Diag

Global No Activity	0
Global Max Presence	0
Global Erractic Count	0

Vehicle Detection Parameters

	Call Phs	Call Ped	Call Ovl	Add Call Phases	Sw Phs			Queue	Ext Hold	No Activity	Max Pres	Erratic Counts	Failed Time	Failed Recall	Fail Link	Description
Det.						Delay	Extend	Limit								
1	1	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
2	2	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
3	2	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
4	2	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
5	2	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
6	2	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
7	3	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
8	4	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
9	7	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
10	4	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
11	4	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
12	4	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
13	1	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
14	3	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
15	5	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
16	6	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
17	6	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
18	6	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
19	6	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
20	6	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
21	7	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
22	8	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
23	3	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
24	8	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
25	8	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
26	8	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
27	5	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
28	7	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
29	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
30	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	

31	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
32	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	

Det.	Call Phs	Call Ped	Call Ovl	Add Call Phases	Sw Phs	Delay	Extend	Queue Limit	Ext Hold	No Activity	Max Pres	Erratic Counts	Failed Time	Failed Recall	Fail Link	Description
33	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
34	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
35	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
36	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
37	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
38	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
39	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
40	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
41	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
42	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
43	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
44	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
45	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
46	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
47	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
48	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
49	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
50	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
51	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
52	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
53	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
54	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
55	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
56	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
57	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
58	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
59	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
60	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
61	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
62	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
63	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
64	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
65	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
66	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
67	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
68	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
69	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
70	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
71	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	
72	0	0	0		0	0.0	0.0	0	0.0	0	0	0	0	None	0	

Vehicle Detection Options

Detector	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Volume Detector																				
Occupancy																				
Yellow Lock Call																				
Red Lock call																				
Extend	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Added Initial																				
Queue																				
Call	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Terminate																				
Min Green 2																				
Protected Perm																				
Disable Dly Lead																				

Disable TS2 Diag																			
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Detector	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Volume Detector																				
Occupancy																				
Yellow Lock Call																				
Red Lock call																				
Extend	X	X	X	X	X	X	X	X												
Added Initial																				
Queue																				
Call	X	X	X	X	X	X	X	X												
Terminate																				
Min Green 2																				
Protected Perm																				
Disable Dly Lead																				
Disable TS2 Diag																				

Detector	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Volume Detector																				
Occupancy																				
Yellow Lock Call																				
Red Lock call																				
Extend																				
Added Initial																				
Queue																				
Call																				
Terminate																				
Min Green 2																				
Protected Perm																				
Disable Dly Lead																				
Disable TS2 Diag																				

Detector	61	62	63	64	65	66	67	68	69	70	71	72
Volume Detector												
Occupancy												
Yellow Lock Call												
Red Lock call												
Extend												
Added Initial												
Queue												
Call												
Terminate												
Min Green 2												
Protected Perm												
Disable Dly Lead												
Disable TS2 Diag												

Data Collection Period	0
Number of Periods	1

Speed Detectors				Min	Max	Car	Det	Trail	Trap
Det	Enable	Type	Units	Log	Log	Length	Length	Det	Length
1		Single	Inches	5	80	0	0	0	0
2		Single	Inches	5	80	0	0	0	0
3		Single	Inches	5	80	0	0	0	0
4		Single	Inches	5	80	0	0	0	0
5		Single	Inches	5	80	0	0	0	0
6		Single	Inches	5	80	0	0	0	0
7		Single	Inches	5	80	0	0	0	0
8		Single	Inches	5	80	0	0	0	0

Pedestrian Detectors

	Call	Call	Add	Walk	Clear	No	Max	Erratic
Det	Phs	Ovlp	Call Phs	2	2	Act	Pres	Count
1	0	0		0	0	0	0	0
2	2	0		0	0	0	0	0
3	0	0		0	0	0	0	0
4	4	0		0	0	0	0	0
5	0	0		0	0	0	0	0
6	6	0		0	0	0	0	0
7	0	0		0	0	0	0	0
8	8	0		0	0	0	0	0
9	0	0		0	0	0	0	0
10	0	0		0	0	0	0	0
11	0	0		0	0	0	0	0
12	0	0		0	0	0	0	0
13	0	0		0	0	0	0	0
14	0	0		0	0	0	0	0
15	0	0		0	0	0	0	0
16	0	0		0	0	0	0	0
17	0	0		0	0	0	0	0
18	0	0		0	0	0	0	0
19	0	0		0	0	0	0	0
20	0	0		0	0	0	0	0

	Call	Call	Add	Walk	Clear	No	Max	Erratic
Det	Phs	Ovlp	Call Phs	2	2	Act	Pres	Count
21	0	0		0	0	0	0	0
22	0	0		0	0	0	0	0
23	0	0		0	0	0	0	0
24	0	0		0	0	0	0	0
25	0	0		0	0	0	0	0
26	0	0		0	0	0	0	0
27	0	0		0	0	0	0	0
28	0	0		0	0	0	0	0
29	0	0		0	0	0	0	0
30	0	0		0	0	0	0	0
31	0	0		0	0	0	0	0
32	0	0		0	0	0	0	0
33	0	0		0	0	0	0	0
34	0	0		0	0	0	0	0
35	0	0		0	0	0	0	0
36	0	0		0	0	0	0	0
37	0	0		0	0	0	0	0
38	0	0		0	0	0	0	0
39	0	0		0	0	0	0	0
40	0	0		0	0	0	0	0

Pri/Pre Detectors

Pri/Pre Detectors				Low	high		Arrival	Pri			Min	Pri	No	Max	Erratic
Det	Description	Low Call	High Call	Num	Num	Lead/Tail	Time	Delay	Delay	Ext	On	Olvp	Act	Pres	Count
1		None	None	0	0	None	0	0	0	0	0		0	0	0
2		None	None	0	0	None	0	0	0	0	0		0	0	0
3		None	None	0	0	None	0	0	0	0	0		0	0	0
4		None	None	0	0	None	0	0	0	0	0		0	0	0
5		None	None	0	0	None	0	0	0	0	0		0	0	0
6		None	None	0	0	None	0	0	0	0	0		0	0	0
7		None	None	0	0	None	0	0	0	0	0		0	0	0
8		None	None	0	0	None	0	0	0	0	0		0	0	0

Overlaps

OLP	Enabled	Type	Included Phs	Modifier Phs	Modifier Ovlp	Neg Phases	Inhibit Neg Phs	Neg Ovlp
1	Disabled	Off	2	1				
2	Enabled	Off						
3	Disabled	Off	4	3				
4	Enabled	Off						
5	Disabled	Off	6	5				
6	Enabled	Off						
7	Disabled	Off	8	7				
8	Enabled	Off						
9	Enabled	Off						
10	Enabled	Off						
11	Enabled	Off						
12	Enabled	Off						
13	Enabled	Off						
14	Enabled	Off						
15	Enabled	Off						
16	Enabled	Off						

OLP	TrG Omit Phs	Negative Peds	Neg Ped Ovlp	Grn Sup Phs	N Ped Phs Calls	Description
1						
2						

3						
4						
5						
6						

OLP	TrG Omit Phs	Negative Peds	Neg Ped Ovlp	Grn Sup Phs	N Ped Phs Calls	Description
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

OLP	Trail	Trail	Trail	Walk	Ped	Walk	Ped			Min	Mx Grn	Red	Flash	Flash	Walk
	GRN	YEL	RED	1	Clr 1	2	Clr 2	Delay	Flash	Green	Ext	Revert	Inactive	Alt	Rest
1	0	0.0	0.0	0	0	0	0	0.0	On	0	0	0.0	Off	Off	Off
2	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
3	0	0.0	0.0	0	0	0	0	0.0	On	0	0	0.0	Off	Off	Off
4	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
5	0	0.0	0.0	0	0	0	0	0.0	On	0	0	0.0	Off	Off	Off
6	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
7	0	0.0	0.0	0	0	0	0	0.0	On	0	0	0.0	Off	Off	Off
8	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
9	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
10	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
11	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
12	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
13	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
14	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
15	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off
16	0	0.0	0.0	0	0	0	0	0.0	Off	0	0	0.0	Off	Off	Off

Overlap Options										1	1	1	1	1	1	1
Overlap	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
Startup Call																
Recall																
No Veh Reserv																
No Hold Trail Exit																
Ped Recycle																
No Yellow Protect																
No Bridging																
LRT Prepare Go																

										1	1	1	1	1	1	1
Overlap	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
Call for Service																
Trail Grn Bridge																
FYA Prot. Red Cl																
Phs Intvl Override																
Queue Jump																
No FYA Ped Wlk																
Term After Call																

Custom Overlap Rules

Rule	Custom Ovlp	Incl. State	Mod. State	Neg. State	Output	Flash
1	Disable	Any	Any	Any	Not Set	Not Set
2	Disable	Any	Any	Any	Not Set	Not Set
3	Disable	Any	Any	Any	Not Set	Not Set
4	Disable	Any	Any	Any	Not Set	Not Set
5	Disable	Any	Any	Any	Not Set	Not Set
6	Disable	Any	Any	Any	Not Set	Not Set
7	Disable	Any	Any	Any	Not Set	Not Set
8	Disable	Any	Any	Any	Not Set	Not Set
9	Disable	Any	Any	Any	Not Set	Not Set
10	Disable	Any	Any	Any	Not Set	Not Set

Coordination Parameters

Operational Mode	Automatic	Maximum Mode	Per Pattern	Max Cyc Limit %	15
Coordination Mode	Pattern	Force Mode	Per Pattern	Min Cyc Limit %	15
Correction Mode	Shortway (Auto)	Transition Cover Ped	Pattern	Max Dwell	0

Patterns		Offset			Split	Seq	Ref	Coord	Force	Max	Trans	Min	Phs	Det	Ped	Ovlp	Pri	Description
Patt.	Cycle	1	2	3														
1	140	110	0	0	1	1	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	AM
2	90	36	0	0	2	3	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	MID
3	140	68	0	0	3	2	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	PM
4	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
5	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
6	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
7	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
8	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
9	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
10	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
11	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
12	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
13	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
14	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
15	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
16	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
17	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
18	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
19	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	
20	0	0	0	0	0	0	Yel	Auto	Fixed	Inh	Phase	Phs Only	1	1	1	1	1	

Split Parameters

Split 1				Coord	Ref	Cover	Force Off		Pri	Pri	Pri
PH.	Time	Min	Max								
1	35	0	0				Fix	None	0	0	Float
2	45	0	0	X	X		Fix	Max Rcl	0	0	Float
3	15	0	0				Fix	None	0	0	Float
4	45	0	0				Fix	None	0	0	Float
5	23	0	0				Fix	None	0	0	Float
6	57	0	0	X	X		Fix	Max Rcl	0	0	Float
7	15	0	0				Fix	None	0	0	Float
8	45	0	0				Fix	None	0	0	Float
9	0	0	0				Fix	None	0	0	Float
10	0	0	0				Fix	None	0	0	Float
11	0	0	0				Fix	None	0	0	Float
12	0	0	0				Fix	None	0	0	Float
13	0	0	0				Fix	None	0	0	Float
14	0	0	0				Fix	None	0	0	Float
15	0	0	0				Fix	None	0	0	Float
16	0	0	0				Fix	None	0	0	Float

Split 2				Coord	Ref	Cover	Force Off		Pri	Pri	Pri
PH.	Time	Min	Max								
1	14	0	0				Fix	None	0	0	Float
2	38	0	0	X	X		Fix	Max Rcl	0	0	Float
3	13	0	0				Fix	None	0	0	Float
4	25	0	0				Fix	None	0	0	Float
5	19	0	0				Fix	None	0	0	Float
6	33	0	0	X	X		Fix	Max Rcl	0	0	Float
7	13	0	0				Fix	None	0	0	Float
8	25	0	0				Fix	None	0	0	Float
9	0	0	0				Fix	None	0	0	Float
10	0	0	0				Fix	None	0	0	Float
11	0	0	0				Fix	None	0	0	Float
12	0	0	0				Fix	None	0	0	Float

13	0	0	0				Fix	None	0	0	Float
14	0	0	0				Fix	None	0	0	Float
15	0	0	0				Fix	None	0	0	Float
16	0	0	0				Fix	None	0	0	Float

Split 3				Coord	Ref	Cover	Force Off				
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode	Pri	Pri	Pri
									Min	Max	F. Off
1	20	0	0				Fix	None	0	0	Float
2	58	0	0	X	X		Fix	Max Rcl	0	0	Float
3	13	0	0				Fix	None	0	0	Float
4	49	0	0				Fix	None	0	0	Float
5	41	0	0				Fix	None	0	0	Float
6	37	0	0	X	X		Fix	Max Rcl	0	0	Float
7	13	0	0				Fix	None	0	0	Float
8	49	0	0				Fix	None	0	0	Float
9	0	0	0				Fix	None	0	0	Float
10	0	0	0				Fix	None	0	0	Float
11	0	0	0				Fix	None	0	0	Float
12	0	0	0				Fix	None	0	0	Float
13	0	0	0				Fix	None	0	0	Float
14	0	0	0				Fix	None	0	0	Float
15	0	0	0				Fix	None	0	0	Float
16	0	0	0				Fix	None	0	0	Float

Split 4				Coord	Ref	Cover	Force Off				
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode	Pri	Pri	Pri
									Min	Max	F. Off
1	0	0	0				Fix	None	0	0	Float
2	0	0	0				Fix	None	0	0	Float
3	0	0	0				Fix	None	0	0	Float
4	0	0	0				Fix	None	0	0	Float
5	0	0	0				Fix	None	0	0	Float
6	0	0	0				Fix	None	0	0	Float
7	0	0	0				Fix	None	0	0	Float
8	0	0	0				Fix	None	0	0	Float
9	0	0	0				Fix	None	0	0	Float
10	0	0	0				Fix	None	0	0	Float
11	0	0	0				Fix	None	0	0	Float
12	0	0	0				Fix	None	0	0	Float
13	0	0	0				Fix	None	0	0	Float
14	0	0	0				Fix	None	0	0	Float
15	0	0	0				Fix	None	0	0	Float
16	0	0	0				Fix	None	0	0	Float

Split 5				Coord	Ref	Cover	Force Off				
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode	Pri	Pri	Pri
									Min	Max	F. Off
1	0	0	0				Fix	None	0	0	Float
2	0	0	0				Fix	None	0	0	Float
3	0	0	0				Fix	None	0	0	Float
4	0	0	0				Fix	None	0	0	Float
5	0	0	0				Fix	None	0	0	Float
6	0	0	0				Fix	None	0	0	Float
7	0	0	0				Fix	None	0	0	Float
8	0	0	0				Fix	None	0	0	Float
9	0	0	0				Fix	None	0	0	Float
10	0	0	0				Fix	None	0	0	Float
11	0	0	0				Fix	None	0	0	Float
12	0	0	0				Fix	None	0	0	Float
13	0	0	0				Fix	None	0	0	Float
14	0	0	0				Fix	None	0	0	Float
15	0	0	0				Fix	None	0	0	Float
16	0	0	0				Fix	None	0	0	Float

Split 6				Coord	Ref	Cover	Force Off		Pri	Pri	Pri
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode	Min	Max	F. Off
1	0	0	0				Fix	None	0	0	Float
2	0	0	0				Fix	None	0	0	Float

Split 6				Coord	Ref	Cover	Force Off				
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode	Pri	Pri	Pri
									Min	Max	F. Off
3	0	0	0				Fix	None	0	0	Float
4	0	0	0				Fix	None	0	0	Float
5	0	0	0				Fix	None	0	0	Float
6	0	0	0				Fix	None	0	0	Float
7	0	0	0				Fix	None	0	0	Float
8	0	0	0				Fix	None	0	0	Float
9	0	0	0				Fix	None	0	0	Float
10	0	0	0				Fix	None	0	0	Float
11	0	0	0				Fix	None	0	0	Float
12	0	0	0				Fix	None	0	0	Float
13	0	0	0				Fix	None	0	0	Float
14	0	0	0				Fix	None	0	0	Float
15	0	0	0				Fix	None	0	0	Float
16	0	0	0				Fix	None	0	0	Float

Split 7				Coord	Ref	Cover	Force Off				
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode	Pri	Pri	Pri
									Min	Max	F. Off
1	0	0	0				Fix	None	0	0	Float
2	0	0	0				Fix	None	0	0	Float
3	0	0	0				Fix	None	0	0	Float
4	0	0	0				Fix	None	0	0	Float
5	0	0	0				Fix	None	0	0	Float
6	0	0	0				Fix	None	0	0	Float
7	0	0	0				Fix	None	0	0	Float
8	0	0	0				Fix	None	0	0	Float
9	0	0	0				Fix	None	0	0	Float
10	0	0	0				Fix	None	0	0	Float
11	0	0	0				Fix	None	0	0	Float
12	0	0	0				Fix	None	0	0	Float
13	0	0	0				Fix	None	0	0	Float
14	0	0	0				Fix	None	0	0	Float
15	0	0	0				Fix	None	0	0	Float
16	0	0	0				Fix	None	0	0	Float

Split 8				Coord	Ref	Cover	Force Off				
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode	Pri	Pri	Pri
									Min	Max	F. Off
1	0	0	0				Fix	None	0	0	Float
2	0	0	0				Fix	None	0	0	Float
3	0	0	0				Fix	None	0	0	Float
4	0	0	0				Fix	None	0	0	Float
5	0	0	0				Fix	None	0	0	Float
6	0	0	0				Fix	None	0	0	Float
7	0	0	0				Fix	None	0	0	Float
8	0	0	0				Fix	None	0	0	Float
9	0	0	0				Fix	None	0	0	Float
10	0	0	0				Fix	None	0	0	Float
11	0	0	0				Fix	None	0	0	Float
12	0	0	0				Fix	None	0	0	Float
13	0	0	0				Fix	None	0	0	Float
14	0	0	0				Fix	None	0	0	Float
15	0	0	0				Fix	None	0	0	Float
16	0	0	0				Fix	None	0	0	Float

Split 9				Coord	Ref	Cover	Force Off				
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode	Pri	Pri	Pri
									Min	Max	F. Off

1	0	0	0				Fix	None	0	0	Float
2	0	0	0				Fix	None	0	0	Float
3	0	0	0				Fix	None	0	0	Float
4	0	0	0				Fix	None	0	0	Float

Split 9				Coord	Ref	Cover	Force Off						Pri	Pri	Pri
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode		Min	Max	F. Off			
5	0	0	0				Fix	None		0	0	Float			
6	0	0	0				Fix	None		0	0	Float			
7	0	0	0				Fix	None		0	0	Float			
8	0	0	0				Fix	None		0	0	Float			
9	0	0	0				Fix	None		0	0	Float			
10	0	0	0				Fix	None		0	0	Float			
11	0	0	0				Fix	None		0	0	Float			
12	0	0	0				Fix	None		0	0	Float			
13	0	0	0				Fix	None		0	0	Float			
14	0	0	0				Fix	None		0	0	Float			
15	0	0	0				Fix	None		0	0	Float			
16	0	0	0				Fix	None		0	0	Float			

Split 10				Coord	Ref	Cover	Force Off						Pri	Pri	Pri
PH.	Time	Min	Max	PH	PH	Ped	Mode	Mode		Min	Max	F. Off			
1	0	0	0				Fix	None		0	0	Float			
2	0	0	0				Fix	None		0	0	Float			
3	0	0	0				Fix	None		0	0	Float			
4	0	0	0				Fix	None		0	0	Float			
5	0	0	0				Fix	None		0	0	Float			
6	0	0	0				Fix	None		0	0	Float			
7	0	0	0				Fix	None		0	0	Float			
8	0	0	0				Fix	None		0	0	Float			
9	0	0	0				Fix	None		0	0	Float			
10	0	0	0				Fix	None		0	0	Float			
11	0	0	0				Fix	None		0	0	Float			
12	0	0	0				Fix	None		0	0	Float			
13	0	0	0				Fix	None		0	0	Float			
14	0	0	0				Fix	None		0	0	Float			
15	0	0	0				Fix	None		0	0	Float			
16	0	0	0				Fix	None		0	0	Float			

Ring Plan 1	Ring	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Offset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Early Coord Gap Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan	1	On																										
Month of Year	Days of Week							Days of Month																				
J	F	M	A	M	J	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X	X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
J	A	S	O	N	D								17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
X	X	X	X	X	X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Day Plan	2	On																										
Month of Year	Days of Week							Days of Month																				
J	F	M	A	M	J	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X	X	X	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
J	A	S	O	N	D								17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
X	X	X	X	X	X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Day Plan	3	Off																											
Month of Year		Days of Week							Days of Month																				
J	F	M	A	M	J	J	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

[illegible]

Day Plan	4	Off
Month of Year	Days of Week	Days of Month
J F M A M J J S M T W T F S		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
X X X X X X X X X X X X X		X X X X X X X X X X X X X X X
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
X X X X X X		X X X X X X X X X X X X X X

Day Plan	5	Off
Month of Year	Days of Week	Days of Month
J F M A M J J S M T W T F S		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
X X X X X X X X X X X X X		X X X X X X X X X X X X X X X
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
X X X X X X		X X X X X X X X X X X X X X

Day Plan	6	Off
Month of Year	Days of Week	Days of Month
J F M A M J J S M T W T F S		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
X X X X X X X X X X X X X		X X X X X X X X X X X X X X X
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
X X X X X X		X X X X X X X X X X X X X X

Day Plan	7	Off
Month of Year	Days of Week	Days of Month
J F M A M J J S M T W T F S		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
X X X X X X X X X X X X X		X X X X X X X X X X X X X X X
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
X X X X X X		X X X X X X X X X X X X X X

Day Plan	8	Off
Month of Year	Days of Week	Days of Month
J F M A M J J S M T W T F S		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
X X X X X X X X X X X X X		X X X X X X X X X X X X X X X
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
X X X X X X		X X X X X X X X X X X X X X

Day Plan	9	Off
Month of Year	Days of Week	Days of Month
J F M A M J J S M T W T F S		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
X X X X X X X X X X X X X		X X X X X X X X X X X X X X X
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
X X X X X X		X X X X X X X X X X X X X X

Day Plan	10	Off
Month of Year	Days of Week	Days of Month
J F M A M J J S M T W T F S		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
X X X X X X X X X X X X X		X X X X X X X X X X X X X X X
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
X X X X X X		X X X X X X X X X X X X X X

Day Plan	0	On
Month of Year	Days of Week	Days of Month
J F M A M J J S M T W T F S		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Day Plan 0 On

Month of Year					Days of Week							Days of Month																		
J	F	M	A	M	J	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
J	A	S	O	N	D								17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			

Day Plan	0	On
Month of Year	Days of Week	Days of Month
J F M A M J J A S O N D	S M T W T F S	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Day Plan	0	On
Month of Year	Days of Week	Days of Month
J F M A M J J A S O N D	S M T W T F S	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Day Plan	0	On
Month of Year	Days of Week	Days of Month
J F M A M J J A S O N D	S M T W T F S	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
J A S O N D		17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Day Plan		1	Day Plan		2	Day Plan		3	Day Plan		4				
Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act
1	5	30	1	1	7	30	2	1	0	0		1	0	0	
2	9	0	2	2	18	0	10	2	0	0		2	0	0	
3	14	0	3	3	0	0		3	0	0		3	0	0	
4	18	0	10	4	0	0		4	0	0		4	0	0	
5	0	0		5	0	0		5	0	0		5	0	0	
6	0	0		6	0	0		6	0	0		6	0	0	
7	0	0		7	0	0		7	0	0		7	0	0	
8	0	0		8	0	0		8	0	0		8	0	0	
9	0	0		9	0	0		9	0	0		9	0	0	
10	0	0		10	0	0		10	0	0		10	0	0	

Day Plan		5			Day Plan		6			Day Plan		7			Day Plan		8		
Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act
1	0	0		1	0	0		1	0	0		1	0	0		1	0	0	
2	0	0		2	0	0		2	0	0		2	0	0		2	0	0	
3	0	0		3	0	0		3	0	0		3	0	0		3	0	0	
4	0	0		4	0	0		4	0	0		4	0	0		4	0	0	
5	0	0		5	0	0		5	0	0		5	0	0		5	0	0	
6	0	0		6	0	0		6	0	0		6	0	0		6	0	0	
7	0	0		7	0	0		7	0	0		7	0	0		7	0	0	
8	0	0		8	0	0		8	0	0		8	0	0		8	0	0	
9	0	0		9	0	0		9	0	0		9	0	0		9	0	0	
10	0	0		10	0	0		10	0	0		10	0	0		10	0	0	

Day Plan		9				Day Plan		10				Day Plan		11				Day Plan		12			
Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act
1	0	0		1	0	0		1	0	0		1	0	0		1	0	0		1	0	0	
2	0	0		2	0	0		2	0	0		2	0	0		2	0	0		2	0	0	
3	0	0		3	0	0		3	0	0		3	0	0		3	0	0		3	0	0	
4	0	0		4	0	0		4	0	0		4	0	0		4	0	0		4	0	0	
5	0	0		5	0	0		5	0	0		5	0	0		5	0	0		5	0	0	
6	0	0		6	0	0		6	0	0		6	0	0		6	0	0		6	0	0	
7	0	0		7	0	0		7	0	0		7	0	0		7	0	0		7	0	0	

8	0	0	
9	0	0	
10	0	0	

8	0	0	
9	0	0	
10	0	0	

8	0	0	
9	0	0	
10	0	0	

8	0	0	
9	0	0	
10	0	0	

Day Plan 13				Day Plan 14				Day Plan 15				Day Plan 16			
Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act
1	0	0		1	0	0		1	0	0		1	0	0	
2	0	0		2	0	0		2	0	0		2	0	0	
3	0	0		3	0	0		3	0	0		3	0	0	
4	0	0		4	0	0		4	0	0		4	0	0	
5	0	0		5	0	0		5	0	0		5	0	0	
6	0	0		6	0	0		6	0	0		6	0	0	
7	0	0		7	0	0		7	0	0		7	0	0	
8	0	0		8	0	0		8	0	0		8	0	0	
9	0	0		9	0	0		9	0	0		9	0	0	
10	0	0		10	0	0		10	0	0		10	0	0	

Day Plan 17				Day Plan 18				Day Plan 19				Day Plan 20			
Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act	Event	Hour	Min.	Act
1	0	0		1	0	0		1	0	0		1	0	0	
2	0	0		2	0	0		2	0	0		2	0	0	
3	0	0		3	0	0		3	0	0		3	0	0	
4	0	0		4	0	0		4	0	0		4	0	0	
5	0	0		5	0	0		5	0	0		5	0	0	
6	0	0		6	0	0		6	0	0		6	0	0	
7	0	0		7	0	0		7	0	0		7	0	0	
8	0	0		8	0	0		8	0	0		8	0	0	
9	0	0		9	0	0		9	0	0		9	0	0	
10	0	0		10	0	0		10	0	0		10	0	0	

Actions		Aux.			Special Functions							
Act	Pattern	1	2	3	1	2	3	4	5	6	7	8
1	Pattern 1											
2	Pattern 2											
3	Pattern 3											
4	Pattern 4											
5	Pattern 5											
6	Pattern 6											
7	Pattern 7											
8	Pattern 8											
9	Pattern 9											
10	Free											
11	None											
12	None											
13	None											
14	None											
15	None											
16	None											
17	None											
18	None											
19	None											
20	None											
21	None											
22	None											
23	None											
24	None											
25	None											
26	None											
27	None											
28	None											
29	None											

Actions		Aux.			Special Functions							
Act	Pattern	1	2	3	1	2	3	4	5	6	7	8
33	None											
34	None											
35	None											
36	None											
37	None											
38	None											
39	None											
40	None											
41	None											
42	None											
43	None											
44	None											
45	None											
46	None											
47	None											
48	None											
49	None											
50	None											
51	None											
52	None											
53	None											
54	None											
55	None											
56	None											
57	None											
58	None											
59	None											
60	None											
61	None											

30	None													
31	None													
32	None													

62	None													
63	None													
64	None													

Action Commands**Action 1**

Cmd	Command	Indexes
1	None	
2	None	
3	None	
4	None	
5	None	
6	None	
7	None	
8	None	
9	None	
10	None	

Action 2

Cmd	Command	Indexes
1	None	
2	None	
3	None	
4	None	
5	None	
6	None	
7	None	
8	None	
9	None	
10	None	

Master Sections By TOD

Action	1	2	3	4	5	6	7	8	9	0
Master Section 1										
Master Section 2										
Master Section 3										
Master Section 4										
Master Section 5										
Master Section 6										
Master Section 7										
Master Section 8										
Master Section 9										
Master Section 10										
Master Section 11										
Master Section 12										
Master Section 13										
Master Section 14										
Master Section 15										
Master Section 16										

Queue Responsive By TOD

Action	1	2	3	4	5	6	7	8	9	0
Queue Resp Plan 1										
Queue Resp Plan 2										
Queue Resp Plan 3										
Queue Resp Plan 4										
Queue Resp Plan 5										
Queue Resp Plan 6										
Queue Resp Plan 7										
Queue Resp Plan 8										
Queue Resp Plan 9										
Queue Resp Plan 10										
Queue Resp Plan 11										
Queue Resp Plan 12										
Queue Resp Plan 13										
Queue Resp Plan 14										
Queue Resp Plan 15										
Queue Resp Plan 16										

Preemption Parameters

Preempt	1	2	3	4	5	6	7	8
Link	0	0	0	0	0	0	0	0
Delay	0	0	0	0	0	0	0	0
Min Duration	0	0	0	0	0	0	0	0
Min Presence	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Presence	0	0	0	0	0	0	0	0
Enter Min Green	0	0	0	0	0	0	0	0
Enter Yellow	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Ent. Red Clear	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Min Walk	0	0	0	0	0	0	0	0
Ent. Ped Clear	255	255	255	255	255	255	255	255
Track Green	0	0	0	0	0	0	0	0
Max Track Grn	0	0	0	0	0	0	0	0
Track Yellow	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Track Red Clear	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Track 2 Green	0	0	0	0	0	0	0	0
Track 2 Yellow	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Track 2 Red	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Track Ext Gate Dn	0	0	0	0	0	0	0	0
Dwell Green	0	0	0	0	0	0	0	0
Exit Ped Clear	255	255	255	255	255	255	255	255
Exit Yellow	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Exit Red	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5

Preempt	1	2	3	4	5	6	7	8
Non Lock Mem								
Not Override Flash								
NotOverrideNextPre								
Flash Dwell								
Ped Recycle								
Imm Ped Clear								
Dwell Only Status								
All Red Flash Dwell								
Allow All Overlaps								
Req All Red Entry								
Req Gate Dwn Trck Exit								
Req Gate Up Dwl Exit								
Normal On/Off Input								
Track Clear Override								
Aux Function 1								
Aux Function 2								
Aux Function 3								
Special Function 1								
Special Function 2								
Special Function 3								
Special Function 4								
Special Function 5								

Require CRC
Disabled

Dwell Ext Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Exit Green	0	0	0	0	0	0	0	0
Exit Max Time	0	0	0	0	0	0	0	0

Special Function 6								
Special Function 7								
Special Function 8								

Pre	1	2	3	4	5	6	7	8
Sp F9								
Sp F10								

Pre	1	2	3	4	5	6	7	8
Sp F11								
Sp F12								

Pre	1	2	3	4	5	6	7	8
Sp F13								
Sp F14								

Pre	1	2	3	4	5	6	7	8
Sp F15								
Sp F16								

Preemption Configuration

Preempt	1	2	3	4	5	6	7	8
Enabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
Type	Emerg Veh	Emerg Veh	Emerg Veh	Emerg Veh	Emerg Veh	Emerg Veh	Emerg Veh	Emerg Veh
Description								
Track Phases								
Track 2 Phases								
Track Overlaps								
Track 2 Overlaps								
Dwell Phase								
Dwell Ped								
Dwell Overlaps								
Cycling Phases								
Cycling Peds								
Cycling Overlaps								
Exit Phases								
Exit Overlaps								
Exit Veh Calls								
Exit Ped Calls								
Recovery Omit Phs								
Max Pres Action	0	0	0	0	0	0	0	0
Exit Type	Exit Phases	Exit Phases	Exit Phases	Exit Phases	Exit Phases	Exit Phases	Exit Phases	Exit Phases
Exit Max Mode	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled

Cabinet Config

Run ITS on NEMA port 1	No
Run ITS on 2070-1C C13S	No

Enable TS2/ATC Stop Time	
Disable TS2 Startup Call	

Disable TS2 Fault Flash	
Disable TS2 Cab. Alarms	

IO Modules

IO Mod	TYPE
1	Caltrans 332
2	None
3	None
4	None
5	None
6	None
7	None
8	None
9	None
10	None

Channel Configuration

Chan	Ctrl Type	Source	MMU Channel
1	Phs Veh	1	1
2	Phs Veh	2	2
3	Phs Veh	3	3
4	Phs Veh	4	4
5	Phs Veh	5	5
6	Phs Veh	6	6
7	Phs Veh	7	7
8	Phs Veh	8	8
9	None	1	9
10	None	2	10

Chan	Ctrl Type	Source	MMU Channel
11	None	5	11
12	None	6	12
13	None	2	13
14	None	4	14
15	None	6	15
16	None	8	16
17	None	0	17
18	None	0	18
19	None	0	19
20	None	0	20

Channel Options

Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flash Yellow																
Flash Red	X	X	X	X	X	X	X	X								
Alt Flash	X			X	X			X								
Channel	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Flash Yellow																
Flash Red																
Alt Flash																

Phase Intervals

Interval	Description	Red	Yel	Grn	Type
1	Not Act	On	Off	Off	Red
2	Dly Grn	On	Off	Off	Red
3	Pre Grn	Off	Off	On	Green
4	Min Grn	Off	Off	On	Green
5	Grn Ext	Off	Off	On	Green
6	Grn Dwell	Off	Off	On	Green

Interval	Description	Red	Yel	Grn	Type
7	Pre Clr	Off	Off	On	Green
8	Yel Change	Off	On	Off	Yellow
9	Red Clr	On	Off	Off	Red
10	Red Dwell	On	Off	Off	Red
11	Barrier	On	Off	Off	Red
12	Pre Clr 2	Off	Off	Off	Not Def.

Pedestrian Intervals

Interval	Description	DWK	CLR	Wlk	Type
1	Not Active	On	Off	Off	Dont Walk
2	Dly Ped	On	Off	Off	Dont Walk
3	Walk	Off	Off	On	Walk
4	Walk Dwell	Off	Off	On	Walk
5	Flsh DWalk	Flash	Off	Off	Ped Clear
6	DWalk	On	Off	Off	Dont Walk

Alarm Config

Alarm	Name
1	
2	
3	
4	
5	

Alarm	Name
6	
7	
8	
9	
10	

Intersection 624 at Marksheffel Rd and Constitution Ave - Timing table, page 1

Page 1	Phases											
	1	7	3	4	5	6	7	8	9	10	11	12
Min Green	4	4	4	4	4	4	4	4	0	0	0	0
Passage Time I	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0
Passage Time II	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Green I	20	30	12	25	20	30	12	25	0	0	0	0
Max Green II	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0	0.0	0.0	0.0	0.0
Red Clearance	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0
Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Added Initial	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Cars Before Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0
Min Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Green Time	0	0	0	0	0	0	0	0	0	0	0	0
Red Revert Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advance Walk Time	0	0	0	0	0	0	0	0	0	0	0	0
Walk Time	0	7	0	7	0	7	0	7	0	0	0	0
Pedestrian Clearance	0	25	0	34	0	25	0	34	0	0	0	0
Handicap Walk	0	0	0	0	0	0	0	0	0	0	0	0
Handicap Ped Clearance	0	0	0	0	0	0	0	0	0	0	0	0
Marksheffel Rd	X	X			X	X						
Constitution Ave			X	X			X	X				
Compass Direction	S	N	W	E	N	S	E	W				
Through, Turn or XPed	Left,prt	Thru	Left,p/p	Thru	Left,prt	Thru	Left,p/p	Thru				

Intersection 624 at Marksheffel Rd and Constitution Ave - Sequence table, page 1

Page 1	Ring 1 Phases				Ring 2 Phases				Ring 3 Phases			
	1	2	3	4	5	6	7	8	9	10	11	12
State 1	Vehicle				Vehicle							
Barrier 1												
State 2		V & P				V & P						
Barrier 2	XXXXXXXXXXXXXXXXXXXX				XXXXXXXXXXXXXXXXXXXX							
State 3			Vehicle				Vehicle					
Barrier 3												
State 4				V & P				V & P				
Barrier 4	XXXXXXXXXXXXXXXXXXXX				XXXXXXXXXXXXXXXXXXXX							
State 5												
Barrier 5												
State 6												
Barrier 6												
State 7												
Barrier 7												
State 8												
Barrier 8												
State 9												
Barrier 9												
State 10												
Barrier 10												
State 11												
Barrier 11												
State 12												
Barrier 12												

Intersection 624 at Marksheffel Rd and Constitution Ave - Phases control table, page 1

Page 1	Vehicle Phases		Ped Phases
	111		111
	123456789012		123456789012
Min Recalls		Ped Recalls	
Max Recalls	2 6	Handicap Ped Recalls	
Recall If Maxed		Soft Ped Recalls	
Dual Entry	4 8	Don't Recall (FDW Offset)	2 4 6 8
Do Not Skip		Allow Walk Reduction	
Simultaneous Gap Out		Hold In Walk	
Restricted Phases		Allow Ped Re-service	2 6
Sequential Initial Timing		Rest In Walk	No
Max Timer Starts For Call			
Reduction Starts For Call			
Red To Avoid Left Turn Trap			
Rest In Red	No		

Intersection 624 at Marksheffel Rd and Constitution Ave - Coordination table, plans 1-2

Plan 1	111	Cycle Length	120	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 1	81					
Coordinated		Offset 2	0	1	20	0	0	21
Phases	2 6	Offset 3	0	7	50	0	0	66
Secondary		Offset 4	0	3	18	0	0	18
Coordinated		Relative Secondary Offset	0	4	32	0	0	34
Phases		Permissive Period	Auto	9	24	0	0	21
Extra Time		Max Cycle Addition	30	6	50	0	0	66
Phases		Max Cycle Subtraction	30	7	18	0	0	18
Additional		Coord Actuated Period	0	9	32	0	0	34
Max Recalls		Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0
Plan 2	111	Cycle Length	140	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 1	74					
Coordinated		Offset 2	0	1	22	0	0	23
Phases	2 6	Offset 3	0	7	58	0	0	66
Secondary		Offset 4	0	3	24	0	0	26
Coordinated		Relative Secondary Offset	0	4	36	0	0	39
Phases		Permissive Period	Auto	9	22	0	0	23
Extra Time		Max Cycle Addition	30	6	58	0	0	66
Phases		Max Cycle Subtraction	35	7	24	0	0	26
Additional		Coord Actuated Period	0	6	36	0	0	39
Max Recalls		Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0

Intersection 624 at Marksheffel Rd and Constitution Ave - Coordination table, plans 3-4

Plan 3	111	Cycle Length	140	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 1	92					
Coordinated		Offset 2	0	1	24	0	0	26
Phases	2 6	Offset 3	0	2	63	0	0	72
Secondary		Offset 4	0	3	18	0	0	18
Coordinated		Relative Secondary Offset	0	4	35	0	0	37
Phases		Permissive Period	Auto	5	24	0	0	26
Extra Time		Max Cycle Addition	35	6	63	0	0	72
Phases		Max Cycle Subtraction	35	7	18	0	0	18
Additional		Coord Actuated Period	0	8	35	0	0	37
Max Recalls		Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0
Plan 4	111	Cycle Length	90	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 1	84					
Coordinated		Offset 2	0	1	20	0	0	21
Phases	2 6	Offset 3	0	2	30	0	0	31
Secondary		Offset 4	0	3	15	0	0	14
Coordinated		Relative Secondary Offset	0	4	25	0	0	25
Phases		Permissive Period	Auto	5	20	0	0	21
Extra Time		Max Cycle Addition	22	6	30	0	0	31
Phases		Max Cycle Subtraction	22	7	15	0	0	14
Additional		Coord Actuated Period	0	8	25	0	0	25
Max Recalls		Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0

Intersection 624 at Marksheffel Rd and Constitution Ave - Coordination table, plans 5-6

Plan 5	111	Cycle Length	140	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 1	115					
Coordinated		Offset 2	0	1	30	0	0	33
Phases	2 6	Offset 3	0	2	55	0	0	62
Secondary		Offset 4	0	3	19	0	0	19
Coordinated		Relative Secondary Offset	0	4	36	0	0	39
Phases		Permissive Period	Auto	9	30	0	0	39
Extra Time		Max Cycle Addition	35	9	55	0	0	62
Phases		Max Cycle Subtraction	35	2	19	0	0	19
Additional		Coord Actuated Period	0	9	36	0	0	39
Max Recalls		Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0
Plan 6	111	Cycle Length	0	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 4	0					
Coordinated		Offset 2	0	1	0	0	0	0
Phases		Offset 3	0	2	0	0	0	0
Secondary		Offset 4	0	3	0	0	0	0
Coordinated		Relative Secondary Offset	0	4	0	0	0	0
Phases		Permissive Period	Auto	9	0	0	0	0
Extra Time		Max Cycle Addition	0	9	0	0	0	0
Phases		Max Cycle Subtraction	0	2	0	0	0	0
Additional		Coord Actuated Period	0	9	0	0	0	0
Max Recalls		Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0

Intersection 624 at Marksheffel Rd and Constitution Ave - Schedule table, events 1-25

Event Num	Enabled	Event Type	Event Parameters		Start					Duration Minutes	Stop		Repetition		Priority
			Param 1	Param 2	Mon	Day	Hour	Min	Sec		Mon	Day	Repeat	Intervals	
1	Yes	Run Plan	Plan 3	Ofst #1	1	1	05	30	00	270	12	31	Weekly	MTWTF	Low
2	Yes	Run Plan	Plan 3	Ofst #1	1	1	09	00	00	300	12	31	Weekly	MTWTF	Medium
3	Yes	Run Plan	Plan 5	Ofst #1	1	1	14	00	00	270	12	31	Weekly	MTWTF	High
4	Yes	Run Plan	Plan 4	Ofst #1	1	1	07	30	00	660	12	31	Weekly	S S	Medium
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															

Intersection 625 at Marksheffel Rd and Meadowbrook - Timing table, page 1

Page 1	Phases											
	1	2	3	4	5	6	7	8	9	10	11	12
Min Green	4	4	4	4	4	4	4	4	0	0	0	0
Passage Time I	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0
Passage Time II	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Green I	12	40	12	20	12	40	12	20	0	0	0	0
Max Green II	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	3.0	5.0	3.0	4.0	3.0	5.0	3.0	4.0	0.0	0.0	0.0	0.0
Red Clearance	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0
Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Added Initial	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Cars Before Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0
Min Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Green Time	0	0	0	0	0	0	0	0	0	0	0	0
Red Revert Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advance Walk Time	0	0	0	0	0	0	0	0	0	0	0	0
Walk Time	0	7	0	7	0	7	0	7	0	0	0	0
Pedestrian Clearance	0	20	0	30	0	20	0	30	0	0	0	0
Handicap Walk	0	0	0	0	0	0	0	0	0	0	0	0
Handicap Ped Clearance	0	0	0	0	0	0	0	0	0	0	0	0
Marksheffel Rd	X	X			X	X						
Meadowbrook			X	X			X	X				
Compass Direction	S	N	W	E	N	S	E	W				
Through, Turn or XPed	Left,prt	Thru	Left,prt	Thru	Left,prt	Thru	Left,prt	Thru				

Intersection 625 at Marksheffel Rd and Meadowbrook - Sequence table, page 1

Page 1	Ring 1 Phases				Ring 2 Phases				Ring 3 Phases			
	1	2	3	4	5	6	7	8	9	10	11	12
State 1	Vehicle				Vehicle							
Barrier 1												
State 2		V & P				V & P						
Barrier 2	XXXXXXXXXXXXXXXXXXXX				XXXXXXXXXXXXXXXXXXXX							
State 3			Vehicle				Vehicle					
Barrier 3												
State 4				V & P				V & P				
Barrier 4	XXXXXXXXXXXXXXXXXXXX				XXXXXXXXXXXXXXXXXXXX							
State 5												
Barrier 5												
State 6												
Barrier 6												
State 7												
Barrier 7												
State 8												
Barrier 8												
State 9												
Barrier 9												
State 10												
Barrier 10												
State 11												
Barrier 11												
State 12												
Barrier 12												

Intersection 625 at Marksheffel Rd and Meadowbrook - Phases control table, page 1

Page 1	Vehicle Phases		Ped Phases
	111		111
	123456789012		123456789012
Min Recalls		Ped Recalls	
Max Recalls	2 6	Handicap Ped Recalls	
Recall If Maxed		Soft Ped Recalls	
Dual Entry	4 8	Don't Recall (FDW Offset)	2 4 6 8
Do Not Skip		Allow Walk Reduction	
Simultaneous Gap Out		Hold In Walk	
Restricted Phases		Allow Ped Re-service	
Sequential Initial Timing		Rest In Walk	No
Max Timer Starts For Call			
Reduction Starts For Call			
Red To Avoid Left Turn Trap	2 6		
Rest In Red	No		

Intersection 625 at Marksheffel Rd and Meadowbrook - Spec signaling cntrl tbl, pg 1

Page 1							
Signaling Control 1				Signaling Control 2			
Function	Flashing permissive left turn	Timer 1	2.0	Function	Flashing permissive left turn	Timer 1	2.0
Operand	2	Timer 2	0.0	Operand	2	Timer 2	0.0
Trigger	Always enabled	Timer 3	0.0	Trigger	Always enabled	Timer 3	0.0
	111	Output 1	25		111	Output 1	1
	123456789012	Output 2	34		123456789012	Output 2	35
Phases 1	5	Output 3	41	Phases 1	1	Output 3	40
Phases 2	2 6	Output 4	1	Phases 2	2 6	Output 4	1
Overlaps 1				Overlaps 1			
Overlaps 2				Overlaps 2			
Signaling Control 3				Signaling Control 4			
Function	Flashing permissive left turn	Timer 1	2.0	Function	Flashing permissive left turn	Timer 1	2.0
Operand	1	Timer 2	0.0	Operand	1	Timer 2	0.0
Trigger	Always enabled	Timer 3	0.0	Trigger	Always enabled	Timer 3	0.0
	111	Output 1	17		111	Output 1	9
	123456789012	Output 2	36		123456789012	Output 2	33
Phases 1	3	Output 3	44	Phases 1	7	Output 3	43
Phases 2	8	Output 4	1	Phases 2	4	Output 4	1
Overlaps 1				Overlaps 1			
Overlaps 2				Overlaps 2			

Intersection 625 at Marksheffel Rd and Meadowbrook - Coordination table, plans 1-2

Plan 1	111	Cycle Length	120	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 1	26					
Coordinated		Offset 2	0	1	17	0	0	17
Phases	2 6	Offset 3	0	2	61	0	0	70
Secondary		Offset 4	0	3	17	0	0	17
Coordinated		Relative Secondary Offset	0	4	25	0	0	26
Phases		Permissive Period	Auto	9	17	0	0	17
Extra Time		Max Cycle Addition	30	6	61	0	0	70
Phases		Max Cycle Subtraction	30	2	17	0	0	17
Additional		Coord Actuated Period	0	6	25	0	0	26
Max Recalls		Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0
Plan 2	111	Cycle Length	140	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 1	22					
Coordinated		Offset 2	0	1	19	0	0	19
Phases	2 6	Offset 3	0	2	79	0	0	92
Secondary		Offset 4	0	3	17	0	0	17
Coordinated		Relative Secondary Offset	0	4	25	0	0	26
Phases		Permissive Period	Auto	6	19	0	0	19
Extra Time		Max Cycle Addition	30	6	79	0	0	92
Phases		Max Cycle Subtraction	30	7	17	0	0	17
Additional		Coord Actuated Period	0	9	25	0	0	26
Max Recalls		Top Of Cycle Green Point	End	6	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0

Intersection 625 at Marksheffel Rd and Meadowbrook - Coordination table, plans 3-4

		111	Cycle Length	140			Alternate	Alternate	Alternate
Plan 3		123456789012	Offset 1	43	Phases	Splits	Mins	Walks	Maxes
Coordinated			Offset 2	0	1	17	0	0	17
Phases	2	6	Offset 3	0	2	69	0	0	80
Secondary			Offset 4	0	3	20	0	0	21
Coordinated			Relative Secondary Offset	0	4	34	0	0	37
Phases			Permissive Period	Auto	5	17	0	0	17
Extra Time			Max Cycle Addition	35	6	69	0	0	80
Phases			Max Cycle Subtraction	35	7	20	0	0	21
Additional			Coord Actuated Period	0	8	34	0	0	37
Max Recalls			Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds		Big Bang Preempt Recvry	No	10	0	0	0	0
			Big Bang Ped Recovery	No	11	0	0	0	0
			Min Lagging Left Split	0%	12	0	0	0	0
		111	Cycle Length	90			Alternate	Alternate	Alternate
Plan 4		123456789012	Offset 1	8	Phases	Splits	Mins	Walks	Maxes
Coordinated			Offset 2	0	1	14	0	0	13
Phases	2	6	Offset 3	0	2	30	0	0	31
Secondary			Offset 4	0	3	16	0	0	16
Coordinated			Relative Secondary Offset	0	4	30	0	0	32
Phases			Permissive Period	Auto	5	14	0	0	13
Extra Time			Max Cycle Addition	22	6	30	0	0	31
Phases			Max Cycle Subtraction	22	7	16	0	0	16
Additional			Coord Actuated Period	0	8	30	0	0	32
Max Recalls			Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds		Big Bang Preempt Recvry	No	10	0	0	0	0
			Big Bang Ped Recovery	No	11	0	0	0	0
			Min Lagging Left Split	0%	12	0	0	0	0

Intersection 625 at Marksheffel Rd and Meadowbrook - Coordination table, plans 5-6

Plan 5	111	Cycle Length	140	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 1	54					
Coordinated		Offset 2	0	1	17	0	0	17
Phases	2 6	Offset 3	0	2	76	0	0	89
Secondary		Offset 4	0	3	20	0	0	21
Coordinated		Relative Secondary Offset	0	4	27	0	0	28
Phases		Permissive Period	Auto	5	17	0	0	17
Extra Time		Max Cycle Addition	35	6	76	0	0	89
Phases		Max Cycle Subtraction	35	7	20	0	0	21
Additional		Coord Actuated Period	0	8	27	0	0	28
Max Recalls		Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0
Plan 6	111	Cycle Length	0	Phases	Splits	Alternate Mins	Alternate Walks	Alternate Maxes
	123456789012	Offset 1	0					
Coordinated		Offset 2	0	1	0	0	0	0
Phases		Offset 3	0	2	0	0	0	0
Secondary		Offset 4	0	3	0	0	0	0
Coordinated		Relative Secondary Offset	0	4	0	0	0	0
Phases		Permissive Period	Auto	5	0	0	0	0
Extra Time		Max Cycle Addition	0	6	0	0	0	0
Phases		Max Cycle Subtraction	0	7	0	0	0	0
Additional		Coord Actuated Period	0	8	0	0	0	0
Max Recalls		Top Of Cycle Green Point	End	9	0	0	0	0
Units	Seconds	Big Bang Preempt Recvry	No	10	0	0	0	0
		Big Bang Ped Recovery	No	11	0	0	0	0
		Min Lagging Left Split	0%	12	0	0	0	0

Intersection 625 at Marksheffel Rd and Meadowbrook - Schedule table, events 1-25

Event Num	Enabled	Event Type	Event Parameters		Start					Duration Minutes	Stop		Repetition		Priority
			Param 1	Param 2	Mon	Day	Hour	Min	Sec		Mon	Day	Repeat	Intervals	
1	Yes	Run Plan	Plan 3	Ofst #1	1	1	05	30	00	270	12	31	Weekly	MTWTF	Low
2	Yes	Run Plan	Plan 4	Ofst #1	1	1	09	00	00	300	12	31	Weekly	MTWTF	Medium
3	Yes	Run Plan	Plan 5	Ofst #1	1	1	14	00	00	270	12	31	Weekly	MTWTF	High
4	Yes	Run Plan	Plan 4	Ofst #1	1	1	07	30	00	660	12	31	Weekly	S S	Medium
5															
6															
7															
8															
9															
10															
11															
12															
13															
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22															
23															
24															
25															

APPENDIX B

Level of Service Definitions

The following information is referenced from the Highway Capacity Manual: A Guide for Multimodal Mobility Analysis, 7th Edition, Transportation Research Board, 2022: Chapter 19 – Signalized Intersections.

Motorized Vehicle Level of Service (LOS) for Signalized Intersections

Levels of service are defined to represent reasonable ranges in control delay.

LOS A Describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B Describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C Describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

LOS D Describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

LOS E Describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F Describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio ^a	
	$v/c \leq 1.0$	$v/c > 1.0$
≤ 10	A	F
$> 10 - 20$	B	F
$> 20 - 35$	C	F
$> 35 - 55$	D	F
$> 55 - 80$	E	F
> 80	F	F

Note: ^a For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

The following information is referenced from the Highway Capacity Manual: A Guide for Multimodal Mobility Analysis, 7th Edition, Transportation Research Board, 2022: Chapter 20 – Two-Way Stop-Controlled Intersections, Chapter 21 – All-Way Stop-Controlled Intersections, and Chapter 22 - Roundabouts.

Motorized Vehicle Level of Service (LOS) for Unsignalized & Roundabout Intersections

LOS is a quantitative stratification of performance measure(s) representing quality of service. Quality of service describes how well a transportation facility or service operates from a traveler's perspective. LOS is measured on an A – F scale, with LOS A representing the best operating conditions from a traveler's perspective.

Control Delay (s/veh)	<u>LOS by Volume-to-Capacity Ratio^a</u>	
	$v/c \leq 1.0$	$v/c > 1.0$
0 – 10	A	F
> 10 – 15	B	F
> 15 – 25	C	F
> 25 – 35	D	F
> 35 – 50	E	F
> 50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

^a For approaches and intersectionwide assessment, LOS is defined solely by control delay.

APPENDIX C

Capacity Worksheets

Timings

1: U.S. Highway 24 & Marksheffel Road

Existing Traffic Conditions

AM Peak Traffic Hour

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	1052	724	2	594	82	329	443	2	278	1092	42
Future Volume (vph)	10	1052	724	2	594	82	329	443	2	278	1092	42
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			370			230			230			230
Lane Group Flow (vph)	11	1143	787	2	646	89	358	482	2	302	1187	46
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	15.0	45.0		15.0	45.0		35.0	57.0		23.0	45.0	
Total Split (%)	10.7%	32.1%		10.7%	32.1%		25.0%	40.7%		16.4%	32.1%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	6.5	51.4	140.0	5.8	48.4	140.0	19.9	50.8	140.0	15.7	46.6	140.0
Actuated g/C Ratio	0.05	0.37	1.00	0.04	0.35	1.00	0.14	0.36	1.00	0.11	0.33	1.00
v/c Ratio	0.14	0.88	0.50	0.03	0.53	0.06	0.74	0.38	0.00	0.79	1.01	0.03
Control Delay (s/veh)	87.2	42.4	0.8	65.0	39.8	0.1	66.7	34.1	0.0	75.5	74.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	87.2	42.4	0.8	65.0	39.8	0.1	66.7	34.1	0.0	75.5	74.1	0.0
LOS	F	D	A	E	D	A	E	C	A	E	E	A
Approach Delay (s/veh)		25.8			35.1			47.9			72.1	
Approach LOS		C			D			D			E	
Queue Length 50th (ft)	10	301	0	2	234	0	165	174	0	141	~586	0
Queue Length 95th (ft)	m15	#762	0	12	346	0	213	225	0	194	#808	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000		635	950		705
Base Capacity (vph)	107	1300	1583	107	1223	1583	698	1284	1583	404	1179	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.88	0.50	0.02	0.53	0.06	0.51	0.38	0.00	0.75	1.01	0.03

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 110 (79%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Timings

1: U.S. Highway 24 & Marksheffel Road

Existing Traffic Conditions

AM Peak Traffic Hour

Maximum v/c Ratio: 1.01

Intersection Signal Delay (s/veh): 44.9

Intersection LOS: D

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

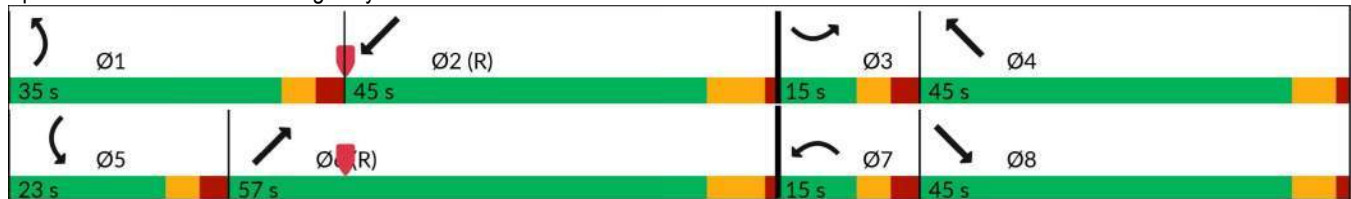
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Existing Traffic Conditions

AM Peak Traffic Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	2	20	104	14	74	27	743	66	12	1609	177
Future Volume (vph)	59	2	20	104	14	74	27	743	66	12	1609	177
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted				0.465			0.077			0.329		
Satd. Flow (perm)	3614	1863	1583	866	1863	1583	143	3539	1583	613	3539	1583
Satd. Flow (RTOR)			109			109			101			139
Lane Group Flow (vph)	64	2	22	113	15	80	29	808	72	13	1749	192
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0	9.0	11.0	11.0
Total Split (s)	20.0	34.0	34.0	20.0	34.0	34.0	17.0	69.0	69.0	17.0	69.0	69.0
Total Split (%)	14.3%	24.3%	24.3%	14.3%	24.3%	24.3%	12.1%	49.3%	49.3%	12.1%	49.3%	49.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	11.8	5.8	5.8	21.4	9.9	9.9	106.8	102.2	102.2	105.3	99.8	99.8
Actuated g/C Ratio	0.08	0.04	0.04	0.15	0.07	0.07	0.76	0.73	0.73	0.75	0.71	0.71
v/c Ratio	0.22	0.03	0.13	0.50	0.11	0.38	0.16	0.31	0.06	0.03	0.69	0.16
Control Delay (s/veh)	52.1	65.0	1.6	59.8	61.5	9.3	4.2	1.9	0.2	1.5	7.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.1	65.0	1.6	59.8	61.5	9.3	4.2	1.9	0.2	1.5	7.2	0.2
LOS	D	E	A	E	E	A	A	A	A	A	A	A
Approach Delay (s/veh)		39.8			40.5			1.8			6.4	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	25	2	0	93	13	0	0	8	0	1	85	0
Queue Length 95th (ft)	47	12	0	153	37	27	m3	43	0	m1	m855	m0
Internal Link Dist (ft)		181			181			997			657	
Turn Bay Length (ft)	220		200	230		195	405			340		335
Base Capacity (vph)	475	372	403	242	372	403	250	2583	1182	574	2521	1167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.01	0.05	0.47	0.04	0.20	0.12	0.31	0.06	0.02	0.69	0.16

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 43 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 70

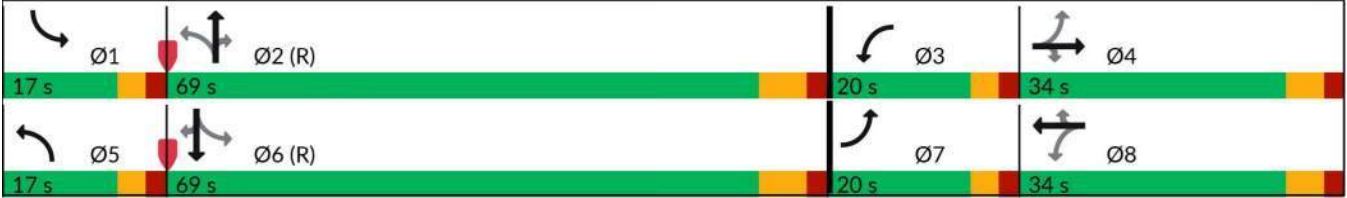
Control Type: Actuated-Coordinated

Timings
2: Marksheffel Road & Meadowbrook Parkway

Existing Traffic Conditions
AM Peak Traffic Hour

Maximum v/c Ratio: 0.69	
Intersection Signal Delay (s/veh): 8.3	Intersection LOS: A
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Existing Traffic Conditions

AM Peak Traffic Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	120	317	457	94	463	116	17	328	639	36	174	1386
Future Volume (vph)	120	317	457	94	463	116	17	328	639	36	174	1386
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.211			0.439				0.950			0.950	
Satd. Flow (perm)	393	3539	1583	818	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			408			164				164		
Lane Group Flow (vph)	130	345	497	102	503	126	0	375	695	39	189	1507
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	18.0	35.0		18.0	35.0		24.0	24.0	63.0		24.0	63.0
Total Split (%)	12.9%	25.0%		12.9%	25.0%		17.1%	17.1%	45.0%		17.1%	45.0%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	39.5	25.5	140.0	37.4	24.5	140.0		18.8	66.5	140.0	13.0	60.7
Actuated g/C Ratio	0.28	0.18	1.00	0.27	0.18	1.00		0.13	0.48	1.00	0.09	0.43
v/c Ratio	0.57	0.54	0.31	0.35	0.81	0.08		0.81	0.41	0.02	0.59	0.98
Control Delay (s/veh)	45.1	54.8	0.5	37.7	66.5	0.1		84.1	25.1	0.0	68.5	58.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.1	54.8	0.5	37.7	66.5	0.1		84.1	25.1	0.0	68.5	58.4
LOS	D	D	A	D	E	A		F	C	A	E	E
Approach Delay (s/veh)		25.8			51.1				44.2			54.3
Approach LOS		C			D				D			D
Queue Length 50th (ft)	88	152	0	68	237	0		186	164	0	88	~792
Queue Length 95th (ft)	139	203	0	112	296	0		#249	204	0	127	#950
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	241	707	1583	319	707	1583		478	1682	1583	465	1535
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.54	0.49	0.31	0.32	0.71	0.08		0.78	0.41	0.02	0.41	0.98

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 92 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Timings
3: Marksheffel Road & Constitution Avenue

Existing Traffic Conditions
AM Peak Traffic Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	149
Future Volume (vph)	149
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	164
Lane Group Flow (vph)	162
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.10
Control Delay (s/veh)	0.1
Queue Delay	0.0
Total Delay (s/veh)	0.1
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.10
Intersection Summary	

Timings
3: Marksheffel Road & Constitution Avenue

Existing Traffic Conditions
AM Peak Traffic Hour

Maximum v/c Ratio: 0.98

Intersection Signal Delay (s/veh): 45.5

Intersection LOS: D

Intersection Capacity Utilization 87.6%

ICU Level of Service E

Analysis Period (min) 15

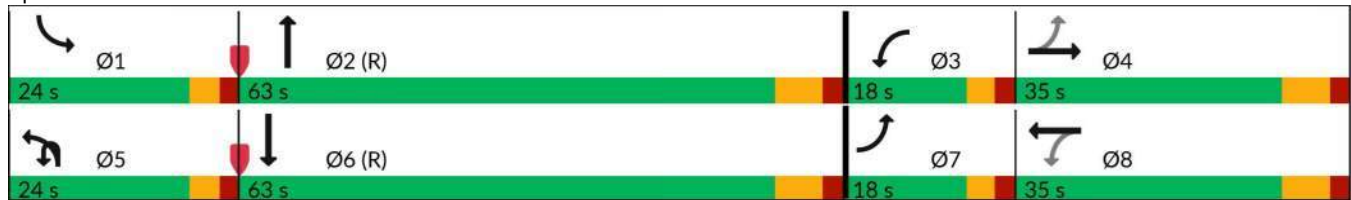
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	20	0	154	2	858	12	48	1812	3
Future Vol, veh/h	0	0	0	20	0	154	2	858	12	48	1812	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	150	375	-	260	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	22	0	167	2	933	13	52	1970	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2545	3024	985	2026	3014	466	1973	0	0	946	0	0
Stage 1	2074	2074	-	937	937	-	-	-	-	-	-	-
Stage 2	471	950	-	1089	2077	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	13	13	247	34	13	543	290	-	-	721	-	-
Stage 1	55	95	-	285	342	-	-	-	-	-	-	-
Stage 2	543	337	-	230	94	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	9	12	247	31	12	543	290	-	-	721	-	-
Mov Cap-2 Maneuver	9	12	-	31	12	-	-	-	-	-	-	-
Stage 1	51	88	-	283	339	-	-	-	-	-	-	-
Stage 2	373	334	-	213	87	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	0		42.3		0.04		0.27	
HCM LOS	A		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	290	-	-	- 31	- 543	721	-
HCM Lane V/C Ratio	0.007	-	-	- 0.7	- 0.308	0.072	-
HCM Ctrl Dly (s/v)	17.5	-	-	0 255.9	0 14.6	10.4	-
HCM Lane LOS	C	-	-	A F	A B	B	-
HCM 95th %tile Q(veh)	0	-	-	- 2.3	- 1.3	0.2	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	1	0	871	1803	0
Future Vol, veh/h	0	1	0	871	1803	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	947	1960	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	980	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	249	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	249	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	19.52	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 249		-	-		
HCM Lane V/C Ratio	- 0.004		-	-		
HCM Ctrl Dly (s/v)	- 19.5		-	-		
HCM Lane LOS	- C		-	-		
HCM 95th %tile Q(veh)	- 0		-	-		

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	1	0	1010	1893	8
Future Vol, veh/h	0	1	0	1010	1893	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	1098	2058	9

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1029	-	0 - 0
Stage 1	- -	-	- -
Stage 2	- -	-	- -
Critical Hdwy	- 6.94	-	- -
Critical Hdwy Stg 1	- -	-	- -
Critical Hdwy Stg 2	- -	-	- -
Follow-up Hdwy	- 3.32	-	- -
Pot Cap-1 Maneuver	0 231	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %			- -
Mov Cap-1 Maneuver	- 231	-	- -
Mov Cap-2 Maneuver	- -	-	- -
Stage 1	- -	-	- -
Stage 2	- -	-	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	20.66	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 231	-
HCM Lane V/C Ratio	- 0.005	-
HCM Ctrl Dly (s/v)	- 20.7	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 0	-

Intersection													
Int Delay, s/veh	9.5												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	25	8	804	20	63	927	2	57	0	102	7	0	29
Future Vol, veh/h	25	8	804	20	63	927	2	57	0	102	7	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	345	-	235	185	-	215	130	-	-	215	-	140
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	9	874	22	68	1008	2	62	0	111	8	0	32

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	1008	1010	0	0	896	0	0	1586	2092	437	1653	2112	504
Stage 1	-	-	-	-	-	-	-	946	946	-	1145	1145	-
Stage 2	-	-	-	-	-	-	-	641	1147	-	509	967	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	328	682	-	-	753	-	-	73	52	567	65	50	513
Stage 1	-	-	-	-	-	-	-	281	338	-	212	273	-
Stage 2	-	-	-	-	-	-	-	430	272	-	515	331	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	355	355	-	-	753	-	-	~ 56	42	567	43	41	513
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 56	42	-	43	41	-
Stage 1	-	-	-	-	-	-	-	253	304	-	193	248	-
Stage 2	-	-	-	-	-	-	-	367	247	-	373	297	-

Approach	EB			WB			NB			SB			
HCM Ctrl Dly, s/v	0.63			0.65			107.44			30.9			
HCM LOS							F			D			

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	56	567	355	-	-	753	-	-	43	-	513
HCM Lane V/C Ratio	1.113	0.195	0.101	-	-	0.091	-	-	0.179	-	0.061
HCM Ctrl Dly (s/v)	276.6	12.9	16.3	-	-	10.3	-	-	107.3	0	12.5
HCM Lane LOS	F	B	C	-	-	B	-	-	F	A	B
HCM 95th %tile Q(veh)	5.2	0.7	0.3	-	-	0.3	-	-	0.6	-	0.2

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

Intersection

Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	10	26	80	33	49
Future Vol, veh/h	35	10	26	80	33	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	11	28	87	36	53
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	7.7	7.8	7.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	25%	78%	0%
Vol Thru, %	75%	0%	40%
Vol Right, %	0%	22%	60%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	106	45	82
LT Vol	26	35	0
Through Vol	80	0	33
RT Vol	0	10	49
Lane Flow Rate	115	49	89
Geometry Grp	1	1	1
Degree of Util (X)	0.132	0.058	0.093
Departure Headway (Hd)	4.135	4.304	3.746
Convergence, Y/N	Yes	Yes	Yes
Cap	864	821	948
Service Time	2.177	2.387	1.802
HCM Lane V/C Ratio	0.133	0.06	0.094
HCM Control Delay, s/veh	7.8	7.7	7.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.2	0.3

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	0	0	0	0	0	0	10	0	0	2	1
Future Vol, veh/h	12	0	0	0	0	0	0	10	0	0	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	0	0	0	0	0	11	0	0	2	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	14	14	3	13	14	11	3	0	0	11	0	0
Stage 1	3	3	-	11	11	-	-	-	-	-	-	-
Stage 2	11	11	-	2	3	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	1003	881	1081	1004	880	1070	1619	-	-	1608	-	-
Stage 1	1020	894	-	1010	887	-	-	-	-	-	-	-
Stage 2	1010	887	-	1021	893	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1003	881	1081	1004	880	1070	1619	-	-	1608	-	-
Mov Cap-2 Maneuver	1003	881	-	1004	880	-	-	-	-	-	-	-
Stage 1	1020	894	-	1010	887	-	-	-	-	-	-	-
Stage 2	1010	887	-	1021	893	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	8.64	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1619	-	-	1003	-	1608	-
HCM Lane V/C Ratio	-	-	-	0.013	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	8.6	0	0	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

Timings

1: U.S. Highway 24 & Marksheffel Road

Existing Traffic Conditions

PM Peak Traffic Hour

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	19	619	431	6	1148	253	750	1041	0	168	559	21
Future Volume (vph)	19	619	431	6	1148	253	750	1041	0	168	559	21
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Satd. Flow (RTOR)			374			230						230
Lane Group Flow (vph)	21	673	468	7	1248	275	815	1132	0	183	608	23
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	13.0	49.0		13.0	49.0		20.0	37.0		41.0	58.0	
Total Split (%)	9.3%	35.0%		9.3%	35.0%		14.3%	26.4%		29.3%	41.4%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	6.2	53.4	140.0	6.0	48.2	140.0	13.5	51.7		12.8	51.0	140.0
Actuated g/C Ratio	0.04	0.38	1.00	0.04	0.34	1.00	0.10	0.37		0.09	0.36	1.00
v/c Ratio	0.27	0.50	0.30	0.09	1.02	0.17	2.46	0.87		0.58	0.47	0.01
Control Delay (s/veh)	62.8	43.1	0.5	66.8	77.0	0.2	691.9	49.5		68.2	35.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	62.8	43.1	0.5	66.8	77.0	0.2	691.9	49.5		68.2	35.7	0.0
LOS	E	D	A	E	E	A	F	D		E	D	A
Approach Delay (s/veh)		26.3			63.1			318.4			42.0	
Approach LOS		C			E			F			D	
Queue Length 50th (ft)	20	305	0	6	~712	0	~642	508		85	226	0
Queue Length 95th (ft)	52	388	0	24	#854	0	#774	#671		123	284	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000			950		705
Base Capacity (vph)	82	1349	1583	82	1218	1583	331	1305		845	1289	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.26	0.50	0.30	0.09	1.02	0.17	2.46	0.87		0.22	0.47	0.01

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 68 (49%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Timings
1: U.S. Highway 24 & Marksheffel Road

Existing Traffic Conditions
PM Peak Traffic Hour

Maximum v/c Ratio: 2.46

Intersection Signal Delay (s/veh): 143.3

Intersection LOS: F

Intersection Capacity Utilization 86.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Existing Traffic Conditions

PM Peak Traffic Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	14	43	52	12	26	25	1641	84	52	862	96
Future Volume (vph)	116	14	43	52	12	26	25	1641	84	52	862	96
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.476			0.909			0.281			0.070		
Satd. Flow (perm)	1720	1863	1583	1693	1863	1583	523	3539	1583	130	3539	1583
Satd. Flow (RTOR)			109			109			101			104
Lane Group Flow (vph)	126	15	47	57	13	28	27	1784	91	57	937	104
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0	9.0	11.0	11.0
Total Split (s)	20.0	27.0	27.0	20.0	27.0	27.0	17.0	76.0	76.0	17.0	76.0	76.0
Total Split (%)	14.3%	19.3%	19.3%	14.3%	19.3%	19.3%	12.1%	54.3%	54.3%	12.1%	54.3%	54.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	17.3	7.0	7.0	14.5	6.7	6.7	104.9	98.0	98.0	107.5	100.9	100.9
Actuated g/C Ratio	0.12	0.05	0.05	0.10	0.05	0.05	0.75	0.70	0.70	0.77	0.72	0.72
v/c Ratio	0.35	0.16	0.26	0.32	0.15	0.16	0.06	0.72	0.08	0.32	0.37	0.09
Control Delay (s/veh)	54.1	67.2	3.4	56.4	66.9	1.8	6.1	35.5	6.1	16.4	3.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.1	67.2	3.4	56.4	66.9	1.8	6.1	35.5	6.1	16.4	3.3	0.1
LOS	D	E	A	E	E	A	A	D	A	B	A	A
Approach Delay (s/veh)		42.5			42.2			33.7			3.7	
Approach LOS		D			D			C			A	
Queue Length 50th (ft)	53	14	0	46	12	0	7	926	17	6	59	0
Queue Length 95th (ft)	81	38	0	87	35	0	m7	m698	m9	m28	78	0
Internal Link Dist (ft)		181			181			997			657	
Turn Bay Length (ft)	220		200	230		195	405			340		335
Base Capacity (vph)	454	279	330	250	279	330	515	2476	1137	242	2551	1170
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.05	0.14	0.23	0.05	0.08	0.05	0.72	0.08	0.24	0.37	0.09

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 54 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Timings

2: Marksheffel Road & Meadowbrook Parkway

Existing Traffic Conditions

PM Peak Traffic Hour

Maximum v/c Ratio: 0.72

Intersection Signal Delay (s/veh): 24.4

Intersection LOS: C

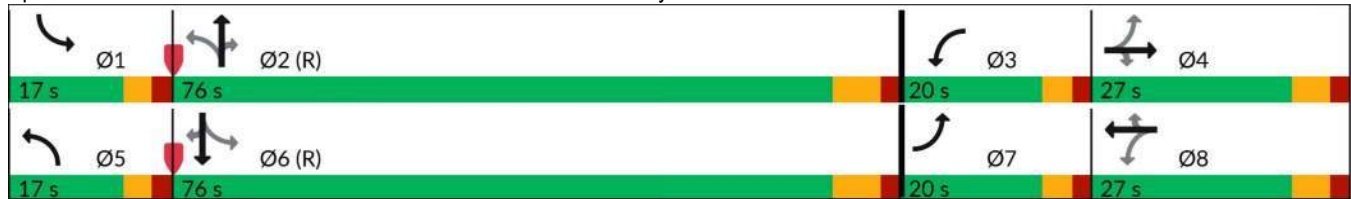
Intersection Capacity Utilization 67.0%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Existing Traffic Conditions

PM Peak Traffic Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	102	616	302	121	505	265	6	488	1148	31	224	621
Future Volume (vph)	102	616	302	121	505	265	6	488	1148	31	224	621
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.242			0.134				0.950			0.950	
Satd. Flow (perm)	451	3539	1583	250	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			215			256				164		
Lane Group Flow (vph)	111	670	328	132	549	288	0	537	1248	34	243	675
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	19.0	36.0		19.0	36.0		30.0	30.0	55.0		30.0	55.0
Total Split (%)	13.6%	25.7%		13.6%	25.7%		21.4%	21.4%	39.3%		21.4%	39.3%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	42.3	29.0	140.0	43.8	29.7	140.0		24.4	59.8	140.0	15.2	50.6
Actuated g/C Ratio	0.30	0.21	1.00	0.31	0.21	1.00		0.17	0.43	1.00	0.11	0.36
v/c Ratio	0.46	0.92	0.21	0.63	0.73	0.18		0.90	0.83	0.02	0.65	0.53
Control Delay (s/veh)	38.2	72.3	0.3	46.2	57.9	0.3		84.1	24.2	0.0	68.0	37.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.2	72.3	0.3	46.2	57.9	0.3		84.1	24.2	0.0	68.0	37.8
LOS	D	E	A	D	E	A		F	C	A	E	D
Approach Delay (s/veh)		47.6			39.2				41.4			40.7
Approach LOS		D			D				D			D
Queue Length 50th (ft)	70	318	0	85	247	0		228	319	0	112	266
Queue Length 95th (ft)	118	#434	0	137	322	0		#341	#707	m0	155	331
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	276	745	1583	233	761	1583		614	1510	1583	613	1278
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.40	0.90	0.21	0.57	0.72	0.18		0.87	0.83	0.02	0.40	0.53

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 115 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Timings
3: Marksheffel Road & Constitution Avenue

Existing Traffic Conditions
PM Peak Traffic Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	106
Future Volume (vph)	106
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	164
Lane Group Flow (vph)	115
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.07
Control Delay (s/veh)	0.1
Queue Delay	0.0
Total Delay (s/veh)	0.1
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.07
Intersection Summary	

Timings

3: Marksheffel Road & Constitution Avenue

Existing Traffic Conditions

PM Peak Traffic Hour

Maximum v/c Ratio: 0.92

Intersection Signal Delay (s/veh): 42.2

Intersection LOS: D

Intersection Capacity Utilization 81.9%

ICU Level of Service D

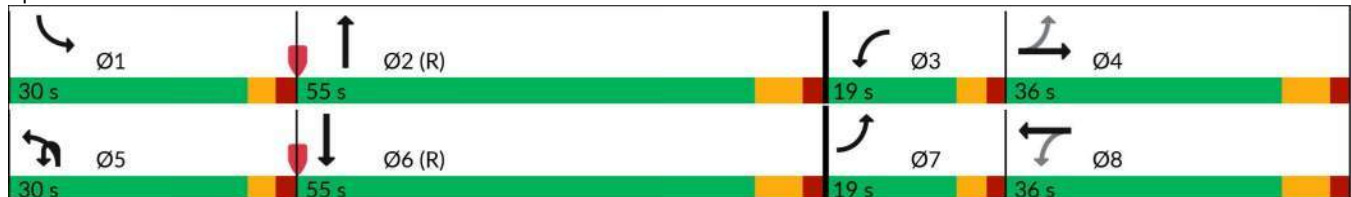
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	2	8	0	77	2	1684	58	87	1013	1
Future Vol, veh/h	1	0	2	8	0	77	2	1684	58	87	1013	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	150	375	-	260	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	2	9	0	84	2	1830	63	95	1101	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2210	3188	551	2574	3126	915	1102	0	0	1893	0	0
Stage 1	1290	1290	-	1835	1835	-	-	-	-	-	-	-
Stage 2	920	1898	-	740	1291	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	24	10	478	13	11	275	629	-	-	311	-	-
Stage 1	173	232	-	79	125	-	-	-	-	-	-	-
Stage 2	292	116	-	375	232	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	12	7	478	9	8	275	629	-	-	311	-	-
Mov Cap-2 Maneuver	12	7	-	9	8	-	-	-	-	-	-	-
Stage 1	120	162	-	78	125	-	-	-	-	-	-	-
Stage 2	202	116	-	260	161	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	123	100.26	0.01	1.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	629	-	-	34 9	275	311	-
HCM Lane V/C Ratio	0.003	-	-	0.097 0.987	0.304	0.304	-
HCM Ctrl Dly (s/v)	10.7	-	-	123 \$ 837	0	23.7	21.5
HCM Lane LOS	B	-	-	F F	A	C	C
HCM 95th %tile Q(veh)	0	-	-	0.3 1.8	-	1.2	1.3

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	0	0	1774	1009	1
Future Vol, veh/h	0	0	0	1774	1009	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	1928	1097	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	548	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	480	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	480	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	-		-	-		
HCM Lane V/C Ratio	-		-	-		
HCM Ctrl Dly (s/v)	-		0	-		
HCM Lane LOS	-		A	-		
HCM 95th %tile Q(veh)	-		-	-		

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	1755	1085	1
Future Vol, veh/h	0	5	0	1755	1085	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	0	1908	1179	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 590	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 451	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %		- -	
Mov Cap-1 Maneuver	- 451	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.08	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 451	-
HCM Lane V/C Ratio	- 0.012	-
HCM Ctrl Dly (s/v)	- 13.1	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0	-

Intersection													
Int Delay, s/veh	5.1												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	14	14	965	50	67	969	7	34	0	84	0	0	11
Future Vol, veh/h	14	14	965	50	67	969	7	34	0	84	0	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	345	-	235	185	-	215	130	-	-	215	-	140
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	15	1049	54	73	1053	8	37	0	91	0	0	12

Major/Minor	Major1		Major2		Minor1		Minor2	
Conflicting Flow All	1053	1061	0	0	1103	0	0	1782
Stage 1	-	-	-	-	-	-	-	1110
Stage 2	-	-	-	-	-	-	-	672
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52
Pot Cap-1 Maneuver	307	652	-	-	629	-	-	52
Stage 1	-	-	-	-	-	-	-	223
Stage 2	-	-	-	-	-	-	-	411
Platoon blocked, %			-	-		-	-	
Mov Cap-1 Maneuver	410	410	-	-	629	-	-	41
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	41
Stage 1	-	-	-	-	-	-	-	207
Stage 2	-	-	-	-	-	-	-	355

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	0.39		0.74		84		12.44	
HCM LOS					F		B	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	41	498	410	-	-	629	-	-	-	-	496
HCM Lane V/C Ratio	0.895	0.183	0.074	-	-	0.116	-	-	-	-	0.024
HCM Ctrl Dly (s/v)	257.3	13.9	14.5	-	-	11.5	-	-	0	0	12.4
HCM Lane LOS	F	B	B	-	-	B	-	-	A	A	B
HCM 95th %tile Q(veh)	3.5	0.7	0.2	-	-	0.4	-	-	-	-	0.1

Intersection

Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	61	24	10	41	69	31
Future Vol, veh/h	61	24	10	41	69	31
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	26	11	45	75	34
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	7.8	7.6	7.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	20%	72%	0%
Vol Thru, %	80%	0%	69%
Vol Right, %	0%	28%	31%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	51	85	100
LT Vol	10	61	0
Through Vol	41	0	69
RT Vol	0	24	31
Lane Flow Rate	55	92	109
Geometry Grp	1	1	1
Degree of Util (X)	0.065	0.108	0.119
Departure Headway (Hd)	4.219	4.19	3.952
Convergence, Y/N	Yes	Yes	Yes
Cap	840	846	898
Service Time	2.291	2.262	2.018
HCM Lane V/C Ratio	0.065	0.109	0.121
HCM Control Delay, s/veh	7.6	7.8	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.4	0.4

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	1	0	0	0	1	6	0	0	10	10
Future Vol, veh/h	6	0	1	0	0	0	1	6	0	0	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	1	0	0	0	1	7	0	0	11	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	25	25	16	20	30	7	22	0	0	7	0	0
Stage 1	16	16	-	9	9	-	-	-	-	-	-	-
Stage 2	9	9	-	11	22	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	986	868	1063	994	862	1076	1594	-	-	1614	-	-
Stage 1	1003	882	-	1013	888	-	-	-	-	-	-	-
Stage 2	1013	888	-	1010	877	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	985	868	1063	992	862	1076	1594	-	-	1614	-	-
Mov Cap-2 Maneuver	985	868	-	992	862	-	-	-	-	-	-	-
Stage 1	1003	882	-	1012	888	-	-	-	-	-	-	-
Stage 2	1012	888	-	1009	877	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	8.64		0		1.04		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	257	-	-	996	-	1614	-
HCM Lane V/C Ratio	0.001	-	-	0.008	-	-	-
HCM Ctrl Dly (s/v)	7.3	0	-	8.6	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

Timings

1: U.S. Highway 24 & Marksheffel Road

Background Traffic Conditions

AM Peak Traffic Hour - Year 2031

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	11	1161	799	2	656	91	363	489	2	307	1206	46
Future Volume (vph)	11	1161	799	2	656	91	363	489	2	307	1206	46
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			370			230			230			230
Lane Group Flow (vph)	12	1262	868	2	713	99	395	532	2	334	1311	50
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	15.0	45.0		15.0	45.0		35.0	57.0		23.0	45.0	
Total Split (%)	10.7%	32.1%		10.7%	32.1%		25.0%	40.7%		16.4%	32.1%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	6.6	51.4	140.0	5.8	48.3	140.0	21.3	50.4	140.0	16.1	45.2	140.0
Actuated g/C Ratio	0.05	0.37	1.00	0.04	0.35	1.00	0.15	0.36	1.00	0.12	0.32	1.00
v/c Ratio	0.14	0.97	0.55	0.03	0.58	0.06	0.76	0.42	0.00	0.85	1.15	0.03
Control Delay (s/veh)	84.5	53.7	0.9	65.0	41.2	0.1	66.3	35.1	0.0	80.4	119.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	84.5	53.7	0.9	65.0	41.2	0.1	66.3	35.1	0.0	80.4	119.6	0.0
LOS	F	D	A	E	D	A	E	D	A	F	F	A
Approach Delay (s/veh)		32.5			36.2			48.3			108.3	
Approach LOS		C			D			D			F	
Queue Length 50th (ft)	12	454	0	2	265	0	182	195	0	158	~747	0
Queue Length 95th (ft)	m15	#886	0	12	388	0	231	249	0	#232	#955	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000		635	950		705
Base Capacity (vph)	107	1300	1583	107	1222	1583	698	1273	1583	404	1142	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.97	0.55	0.02	0.58	0.06	0.57	0.42	0.00	0.83	1.15	0.03

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 110 (79%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings
1: U.S. Highway 24 & Marksheffel Road

Background Traffic Conditions
AM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 1.15

Intersection Signal Delay (s/veh): 58.7

Intersection LOS: E

Intersection Capacity Utilization 92.0%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

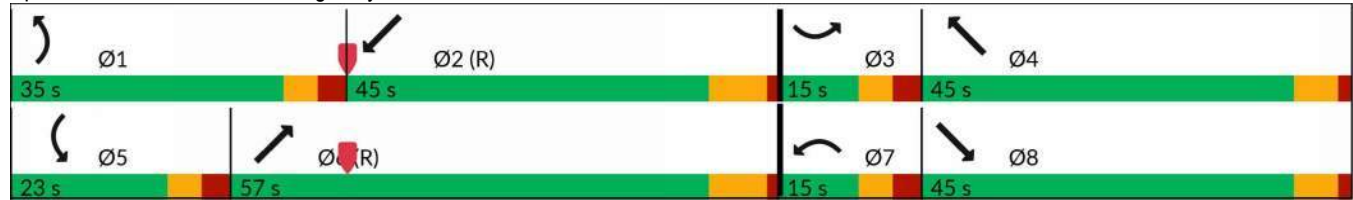
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Background Traffic Conditions

AM Peak Traffic Hour - Year 2031

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	2	22	115	15	82	30	820	73	13	1776	195
Future Volume (vph)	65	2	22	115	15	82	30	820	73	13	1776	195
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted				0.465			0.050			0.296		
Satd. Flow (perm)	3614	1863	1583	866	1863	1583	93	3539	1583	551	3539	1583
Satd. Flow (RTOR)			109			109			101			139
Lane Group Flow (vph)	71	2	24	125	16	89	33	891	79	14	1930	212
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0	9.0	11.0	11.0
Total Split (s)	20.0	34.0	34.0	20.0	34.0	34.0	17.0	69.0	69.0	17.0	69.0	69.0
Total Split (%)	14.3%	24.3%	24.3%	14.3%	24.3%	24.3%	12.1%	49.3%	49.3%	12.1%	49.3%	49.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	12.1	5.8	5.8	21.7	10.0	10.0	106.5	101.8	101.8	104.9	99.3	99.3
Actuated g/C Ratio	0.09	0.04	0.04	0.16	0.07	0.07	0.76	0.73	0.73	0.75	0.71	0.71
v/c Ratio	0.24	0.03	0.14	0.55	0.12	0.42	0.23	0.35	0.07	0.03	0.77	0.18
Control Delay (s/veh)	52.4	65.0	1.8	61.3	61.7	12.1	17.2	2.5	0.3	2.6	13.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.4	65.0	1.8	61.3	61.7	12.1	17.2	2.5	0.3	2.6	13.6	0.5
LOS	D	E	A	E	E	B	B	A	A	A	B	A
Approach Delay (s/veh)		40.1			42.3			2.8			12.2	
Approach LOS		D			D			A			B	
Queue Length 50th (ft)	28	2	0	103	14	0	1	12	0	2	962	2
Queue Length 95th (ft)	51	12	0	166	39	37	m16	59	m0	m2	m902	m0
Internal Link Dist (ft)		181			181			997			657	
Turn Bay Length (ft)	220		200	230		195	405			340		335
Base Capacity (vph)	475	372	403	243	372	403	215	2573	1178	530	2511	1163
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.01	0.06	0.51	0.04	0.22	0.15	0.35	0.07	0.03	0.77	0.18

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 43 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Timings

2: Marksheffel Road & Meadowbrook Parkway

Background Traffic Conditions
AM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 0.77

Intersection Signal Delay (s/veh): 12.3

Intersection LOS: B

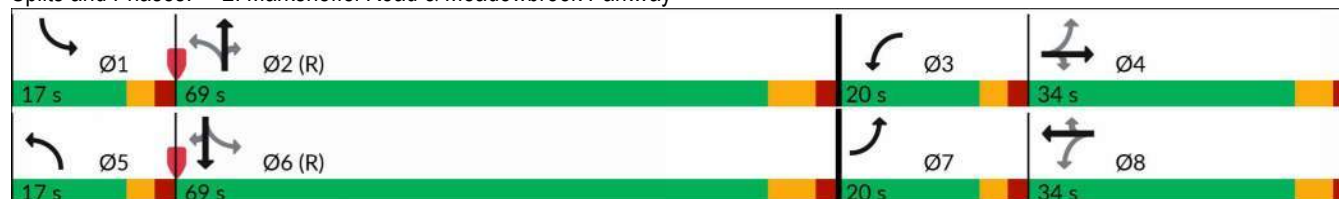
Intersection Capacity Utilization 73.8%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Background Traffic Conditions

AM Peak Traffic Hour - Year 2031

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	132	350	505	104	511	128	19	362	706	40	192	1530
Future Volume (vph)	132	350	505	104	511	128	19	362	706	40	192	1530
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.178			0.399				0.950			0.950	
Satd. Flow (perm)	332	3539	1583	743	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			393			164				164		
Lane Group Flow (vph)	143	380	549	113	555	139	0	414	767	43	209	1663
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	18.0	35.0		18.0	35.0		24.0	24.0	63.0		24.0	63.0
Total Split (%)	12.9%	25.0%		12.9%	25.0%		17.1%	17.1%	45.0%		17.1%	45.0%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	40.9	26.7	140.0	39.0	25.7	140.0		19.4	64.2	140.0	13.8	58.7
Actuated g/C Ratio	0.29	0.19	1.00	0.28	0.18	1.00		0.14	0.46	1.00	0.10	0.42
v/c Ratio	0.64	0.56	0.35	0.39	0.85	0.09		0.87	0.47	0.03	0.62	1.12
Control Delay (s/veh)	61.7	54.1	1.3	37.9	68.6	0.1		89.0	26.1	0.0	68.3	102.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.7	54.1	1.3	37.9	68.6	0.1		89.0	26.1	0.0	68.3	102.2
LOS	E	D	A	D	E	A		F	C	A	E	F
Approach Delay (s/veh)		28.1			52.5				46.5			89.8
Approach LOS		C			D				D			F
Queue Length 50th (ft)	97	123	24	74	261	0		207	184	0	97	~965
Queue Length 95th (ft)	174	178	41	123	329	0		#287	225	0	137	#1106
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	232	708	1583	311	707	1583		479	1623	1583	465	1483
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.62	0.54	0.35	0.36	0.79	0.09		0.86	0.47	0.03	0.45	1.12

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 92 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	165
Future Volume (vph)	165
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	164
Lane Group Flow (vph)	179
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.11
Control Delay (s/veh)	0.1
Queue Delay	0.0
Total Delay (s/veh)	0.1
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.11
Intersection Summary	

Timings
3: Marksheffel Road & Constitution Avenue

Background Traffic Conditions
AM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 1.12

Intersection Signal Delay (s/veh): 60.9

Intersection LOS: E

Intersection Capacity Utilization 94.6%

ICU Level of Service F

Analysis Period (min) 15

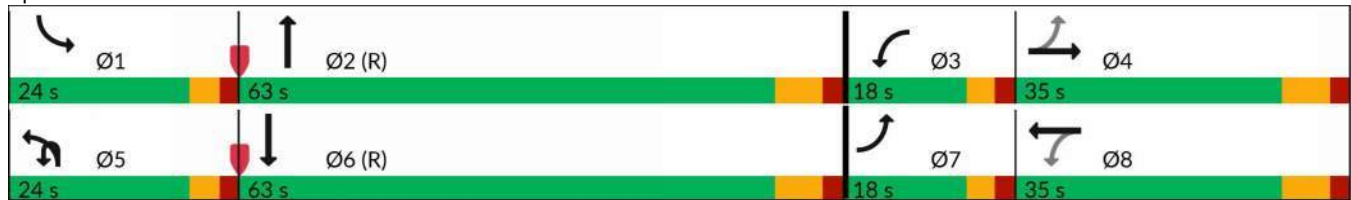
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↑	↖	↗	↑↑	↖	↗	↑↑	↖
Traffic Vol, veh/h	0	0	0	22	0	170	2	947	13	53	2001	3
Future Vol, veh/h	0	0	0	22	0	170	2	947	13	53	2001	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	150	375	-	260	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	24	0	185	2	1029	14	58	2175	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2809	3338	1088	2236	3327	515	2178	0	0	1043	0	0
Stage 1	2290	2290	-	1034	1034	-	-	-	-	-	-	-
Stage 2	519	1048	-	1203	2293	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	8	8	211	~ 23	8	505	241	-	-	662	-	-
Stage 1	40	73	-	249	308	-	-	-	-	-	-	-
Stage 2	508	303	-	196	73	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	5	7	211	~ 21	7	505	241	-	-	662	-	-
Mov Cap-2 Maneuver	5	7	-	~ 21	7	-	-	-	-	-	-	-
Stage 1	37	67	-	246	305	-	-	-	-	-	-	-
Stage 2	319	300	-	179	67	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	72.01	0.04	0.28
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	241	-	-	- 21	- 505	662	-
HCM Lane V/C Ratio	0.009	-	-	- 1.135	- 0.366	0.087	-
HCM Ctrl Dly (s/v)	20.1	-	-	0\$ 503.3	0 16.2	11	-
HCM Lane LOS	C	-	-	A F	A C	B	-
HCM 95th %tile Q(veh)	0	-	-	- 3.2	- 1.7	0.3	-

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

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	1	0	962	1991	0
Future Vol, veh/h	0	1	0	962	1991	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	1046	2164	0
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	1082	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	213	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	213	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	22	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	213	-	-		
HCM Lane V/C Ratio	-	0.005	-	-		
HCM Ctrl Dly (s/v)	-	22	-	-		
HCM Lane LOS	-	C	-	-		
HCM 95th %tile Q(veh)	-	0	-	-		

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	1	0	1115	2090	9
Future Vol, veh/h	0	1	0	1115	2090	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	1212	2272	10

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1136	-	0 - 0
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	- 6.94	-	- - -
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	- 3.32	-	- - -
Pot Cap-1 Maneuver	0 196	0	- - 0
Stage 1	0	0	- - 0
Stage 2	0	0	- - 0
Platoon blocked, %			- -
Mov Cap-1 Maneuver	- 196	-	- - -
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	23.48	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 196	-
HCM Lane V/C Ratio	- 0.006	-
HCM Ctrl Dly (s/v)	- 23.5	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 0	-

Timings

7: Hannah Ridge Drive & Constitution Avenue

Background Traffic Conditions

AM Peak Traffic Hour - Year 2031

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	28	9	888	22	70	1023	2	63	0	113	8	0
Future Volume (vph)	28	9	888	22	70	1023	2	63	0	113	8	0
Satd. Flow (prot)	0	1770	3539	1583	1770	3539	1583	1770	1583	0	1770	1863
Flt Permitted		0.223			0.258			0.477			0.678	
Satd. Flow (perm)	0	415	3539	1583	481	3539	1583	889	1583	0	1263	1863
Satd. Flow (RTOR)				94			94		271			
Lane Group Flow (vph)	0	40	965	24	76	1112	2	68	123	0	9	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4		4	8		8	2			6	
Detector Phase	7	7	4	4	3	8	8	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	11.0	11.0	9.0	11.0	11.0	9.0	9.0		9.0	9.0
Total Split (s)	14.0	14.0	92.0	92.0	15.0	93.0	93.0	16.0	22.0		11.0	17.0
Total Split (%)	10.0%	10.0%	65.7%	65.7%	10.7%	66.4%	66.4%	11.4%	15.7%		7.9%	12.1%
Yellow Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)		106.5	98.3	98.3	108.8	101.1	101.1	18.0	15.6		10.2	
Actuated g/C Ratio		0.76	0.70	0.70	0.78	0.72	0.72	0.13	0.11		0.07	
v/c Ratio		0.11	0.39	0.02	0.17	0.44	0.00	0.39	0.29		0.08	
Control Delay (s/veh)		4.3	9.7	0.0	1.5	2.9	0.0	60.0	1.8		52.6	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Delay (s/veh)		4.3	9.7	0.0	1.5	2.9	0.0	60.0	1.8		52.6	
LOS		A	A	A	A	A	A	E	A		D	
Approach Delay (s/veh)			9.3			2.8			22.5			11.7
Approach LOS			A			A			C			B
Queue Length 50th (ft)		7	192	0	3	35	0	56	0		7	
Queue Length 95th (ft)		16	241	0	m5	72	m0	105	0		25	
Internal Link Dist (ft)			1055			807			1127			417
Turn Bay Length (ft)		345		235	185		215	130			215	
Base Capacity (vph)		411	2485	1139	473	2554	1168	189	451		115	
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	
Reduced v/c Ratio		0.10	0.39	0.02	0.16	0.44	0.00	0.36	0.27		0.08	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 27 (19%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	32
Future Volume (vph)	32
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	197
Lane Group Flow (vph)	35
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	9.0
Total Split (s)	17.0
Total Split (%)	12.1%
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	5.5
Actuated g/C Ratio	0.04
v/c Ratio	0.14
Control Delay (s/veh)	1.2
Queue Delay	0.0
Total Delay (s/veh)	1.2
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	140
Base Capacity (vph)	315
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.11
Intersection Summary	

Timings
 7: Hannah Ridge Drive & Constitution Avenue

Background Traffic Conditions
 AM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 0.44

Intersection Signal Delay (s/veh): 7.2

Intersection LOS: A

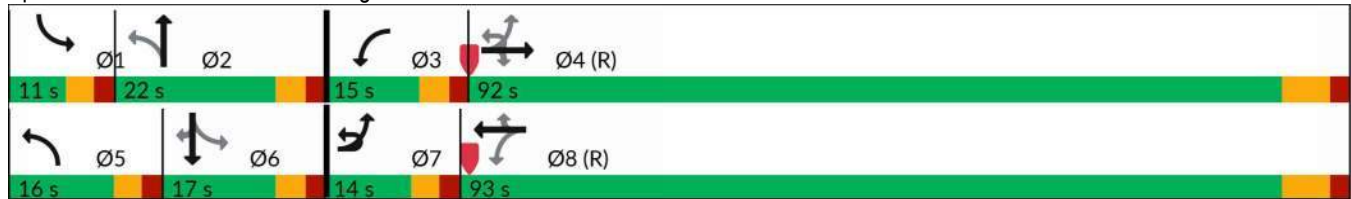
Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Hannah Ridge Drive & Constitution Avenue



Intersection

Intersection Delay, s/veh 7.7

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	11	29	88	36	54
Future Vol, veh/h	39	11	29	88	36	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	12	32	96	39	59
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	7.7	7.9	7.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	25%	78%	0%
Vol Thru, %	75%	0%	40%
Vol Right, %	0%	22%	60%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	117	50	90
LT Vol	29	39	0
Through Vol	88	0	36
RT Vol	0	11	54
Lane Flow Rate	127	54	98
Geometry Grp	1	1	1
Degree of Util (X)	0.147	0.066	0.102
Departure Headway (Hd)	4.153	4.342	3.764
Convergence, Y/N	Yes	Yes	Yes
Cap	858	813	941
Service Time	2.202	2.434	1.83
HCM Lane V/C Ratio	0.148	0.066	0.104
HCM Control Delay, s/veh	7.9	7.7	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.2	0.3

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	0	0	0	0	0	0	11	0	0	2	1
Future Vol, veh/h	13	0	0	0	0	0	0	11	0	0	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	0	0	0	0	0	0	12	0	0	2	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	15	15	3	14	15	12	3	0	0	12	0	0
Stage 1	3	3	-	12	12	-	-	-	-	-	-	-
Stage 2	12	12	-	2	3	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	1001	880	1081	1002	879	1069	1619	-	-	1607	-	-
Stage 1	1020	894	-	1009	886	-	-	-	-	-	-	-
Stage 2	1009	886	-	1021	893	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1001	880	1081	1002	879	1069	1619	-	-	1607	-	-
Mov Cap-2 Maneuver	1001	880	-	1002	879	-	-	-	-	-	-	-
Stage 1	1020	894	-	1009	886	-	-	-	-	-	-	-
Stage 2	1009	886	-	1021	893	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	8.65		0		0		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1619	-	-	1001	-	1607	-	-				
HCM Lane V/C Ratio	-	-	-	0.014	-	-	-	-				
HCM Ctrl Dly (s/v)	0	-	-	8.6	0	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-				

Timings

1: U.S. Highway 24 & Marksheffel Road

Background Traffic Conditions

PM Peak Traffic Hour - Year 2031

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	21	683	476	6	1267	279	828	1149	0	185	617	23
Future Volume (vph)	21	683	476	6	1267	279	828	1149	0	185	617	23
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Satd. Flow (RTOR)			374			230						230
Lane Group Flow (vph)	23	742	517	7	1377	303	900	1249	0	201	671	25
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	13.0	49.0		13.0	49.0		20.0	37.0		41.0	58.0	
Total Split (%)	9.3%	35.0%		9.3%	35.0%		14.3%	26.4%		29.3%	41.4%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	6.2	53.4	140.0	6.0	48.2	140.0	13.5	50.9		13.6	51.0	140.0
Actuated g/C Ratio	0.04	0.38	1.00	0.04	0.34	1.00	0.10	0.36		0.10	0.36	1.00
v/c Ratio	0.29	0.55	0.33	0.09	1.13	0.19	2.72	0.97		0.61	0.52	0.02
Control Delay (s/veh)	65.2	43.1	0.6	66.8	111.2	0.3	804.6	62.7		68.2	36.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	65.2	43.1	0.6	66.8	111.2	0.3	804.6	62.7		68.2	36.7	0.0
LOS	E	D	A	E	F	A	F	E		E	D	A
Approach Delay (s/veh)		26.4			91.1			373.4			42.7	
Approach LOS		C			F			F			D	
Queue Length 50th (ft)	22	334	0	6	~842	0	~726	595		93	255	0
Queue Length 95th (ft)	m54	426	0	24	#984	0	#860	#801		132	317	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000			950		705
Base Capacity (vph)	82	1349	1583	82	1218	1583	331	1287		845	1289	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.28	0.55	0.33	0.09	1.13	0.19	2.72	0.97		0.24	0.52	0.02

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 68 (49%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings
1: U.S. Highway 24 & Marksheffel Road

Background Traffic Conditions
PM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 2.72

Intersection Signal Delay (s/veh): 170.9

Intersection LOS: F

Intersection Capacity Utilization 92.0%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Background Traffic Conditions

PM Peak Traffic Hour - Year 2031

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	15	47	57	13	29	28	1812	93	57	952	106
Future Volume (vph)	128	15	47	57	13	29	28	1812	93	57	952	106
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.559			0.747			0.249			0.045		
Satd. Flow (perm)	2020	1863	1583	1391	1863	1583	464	3539	1583	84	3539	1583
Satd. Flow (RTOR)			109			109			101			115
Lane Group Flow (vph)	139	16	51	62	14	32	30	1970	101	62	1035	115
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0	9.0	11.0	11.0
Total Split (s)	20.0	27.0	27.0	20.0	27.0	27.0	17.0	76.0	76.0	17.0	76.0	76.0
Total Split (%)	14.3%	19.3%	19.3%	14.3%	19.3%	19.3%	12.1%	54.3%	54.3%	12.1%	54.3%	54.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	17.2	7.4	7.4	16.2	6.7	6.7	104.1	97.1	97.1	107.1	100.3	100.3
Actuated g/C Ratio	0.12	0.05	0.05	0.12	0.05	0.05	0.74	0.69	0.69	0.77	0.72	0.72
v/c Ratio	0.39	0.16	0.27	0.33	0.16	0.18	0.07	0.80	0.09	0.41	0.41	0.10
Control Delay (s/veh)	54.5	67.0	3.6	55.0	67.2	2.2	6.4	39.1	6.8	35.5	4.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.5	67.0	3.6	55.0	67.2	2.2	6.4	39.1	6.8	35.5	4.9	0.3
LOS	D	E	A	D	E	A	A	D	A	D	A	A
Approach Delay (s/veh)		42.9			40.9			37.0			6.0	
Approach LOS		D			D			D			A	
Queue Length 50th (ft)	58	14	0	50	13	0	8	1023	23	14	66	0
Queue Length 95th (ft)	87	40	0	92	37	0	m7	m700	m10	m48	120	m3
Internal Link Dist (ft)		181			181			997			657	
Turn Bay Length (ft)	220		200	230		195	405			340		335
Base Capacity (vph)	459	279	330	252	279	330	471	2454	1129	209	2535	1166
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.06	0.15	0.25	0.05	0.10	0.06	0.80	0.09	0.30	0.41	0.10

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 54 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Timings

2: Marksheffel Road & Meadowbrook Parkway

Background Traffic Conditions
PM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 0.80

Intersection Signal Delay (s/veh): 27.1

Intersection LOS: C

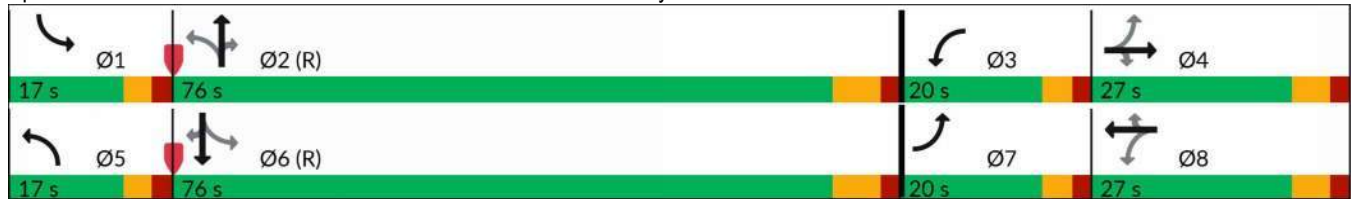
Intersection Capacity Utilization 72.1%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Background Traffic Conditions

PM Peak Traffic Hour - Year 2031

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	113	680	333	134	558	293	7	538	1247	34	247	686
Future Volume (vph)	113	680	333	134	558	293	7	538	1247	34	247	686
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.205			0.128				0.950			0.950	
Satd. Flow (perm)	382	3539	1583	238	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			215			256				164		
Lane Group Flow (vph)	123	739	362	146	607	318	0	593	1355	37	268	746
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	19.0	36.0		19.0	36.0		30.0	30.0	55.0		30.0	55.0
Total Split (%)	13.6%	25.7%		13.6%	25.7%		21.4%	21.4%	39.3%		21.4%	39.3%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	44.3	30.6	140.0	45.7	31.3	140.0		25.0	56.8	140.0	16.2	48.0
Actuated g/C Ratio	0.32	0.22	1.00	0.33	0.22	1.00		0.18	0.41	1.00	0.12	0.34
v/c Ratio	0.52	0.96	0.23	0.69	0.77	0.20		0.97	0.94	0.02	0.68	0.62
Control Delay (s/veh)	39.8	69.8	0.3	49.6	58.8	0.3		90.8	37.6	0.0	67.8	41.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.8	69.8	0.3	49.6	58.8	0.3		90.8	37.6	0.0	67.8	41.0
LOS	D	E	A	D	E	A		F	D	A	E	D
Approach Delay (s/veh)		46.2			40.2				52.8			42.7
Approach LOS		D			D				D			D
Queue Length 50th (ft)	56	362	0	94	281	0		268	504	0	124	301
Queue Length 95th (ft)	107	#504	0	155	360	0		#402	#833	m0	168	372
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	265	773	1583	233	790	1583		613	1435	1583	613	1213
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.46	0.96	0.23	0.63	0.77	0.20		0.97	0.94	0.02	0.44	0.62

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 115 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	117
Future Volume (vph)	117
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	164
Lane Group Flow (vph)	127
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.08
Control Delay (s/veh)	0.1
Queue Delay	0.0
Total Delay (s/veh)	0.1
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.08
Intersection Summary	

Timings
3: Marksheffel Road & Constitution Avenue

Background Traffic Conditions
PM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 0.97

Intersection Signal Delay (s/veh): 46.7

Intersection LOS: D

Intersection Capacity Utilization 87.7%

ICU Level of Service E

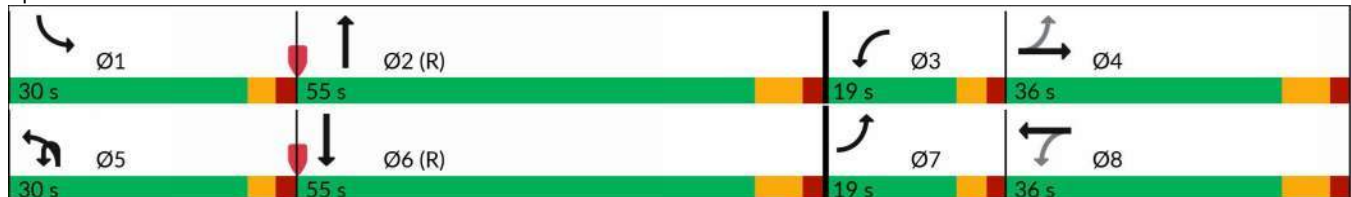
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↑	↗	↕	↑↑	↗	↕	↑↑	↗
Traffic Vol, veh/h	1	0	2	9	0	85	2	1859	64	96	1118	1
Future Vol, veh/h	1	0	2	9	0	85	2	1859	64	96	1118	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	150	375	-	260	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	2	10	0	92	2	2021	70	104	1215	1

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	2439	3518	608	2841	3450	1010	1216	0	0	2090	0	0
Stage 1	1424	1424	-	2025	2025	-	-	-	-	-	-	-
Stage 2	1015	2095	-	816	1425	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	16	6	439	~ 8	7	238	569	-	-	261	-	-
Stage 1	143	200	-	59	100	-	-	-	-	-	-	-
Stage 2	255	92	-	337	200	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	6	4	439	~ 5	4	238	569	-	-	261	-	-
Mov Cap-2 Maneuver	6	4	-	~ 5	4	-	-	-	-	-	-	-
Stage 1	86	120	-	59	100	-	-	-	-	-	-	-
Stage 2	155	92	-	201	120	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	255.58	208.59	0.01	2.19
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	569	-	-	17 5	238	261	-
HCM Lane V/C Ratio	0.004	-	-	0.188 2.086	0.389	0.4	-
HCM Ctrl Dly (s/v)	11.3	-	-	255.5 1900.4	0	29.5	27.7
HCM Lane LOS	B	-	-	F F A	D	D	-
HCM 95th %tile Q(veh)	0	-	-	0.5 2.3	1.7	1.8	-

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

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	0	0	1959	1114	1
Future Vol, veh/h	0	0	0	1959	1114	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	2129	1211	1
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	605	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	440	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	440	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	0	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR			
Capacity (veh/h)	-	-	-			
HCM Lane V/C Ratio	-	-	-			
HCM Ctrl Dly (s/v)	-	0	-			
HCM Lane LOS	-	A	-			
HCM 95th %tile Q(veh)	-	-	-			

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	6	0	1938	1198	1
Future Vol, veh/h	0	6	0	1938	1198	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	0	2107	1302	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 651	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 411	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %		- -	
Mov Cap-1 Maneuver	- 411	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 411	-
HCM Lane V/C Ratio	- 0.016	-
HCM Ctrl Dly (s/v)	- 13.9	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0	-

Timings
7: Hannah Ridge Drive & Constitution Avenue

Background Traffic Conditions
PM Peak Traffic Hour - Year 2031

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	15	1065	55	74	1070	8	38	0	93	0	0
Future Volume (vph)	15	15	1065	55	74	1070	8	38	0	93	0	0
Satd. Flow (prot)	0	1770	3539	1583	1770	3539	1583	1770	1583	0	1863	1863
Flt Permitted		0.223			0.208			0.482				
Satd. Flow (perm)	0	415	3539	1583	387	3539	1583	898	1583	0	1863	1863
Satd. Flow (RTOR)				94			94		196			
Lane Group Flow (vph)	0	32	1158	60	80	1163	9	41	101	0	0	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4		4	8		8	2			6	
Detector Phase	7	7	4	4	3	8	8	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	11.0	11.0	9.0	11.0	11.0	9.0	9.0		9.0	9.0
Total Split (s)	11.0	11.0	95.0	95.0	15.0	99.0	99.0	14.0	21.0		9.0	16.0
Total Split (%)	7.9%	7.9%	67.9%	67.9%	10.7%	70.7%	70.7%	10.0%	15.0%		6.4%	11.4%
Yellow Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)		112.3	104.3	104.3	115.5	109.2	109.2	12.1	12.1			
Actuated g/C Ratio		0.80	0.75	0.75	0.83	0.78	0.78	0.09	0.09			
v/c Ratio		0.08	0.44	0.05	0.21	0.42	0.01	0.33	0.32			
Control Delay (s/veh)		3.2	8.1	0.5	7.1	13.7	0.0	63.7	2.7			
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay (s/veh)		3.2	8.1	0.5	7.1	13.7	0.0	63.7	2.7			
LOS		A	A	A	A	B	A	E	A			
Approach Delay (s/veh)			7.6			13.2			20.3			0.4
Approach LOS			A			B			C			A
Queue Length 50th (ft)		3	165	0	22	262	0	37	0			
Queue Length 95th (ft)		12	292	5	m37	m290	m0	72	0			
Internal Link Dist (ft)			1055			807			1127			417
Turn Bay Length (ft)		345		235	185		215	130				
Base Capacity (vph)		393	2636	1203	422	2760	1255	140	368			
Starvation Cap Reductn		0	0	0	0	0	0	0	0			
Spillback Cap Reductn		0	0	0	0	0	0	0	0			
Storage Cap Reductn		0	0	0	0	0	0	0	0			
Reduced v/c Ratio		0.08	0.44	0.05	0.19	0.42	0.01	0.29	0.27			

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 27 (19%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	12
Future Volume (vph)	12
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	181
Lane Group Flow (vph)	13
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	9.0
Total Split (s)	16.0
Total Split (%)	11.4%
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	5.5
Actuated g/C Ratio	0.04
v/c Ratio	0.06
Control Delay (s/veh)	0.4
Queue Delay	0.0
Total Delay (s/veh)	0.4
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	140
Base Capacity (vph)	291
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.04
Intersection Summary	

Timings
 7: Hannah Ridge Drive & Constitution Avenue

Background Traffic Conditions
 PM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 0.44

Intersection Signal Delay (s/veh): 10.9

Intersection LOS: B

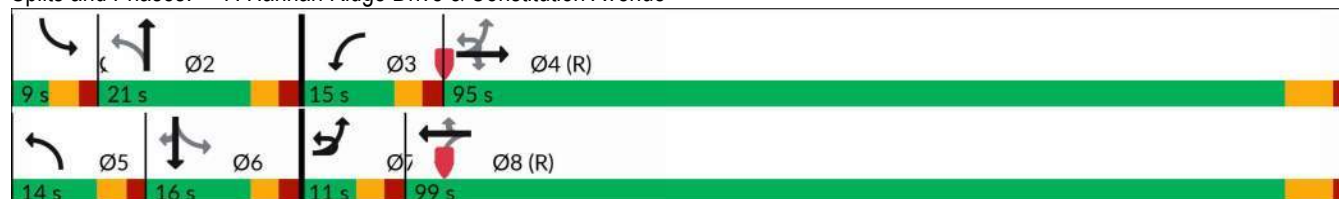
Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Hannah Ridge Drive & Constitution Avenue



Intersection

Intersection Delay, s/veh 7.8

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	67	26	11	45	76	34
Future Vol, veh/h	67	26	11	45	76	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	28	12	49	83	37
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	7.9	7.7	7.7
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	20%	72%	0%
Vol Thru, %	80%	0%	69%
Vol Right, %	0%	28%	31%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	56	93	110
LT Vol	11	67	0
Through Vol	45	0	76
RT Vol	0	26	34
Lane Flow Rate	61	101	120
Geometry Grp	1	1	1
Degree of Util (X)	0.072	0.118	0.132
Departure Headway (Hd)	4.243	4.219	3.973
Convergence, Y/N	Yes	Yes	Yes
Cap	834	838	892
Service Time	2.323	2.302	2.044
HCM Lane V/C Ratio	0.073	0.121	0.135
HCM Control Delay, s/veh	7.7	7.9	7.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.4	0.5

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	1	0	0	0	1	7	0	0	11	11
Future Vol, veh/h	7	0	1	0	0	0	1	7	0	0	11	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	1	0	0	0	1	8	0	0	12	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	28	28	18	22	34	8	24	0	0	8	0	0
Stage 1	18	18	-	10	10	-	-	-	-	-	-	-
Stage 2	10	10	-	12	24	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	982	865	1061	991	859	1075	1591	-	-	1613	-	-
Stage 1	1001	880	-	1011	887	-	-	-	-	-	-	-
Stage 2	1011	887	-	1009	875	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	981	865	1061	989	858	1075	1591	-	-	1613	-	-
Mov Cap-2 Maneuver	981	865	-	989	858	-	-	-	-	-	-	-
Stage 1	1001	880	-	1011	887	-	-	-	-	-	-	-
Stage 2	1011	887	-	1008	875	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	8.67		0		0.91		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	225	-	-	990	-	1613	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.009	-	-	-	-				
HCM Ctrl Dly (s/v)	7.3	0	-	8.7	0	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-				

Timings

1: U.S. Highway 24 & Marksheffel Road

Background Traffic Conditions

AM Peak Traffic Hour - Year 2045

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	15	1533	1055	3	865	119	479	645	3	405	1591	61
Future Volume (vph)	15	1533	1055	3	865	119	479	645	3	405	1591	61
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			370			230			230			230
Lane Group Flow (vph)	16	1666	1147	3	940	129	521	701	3	440	1729	66
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	10.5	49.0		11.5	50.0		22.0	47.2		32.3	57.5	
Total Split (%)	7.5%	35.0%		8.2%	35.7%		15.7%	33.7%		23.1%	41.1%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	4.0	52.2	140.0	5.0	50.3	140.0	15.5	43.4	140.0	22.6	50.5	140.0
Actuated g/C Ratio	0.03	0.37	1.00	0.04	0.36	1.00	0.11	0.31	1.00	0.16	0.36	1.00
v/c Ratio	0.32	1.26	0.72	0.05	0.74	0.08	1.37	0.64	0.00	0.80	1.36	0.04
Control Delay (s/veh)	61.5	164.6	2.2	67.0	44.2	0.1	227.9	45.3	0.0	67.6	200.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.5	164.6	2.2	67.0	44.2	0.1	227.9	45.3	0.0	67.6	200.9	0.0
LOS	E	F	A	E	D	A	F	D	A	E	F	A
Approach Delay (s/veh)		98.2			39.0			122.8			168.7	
Approach LOS		F			D			F			F	
Queue Length 50th (ft)	14	~984	0	3	378	0	~327	295	0	203	~1102	0
Queue Length 95th (ft)	m16	m#1193	m0	14	516	0	#445	377	0	259	#1242	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000		635	950		705
Base Capacity (vph)	50	1319	1583	63	1271	1583	380	1098	1583	632	1276	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	1.26	0.72	0.05	0.74	0.08	1.37	0.64	0.00	0.70	1.36	0.04

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 110 (79%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings

1: U.S. Highway 24 & Marksheffel Road

Background Traffic Conditions
AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.37

Intersection Signal Delay (s/veh): 115.1

Intersection LOS: F

Intersection Capacity Utilization 116.3%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

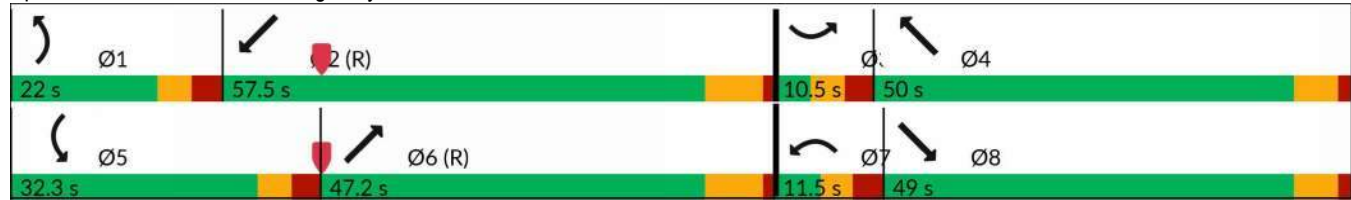
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Background Traffic Conditions

AM Peak Traffic Hour - Year 2045

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	3	29	152	20	108	39	1082	96	17	2344	258
Future Volume (vph)	86	3	29	152	20	108	39	1082	96	17	2344	258
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted				0.541			0.039			0.215		
Satd. Flow (perm)	3614	1863	1583	1008	1863	1583	73	3539	1583	400	3539	1583
Satd. Flow (RTOR)			109			117			104			280
Lane Group Flow (vph)	93	3	32	165	22	117	42	1176	104	18	2548	280
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0	9.0	11.0	11.0
Total Split (s)	9.0	10.0	10.0	12.0	13.0	13.0	9.0	109.0	109.0	9.0	109.0	109.0
Total Split (%)	6.4%	7.1%	7.1%	8.6%	9.3%	9.3%	6.4%	77.9%	77.9%	6.4%	77.9%	77.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	7.0	4.0	4.0	15.3	6.5	6.5	111.5	107.9	107.9	109.5	104.1	104.1
Actuated g/C Ratio	0.05	0.03	0.03	0.11	0.05	0.05	0.80	0.77	0.77	0.78	0.74	0.74
v/c Ratio	0.53	0.06	0.21	0.99	0.25	0.63	0.38	0.43	0.08	0.05	0.97	0.22
Control Delay (s/veh)	70.6	68.3	3.2	125.7	71.5	26.5	29.7	0.7	0.1	2.7	31.3	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.6	68.3	3.2	125.7	71.5	26.5	29.7	0.7	0.1	2.7	31.3	2.1
LOS	E	E	A	F	E	C	C	A	A	A	C	A
Approach Delay (s/veh)		53.7			83.6			1.6			28.3	
Approach LOS		D			F			A			C	
Queue Length 50th (ft)	40	3	0	~170	20	0	4	6	0	3	1268	30
Queue Length 95th (ft)	69	14	0	#274	51	65	m9	m6	m1	m4	m1044	m28
Internal Link Dist (ft)		181			181			997			657	
Turn Bay Length (ft)	220		200	230		195	405			340		335
Base Capacity (vph)	175	53	151	167	93	190	112	2726	1243	356	2631	1249
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.06	0.21	0.99	0.24	0.62	0.38	0.43	0.08	0.05	0.97	0.22

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 43 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Timings

2: Marksheffel Road & Meadowbrook Parkway

Background Traffic Conditions
AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.99

Intersection Signal Delay (s/veh): 25.0

Intersection LOS: C

Intersection Capacity Utilization 91.5%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

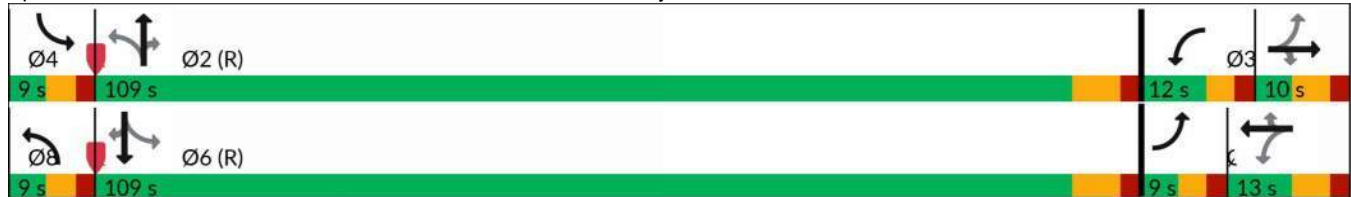
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Background Traffic Conditions

AM Peak Traffic Hour - Year 2045

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	175	462	666	137	675	169	25	478	931	52	253	2019
Future Volume (vph)	175	462	666	137	675	169	25	478	931	52	253	2019
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.174			0.201				0.950			0.950	
Satd. Flow (perm)	324	3539	1583	374	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			258			164				164		
Lane Group Flow (vph)	190	502	724	149	734	184	0	547	1012	57	275	2195
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	11.0	30.0		11.0	30.0		22.0	22.0	77.0		22.0	77.0
Total Split (%)	7.9%	21.4%		7.9%	21.4%		15.7%	15.7%	55.0%		15.7%	55.0%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	31.0	23.0	140.0	31.0	23.0	140.0		17.0	71.6	140.0	15.4	70.0
Actuated g/C Ratio	0.22	0.16	1.00	0.22	0.16	1.00		0.12	0.51	1.00	0.11	0.50
v/c Ratio	1.43	0.86	0.46	1.05	1.26	0.12		1.31	0.56	0.04	0.73	1.24
Control Delay (s/veh)	263.3	75.5	2.3	134.8	178.3	0.1		210.3	20.2	0.0	71.8	145.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	263.3	75.5	2.3	134.8	178.3	0.1		210.3	20.2	0.0	71.8	145.5
LOS	F	E	A	F	F	A		F	C	A	E	F
Approach Delay (s/veh)		63.2			141.5				83.9			125.3
Approach LOS		E			F				F			F
Queue Length 50th (ft)	~184	192	47	~119	~447	0		~343	227	0	127	~1323
Queue Length 95th (ft)	#353	#323	64	#231	#579	0		#465	237	m0	177	#1457
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	133	581	1583	142	581	1583		416	1808	1583	416	1769
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	1.43	0.86	0.46	1.05	1.26	0.12		1.31	0.56	0.04	0.66	1.24

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 92 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	217
Future Volume (vph)	217
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	164
Lane Group Flow (vph)	236
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.15
Control Delay (s/veh)	0.2
Queue Delay	0.0
Total Delay (s/veh)	0.2
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.15
Intersection Summary	

Timings

3: Marksheffel Road & Constitution Avenue

Background Traffic Conditions
AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.43

Intersection Signal Delay (s/veh): 105.1

Intersection LOS: F

Intersection Capacity Utilization 118.5%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

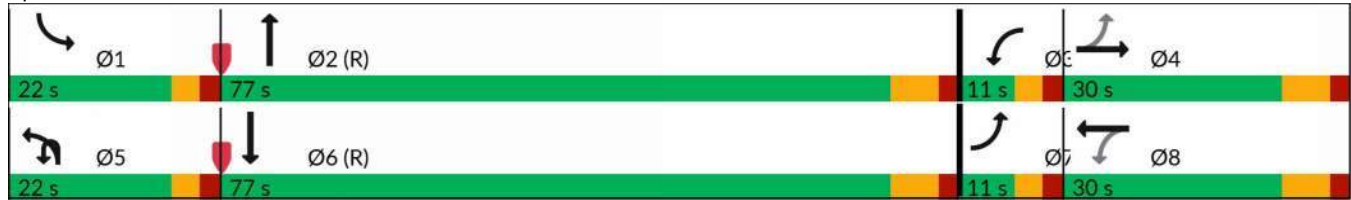
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection												
Int Delay, s/veh	25.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↑	↖	↗	↑↑	↖	↗	↑↑	↖
Traffic Vol, veh/h	0	0	0	29	0	224	3	1250	17	70	2640	4
Future Vol, veh/h	0	0	0	29	0	224	3	1250	17	70	2640	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	150	375	-	260	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	32	0	243	3	1359	18	76	2870	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	3708	4405	1435	2952	4391	679	2874	0	0	1377	0	0
Stage 1	3022	3022	-	1365	1365	-	-	-	-	-	-	-
Stage 2	686	1384	-	1587	3026	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	2	1	123	~ 6	2	394	127	-	-	494	-	-
Stage 1	13	30	-	155	214	-	-	-	-	-	-	-
Stage 2	404	209	-	113	30	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1	1	123	~ 5	1	394	127	-	-	494	-	-
Mov Cap-2 Maneuver	1	1	-	~ 5	1	-	-	-	-	-	-	-
Stage 1	11	25	-	151	208	-	-	-	-	-	-	-
Stage 2	150	204	-	95	25	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	\$ 429.54	0.08	0.35
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	127	-	-	5	394	494	-
HCM Lane V/C Ratio	0.026	-	-	5.927	0.618	0.154	-
HCM Ctrl Dly (s/v)	34.1	-	-	\$ 3532.3	0	27.8	13.6
HCM Lane LOS	D	-	-	A F	A	D	B
HCM 95th %tile Q(veh)	0.1	-	-	5.4	-	4	0.5

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

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	1269	2627	0
Future Vol, veh/h	0	1	0	1269	2627	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	1379	2855	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1428	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 124	0 -	- -
Stage 1	0 -	0 -	- -
Stage 2	0 -	0 -	- -
Platoon blocked, %		- -	- -
Mov Cap-1 Maneuver	- 124	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	34.19	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 124	- -	- -
HCM Lane V/C Ratio	- 0.009	- -	- -
HCM Ctrl Dly (s/v)	- 34.2	- -	- -
HCM Lane LOS	- D	- -	- -
HCM 95th %tile Q(veh)	- 0	- -	- -

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	1	0	1471	2758	12
Future Vol, veh/h	0	1	0	1471	2758	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	1599	2998	13

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1499	-	0 - 0
Stage 1	- -	-	- -
Stage 2	- -	-	- -
Critical Hdwy	- 6.94	-	- -
Critical Hdwy Stg 1	- -	-	- -
Critical Hdwy Stg 2	- -	-	- -
Follow-up Hdwy	- 3.32	-	- -
Pot Cap-1 Maneuver	0 111	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %			- -
Mov Cap-1 Maneuver	- 111	-	- -
Mov Cap-2 Maneuver	- -	-	- -
Stage 1	- -	-	- -
Stage 2	- -	-	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	37.67	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 111	-
HCM Lane V/C Ratio	- 0.01	-
HCM Ctrl Dly (s/v)	- 37.7	-
HCM Lane LOS	- E	-
HCM 95th %tile Q(veh)	- 0	-

Timings

7: Hannah Ridge Drive & Constitution Avenue

Background Traffic Conditions

AM Peak Traffic Hour - Year 2045

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	36	12	1171	29	92	1350	3	83	0	149	10	0
Future Volume (vph)	36	12	1171	29	92	1350	3	83	0	149	10	0
Satd. Flow (prot)	0	1770	3539	1583	1770	3539	1583	1770	1583	0	1770	1863
Flt Permitted		0.134			0.168			0.425			0.654	
Satd. Flow (perm)	0	250	3539	1583	313	3539	1583	792	1583	0	1218	1863
Satd. Flow (RTOR)				132			132		186			
Lane Group Flow (vph)	0	52	1273	32	100	1467	3	90	162	0	11	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4		4	8		8	2			6	
Detector Phase	7	7	4	4	3	8	8	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	11.0	11.0	9.0	11.0	11.0	9.0	9.0		9.0	9.0
Total Split (s)	13.0	13.0	93.0	93.0	16.0	96.0	96.0	16.0	22.0		9.0	15.0
Total Split (%)	9.3%	9.3%	66.4%	66.4%	11.4%	68.6%	68.6%	11.4%	15.7%		6.4%	10.7%
Yellow Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)		105.5	97.1	97.1	108.2	100.1	100.1	18.6	15.0		8.4	
Actuated g/C Ratio		0.75	0.69	0.69	0.77	0.72	0.72	0.13	0.11		0.06	
v/c Ratio		0.20	0.52	0.03	0.31	0.58	0.00	0.51	0.48		0.13	
Control Delay (s/veh)		5.6	11.8	0.0	6.4	9.9	0.0	64.5	10.1		54.2	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Delay (s/veh)		5.6	11.8	0.0	6.4	9.9	0.0	64.5	10.1		54.2	
LOS		A	B	A	A	A	A	E	B		D	
Approach Delay (s/veh)			11.3			9.6			29.5			12.5
Approach LOS			B			A			C			B
Queue Length 50th (ft)		10	294	0	4	121	0	75	0		9	
Queue Length 95th (ft)		19	360	0	m3	m68	m0	132	49		28	
Internal Link Dist (ft)			1055			807			1127			417
Turn Bay Length (ft)		345		235	185		215	130			215	
Base Capacity (vph)		277	2454	1138	362	2529	1169	186	372		88	
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	
Reduced v/c Ratio		0.19	0.52	0.03	0.28	0.58	0.00	0.48	0.44		0.13	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 27 (19%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	42
Future Volume (vph)	42
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	148
Lane Group Flow (vph)	46
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	9.0
Total Split (s)	15.0
Total Split (%)	10.7%
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	5.5
Actuated g/C Ratio	0.04
v/c Ratio	0.23
Control Delay (s/veh)	2.5
Queue Delay	0.0
Total Delay (s/veh)	2.5
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	140
Base Capacity (vph)	250
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.18
Intersection Summary	

Timings
7: Hannah Ridge Drive & Constitution Avenue

Background Traffic Conditions
AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.58

Intersection Signal Delay (s/veh): 11.9

Intersection LOS: B

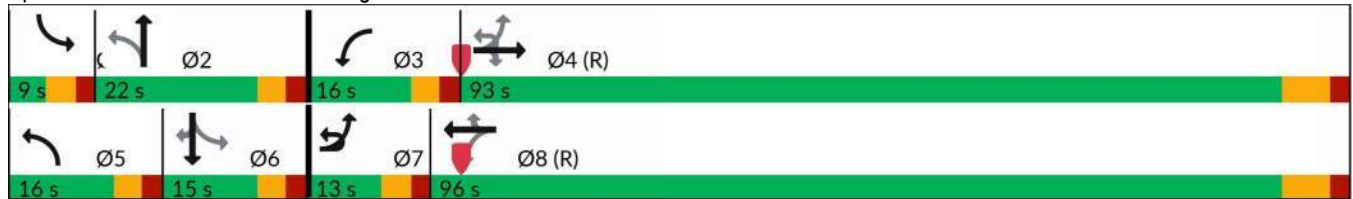
Intersection Capacity Utilization 66.9%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Hannah Ridge Drive & Constitution Avenue



Intersection

Intersection Delay, s/veh 8
Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	15	38	117	48	71
Future Vol, veh/h	51	15	38	117	48	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	16	41	127	52	77
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8	8.3	7.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	25%	77%	0%
Vol Thru, %	75%	0%	40%
Vol Right, %	0%	23%	60%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	155	66	119
LT Vol	38	51	0
Through Vol	117	0	48
RT Vol	0	15	71
Lane Flow Rate	168	72	129
Geometry Grp	1	1	1
Degree of Util (X)	0.197	0.091	0.138
Departure Headway (Hd)	4.208	4.588	3.83
Convergence, Y/N	Yes	Yes	Yes
Cap	842	786	918
Service Time	2.283	2.588	1.926
HCM Lane V/C Ratio	0.2	0.092	0.141
HCM Control Delay, s/veh	8.3	8	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	0.3	0.5

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	0	0	0	0	0	0	15	0	0	3	1
Future Vol, veh/h	17	0	0	0	0	0	0	15	0	0	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	0	0	0	0	0	16	0	0	3	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	20	20	4	20	21	16	4	0	0	16	0	0
Stage 1	4	4	-	16	16	-	-	-	-	-	-	-
Stage 2	16	16	-	3	4	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	993	874	1080	994	873	1063	1617	-	-	1601	-	-
Stage 1	1019	893	-	1003	882	-	-	-	-	-	-	-
Stage 2	1003	882	-	1019	892	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	993	874	1080	994	873	1063	1617	-	-	1601	-	-
Mov Cap-2 Maneuver	993	874	-	994	873	-	-	-	-	-	-	-
Stage 1	1019	893	-	1003	882	-	-	-	-	-	-	-
Stage 2	1003	882	-	1019	892	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	8.69		0		0		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1617	-	-	993	-	1601	-	-				
HCM Lane V/C Ratio	-	-	-	0.019	-	-	-	-				
HCM Ctrl Dly (s/v)	0	-	-	8.7	0	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-				

Timings
1: U.S. Highway 24 & Marksheffel Road

Background Traffic Conditions
PM Peak Traffic Hour - Year 2045

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	28	902	628	9	1672	369	1093	1517	0	245	814	31
Future Volume (vph)	28	902	628	9	1672	369	1093	1517	0	245	814	31
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Satd. Flow (RTOR)			374			230						230
Lane Group Flow (vph)	30	980	683	10	1817	401	1188	1649	0	266	885	34
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	10.5	52.0		11.5	53.0		39.0	61.5		15.0	37.5	
Total Split (%)	7.5%	37.1%		8.2%	37.9%		27.9%	43.9%		10.7%	26.8%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	4.0	55.2	140.0	5.0	49.1	140.0	32.5	54.5		8.5	30.5	140.0
Actuated g/C Ratio	0.03	0.39	1.00	0.04	0.35	1.00	0.23	0.39		0.06	0.22	1.00
v/c Ratio	0.60	0.70	0.43	0.16	1.46	0.25	1.49	1.20		1.28	1.15	0.02
Control Delay (s/veh)	93.0	37.9	0.9	71.2	247.4	0.4	265.6	134.3		207.3	130.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0		0.0	0.0	0.0
Total Delay (s/veh)	93.0	37.9	0.9	71.2	247.5	0.4	265.9	134.3		207.3	130.0	0.0
LOS	F	D	A	E	F	A	F	F		F	F	A
Approach Delay (s/veh)		23.9			202.2			189.4			143.7	
Approach LOS		C			F			F			F	
Queue Length 50th (ft)	27	455	0	9	~1235	0	~781	~970		~160	~504	0
Queue Length 95th (ft)	m#66	557	0	30	#1376	0	#920	#1111		#255	#641	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000			950		705
Base Capacity (vph)	50	1395	1583	63	1241	1583	796	1377		208	770	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	11	0	28	0		0	0	154
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.60	0.70	0.43	0.16	1.48	0.25	1.55	1.20		1.28	1.15	0.02

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 68 (49%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings

1: U.S. Highway 24 & Marksheffel Road

Background Traffic Conditions

PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.49

Intersection Signal Delay (s/veh): 150.9

Intersection LOS: F

Intersection Capacity Utilization 116.2%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

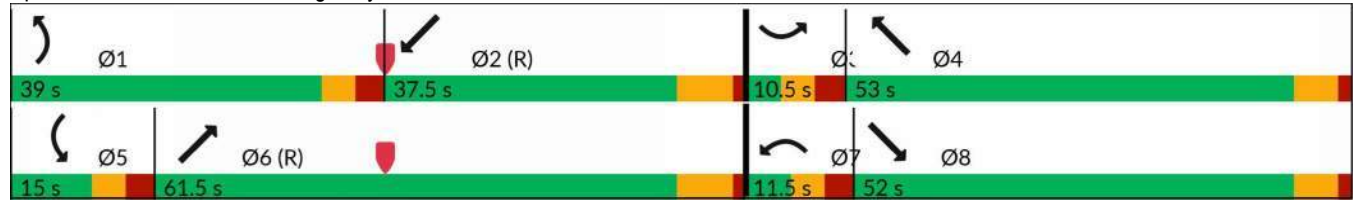
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Background Traffic Conditions

PM Peak Traffic Hour - Year 2045

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	20	63	76	17	38	36	2391	122	76	1256	140
Future Volume (vph)	169	20	63	76	17	38	36	2391	122	76	1256	140
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted							0.173			0.038		
Satd. Flow (perm)	3614	1863	1583	1863	1863	1583	322	3539	1583	71	3539	1583
Satd. Flow (RTOR)			109			109			110			152
Lane Group Flow (vph)	184	22	68	83	18	41	39	2599	133	83	1365	152
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0	9.0	11.0	11.0
Total Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	112.0	112.0	9.0	112.0	112.0
Total Split (%)	6.4%	7.1%	7.1%	6.4%	7.1%	7.1%	6.4%	80.0%	80.0%	6.4%	80.0%	80.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	8.0	4.0	4.0	8.0	4.0	4.0	112.8	106.5	106.5	114.0	108.8	108.8
Actuated g/C Ratio	0.06	0.03	0.03	0.06	0.03	0.03	0.81	0.76	0.76	0.81	0.78	0.78
v/c Ratio	0.92	0.42	0.45	0.80	0.34	0.27	0.13	0.97	0.11	0.74	0.50	0.12
Control Delay (s/veh)	107.4	89.7	12.0	108.4	83.8	4.4	3.8	33.4	3.6	60.1	9.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0	0.0
Total Delay (s/veh)	107.4	89.7	12.0	108.4	83.8	4.4	3.8	38.1	3.6	60.1	9.6	1.2
LOS	F	F	B	F	F	A	A	D	A	E	A	A
Approach Delay (s/veh)		82.3			75.2			36.0			11.4	
Approach LOS		F			E			D			B	
Queue Length 50th (ft)	84	20	0	74	17	0	8	979	12	22	485	14
Queue Length 95th (ft)	#146	#55	13	#158	45	0	m6	m585	m5	m#51	m517	m16
Internal Link Dist (ft)		181			181			997			657	
Turn Bay Length (ft)	220		200	230		195	405			340		335
Base Capacity (vph)	201	53	151	104	53	151	303	2691	1229	112	2750	1264
Starvation Cap Reductn	0	0	0	0	0	0	0	86	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.42	0.45	0.80	0.34	0.27	0.13	1.00	0.11	0.74	0.50	0.12

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 54 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Timings

2: Marksheffel Road & Meadowbrook Parkway

Background Traffic Conditions
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.97

Intersection Signal Delay (s/veh): 31.6

Intersection LOS: C

Intersection Capacity Utilization 89.2%

ICU Level of Service E

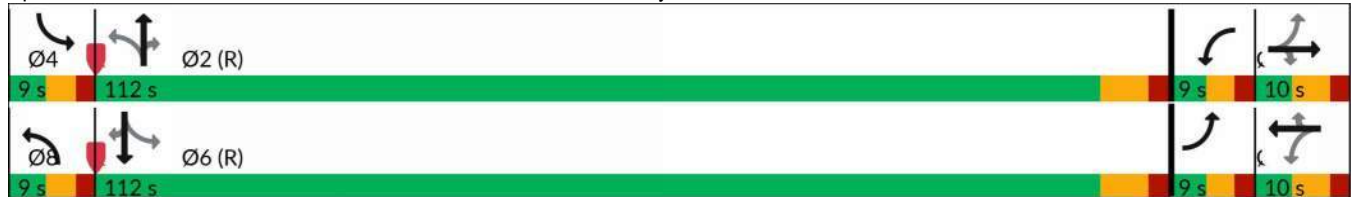
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Background Traffic Conditions

PM Peak Traffic Hour - Year 2045

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	149	897	440	176	736	386	9	711	1672	45	326	905
Future Volume (vph)	149	897	440	176	736	386	9	711	1672	45	326	905
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.121			0.125				0.950			0.950	
Satd. Flow (perm)	225	3539	1583	233	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			216			257				203		
Lane Group Flow (vph)	162	975	478	191	800	420	0	783	1817	49	354	984
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	12.0	40.0		11.0	39.0		37.0	37.0	72.0		17.0	52.0
Total Split (%)	8.6%	28.6%		7.9%	27.9%		26.4%	26.4%	51.4%		12.1%	37.1%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	42.0	33.0	140.0	40.0	32.0	140.0		32.0	65.0	140.0	12.0	45.0
Actuated g/C Ratio	0.30	0.24	1.00	0.29	0.23	1.00		0.23	0.46	1.00	0.09	0.32
v/c Ratio	1.13	1.17	0.30	1.45	0.99	0.27		1.00	1.11	0.03	1.20	0.87
Control Delay (s/veh)	146.4	131.5	0.4	269.5	82.8	0.4		78.4	87.6	0.0	171.9	53.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	146.4	131.5	0.4	269.5	82.8	0.4		78.4	87.6	0.0	171.9	53.9
LOS	F	F	A	F	F	A		E	F	A	F	D
Approach Delay (s/veh)		94.2			83.6				83.3			75.7
Approach LOS		F			F				F			E
Queue Length 50th (ft)	~115	~565	0	~183	391	0		397	~1001	0	~204	450
Queue Length 95th (ft)	#278	#693	0	#349	#533	0		m#433	m#1076	m0	#309	542
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	144	834	1583	132	808	1583		784	1643	1583	294	1137
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	1.13	1.17	0.30	1.45	0.99	0.27		1.00	1.11	0.03	1.20	0.87

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 115 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	154
Future Volume (vph)	154
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	203
Lane Group Flow (vph)	167
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.11
Control Delay (s/veh)	0.1
Queue Delay	0.0
Total Delay (s/veh)	0.1
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.11
Intersection Summary	

Timings

3: Marksheffel Road & Constitution Avenue

Background Traffic Conditions
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.45

Intersection Signal Delay (s/veh): 84.2

Intersection LOS: F

Intersection Capacity Utilization 110.1%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

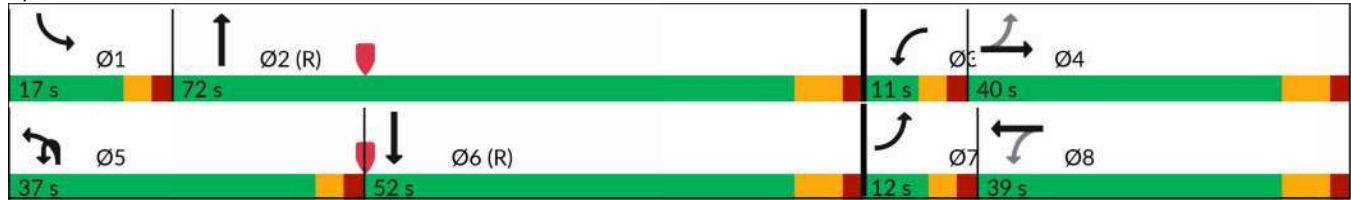
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↑	↗	↕	↑↑	↗	↕	↑↑	↗
Traffic Vol, veh/h	1	0	3	12	0	112	3	2453	84	127	1476	1
Future Vol, veh/h	1	0	3	12	0	112	3	2453	84	127	1476	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	150	375	-	260	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	3	13	0	122	3	2666	91	138	1604	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	3220	4645	802	3751	4554	1333	1605	0	0	2758	0	0
Stage 1	1880	1880	-	2673	2673	-	-	-	-	-	-	-
Stage 2	1340	2764	-	1078	1882	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	4	1	327	~ 1	1	144	403	-	-	142	-	-
Stage 1	73	119	-	22	46	-	-	-	-	-	-	-
Stage 2	161	41	-	233	118	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 0	0	327	~ 0	0	144	403	-	-	142	-	-
Mov Cap-2 Maneuver	~ 0	0	-	~ 0	0	-	-	-	-	-	-	-
Stage 1	2	3	-	22	46	-	-	-	-	-	-	-
Stage 2	25	41	-	~ 6	3	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v			0.02	10.35
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	403	-	-	-	142	-	-
HCM Lane V/C Ratio	0.008	-	-	-	0.975	-	-
HCM Ctrl Dly (s/v)	14	-	-	0	130.7	-	-
HCM Lane LOS	B	-	-	A	F	-	-
HCM 95th %tile Q(veh)	0	-	-	-	7	-	-

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

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	2584	1470	1
Future Vol, veh/h	0	0	0	2584	1470	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	2809	1598	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	799	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	328	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	328	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	-		-	-		
HCM Lane V/C Ratio	-		-	-		
HCM Ctrl Dly (s/v)	-		0	-		
HCM Lane LOS	-		A	-		
HCM 95th %tile Q(veh)	-		-	-		

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	7	0	2557	1581	1
Future Vol, veh/h	0	7	0	2557	1581	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	0	2779	1718	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 859	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 300	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %		- -	- -
Mov Cap-1 Maneuver	- 300	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.33	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 300	-
HCM Lane V/C Ratio	- 0.025	-
HCM Ctrl Dly (s/v)	- 17.3	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 0.1	-

Timings
7: Hannah Ridge Drive & Constitution Avenue

Background Traffic Conditions
PM Peak Traffic Hour - Year 2045

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	20	1406	73	98	1412	10	50	0	122	0	0
Future Volume (vph)	20	20	1406	73	98	1412	10	50	0	122	0	0
Satd. Flow (prot)	0	1770	3539	1583	1770	3539	1583	1770	1583	0	1863	1863
Flt Permitted		0.137			0.129			0.482				
Satd. Flow (perm)	0	255	3539	1583	240	3539	1583	898	1583	0	1863	1863
Satd. Flow (RTOR)				132			94		148			
Lane Group Flow (vph)	0	44	1528	79	107	1535	11	54	133	0	0	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4		4	8		8	2			6	
Detector Phase	7	7	4	4	3	8	8	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	11.0	11.0	9.0	11.0	11.0	9.0	9.0		9.0	9.0
Total Split (s)	10.0	10.0	95.0	95.0	16.0	101.0	101.0	10.0	20.0		9.0	19.0
Total Split (%)	7.1%	7.1%	67.9%	67.9%	11.4%	72.1%	72.1%	7.1%	14.3%		6.4%	13.6%
Yellow Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)		114.5	106.5	106.5	117.4	109.6	109.6	9.5	9.5			
Actuated g/C Ratio		0.82	0.76	0.76	0.84	0.78	0.78	0.07	0.07			
v/c Ratio		0.16	0.57	0.06	0.38	0.55	0.01	0.58	0.54			
Control Delay (s/veh)		3.4	8.8	0.2	9.3	10.8	0.0	85.2	15.0			
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay (s/veh)		3.4	8.8	0.2	9.3	10.8	0.0	85.2	15.0			
LOS		A	A	A	A	B	A	F	B			
Approach Delay (s/veh)			8.2			10.7			35.2			0.8
Approach LOS			A			B			D			A
Queue Length 50th (ft)		3	228	0	17	274	0	51	0			
Queue Length 95th (ft)		13	419	2	m34	m286	m0	92	50			
Internal Link Dist (ft)			1055			807			1127			417
Turn Bay Length (ft)		345		235	185		215	130				
Base Capacity (vph)		273	2691	1235	326	2769	1259	93	303			
Starvation Cap Reductn		0	0	0	0	0	0	0	0			
Spillback Cap Reductn		0	0	0	0	0	0	0	0			
Storage Cap Reductn		0	0	0	0	0	0	0	0			
Reduced v/c Ratio		0.16	0.57	0.06	0.33	0.55	0.01	0.58	0.44			
Intersection Summary												
Cycle Length: 140												
Actuated Cycle Length: 140												
Offset: 27 (19%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green												
Natural Cycle: 60												
Control Type: Actuated-Coordinated												

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	16
Future Volume (vph)	16
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	148
Lane Group Flow (vph)	17
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	9.0
Total Split (s)	19.0
Total Split (%)	13.6%
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	5.5
Actuated g/C Ratio	0.04
v/c Ratio	0.08
Control Delay (s/veh)	0.8
Queue Delay	0.0
Total Delay (s/veh)	0.8
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	140
Base Capacity (vph)	291
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.06
Intersection Summary	

Timings
7: Hannah Ridge Drive & Constitution Avenue

Background Traffic Conditions
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.58

Intersection Signal Delay (s/veh): 10.8

Intersection LOS: B

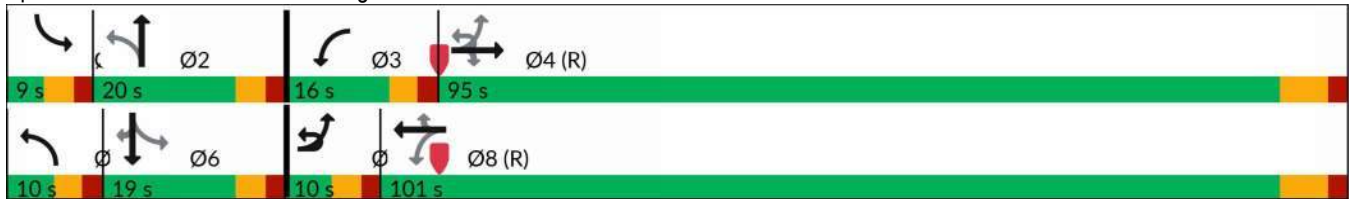
Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Hannah Ridge Drive & Constitution Avenue



Intersection

Intersection Delay, s/veh 8.2

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	89	35	15	60	101	45
Future Vol, veh/h	89	35	15	60	101	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	38	16	65	110	49
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8.3	8	8.1
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	20%	72%	0%
Vol Thru, %	80%	0%	69%
Vol Right, %	0%	28%	31%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	75	124	146
LT Vol	15	89	0
Through Vol	60	0	101
RT Vol	0	35	45
Lane Flow Rate	82	135	159
Geometry Grp	1	1	1
Degree of Util (X)	0.101	0.166	0.183
Departure Headway (Hd)	4.454	4.435	4.156
Convergence, Y/N	Yes	Yes	Yes
Cap	807	811	866
Service Time	2.467	2.45	2.167
HCM Lane V/C Ratio	0.102	0.166	0.184
HCM Control Delay, s/veh	8	8.3	8.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.3	0.6	0.7

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	1	0	0	0	1	9	0	0	15	15
Future Vol, veh/h	9	0	1	0	0	0	1	9	0	0	15	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	1	0	0	0	1	10	0	0	16	16
Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	36	36	24	28	45	10	33	0	0	10	0	0
Stage 1	24	24	-	12	12	-	-	-	-	-	-	-
Stage 2	12	12	-	16	33	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	969	856	1052	981	847	1072	1579	-	-	1610	-	-
Stage 1	993	875	-	1009	886	-	-	-	-	-	-	-
Stage 2	1009	886	-	1003	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	969	855	1052	979	847	1072	1579	-	-	1610	-	-
Mov Cap-2 Maneuver	969	855	-	979	847	-	-	-	-	-	-	-
Stage 1	993	875	-	1008	885	-	-	-	-	-	-	-
Stage 2	1008	885	-	1002	868	-	-	-	-	-	-	-
Approach	EB		WB		NB			SB				
HCM Ctrl Dly, s/v	8.73		0		0.73			0				
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	180	-	-	976	-	1610	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.011	-	-	-	-				
HCM Ctrl Dly (s/v)	7.3	0	-	8.7	0	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-				

Timings

1: U.S. Highway 24 & Marksheffel Road

Total Traffic Conditions

AM Peak Traffic Hour - Year 2031

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	112	1161	901	2	656	91	508	489	2	307	1206	46
Future Volume (vph)	112	1161	901	2	656	91	508	489	2	307	1206	46
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			417			230			230			230
Lane Group Flow (vph)	122	1262	979	2	713	99	552	532	2	334	1311	50
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	15.0	45.0		15.0	45.0		35.0	57.0		23.0	45.0	
Total Split (%)	10.7%	32.1%		10.7%	32.1%		25.0%	40.7%		16.4%	32.1%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	8.5	51.4	140.0	5.8	39.0	140.0	26.3	50.4	140.0	16.1	40.2	140.0
Actuated g/C Ratio	0.06	0.37	1.00	0.04	0.28	1.00	0.19	0.36	1.00	0.12	0.29	1.00
v/c Ratio	1.14	0.97	0.62	0.03	0.72	0.06	0.86	0.42	0.00	0.85	1.29	0.03
Control Delay (s/veh)	174.7	54.8	2.1	65.0	50.6	0.1	68.9	35.1	0.0	80.4	178.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	174.7	54.8	2.1	65.0	50.6	0.1	68.9	35.1	0.0	80.4	178.0	0.0
LOS	F	D	A	E	D	A	E	D	A	F	F	A
Approach Delay (s/veh)		39.1			44.5			52.2			153.5	
Approach LOS		D			D			D			F	
Queue Length 50th (ft)	~134	496	0	2	314	0	254	195	0	158	~827	0
Queue Length 95th (ft)	m#183	#884	38	12	390	0	321	249	0	#232	#982	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000		635	950		705
Base Capacity (vph)	107	1300	1583	107	985	1583	698	1273	1583	404	1017	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.97	0.62	0.02	0.72	0.06	0.79	0.42	0.00	0.83	1.29	0.03

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 110 (79%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings

1: U.S. Highway 24 & Marksheffel Road

Total Traffic Conditions
AM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 1.29

Intersection Signal Delay (s/veh): 74.8

Intersection LOS: E

Intersection Capacity Utilization 105.8%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Total Traffic Conditions AM Peak Traffic Hour - Year 2031

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	65	2	22	115	15	82	30	965	73	15	13	1979
Future Volume (vph)	65	2	22	115	15	82	30	965	73	15	13	1979
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	0	1770	3539
Flt Permitted				0.465			0.042				0.236	
Satd. Flow (perm)	3614	1863	1583	866	1863	1583	78	3539	1583	0	440	3539
Satd. Flow (RTOR)			109			109			101			
Lane Group Flow (vph)	71	2	24	125	16	89	33	1049	79	0	30	2151
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA
Protected Phases	7	4		3	8		5	2			1	6
Permitted Phases	4		4	8		8	2		2	1	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0	9.0	9.0	11.0
Total Split (s)	20.0	34.0	34.0	20.0	34.0	34.0	17.0	69.0	69.0	17.0	17.0	69.0
Total Split (%)	14.3%	24.3%	24.3%	14.3%	24.3%	24.3%	12.1%	49.3%	49.3%	12.1%	12.1%	49.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	3.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	None	C-Max
Act Effect Green (s)	12.1	5.8	5.8	21.7	10.0	10.0	105.3	99.4	99.4		105.2	99.3
Actuated g/C Ratio	0.09	0.04	0.04	0.16	0.07	0.07	0.75	0.71	0.71		0.75	0.71
v/c Ratio	0.24	0.03	0.14	0.55	0.12	0.42	0.25	0.42	0.07		0.08	0.86
Control Delay (s/veh)	52.4	65.0	1.8	61.3	61.7	12.1	21.1	6.6	1.4		3.4	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	52.4	65.0	1.8	61.3	61.7	12.1	21.1	6.6	1.4		3.4	19.4
LOS	D	E	A	E	E	B	C	A	A		A	B
Approach Delay (s/veh)		40.1			42.3			6.7				17.6
Approach LOS		D			D			A				B
Queue Length 50th (ft)	28	2	0	103	14	0	4	80	0		5	1091
Queue Length 95th (ft)	51	12	0	166	39	37	m11	129	m7		m6	m947
Internal Link Dist (ft)		181			181			997				657
Turn Bay Length (ft)	220		200	230		195	405				340	
Base Capacity (vph)	475	372	403	243	372	403	205	2512	1153		454	2511
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio	0.15	0.01	0.06	0.51	0.04	0.22	0.16	0.42	0.07		0.07	0.86

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 43 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	195
Future Volume (vph)	195
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	124
Lane Group Flow (vph)	212
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	11.0
Total Split (s)	69.0
Total Split (%)	49.3%
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	C-Max
Act Effct Green (s)	99.3
Actuated g/C Ratio	0.71
v/c Ratio	0.18
Control Delay (s/veh)	1.5
Queue Delay	0.0
Total Delay (s/veh)	1.5
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	8
Queue Length 95th (ft)	m10
Internal Link Dist (ft)	
Turn Bay Length (ft)	335
Base Capacity (vph)	1159
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.18
Intersection Summary	

Timings

2: Marksheffel Road & Meadowbrook Parkway

Total Traffic Conditions
AM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 16.4

Intersection LOS: B

Intersection Capacity Utilization 79.4%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions
AM Peak Traffic Hour - Year 2031

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		 			 			 	 		 	 
Traffic Volume (vph)	142	350	638	104	515	128	114	438	815	40	192	1698
Future Volume (vph)	142	350	638	104	515	128	114	438	815	40	192	1698
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.172			0.406				0.950			0.950	
Satd. Flow (perm)	320	3539	1583	756	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			300			164				164		
Lane Group Flow (vph)	154	380	693	113	560	139	0	600	886	43	209	1846
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	18.0	35.0		18.0	35.0		24.0	24.0	63.0		24.0	63.0
Total Split (%)	12.9%	25.0%		12.9%	25.0%		17.1%	17.1%	45.0%		17.1%	45.0%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	41.5	27.1	140.0	39.1	25.9	140.0		21.7	63.8	140.0	13.8	56.0
Actuated g/C Ratio	0.30	0.19	1.00	0.28	0.19	1.00		0.16	0.46	1.00	0.10	0.40
v/c Ratio	0.69	0.56	0.44	0.39	0.86	0.09		1.13	0.55	0.03	0.62	1.30
Control Delay (s/veh)	64.1	53.2	2.6	37.6	68.7	0.1		134.0	28.7	0.0	68.3	177.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	64.1	53.2	2.6	37.6	68.7	0.1		134.0	28.7	0.0	68.3	177.7
LOS	E	D	A	D	E	A		F	C	A	E	F
Approach Delay (s/veh)		26.0			52.6				69.2			152.8
Approach LOS		C			D				E			F
Queue Length 50th (ft)	103	120	67	74	264	0		~352	255	0	97	~1150
Queue Length 95th (ft)	#183	176	112	123	332	0		m#462	m300	m0	137	#1289
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	230	709	1583	315	707	1583		530	1613	1583	465	1415
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.67	0.54	0.44	0.36	0.79	0.09		1.13	0.55	0.03	0.45	1.30

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 92 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	170
Future Volume (vph)	170
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	164
Lane Group Flow (vph)	185
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.12
Control Delay (s/veh)	0.2
Queue Delay	0.0
Total Delay (s/veh)	0.2
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.12
Intersection Summary	

Timings

3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions
AM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 1.30

Intersection Signal Delay (s/veh): 90.0

Intersection LOS: F

Intersection Capacity Utilization 104.8%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

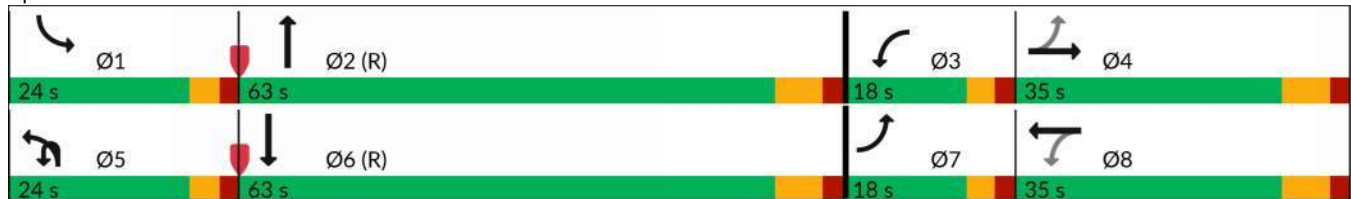
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection														
Int Delay, s/veh	17.4													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	0	22	0	170	46	2	1061	13	166	53	2325	3
Future Vol, veh/h	0	0	0	22	0	170	46	2	1061	13	166	53	2325	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	150	-	150	-	375	-	260	-	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	24	0	185	50	2	1153	14	180	58	2527	3

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	3684	4275	1264	2997	4264	577	2527	2530	0	0	1153	1167	0	0
Stage 1	3003	3003	-	1258	1258	-	-	-	-	-	-	-	-	-
Stage 2	681	1272	-	1740	3007	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	6.44	4.14	-	-	6.44	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.52	2.22	-	-	2.52	2.22	-	-
Pot Cap-1 Maneuver	2	2	161	~ 6	2	460	~ 33	175	-	-	265	594	-	-
Stage 1	14	31	-	181	241	-	-	-	-	-	-	-	-	-
Stage 2	407	237	-	90	30	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	-	0	161	-	0	460	~ 34	34	-	-	192	192	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-	-	-
Stage 1	14	0	-	181	0	-	-	-	-	-	-	-	-	-
Stage 2	243	0	-	90	0	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0		22.23	16.52
HCM LOS	A	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	34	-	-	-	192	-	-
HCM Lane V/C Ratio	1.521	-	-	-	1.237	-	-
HCM Ctrl Dly (s/v)	\$ 519.6	-	-	0	192.1	-	-
HCM Lane LOS	F	-	-	A	F	-	-
HCM 95th %tile Q(veh)	5.7	-	-	-	12.7	-	-

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

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	31	0	1092	2179	182
Future Vol, veh/h	0	31	0	1092	2179	182
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	0	1187	2368	198
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	1184	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	182	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	182	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	29.26	0	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	182	-	-		
HCM Lane V/C Ratio	-	0.185	-	-		
HCM Ctrl Dly (s/v)	-	29.3	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.7	-	-		

Intersection

Int Delay, s/veh 47.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	↗
Traffic Vol, veh/h	0	333	0	1395	2248	386
Future Vol, veh/h	0	333	0	1395	2248	386
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	362	0	1516	2443	420

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1222	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 ~ 171	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %		- -	
Mov Cap-1 Maneuver	- ~ 171	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	\$ 562.95	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 171	-
HCM Lane V/C Ratio	- 2.111	-
HCM Ctrl Dly (s/v)	- \$ 563	-
HCM Lane LOS	- F	-
HCM 95th %tile Q(veh)	- 28.6	-

Notes

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

Timings

7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions

AM Peak Traffic Hour - Year 2031

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	28	9	999	25	83	1095	2	72	0	148	8	0
Future Volume (vph)	28	9	999	25	83	1095	2	72	0	148	8	0
Satd. Flow (prot)	0	1770	3539	1583	1770	3539	1583	1770	1583	0	1770	1863
Flt Permitted		0.199			0.216			0.452			0.655	
Satd. Flow (perm)	0	371	3539	1583	402	3539	1583	842	1583	0	1220	1863
Satd. Flow (RTOR)				132			132		212			
Lane Group Flow (vph)	0	40	1086	27	90	1190	2	78	161	0	9	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4		4	8		8	2			6	
Detector Phase	7	7	4	4	3	8	8	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	11.0	11.0	9.0	11.0	11.0	9.0	9.0		9.0	9.0
Total Split (s)	11.0	11.0	88.0	88.0	16.0	93.0	93.0	17.0	25.0		11.0	19.0
Total Split (%)	7.9%	7.9%	62.9%	62.9%	11.4%	66.4%	66.4%	12.1%	17.9%		7.9%	13.6%
Yellow Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)		105.2	97.0	97.0	108.0	100.0	100.0	18.9	16.7		10.2	
Actuated g/C Ratio		0.75	0.69	0.69	0.77	0.71	0.71	0.14	0.12		0.07	
v/c Ratio		0.12	0.44	0.02	0.24	0.47	0.00	0.43	0.43		0.08	
Control Delay (s/veh)		4.7	10.9	0.0	4.5	7.7	0.0	60.5	5.9		51.9	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Delay (s/veh)		4.7	10.9	0.0	4.5	7.7	0.0	60.5	5.9		51.9	
LOS		A	B	A	A	A	A	E	A		D	
Approach Delay (s/veh)			10.4			7.4			23.7			11.8
Approach LOS			B			A			C			B
Queue Length 50th (ft)		8	234	0	11	118	0	65	0		7	
Queue Length 95th (ft)		17	292	0	m14	m130	m0	117	25		25	
Internal Link Dist (ft)			1055			807			1127			417
Turn Bay Length (ft)		345		235	185		215	130			215	
Base Capacity (vph)		342	2451	1137	425	2529	1169	198	416		113	
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	
Reduced v/c Ratio		0.12	0.44	0.02	0.21	0.47	0.00	0.39	0.39		0.08	
Intersection Summary												
Cycle Length: 140												
Actuated Cycle Length: 140												
Offset: 27 (19%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green												
Natural Cycle: 60												
Control Type: Actuated-Coordinated												

Lane Group	SBR
Lane Configurations	↗
Traffic Volume (vph)	32
Future Volume (vph)	32
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	165
Lane Group Flow (vph)	35
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	9.0
Total Split (s)	19.0
Total Split (%)	13.6%
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	5.5
Actuated g/C Ratio	0.04
v/c Ratio	0.16
Control Delay (s/veh)	1.5
Queue Delay	0.0
Total Delay (s/veh)	1.5
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	140
Base Capacity (vph)	306
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.11
Intersection Summary	

Timings

7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions
AM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 0.47

Intersection Signal Delay (s/veh): 10.2

Intersection LOS: B

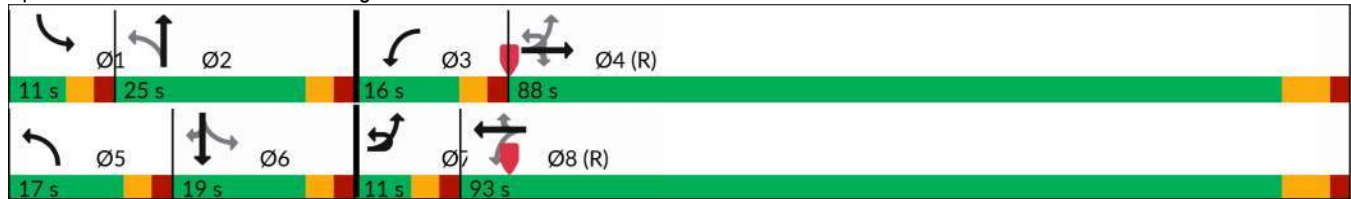
Intersection Capacity Utilization 59.3%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Hannah Ridge Drive & Constitution Avenue



Intersection

Intersection Delay, s/veh 8
Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	11	29	132	52	54
Future Vol, veh/h	39	11	29	132	52	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	12	32	143	57	59
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	7.9	8.3	7.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	18%	78%	0%
Vol Thru, %	82%	0%	49%
Vol Right, %	0%	22%	51%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	161	50	106
LT Vol	29	39	0
Through Vol	132	0	52
RT Vol	0	11	54
Lane Flow Rate	175	54	115
Geometry Grp	1	1	1
Degree of Util (X)	0.202	0.069	0.123
Departure Headway (Hd)	4.152	4.576	3.855
Convergence, Y/N	Yes	Yes	Yes
Cap	858	788	916
Service Time	2.212	2.576	1.938
HCM Lane V/C Ratio	0.204	0.069	0.126
HCM Control Delay, s/veh	8.3	7.9	7.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.2	0.4

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	0	0	0	0	0	0	55	0	0	18	1
Future Vol, veh/h	13	0	0	0	0	0	0	55	0	0	18	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	0	0	0	0	0	0	60	0	0	20	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	80	80	20	79	80	60	21	0	0	60	0	0
Stage 1	20	20	-	60	60	-	-	-	-	-	-	-
Stage 2	60	60	-	20	21	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	908	810	1058	909	810	1006	1595	-	-	1544	-	-
Stage 1	999	879	-	952	845	-	-	-	-	-	-	-
Stage 2	952	845	-	999	878	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	908	810	1058	909	810	1006	1595	-	-	1544	-	-
Mov Cap-2 Maneuver	908	810	-	909	810	-	-	-	-	-	-	-
Stage 1	999	879	-	952	845	-	-	-	-	-	-	-
Stage 2	952	845	-	999	878	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	9.03		0		0		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1595	-	-	908	-	1544	-	-				
HCM Lane V/C Ratio	-	-	-	0.016	-	-	-	-				
HCM Ctrl Dly (s/v)	0	-	-	9	0	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-				

Timings

1: U.S. Highway 24 & Marksheffel Road

Total Traffic Conditions
PM Peak Traffic Hour - Year 2031

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	184	683	640	6	1267	279	969	1149	0	185	617	23
Future Volume (vph)	184	683	640	6	1267	279	969	1149	0	185	617	23
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Satd. Flow (RTOR)			504			230						230
Lane Group Flow (vph)	200	742	696	7	1377	303	1053	1249	0	201	671	25
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	13.0	49.0		13.0	49.0		20.0	37.0		41.0	58.0	
Total Split (%)	9.3%	35.0%		9.3%	35.0%		14.3%	26.4%		29.3%	41.4%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	6.5	53.4	140.0	6.0	43.0	140.0	13.5	50.9		13.6	51.0	140.0
Actuated g/C Ratio	0.05	0.38	1.00	0.04	0.31	1.00	0.10	0.36		0.10	0.36	1.00
v/c Ratio	2.44	0.55	0.44	0.09	1.27	0.19	3.18	0.97		0.61	0.52	0.02
Control Delay (s/veh)	703.8	41.5	1.2	66.8	168.1	0.3	Error	62.7		68.2	36.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	703.8	41.5	1.2	66.8	168.1	0.3	Error	62.7		68.2	36.7	0.0
LOS	F	D	A	E	F	A	F	E		E	D	A
Approach Delay (s/veh)		105.2			137.5			495.4			42.7	
Approach LOS		F			F			F			D	
Queue Length 50th (ft)	~307	342	0	6	~842	0	~878	595		93	255	0
Queue Length 95th (ft)	#480	432	8	24	#984	0	#1015	#801		132	317	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000			950		705
Base Capacity (vph)	82	1349	1583	82	1086	1583	331	1287		845	1289	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	2.44	0.55	0.44	0.09	1.27	0.19	3.18	0.97		0.24	0.52	0.02

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 68 (49%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings

1: U.S. Highway 24 & Marksheffel Road

Total Traffic Conditions

PM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 3.18

Intersection Signal Delay (s/veh): 242.7

Intersection LOS: F

Intersection Capacity Utilization 111.6%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Total Traffic Conditions PM Peak Traffic Hour - Year 2031

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	128	15	47	57	13	29	28	1953	93	82	57	1279
Future Volume (vph)	128	15	47	57	13	29	28	1953	93	82	57	1279
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	0	1770	3539
Flt Permitted	0.559			0.747			0.165				0.043	
Satd. Flow (perm)	2020	1863	1583	1391	1863	1583	307	3539	1583	0	80	3539
Satd. Flow (RTOR)			109			109			101			
Lane Group Flow (vph)	139	16	51	62	14	32	30	2123	101	0	151	1390
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm		pm+pt	NA
Protected Phases	7	4		3	8		5	2			1	6
Permitted Phases	4		4	8		8	2		2		6	
Detector Phase	7	4	4	3	8	8	5	2	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0		9.0	11.0
Total Split (s)	20.0	27.0	27.0	20.0	27.0	27.0	17.0	76.0	76.0		17.0	76.0
Total Split (%)	14.3%	19.3%	19.3%	14.3%	19.3%	19.3%	12.1%	54.3%	54.3%		12.1%	54.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max		None	C-Max
Act Effect Green (s)	17.2	7.4	7.4	16.2	6.7	6.7	97.1	89.0	89.0		109.2	100.3
Actuated g/C Ratio	0.12	0.05	0.05	0.12	0.05	0.05	0.69	0.64	0.64		0.78	0.72
v/c Ratio	0.39	0.16	0.27	0.33	0.16	0.18	0.11	0.94	0.10		0.68	0.55
Control Delay (s/veh)	54.5	67.0	3.6	55.0	67.2	2.2	8.0	46.7	9.0		55.3	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	54.5	67.0	3.6	55.0	67.2	2.2	8.0	46.7	9.0		55.3	8.4
LOS	D	E	A	D	E	A	A	D	A		E	A
Approach Delay (s/veh)		42.9			40.9			44.5				12.2
Approach LOS		D			D			D				B
Queue Length 50th (ft)	58	14	0	50	13	0	8	1104	24		85	200
Queue Length 95th (ft)	87	40	0	92	37	0	m6	m648	m3		m139	m380
Internal Link Dist (ft)		181			181			997				657
Turn Bay Length (ft)	220		200	230		195	405				340	
Base Capacity (vph)	459	279	330	252	279	330	351	2249	1043		235	2535
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio	0.30	0.06	0.15	0.25	0.05	0.10	0.09	0.94	0.10		0.64	0.55

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 54 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	106
Future Volume (vph)	106
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	115
Lane Group Flow (vph)	115
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	11.0
Total Split (s)	76.0
Total Split (%)	54.3%
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	C-Max
Act Effct Green (s)	100.3
Actuated g/C Ratio	0.72
v/c Ratio	0.10
Control Delay (s/veh)	0.6
Queue Delay	0.0
Total Delay (s/veh)	0.6
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	m3
Internal Link Dist (ft)	
Turn Bay Length (ft)	335
Base Capacity (vph)	1166
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.10
Intersection Summary	

Timings

2: Marksheffel Road & Meadowbrook Parkway

Total Traffic Conditions
PM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 0.94

Intersection Signal Delay (s/veh): 31.7

Intersection LOS: C

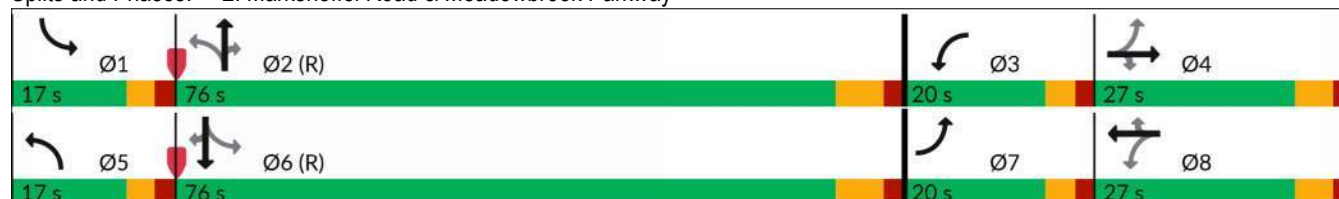
Intersection Capacity Utilization 87.8%

ICU Level of Service E

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions PM Peak Traffic Hour - Year 2031

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	122	680	451	263	570	293	122	676	1453	34	247	841
Future Volume (vph)	122	680	451	263	570	293	122	676	1453	34	247	841
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.198			0.129				0.950			0.950	
Satd. Flow (perm)	369	3539	1583	240	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			292			251				164		
Lane Group Flow (vph)	133	739	490	286	620	318	0	868	1579	37	268	914
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	19.0	36.0		19.0	36.0		30.0	30.0	55.0		30.0	55.0
Total Split (%)	13.6%	25.7%		13.6%	25.7%		21.4%	21.4%	39.3%		21.4%	39.3%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	43.1	29.0	140.0	46.8	30.9	140.0		25.0	56.8	140.0	16.2	48.0
Actuated g/C Ratio	0.31	0.21	1.00	0.33	0.22	1.00		0.18	0.41	1.00	0.12	0.34
v/c Ratio	0.57	1.01	0.31	1.23	0.79	0.20		1.42	1.10	0.02	0.68	0.75
Control Delay (s/veh)	41.1	82.0	0.5	167.7	60.3	0.3		240.7	82.8	0.0	67.8	45.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.1	82.0	0.5	167.7	60.3	0.3		240.7	82.8	0.0	67.8	45.5
LOS	D	F	A	F	E	A		F	F	A	E	D
Approach Delay (s/veh)		48.7			69.8				136.7			45.1
Approach LOS		D			E				F			D
Queue Length 50th (ft)	59	~368	0	~273	290	0		~553	~863	0	124	393
Queue Length 95th (ft)	109	#510	0	#468	#382	0		m#637	m#1020	m0	168	476
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	258	733	1583	233	782	1583		613	1435	1583	613	1213
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.52	1.01	0.31	1.23	0.79	0.20		1.42	1.10	0.02	0.44	0.75

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 115 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	132
Future Volume (vph)	132
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	164
Lane Group Flow (vph)	143
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.09
Control Delay (s/veh)	0.1
Queue Delay	0.0
Total Delay (s/veh)	0.1
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.09
Intersection Summary	

Timings

3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions
PM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 1.42

Intersection Signal Delay (s/veh): 86.2

Intersection LOS: F

Intersection Capacity Utilization 100.6%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection														
Int Delay, s/veh	334.9													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Vol, veh/h	1	0	2	9	0	85	13	2	2069	64	229	96	1402	1
Future Vol, veh/h	1	0	2	9	0	85	13	2	2069	64	229	96	1402	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	150	-	150	-	375	-	260	-	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	2	10	0	92	14	2	2249	70	249	104	1524	1

Major/Minor	Minor2		Minor1		Major1				Major2					
Conflicting Flow All	3388	4582	762	3750	4513	1124	1524	1525	0	0	2249	2318	0	0
Stage 1	2230	2230	-	2282	2282	-	-	-	-	-	-	-	-	-
Stage 2	1157	2351	-	1468	2232	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	6.44	4.14	-	-	6.44	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.52	2.22	-	-	2.52	2.22	-	-
Pot Cap-1 Maneuver	3	1	347	~ 1	1	199	152	433	-	-	~ 51	212	-	-
Stage 1	44	79	-	41	74	-	-	-	-	-	-	-	-	-
Stage 2	209	68	-	134	78	-	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	0	347	-	0	199	166	166	-	-	~ 37	~ 37	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-	-	-
Stage 1	44	0	-	37	67	-	-	-	-	-	-	-	-	-
Stage 2	101	61	-	133	0	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v			0.2	\$ 769.85
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	166	-	-	-	~ 37	-	-
HCM Lane V/C Ratio	0.098	-	-	-	9.63	-	-
HCM Ctrl Dly (s/v)	29.1	-	-	0	\$ 4093.2	-	-
HCM Lane LOS	D	-	-	A	F	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-	42.7	-	-

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

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	164	0	2182	1359	51
Future Vol, veh/h	0	164	0	2182	1359	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	178	0	2372	1477	55

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	739	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	360	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	360	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	24.41	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 360	-	-
HCM Lane V/C Ratio	- 0.495	-	-
HCM Ctrl Dly (s/v)	- 24.4	-	-
HCM Lane LOS	- C	-	-
HCM 95th %tile Q(veh)	- 2.6	-	-

Intersection

Int Delay, s/veh 19.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	↗
Traffic Vol, veh/h	0	465	0	2377	1252	464
Future Vol, veh/h	0	465	0	2377	1252	464
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	505	0	2584	1361	504

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 680	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 ~ 393	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %		- -	
Mov Cap-1 Maneuver	- ~ 393	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	175.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 393	-
HCM Lane V/C Ratio	- 1.285	-
HCM Ctrl Dly (s/v)	- 175.4	-
HCM Lane LOS	- F	-
HCM 95th %tile Q(veh)	- 22.5	-

Notes

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

Timings

7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions

PM Peak Traffic Hour - Year 2031

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	15	1168	65	114	1195	8	44	0	117	0	0
Future Volume (vph)	15	15	1168	65	114	1195	8	44	0	117	0	0
Satd. Flow (prot)	0	1770	3539	1583	1770	3539	1583	1770	1583	0	1863	1863
Flt Permitted		0.190			0.179			0.482				
Satd. Flow (perm)	0	354	3539	1583	333	3539	1583	898	1583	0	1863	1863
Satd. Flow (RTOR)				132			94		201			
Lane Group Flow (vph)	0	32	1270	71	124	1299	9	48	127	0	0	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4		4	8		8	2			6	
Detector Phase	7	7	4	4	3	8	8	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	11.0	11.0	9.0	11.0	11.0	9.0	9.0		9.0	9.0
Total Split (s)	11.0	11.0	89.0	89.0	19.0	97.0	97.0	12.0	23.0		9.0	20.0
Total Split (%)	7.9%	7.9%	63.6%	63.6%	13.6%	69.3%	69.3%	8.6%	16.4%		6.4%	14.3%
Yellow Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)		112.8	104.9	104.9	117.1	110.4	110.4	10.9	10.9			
Actuated g/C Ratio		0.81	0.75	0.75	0.84	0.79	0.79	0.08	0.08			
v/c Ratio		0.09	0.48	0.06	0.35	0.47	0.01	0.43	0.41			
Control Delay (s/veh)		3.0	8.3	0.1	7.2	14.7	0.0	70.7	4.0			
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay (s/veh)		3.0	8.3	0.1	7.2	14.7	0.0	70.7	4.0			
LOS		A	A	A	A	B	A	E	A			
Approach Delay (s/veh)			7.7			13.9			22.3			0.6
Approach LOS			A			B			C			A
Queue Length 50th (ft)		3	181	0	29	354	0	44	0			
Queue Length 95th (ft)		11	325	0	m64	m327	m0	83	0			
Internal Link Dist (ft)			1055			807			1127			417
Turn Bay Length (ft)		345		235	185		215	130				
Base Capacity (vph)		348	2651	1219	427	2790	1267	115	378			
Starvation Cap Reductn		0	0	0	0	0	0	0	0			
Spillback Cap Reductn		0	0	0	0	0	0	0	0			
Storage Cap Reductn		0	0	0	0	0	0	0	0			
Reduced v/c Ratio		0.09	0.48	0.06	0.29	0.47	0.01	0.42	0.34			
Intersection Summary												
Cycle Length: 140												
Actuated Cycle Length: 140												
Offset: 27 (19%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green												
Natural Cycle: 60												
Control Type: Actuated-Coordinated												

Timings
7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions
PM Peak Traffic Hour - Year 2031



Lane Group	SBR
Lane Configurations	↗
Traffic Volume (vph)	12
Future Volume (vph)	12
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	152
Lane Group Flow (vph)	13
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	9.0
Total Split (s)	20.0
Total Split (%)	14.3%
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	5.5
Actuated g/C Ratio	0.04
v/c Ratio	0.06
Control Delay (s/veh)	0.6
Queue Delay	0.0
Total Delay (s/veh)	0.6
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	140
Base Capacity (vph)	305
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.04
Intersection Summary	

Timings

7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions
PM Peak Traffic Hour - Year 2031

Maximum v/c Ratio: 0.48

Intersection Signal Delay (s/veh): 11.5

Intersection LOS: B

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Hannah Ridge Drive & Constitution Avenue



Intersection

Intersection Delay, s/veh 8.1

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	67	26	11	75	126	34
Future Vol, veh/h	67	26	11	75	126	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	28	12	82	137	37
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8.1	7.9	8.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	13%	72%	0%
Vol Thru, %	87%	0%	79%
Vol Right, %	0%	28%	21%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	86	93	160
LT Vol	11	67	0
Through Vol	75	0	126
RT Vol	0	26	34
Lane Flow Rate	93	101	174
Geometry Grp	1	1	1
Degree of Util (X)	0.114	0.126	0.196
Departure Headway (Hd)	4.376	4.495	4.056
Convergence, Y/N	Yes	Yes	Yes
Cap	823	802	870
Service Time	2.382	2.501	2.156
HCM Lane V/C Ratio	0.113	0.126	0.2
HCM Control Delay, s/veh	7.9	8.1	8.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.4	0.7

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	7	0	1	0	0	0	1	37	0	0	61	11
Future Vol, veh/h	7	0	1	0	0	0	1	37	0	0	61	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	1	0	0	0	1	40	0	0	66	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	115	115	72	109	121	40	78	0	0	40	0	0
Stage 1	72	72	-	42	42	-	-	-	-	-	-	-
Stage 2	42	42	-	66	78	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	862	776	990	870	770	1031	1520	-	-	1569	-	-
Stage 1	937	835	-	972	860	-	-	-	-	-	-	-
Stage 2	972	860	-	944	830	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	862	775	990	868	769	1031	1520	-	-	1569	-	-
Mov Cap-2 Maneuver	862	775	-	868	769	-	-	-	-	-	-	-
Stage 1	937	835	-	971	859	-	-	-	-	-	-	-
Stage 2	971	859	-	943	830	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	9.15		0		0.19		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	47	-	-	876	-	1569	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.01	-	-	-	-				
HCM Ctrl Dly (s/v)	7.4	0	-	9.2	0	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-				

Timings

1: U.S. Highway 24 & Marksheffel Road

Total Traffic Conditions

AM Peak Traffic Hour - Year 2045

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	116	1533	1157	3	865	119	624	645	3	405	1591	61
Future Volume (vph)	116	1533	1157	3	865	119	624	645	3	405	1591	61
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			406			230			230			230
Lane Group Flow (vph)	126	1666	1258	3	940	129	678	701	3	440	1729	66
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	10.5	49.0		11.5	50.0		22.0	47.2		32.3	57.5	
Total Split (%)	7.5%	35.0%		8.2%	35.7%		15.7%	33.7%		23.1%	41.1%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	4.0	52.2	140.0	5.0	44.0	140.0	15.5	43.4	140.0	22.6	50.5	140.0
Actuated g/C Ratio	0.03	0.37	1.00	0.04	0.31	1.00	0.11	0.31	1.00	0.16	0.36	1.00
v/c Ratio	2.52	1.26	0.79	0.05	0.85	0.08	1.78	0.64	0.00	0.80	1.36	0.04
Control Delay (s/veh)	712.8	162.7	4.1	67.0	53.1	0.1	397.7	45.3	0.0	67.6	200.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	712.8	162.7	4.1	67.0	53.1	0.1	397.7	45.3	0.0	67.6	200.9	0.0
LOS	F	F	A	E	D	A	F	D	A	E	F	A
Approach Delay (s/veh)		120.0			46.8			218.1			168.7	
Approach LOS		F			D			F			F	
Queue Length 50th (ft)	~197	~983	17	3	427	0	~482	295	0	203	~1102	0
Queue Length 95th (ft)	m#190	m#1067	m0	14	516	0	#609	377	0	259	#1242	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000		635	950		705
Base Capacity (vph)	50	1319	1583	63	1112	1583	380	1098	1583	632	1276	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.52	1.26	0.79	0.05	0.85	0.08	1.78	0.64	0.00	0.70	1.36	0.04

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 110 (79%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings

1: U.S. Highway 24 & Marksheffel Road

Total Traffic Conditions

AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 2.52

Intersection Signal Delay (s/veh): 141.4

Intersection LOS: F

Intersection Capacity Utilization 130.0%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

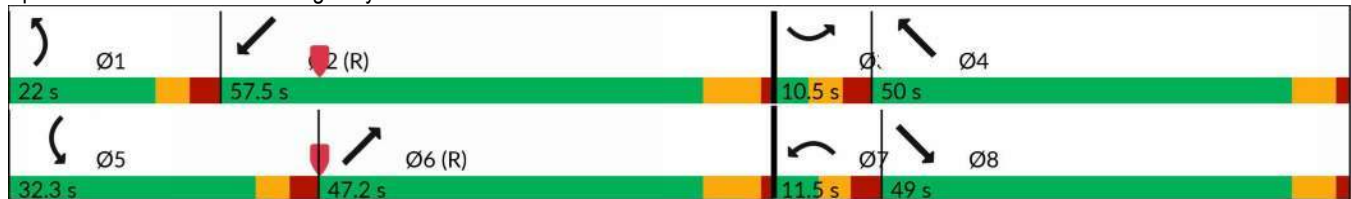
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Total Traffic Conditions

AM Peak Traffic Hour - Year 2045

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	86	3	29	152	20	108	39	1227	96	15	17	2547
Future Volume (vph)	86	3	29	152	20	108	39	1227	96	15	17	2547
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	0	1770	3539
Flt Permitted				0.541			0.039				0.172	
Satd. Flow (perm)	3614	1863	1583	1008	1863	1583	73	3539	1583	0	320	3539
Satd. Flow (RTOR)			109			117			104			
Lane Group Flow (vph)	93	3	32	165	22	117	42	1334	104	0	34	2768
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases	4		4	8		8	2		2	6	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0	9.0	9.0	11.0
Total Split (s)	9.0	10.0	10.0	12.0	13.0	13.0	9.0	109.0	109.0	9.0	9.0	109.0
Total Split (%)	6.4%	7.1%	7.1%	8.6%	9.3%	9.3%	6.4%	77.9%	77.9%	6.4%	6.4%	77.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	3.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	None	C-Max
Act Effect Green (s)	7.0	4.0	4.0	15.3	6.5	6.5	110.5	106.1	106.1		109.5	104.1
Actuated g/C Ratio	0.05	0.03	0.03	0.11	0.05	0.05	0.79	0.76	0.76		0.78	0.74
v/c Ratio	0.53	0.06	0.21	0.99	0.25	0.63	0.38	0.50	0.08		0.11	1.05
Control Delay (s/veh)	70.6	68.3	3.2	125.7	71.5	26.5	25.6	1.6	0.0		3.0	52.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	70.6	68.3	3.2	125.7	71.5	26.5	25.6	1.6	0.0		3.0	52.6
LOS	E	E	A	F	E	C	C	A	A		A	D
Approach Delay (s/veh)		53.7			83.6			2.2				47.5
Approach LOS		D			F			A				D
Queue Length 50th (ft)	40	3	0	~170	20	0	6	80	1		6	~1509
Queue Length 95th (ft)	69	14	0	#274	51	65	m5	m38	m0		m7	m1034
Internal Link Dist (ft)		181			181			997				657
Turn Bay Length (ft)	220		200	230		195	405				340	
Base Capacity (vph)	175	53	151	167	93	190	111	2681	1224		296	2631
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio	0.53	0.06	0.21	0.99	0.24	0.62	0.38	0.50	0.08		0.11	1.05

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 43 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	258
Future Volume (vph)	258
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	262
Lane Group Flow (vph)	280
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	11.0
Total Split (s)	109.0
Total Split (%)	77.9%
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	C-Max
Act Effct Green (s)	104.1
Actuated g/C Ratio	0.74
v/c Ratio	0.23
Control Delay (s/veh)	1.8
Queue Delay	0.0
Total Delay (s/veh)	1.8
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	24
Queue Length 95th (ft)	m23
Internal Link Dist (ft)	
Turn Bay Length (ft)	335
Base Capacity (vph)	1244
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.23
Intersection Summary	

Timings

2: Marksheffel Road & Meadowbrook Parkway

Total Traffic Conditions

AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.05

Intersection Signal Delay (s/veh): 36.4

Intersection LOS: D

Intersection Capacity Utilization 97.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

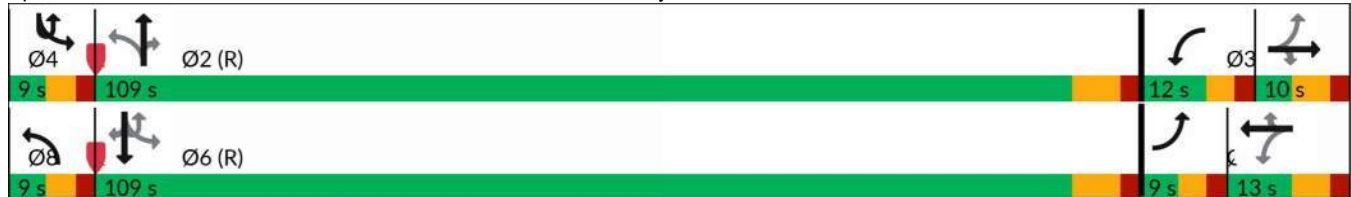
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions AM Peak Traffic Hour - Year 2045

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	188	462	799	276	679	169	120	554	1040	52	253	2187
Future Volume (vph)	188	462	799	276	679	169	120	554	1040	52	253	2187
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.174			0.201				0.950			0.950	
Satd. Flow (perm)	324	3539	1583	374	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			164			164				164		
Lane Group Flow (vph)	204	502	868	300	738	184	0	732	1130	57	275	2377
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	11.0	30.0		11.0	30.0		22.0	22.0	77.0		22.0	77.0
Total Split (%)	7.9%	21.4%		7.9%	21.4%		15.7%	15.7%	55.0%		15.7%	55.0%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	31.0	23.0	140.0	31.0	23.0	140.0		17.0	71.6	140.0	15.4	70.0
Actuated g/C Ratio	0.22	0.16	1.00	0.22	0.16	1.00		0.12	0.51	1.00	0.11	0.50
v/c Ratio	1.53	0.86	0.55	2.11	1.27	0.12		1.76	0.63	0.04	0.73	1.34
Control Delay (s/veh)	304.4	78.5	4.3	549.1	181.0	0.1		386.9	25.7	0.0	71.8	189.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	304.4	78.5	4.3	549.1	181.0	0.1		386.9	25.7	0.0	71.8	189.3
LOS	F	E	A	F	F	A		F	C	A	E	F
Approach Delay (s/veh)		66.9			244.1				162.7			162.4
Approach LOS		E			F				F			F
Queue Length 50th (ft)	~212	202	121	~372	~452	0		~529	271	0	127	~1507
Queue Length 95th (ft)	#385	#323	206	#572	#584	0		m#644	m352	m0	177	#1638
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	133	581	1583	142	581	1583		416	1808	1583	416	1769
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	1.53	0.86	0.55	2.11	1.27	0.12		1.76	0.63	0.04	0.66	1.34

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 92 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings
3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions
AM Peak Traffic Hour - Year 2045

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	222
Future Volume (vph)	222
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	164
Lane Group Flow (vph)	241
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.15
Control Delay (s/veh)	0.2
Queue Delay	0.0
Total Delay (s/veh)	0.2
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.15
Intersection Summary	

Timings

3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions
AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 2.11

Intersection Signal Delay (s/veh): 155.9

Intersection LOS: F

Intersection Capacity Utilization 128.9%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

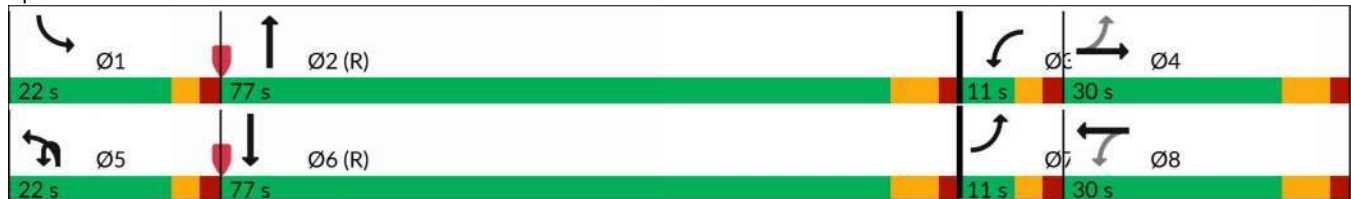
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection														
Int Delay, s/veh	85.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	0	29	0	224	46	3	1364	17	166	70	2964	4
Future Vol, veh/h	0	0	0	29	0	224	46	3	1364	17	166	70	2964	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	150	-	150	-	375	-	260	-	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	32	0	243	50	3	1483	18	180	76	3222	4

Major/Minor	Minor2		Minor1		Major1				Major2					
Conflicting Flow All	4583	5342	1611	3713	5328	741	3222	3226	0	0	1483	1501	0	0
Stage 1	3735	3735	-	1589	1589	-	-	-	-	-	-	-	-	-
Stage 2	848	1608	-	2124	3739	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	6.44	4.14	-	-	6.44	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.52	2.22	-	-	2.52	2.22	-	-
Pot Cap-1 Maneuver	0	0	93	~ 2	0	359	~ 11	91	-	-	~ 162	442	-	-
Stage 1	4	12	-	112	166	-	-	-	-	-	-	-	-	-
Stage 2	322	162	-	51	12	-	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	0	93	-	0	359	~ 12	12	-	-	~ 70	~ 70	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-	-	-
Stage 1	4	0	-	112	0	-	-	-	-	-	-	-	-	-
Stage 2	103	0	-	51	0	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0		74.87	96.75
HCM LOS	A	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	12	-	-	-	~ 70	-	-
HCM Lane V/C Ratio	4.459	-	-	-	3.646	-	-
HCM Ctrl Dly (s/v)	\$ 2184.9	-	-	0	\$ 1313.5	-	-
HCM Lane LOS	F	-	-	A	F	-	-
HCM 95th %tile Q(veh)	7.7	-	-	-	26.9	-	-

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

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Vol, veh/h	0	31	0	1399	2815	182
Future Vol, veh/h	0	31	0	1399	2815	182
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	0	1521	3060	198
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	1530	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	106	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	106	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	54.06	0	0			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	106	-	-		
HCM Lane V/C Ratio	-	0.318	-	-		
HCM Ctrl Dly (s/v)	-	54.1	-	-		
HCM Lane LOS	-	F	-	-		
HCM 95th %tile Q(veh)	-	1.2	-	-		

Intersection						
Int Delay, s/veh	87.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	333	0	1751	2916	384
Future Vol, veh/h	0	333	0	1751	2916	384
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	362	0	1903	3170	417

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1585	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 ~ 97	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %		- -	
Mov Cap-1 Maneuver	- ~ 97	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	\$ 1316.22	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 97	-
HCM Lane V/C Ratio	- 3.723	-
HCM Ctrl Dly (s/v)	\$ 1316.2	-
HCM Lane LOS	- F	-
HCM 95th %tile Q(veh)	- 36.8	-

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

Timings

7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions
AM Peak Traffic Hour - Year 2045

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	36	12	1282	32	105	1422	3	92	0	184	10	0
Future Volume (vph)	36	12	1282	32	105	1422	3	92	0	184	10	0
Satd. Flow (prot)	0	1770	3539	1583	1770	3539	1583	1770	1583	0	1770	1863
Flt Permitted		0.116			0.136			0.449			0.548	
Satd. Flow (perm)	0	216	3539	1583	253	3539	1583	836	1583	0	1021	1863
Satd. Flow (RTOR)				132			132		171			
Lane Group Flow (vph)	0	52	1393	35	114	1546	3	100	200	0	11	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4		4	8		8	2			6	
Detector Phase	7	7	4	4	3	8	8	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	11.0	11.0	9.0	11.0	11.0	9.0	9.0		9.0	9.0
Total Split (s)	13.0	13.0	93.0	93.0	16.0	96.0	96.0	16.0	22.0		9.0	15.0
Total Split (%)	9.3%	9.3%	66.4%	66.4%	11.4%	68.6%	68.6%	11.4%	15.7%		6.4%	10.7%
Yellow Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)		104.0	95.6	95.6	107.4	98.9	98.9	19.7	16.1		9.3	
Actuated g/C Ratio		0.74	0.68	0.68	0.77	0.71	0.71	0.14	0.12		0.07	
v/c Ratio		0.22	0.58	0.03	0.41	0.62	0.00	0.53	0.60		0.12	
Control Delay (s/veh)		6.5	13.7	0.1	14.9	12.7	0.0	63.9	20.5		52.3	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Delay (s/veh)		6.5	13.7	0.1	14.9	12.7	0.0	63.9	20.5		52.3	
LOS		A	B	A	B	B	A	E	C		D	
Approach Delay (s/veh)			13.2			12.8			34.9			12.0
Approach LOS			B			B			C			B
Queue Length 50th (ft)		10	342	0	16	164	0	84	23		9	
Queue Length 95th (ft)		23	468	0	m10	m78	m0	139	107		27	
Internal Link Dist (ft)			1055			807			1127			417
Turn Bay Length (ft)		345		235	185		215	130			215	
Base Capacity (vph)		251	2416	1122	317	2499	1156	194	360		89	
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	
Reduced v/c Ratio		0.21	0.58	0.03	0.36	0.62	0.00	0.52	0.56		0.12	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 27 (19%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Timings
7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions
AM Peak Traffic Hour - Year 2045

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	42
Future Volume (vph)	42
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	148
Lane Group Flow (vph)	46
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	9.0
Total Split (s)	15.0
Total Split (%)	10.7%
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	6.4
Actuated g/C Ratio	0.05
v/c Ratio	0.22
Control Delay (s/veh)	2.3
Queue Delay	0.0
Total Delay (s/veh)	2.3
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	140
Base Capacity (vph)	250
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.18
Intersection Summary	

Timings

7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions
AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.62

Intersection Signal Delay (s/veh): 14.8

Intersection LOS: B

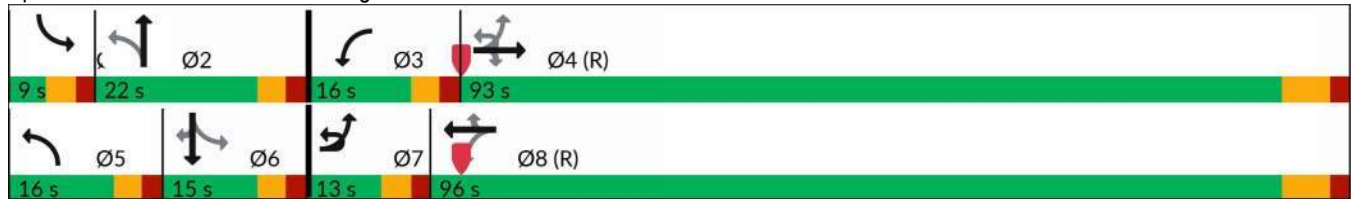
Intersection Capacity Utilization 69.4%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Hannah Ridge Drive & Constitution Avenue



Intersection

Intersection Delay, s/veh 8.4

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	15	38	161	64	71
Future Vol, veh/h	51	15	38	161	64	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	16	41	175	70	77
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8.2	8.8	7.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	19%	77%	0%
Vol Thru, %	81%	0%	47%
Vol Right, %	0%	23%	53%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	199	66	135
LT Vol	38	51	0
Through Vol	161	0	64
RT Vol	0	15	71
Lane Flow Rate	216	72	147
Geometry Grp	1	1	1
Degree of Util (X)	0.253	0.094	0.164
Departure Headway (Hd)	4.21	4.73	4.017
Convergence, Y/N	Yes	Yes	Yes
Cap	839	760	897
Service Time	2.301	2.739	2.023
HCM Lane V/C Ratio	0.257	0.095	0.164
HCM Control Delay, s/veh	8.8	8.2	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1	0.3	0.6

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	0	0	0	0	0	0	59	0	0	19	1
Future Vol, veh/h	17	0	0	0	0	0	0	59	0	0	19	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	0	0	0	0	0	64	0	0	21	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	85	85	21	85	86	64	22	0	0	64	0	0
Stage 1	21	21	-	64	64	-	-	-	-	-	-	-
Stage 2	64	64	-	21	22	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	901	805	1056	902	804	1000	1594	-	-	1538	-	-
Stage 1	997	878	-	947	841	-	-	-	-	-	-	-
Stage 2	947	841	-	998	877	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	901	805	1056	902	804	1000	1594	-	-	1538	-	-
Mov Cap-2 Maneuver	901	805	-	902	804	-	-	-	-	-	-	-
Stage 1	997	878	-	947	841	-	-	-	-	-	-	-
Stage 2	947	841	-	998	877	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	9.08		0		0		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1594	-	-	901	-	1538	-	-				
HCM Lane V/C Ratio	-	-	-	0.021	-	-	-	-				
HCM Ctrl Dly (s/v)	0	-	-	9.1	0	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-				

Timings

1: U.S. Highway 24 & Marksheffel Road

Total Traffic Conditions
PM Peak Traffic Hour - Year 2045

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	191	902	792	9	1672	369	1234	1517	0	245	814	31
Future Volume (vph)	191	902	792	9	1672	369	1234	1517	0	245	814	31
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1863	3433	3539	1583
Satd. Flow (RTOR)			472			230						230
Lane Group Flow (vph)	208	980	861	10	1817	401	1341	1649	0	266	885	34
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	6.0		5.0	5.5		6.0	20.0		6.0	20.0	
Minimum Split (s)	10.5	12.0		11.5	11.5		12.5	27.0		12.5	27.0	
Total Split (s)	10.5	52.0		11.5	53.0		39.0	61.5		15.0	37.5	
Total Split (%)	7.5%	37.1%		8.2%	37.9%		27.9%	43.9%		10.7%	26.8%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	6.0		3.5	6.0	
All-Red Time (s)	3.0	1.5		3.0	1.5		3.0	1.0		3.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5	7.0		6.5	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	4.0	55.2	140.0	5.0	47.0	140.0	32.5	54.5		8.5	30.5	140.0
Actuated g/C Ratio	0.03	0.39	1.00	0.04	0.34	1.00	0.23	0.39		0.06	0.22	1.00
v/c Ratio	4.16	0.70	0.54	0.16	1.53	0.25	1.68	1.20		1.28	1.15	0.02
Control Delay (s/veh)	Error	35.1	1.6	71.2	276.0	0.4	347.0	134.3		207.3	130.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	Error	35.1	1.6	71.2	276.1	0.4	347.0	134.3		207.3	130.0	0.0
LOS	F	D	A	E	F	A	F	F		F	F	A
Approach Delay (s/veh)		167.2			225.6			229.7			143.7	
Approach LOS		F			F			F			F	
Queue Length 50th (ft)	~351	427	2	9	~1235	0	~932	~970		~160	~504	0
Queue Length 95th (ft)	m#518	550	7	30	#1376	0	#1071	#1111		#255	#641	0
Internal Link Dist (ft)		997			398			1878			1199	
Turn Bay Length (ft)	375			300		75	1000			950		705
Base Capacity (vph)	50	1395	1583	63	1188	1583	796	1377		208	770	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	39	0	2	0		0	0	375
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	4.16	0.70	0.54	0.16	1.58	0.25	1.69	1.20		1.28	1.15	0.03

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 68 (49%), Referenced to phase 2:SWT and 6:NET, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings

1: U.S. Highway 24 & Marksheffel Road

Total Traffic Conditions
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 4.16

Intersection Signal Delay (s/veh): 201.4

Intersection LOS: F

Intersection Capacity Utilization 136.2%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

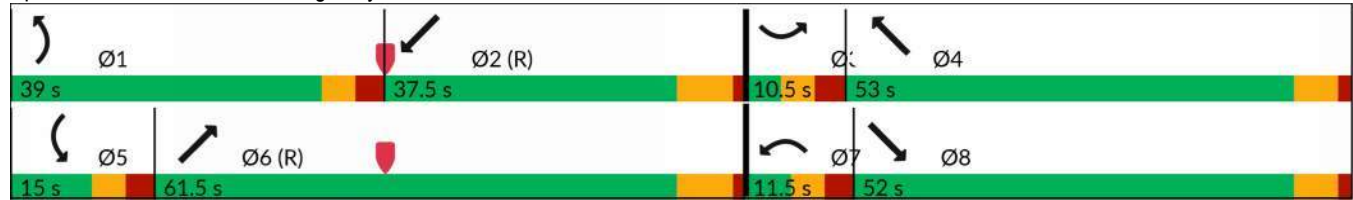
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Highway 24 & Marksheffel Road



Timings

2: Marksheffel Road & Meadowbrook Parkway

Total Traffic Conditions PM Peak Traffic Hour - Year 2045

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	169	20	63	76	17	38	36	2532	122	82	76	1583
Future Volume (vph)	169	20	63	76	17	38	36	2532	122	82	76	1583
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	0	1770	3539
Flt Permitted							0.106				0.038	
Satd. Flow (perm)	3614	1863	1583	1863	1863	1583	197	3539	1583	0	71	3539
Satd. Flow (RTOR)			109			109			104			
Lane Group Flow (vph)	184	22	68	83	18	41	39	2752	133	0	172	1721
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases	4		4	8		8	2		2	6	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	11.0	11.0	9.0	9.0	11.0
Total Split (s)	9.0	10.0	10.0	9.0	10.0	10.0	9.0	112.0	112.0	9.0	9.0	112.0
Total Split (%)	6.4%	7.1%	7.1%	6.4%	7.1%	7.1%	6.4%	80.0%	80.0%	6.4%	6.4%	80.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	3.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	None	C-Max
Act Effect Green (s)	8.0	4.0	4.0	8.0	4.0	4.0	111.3	105.0	105.0		114.0	108.8
Actuated g/C Ratio	0.06	0.03	0.03	0.06	0.03	0.03	0.80	0.75	0.75		0.81	0.78
v/c Ratio	0.92	0.42	0.45	0.80	0.34	0.27	0.19	1.04	0.11		1.32	0.63
Control Delay (s/veh)	107.4	89.7	12.0	108.4	83.8	4.4	3.9	52.0	3.6		210.0	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5	0.0		0.0	0.0
Total Delay (s/veh)	107.4	89.7	12.0	108.4	83.8	4.4	3.9	65.5	3.6		210.0	10.7
LOS	F	F	B	F	F	A	A	E	A		F	B
Approach Delay (s/veh)		82.3			75.2			61.9				26.8
Approach LOS		F			E			E				C
Queue Length 50th (ft)	84	20	0	74	17	0	8	~1110	12		~133	535
Queue Length 95th (ft)	#146	#55	13	#158	45	0	m5	m591	m4		m#187	m529
Internal Link Dist (ft)		181			181			997				657
Turn Bay Length (ft)	220		200	230		195	405				340	
Base Capacity (vph)	201	53	151	104	53	151	205	2654	1213		130	2750
Starvation Cap Reductn	0	0	0	0	0	0	0	83	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio	0.92	0.42	0.45	0.80	0.34	0.27	0.19	1.07	0.11		1.32	0.63

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 54 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	140
Future Volume (vph)	140
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	152
Lane Group Flow (vph)	152
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	11.0
Total Split (s)	112.0
Total Split (%)	80.0%
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	C-Max
Act Effct Green (s)	108.8
Actuated g/C Ratio	0.78
v/c Ratio	0.12
Control Delay (s/veh)	0.8
Queue Delay	0.0
Total Delay (s/veh)	0.8
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	6
Queue Length 95th (ft)	m8
Internal Link Dist (ft)	
Turn Bay Length (ft)	335
Base Capacity (vph)	1264
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.12
Intersection Summary	

Timings

2: Marksheffel Road & Meadowbrook Parkway

Total Traffic Conditions
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.32

Intersection Signal Delay (s/veh): 49.9

Intersection LOS: D

Intersection Capacity Utilization 106.1%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Marksheffel Road & Meadowbrook Parkway



Timings

3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions
PM Peak Traffic Hour - Year 2045

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	158	897	558	305	748	386	124	849	1858	45	326	1060
Future Volume (vph)	158	897	558	305	748	386	124	849	1858	45	326	1060
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	0	3433	3539	1583	3433	3539
Flt Permitted	0.121			0.125				0.950			0.950	
Satd. Flow (perm)	225	3539	1583	233	3539	1583	0	3433	3539	1583	3433	3539
Satd. Flow (RTOR)			274			252				203		
Lane Group Flow (vph)	172	975	607	332	813	420	0	1058	2020	49	354	1152
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	Prot	NA	Free	Prot	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	4		Free	8		Free				Free		
Detector Phase	7	4		3	8		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	11.0		9.0	11.0		9.0	9.0	11.0		9.0	11.0
Total Split (s)	12.0	40.0		11.0	39.0		37.0	37.0	72.0		17.0	52.0
Total Split (%)	8.6%	28.6%		7.9%	27.9%		26.4%	26.4%	51.4%		12.1%	37.1%
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	3.0	5.0		3.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	7.0		5.0	7.0			5.0	7.0		5.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Act Effect Green (s)	42.0	33.0	140.0	40.0	32.0	140.0		32.0	65.0	140.0	12.0	45.0
Actuated g/C Ratio	0.30	0.24	1.00	0.29	0.23	1.00		0.23	0.46	1.00	0.09	0.32
v/c Ratio	1.19	1.17	0.38	2.52	1.01	0.27		1.35	1.23	0.03	1.20	1.01
Control Delay (s/veh)	168.6	133.0	0.6	724.1	86.5	0.4		203.6	140.6	0.0	171.9	76.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	168.6	133.0	0.6	724.1	86.5	0.4		203.6	140.6	0.0	171.9	76.8
LOS	F	F	A	F	F	A		F	F	A	F	E
Approach Delay (s/veh)		90.7			198.6				159.8			88.3
Approach LOS		F			F				F			F
Queue Length 50th (ft)	~141	~566	0	~460	~402	0		~677	~1212	0	~204	~575
Queue Length 95th (ft)	#302	#694	0	#662	#547	0		m#657	m#1162	m0	#309	#730
Internal Link Dist (ft)		1061			259				1467			593
Turn Bay Length (ft)	435		200	225		225		425		325	430	
Base Capacity (vph)	144	834	1583	132	808	1583		784	1643	1583	294	1137
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	1.19	1.17	0.38	2.52	1.01	0.27		1.35	1.23	0.03	1.20	1.01

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 115 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Timings
3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions
PM Peak Traffic Hour - Year 2045

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	169
Future Volume (vph)	169
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	203
Lane Group Flow (vph)	184
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.12
Control Delay (s/veh)	0.1
Queue Delay	0.0
Total Delay (s/veh)	0.1
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	260
Base Capacity (vph)	1583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.12
Intersection Summary	

Timings

3: Marksheffel Road & Constitution Avenue

Total Traffic Conditions
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 2.52

Intersection Signal Delay (s/veh): 137.5

Intersection LOS: F

Intersection Capacity Utilization 122.4%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

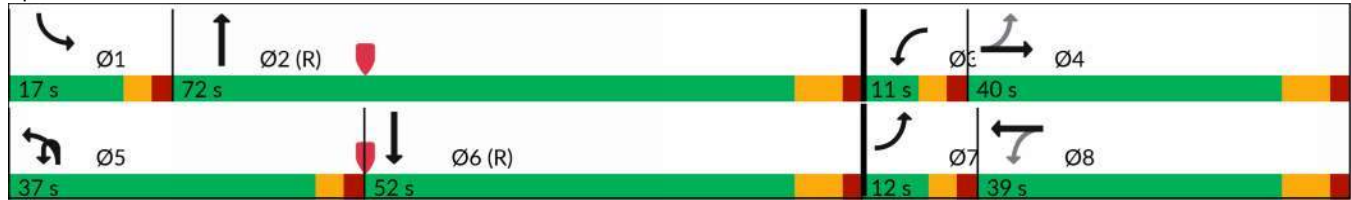
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Marksheffel Road & Constitution Avenue



Intersection														
Int Delay, s/veh	0.2													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Vol, veh/h	1	0	3	12	0	112	13	3	2665	84	229	127	1760	1
Future Vol, veh/h	1	0	3	12	0	112	13	3	2665	84	229	127	1760	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	150	-	150	-	375	-	260	-	350	-	500
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	3	13	0	122	14	3	2897	91	249	138	1913	1

Major/Minor	Minor2		Minor1		Major1				Major2					
Conflicting Flow All	4170	5710	957	4662	5620	1448	1913	1914	0	0	2897	2988	0	0
Stage 1	2687	2687	-	2932	2932	-	-	-	-	-	-	-	-	-
Stage 2	1483	3023	-	1730	2688	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	6.44	4.14	-	-	6.44	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.52	2.22	-	-	2.52	2.22	-	-
Pot Cap-1 Maneuver	~ 1	0	258	~ 0	0	~ 120	85	306	-	-	~ 19	~ 114	-	-
Stage 1	22	45	-	15	33	-	-	-	-	-	-	-	-	-
Stage 2	131	30	-	91	45	-	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	0	258	~ 0	0	~ 120	97	97	-	-	~ -3	~ -3	-	-
Mov Cap-2 Maneuver	-	0	-	~ 0	0	-	-	-	-	-	-	-	-	-
Stage 1	22	45	-	~ 12	27	-	-	-	-	-	-	-	-	-
Stage 2	-	25	-	90	45	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.29			
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2WBLn3	SBL	SBT	SBR
Capacity (veh/h)	97	-	-	-	-	-	-
HCM Lane V/C Ratio	0.18	-	-	-	-	-	-
HCM Ctrl Dly (s/v)	50.2	-	-	-	0	-	-
HCM Lane LOS	F	-	-	-	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-	-	-	-

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

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	164	0	2807	1715	53
Future Vol, veh/h	0	164	0	2807	1715	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	178	0	3051	1864	58
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	932	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	268	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	268	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	41.56	0	0			
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	268	-	-		
HCM Lane V/C Ratio	-	0.665	-	-		
HCM Ctrl Dly (s/v)	-	41.6	-	-		
HCM Lane LOS	-	E	-	-		
HCM 95th %tile Q(veh)	-	4.3	-	-		

Intersection

Int Delay, s/veh 35.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↗
Traffic Vol, veh/h	0	466	0	2996	1635	464
Future Vol, veh/h	0	466	0	2996	1635	464
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	Free
Storage Length	-	0	-	-	-	300
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	507	0	3257	1777	504

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 889	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 ~ 286	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %		- -	
Mov Cap-1 Maneuver	- ~ 286	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	\$ 390.07	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 286	-
HCM Lane V/C Ratio	- 1.768	-
HCM Ctrl Dly (s/v)	-\$ 390.1	-
HCM Lane LOS	- F	-
HCM 95th %tile Q(veh)	- 33.2	-

Notes

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

Timings

7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions

PM Peak Traffic Hour - Year 2045

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	20	1509	83	138	1537	10	56	0	146	0	0
Future Volume (vph)	20	20	1509	83	138	1537	10	56	0	146	0	0
Satd. Flow (prot)	0	1770	3539	1583	1770	3539	1583	1770	1583	0	1863	1863
Flt Permitted		0.115			0.101			0.482				
Satd. Flow (perm)	0	214	3539	1583	188	3539	1583	898	1583	0	1863	1863
Satd. Flow (RTOR)				132			94		148			
Lane Group Flow (vph)	0	44	1640	90	150	1671	11	61	159	0	0	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4		4	8		8	2			6	
Detector Phase	7	7	4	4	3	8	8	5	2		1	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	11.0	11.0	9.0	11.0	11.0	9.0	9.0		9.0	9.0
Total Split (s)	10.0	10.0	95.0	95.0	16.0	101.0	101.0	10.0	20.0		9.0	19.0
Total Split (%)	7.1%	7.1%	67.9%	67.9%	11.4%	72.1%	72.1%	7.1%	14.3%		6.4%	13.6%
Yellow Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)		111.4	103.4	103.4	119.2	109.3	109.3	9.7	9.7			
Actuated g/C Ratio		0.80	0.74	0.74	0.85	0.78	0.78	0.07	0.07			
v/c Ratio		0.19	0.63	0.07	0.55	0.60	0.01	0.64	0.64			
Control Delay (s/veh)		4.4	11.5	0.5	17.4	12.8	0.0	90.0	23.3			
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay (s/veh)		4.4	11.5	0.5	17.4	12.8	0.0	90.0	23.3			
LOS		A	B	A	B	B	A	F	C			
Approach Delay (s/veh)			10.8			13.1			41.8			0.8
Approach LOS			B			B			D			A
Queue Length 50th (ft)		3	305	0	62	330	0	57	10			
Queue Length 95th (ft)		13	558	6	m65	m290	m0	101	81			
Internal Link Dist (ft)			1055			807			1127			417
Turn Bay Length (ft)		345		235	185		215	130				
Base Capacity (vph)		237	2612	1203	298	2763	1257	95	303			
Starvation Cap Reductn		0	0	0	0	0	0	0	0			
Spillback Cap Reductn		0	0	0	0	0	0	0	0			
Storage Cap Reductn		0	0	0	0	0	0	0	0			
Reduced v/c Ratio		0.19	0.63	0.07	0.50	0.60	0.01	0.64	0.52			
Intersection Summary												
Cycle Length: 140												
Actuated Cycle Length: 140												
Offset: 27 (19%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green												
Natural Cycle: 65												
Control Type: Actuated-Coordinated												

Timings
7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions
PM Peak Traffic Hour - Year 2045

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	16
Future Volume (vph)	16
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	148
Lane Group Flow (vph)	17
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	9.0
Total Split (s)	19.0
Total Split (%)	13.6%
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	5.5
Actuated g/C Ratio	0.04
v/c Ratio	0.08
Control Delay (s/veh)	0.8
Queue Delay	0.0
Total Delay (s/veh)	0.8
LOS	A
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	0
Internal Link Dist (ft)	
Turn Bay Length (ft)	140
Base Capacity (vph)	291
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.06
Intersection Summary	

Timings

7: Hannah Ridge Drive & Constitution Avenue

Total Traffic Conditions
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.64

Intersection Signal Delay (s/veh): 13.6

Intersection LOS: B

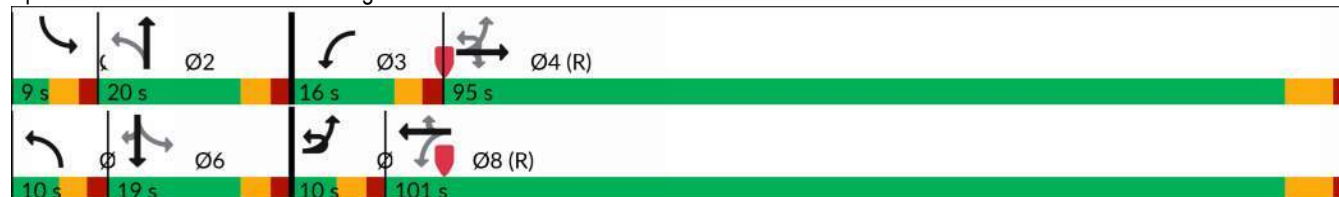
Intersection Capacity Utilization 72.6%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Hannah Ridge Drive & Constitution Avenue



Intersection

Intersection Delay, s/veh 8.6

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	89	35	15	90	151	45
Future Vol, veh/h	89	35	15	90	151	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	38	16	98	164	49
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8.6	8.3	8.7
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	14%	72%	0%
Vol Thru, %	86%	0%	77%
Vol Right, %	0%	28%	23%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	105	124	196
LT Vol	15	89	0
Through Vol	90	0	151
RT Vol	0	35	45
Lane Flow Rate	114	135	213
Geometry Grp	1	1	1
Degree of Util (X)	0.143	0.173	0.252
Departure Headway (Hd)	4.513	4.631	4.25
Convergence, Y/N	Yes	Yes	Yes
Cap	797	775	848
Service Time	2.532	2.655	2.267
HCM Lane V/C Ratio	0.143	0.174	0.251
HCM Control Delay, s/veh	8.3	8.6	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.6	1

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	9	0	1	0	0	0	1	39	0	0	65	15
Future Vol, veh/h	9	0	1	0	0	0	1	39	0	0	65	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	1	0	0	0	1	42	0	0	71	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	123	123	79	115	132	42	87	0	0	42	0	0
Stage 1	79	79	-	45	45	-	-	-	-	-	-	-
Stage 2	45	45	-	71	87	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	851	767	982	862	759	1028	1509	-	-	1567	-	-
Stage 1	930	829	-	969	858	-	-	-	-	-	-	-
Stage 2	969	858	-	939	823	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	850	766	982	860	759	1028	1509	-	-	1567	-	-
Mov Cap-2 Maneuver	850	766	-	860	759	-	-	-	-	-	-	-
Stage 1	930	829	-	969	857	-	-	-	-	-	-	-
Stage 2	969	857	-	938	823	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.23		0		0.18		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	45	-	-	862	-	1567	-
HCM Lane V/C Ratio	0.001	-	-	0.013	-	-	-
HCM Ctrl Dly (s/v)	7.4	0	-	9.2	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

V2_Traffic Impact Study.pdf Markup Summary

Text Box (1)

Intersection improvements can be
desires become defined.

Add discussion somewhere that
contributions may be necessary for
signal at Constitution/Hannah Ridge.
These costs will be provided with later
submittals.

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Add discussion somewhere that contributions may be necessary for signal at Constitution/Hannah Ridge. Those costs will be provided with later submittals.