

APPENDIX L

Traffic Study

TRAFFIC STUDY

**AVANTI SOUTH
MIXED-USE LAND DEVELOPMENT
LANCASTER, CALIFORNIA**

**Prepared for:
ROYAL INVESTORS GROUP, LLC**

**May 2016
(REVISED June 2017)**

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EXECUTIVE SUMMARY

The purpose of this study is to evaluate the potential traffic impacts of Avanti South, a proposed mixed-use land development situated on approximately 307 acres of vacant land in the City of Lancaster, California. The project site consists of two adjoining subareas: 234 acres north of Avenue L and east of 70th Street W, and 73 acres north of Avenue K-8 and west of 70th Street W. As currently planned, the project includes residential, commercial and recreational land uses. An application for a General Plan Amendment and Zone Change are being submitted.

The traffic analysis methodologies used for this study are consistent with the City of Lancaster's Traffic Study Guidelines (January 5, 2009). Traffic impacts were assessed based on changes in levels of service for study intersections and roadway segments. Analyses were performed for the following traffic scenarios:

- EXISTING (volume, pattern and roadway geometry for the current year)
- EXISTING plus PROJECT
- FUTURE = EXISTING plus AMBIENT GROWTH (applied annual growth rate of two percent through the year 2021)
- FUTURE plus RELATED PROJECTS (provided by the City of Lancaster)
- FUTURE plus RELATED PROJECTS plus PROJECT
- If necessary, FUTURE plus RELATED PROJECTS plus PROJECT plus MITIGATION

The City of Lancaster utilizes the following criteria to evaluate whether the addition of project traffic would result in a significant impact to an intersection or roadway segment, and therefore, require mitigation:

- A significant impact is indicated when the addition of project traffic degrades the level of service from LOS A, B, C or D to LOS E or F.
- If level of service for a signalized intersection or roadway segment is already at LOS E or F without project traffic, then a significant impact is indicated when the addition of project traffic increases the volume-to-capacity (v/c) ratio by at least 0.020.
- If level of service for an unsignalized intersection is already at LOS E or F without project traffic, then a significant impact is indicated when the addition of project traffic increases delay by at least two percent.

Project trip generation was estimated for this study using the ninth edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. It is anticipated the project will generate 20,550 daily trips, 1,495 AM peak hour trips and 2,084 PM peak hour trips. These estimates were developed for weekday adjacent street traffic and account for both internal capture and pass-by trips.

The following analysis methodologies were used to determine level of service for this study:

- Signalized Intersections: Intersection Capacity Utilization (ICU)
- Unsignalized Intersections: Highway Capacity Manual (HCM)
- Roadway Segments: HCS 2010

The capacity analyses indicated that the addition of project traffic would result in potentially significant impacts for 19 study intersections, of which, 7 are Project-Only impacts and 12 are Cumulative impacts, and 8 roadway segments, of which, 1 is a Project-Only impact and 7 are Cumulative impacts. The impacted intersections and roadway segments are presented in the following tables along with improvements needed to mitigate project impacts to less-than-significant levels. The signal warrant analysis resulted in 5 intersections meeting signal warrant criteria, of which, 2 are Project-Only and 3 are Cumulative. The project does not have any CMP intersection impacts, but does have one unmitigated CMP Freeway impact.

Project-Only Impact - Recommended Intersection Improvements

#	Intersection	Total Improvements (Existing+Project)
3	50th St W & Ave K	Construct a single lane roundabout
15	60 th St W & Ave K-8	Add 1 NBT
19	60th St W & Ave L	Change NBT/R to 1 NBT, 1 NBR Add 1 SBL
21	50th St W & Ave L	Add 1 EBT, 1 WBT
22	45th St W & Ave L	Add 1 EBT, 1 WBT
23	40th St W & Ave L	Add 1 EBT
25	30th St W & Ave L	Add 1 EBT, 1 WBT

Notes: NB = Northbound, SB = Southbound, L = Left-Turn Lane, WB = Westbound, T = Through Lane
EB = Eastbound, R = Right-Turn Lane

Cumulative Impact - Recommended Intersection Improvements

#	Intersection	Total Improvements (2021+Other Projects+Project)
2	60th W & Ave K	Add 1 WBT
3	50th St W & Ave K	Increase roundabout to 2 lanes.
4	45th St W & Ave K	Add 1 EBT, 1 WBT
5	40th St W & Ave K	Add 1 WBT Change SBT/R to 1 SBT, 1 SBR
7	25th St W & Ave K	Add 1 EBT
15	60 th St W & Ave K-8	Add 1 NBT
17	65th St W & Ave L	Signal Change EBT/R to 1 EBL/T, 1 EBT, 1 EBR Change WBT/R/L to 2 WBT (1 lane addition), 1 WBR, 1 WBL
18	Walmart Dwy/QHHS Dwy & Ave L	Change WBT/L to 2 WBT (1 lane addition), 1 WBL
19	60th St W & Ave L	Add 1EBL, 1 WBL, 1 NBL, 1 NBT
20	55th St W & Ave L	Signal Add 1 EBT Change WBT/L to 2 WBT (1 lane addition), 1WBL
21	50th St W & Ave L	Change SBT/R to 1 SBT, 1 SBR Change EBT/R to 1 EBT, 1 EBR, Add 1 EBT (total 3 EBT) Change WBT/R to 1 WBT, 1 WBR, Add 1 WBT (total 3 WBT)
22	45th St W & Ave L	Change WBT/R to 1 WBT, 1 WBR, Add 1 WBT Change SBT/R to 1 SBT, 1 SBR
23	40th St W & Ave L	Change EBT/R to 1 EBT, 1 EBR, Add 1 EBT Add 1 WBT
24	35th St W & Ave L	Change EBT/R to EBT, EBR Change WBT/R to WBT, WBR
25	30th St W & Ave L	Add 1 NBL, 1 SBL
26	25 th St W & Ave L	Add 1 EBT, 1 WBT
27	20th St W & Ave L	Add 1 EBT Add 1 SBT
28	15th St W & Ave L	Change SBT to SBT/L
30	SR 14 NB Ramp & Ave L	Add 1 NBL

Notes: NB = Northbound, SB = Southbound, L = Left-Turn Lane, WB = Westbound, T = Through Lane
EB = Eastbound, R = Right-Turn Lane

Project-Only Impact – Recommended Roadway Improvements

Roadway Segment	Total Improvements (Existing+Project)
Avenue L from 50th St W to 45th St W	Add 2 Lanes (1 lane each direction)

Cumulative Impact – Recommended Roadway Improvements

Roadway Segment	Total Improvements (2021+Related Projects Project)
Avenue K from 60th St W to 50th St W	Add 2 Lanes (1 lane each direction)
Avenue K from 50th St W to 45th St W	Add 2 Lanes (1 lane each direction)
Avenue K from 45 th St W to 40 th St W	Add 2 Lanes (1 lane each direction)
Avenue L from 70th St W to 60th St W	Add 2 Lanes (1 lane each direction)
Avenue L from 45th St W to 40th St W	Add 2 Lanes (1 lane each direction)
Avenue L from 40th St W to 30th St W	Add 2 Lanes (1 lane each direction)
Avenue L from 30th St W to 20th St W	Add 2 Lanes (1 lane each direction)

The signal warrant analysis resulted in 5 intersections meeting signal warrant criteria, of which, 2 are Project-Only impacts and 3 are Cumulative impacts.

The project does not create any CMP intersection impacts; however the addition of cumulative volumes is anticipated to result in one significant CMP Freeway impact. There are no mitigation measures recommended for the CMP Freeway impact; therefore the project will create on unmitigated significant impact.

INTRODUCTION

The purpose of this study is to evaluate the potential traffic impacts of Avanti South (project), a proposed mixed-use land development located in the City of Lancaster, California. The project site encompasses approximately 307 acres of vacant land in two adjoining subareas: 234 acres north of Avenue L and east of 70th Street W, and 73 acres north of Avenue K-8 and west of 70th Street W. A vicinity map is presented in Figure 1 and a location map is presented in Figure 2.

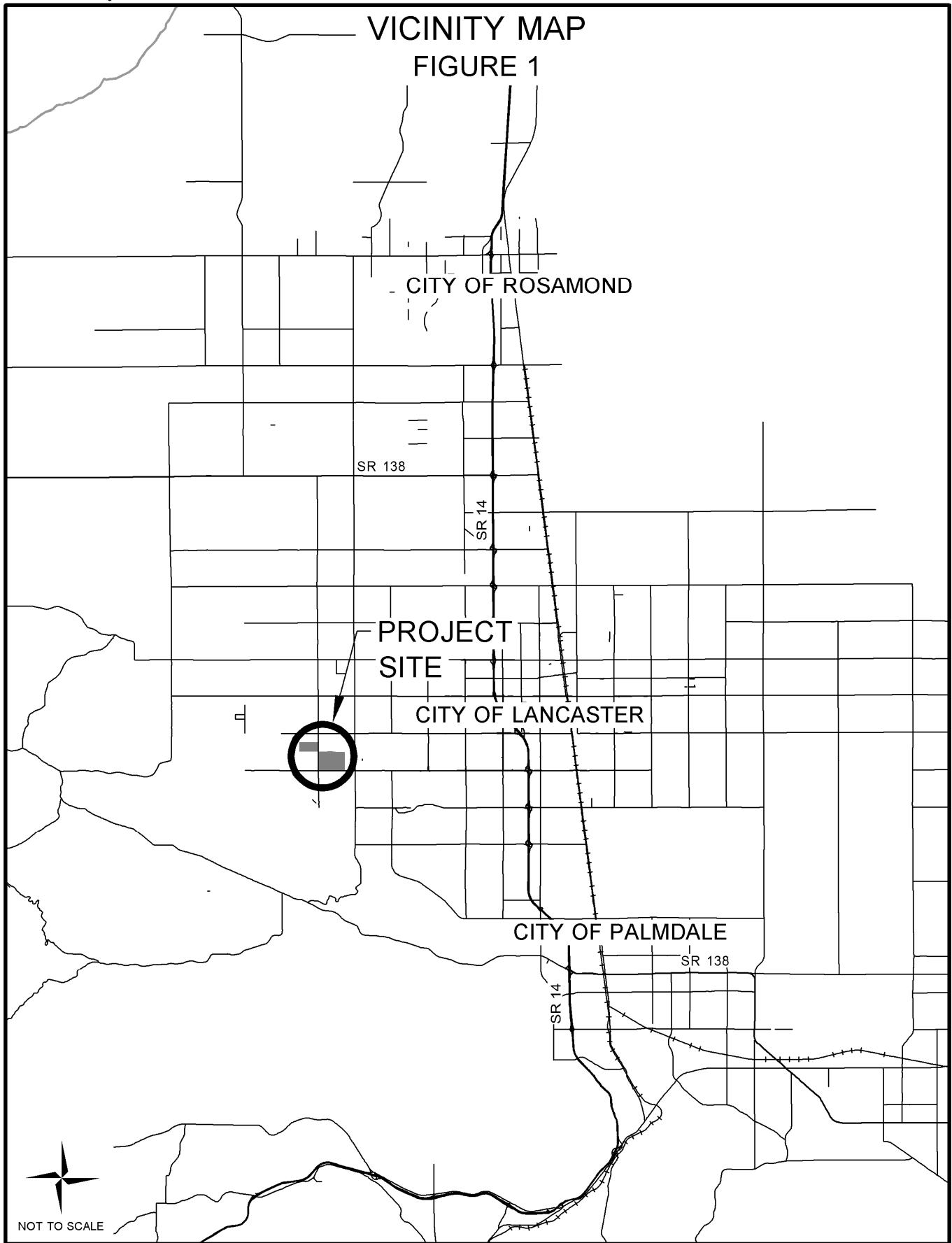
A. Project Description

As currently planned, the project includes single-family, multi-family and senior housing, parks and greenbelt areas, a fire station, an elementary school, and commercial shopping. A site plan is presented in Figure 3. An application for a General Plan Amendment and Zone Change are being submitted.

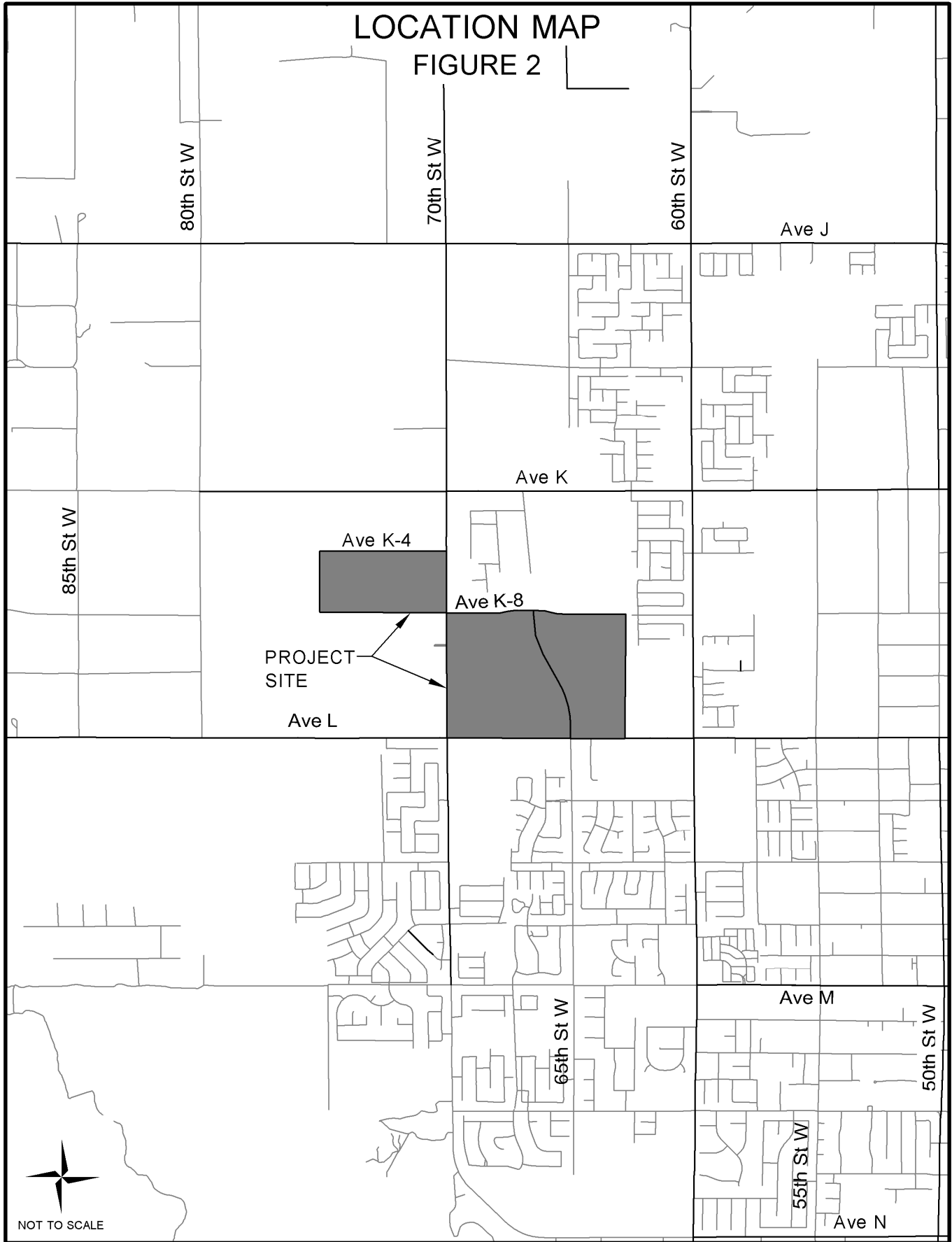
B. Study Area and Approach

The study area is bounded by Avenue K on the north, Avenue L on the south, State Route 14 on the east and 70th Street W on the west. The scope of the study was developed in association with the City of Lancaster Traffic Engineering Team and includes 30 intersections and 20 roadway segments. The study intersections and roadway segments are listed in Tables 1a and 1b, respectively.

The traffic analysis methodologies used for this study are consistent with the City of Lancaster's Traffic Study Guidelines (January 5, 2009). Traffic impacts were assessed based on changes in levels of service for study intersections and roadway segments. Analyses were performed for the following traffic scenarios: existing, existing plus project, future (2021), future (2021) plus related projects, future (2021) plus related projects plus project, and if needed, future (2021) plus related projects plus project plus mitigation to reduce project impact to a level of insignificance. The need for mitigation was determined based on significant impact thresholds defined by the City of Lancaster.



Avanti South
Lancaster, California



Avanti South
Lancaster, California

**Table 1a
Study Intersections**

Intersection ID	Intersection Location	Type
1	70 th Street W & Avenue K	All-Way Stop
2	60 th Street W & Avenue K	Signalized
3	50 th Street W & Avenue K	All-Way Stop
4	45 th Street W & Avenue K	Signalized
5	40 th Street W & Avenue K	Signalized
6	30 th Street W & Avenue K	Signalized
7	25 th Street W & Avenue K	Signalized
8	20 th Street W & Avenue K	Signalized
9	17 th Street W & Avenue K	Signalized
10	State Route 14 SB Ramps & Avenue K	Signalized
11	State Route 14 NB Ramps & Avenue K	Signalized
12	70 th Street W & W Avenue K-4	Future Intersection
13	70 th Street W & Avenue K-8	Future Intersection
14	65 th Street W & Avenue K-8	Future Intersection
15	60 th Street W & Avenue K-8	Two-Way Stop (N-S)
16	70 th Street W & Avenue L	All-Way Stop
17	65 th Street W & Avenue L	Stop (NB Only)
18	QHHS Dwy/Walmart Dwy & Avenue L	Stop (NB Only)
19	60 th Street W & Avenue L	Signalized
20	55 th Street W & Avenue L	Stop (NB Only)
21	50 th Street W & Avenue L	Signalized
22	45 th Street W & Avenue L	Signalized
23	40 th Street W & Avenue L	Signalized
24	35 th Street W & Avenue L	Signalized
25	30 th Street W & Avenue L	Signalized
26	25 th Street W & Avenue L	Signalized
27	20 th Street W & Avenue L	Signalized
28	15 th Street W & Avenue L	Signalized
29	State Route 14 SB Ramps & Avenue L	Signalized
30	State Route 14 NB Ramps & Avenue L	Signalized

Table 1b
Study Roadway Segments

Roadway ID	Roadway Segment	From	To
1	Avenue K	70 th Street W	60 th Street W
2	Avenue K	60 th Street W	50 th Street W
3	Avenue K	50 th Street W	45 th Street W
4	Avenue K	45 th Street W	40 th Street W
5	Avenue K	40 th Street W	30 th Street W
6	Avenue K	30 th Street W	25 th Street W
7	Avenue K	25 th Street W	20 th Street W
8	Avenue K	20 th Street W	17 th Street W
9	Avenue K	17 th Street W	Avenue K Ramps
10	70 th Street W	Avenue L	Avenue K
11	Avenue K-8	70 th Street W	60 th Street W
12	65 th Street W	Avenue K-8	Avenue L
13	Avenue L	70 th Street W	60 th Street W
14	Avenue L	60 th Street W	50 th Street W
15	Avenue L	50 th Street W	45 th Street W
16	Avenue L	45 th Street W	40 th Street W
17	Avenue L	40 th Street W	30 th Street W
18	Avenue L	30 th Street W	20 th Street W
19	Avenue L	20 th Street W	15 th Street W
20	Avenue L	15 th Street W	Avenue L Ramps

Table 2
Study Intersection Existing Configurations

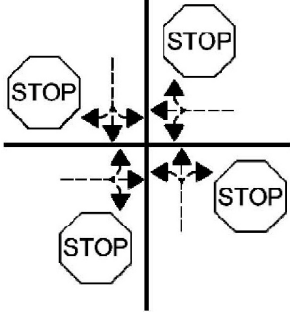
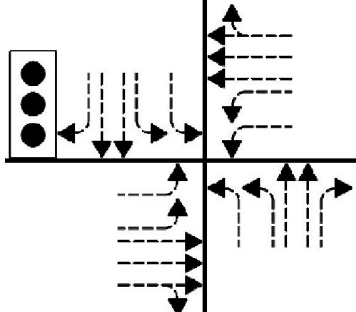
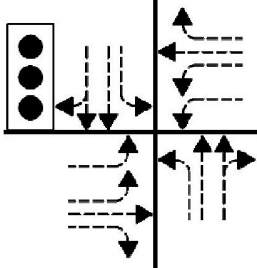
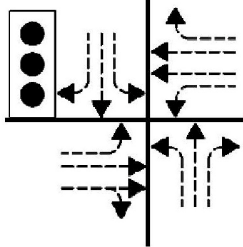
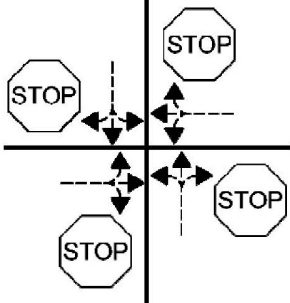
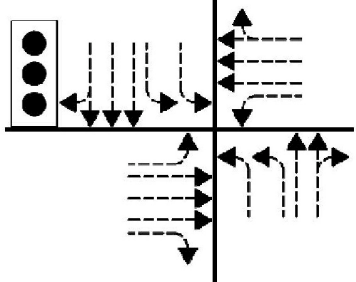
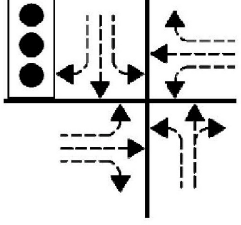
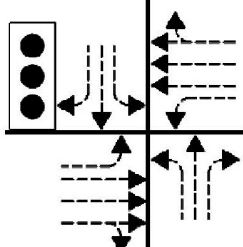
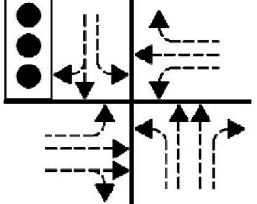
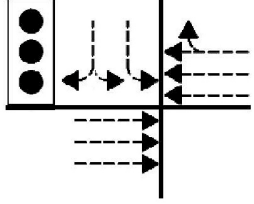
1	70th St W & Ave K		6	30th St W & Ave K	
2	60th St W & Ave K		7	25th St W & Ave K	
3	50th St W & Ave K		8	20th St W & Ave K	
4	45th St W & Ave K		9	17th St W & Ave K	
5	40th St W & Ave K		10	SR 14 SB Ramp & Ave K	

Table 2 - CONTINUED
Study Intersection Existing Configurations

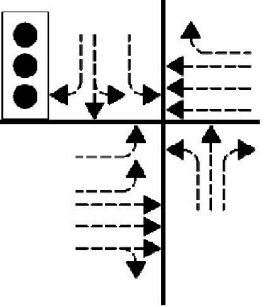
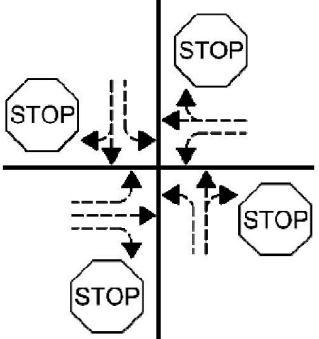
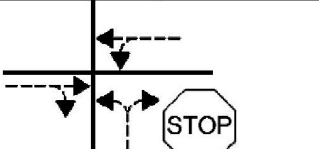
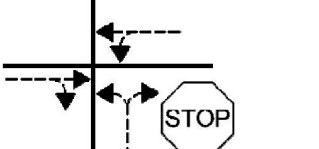
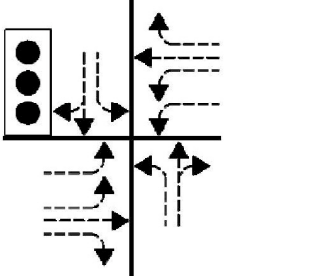
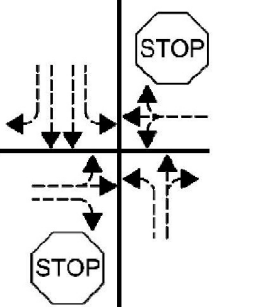
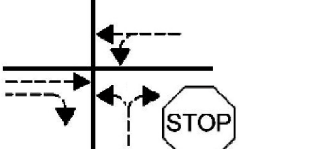
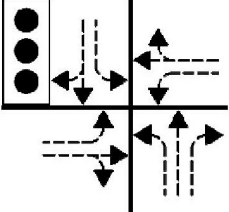
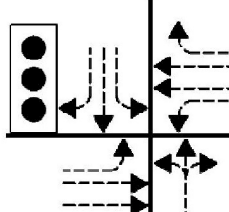
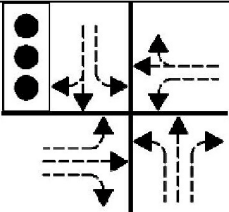
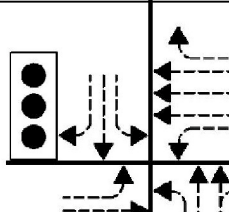
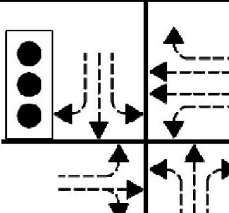
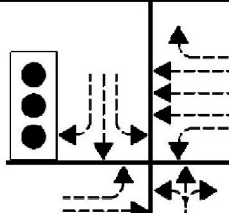
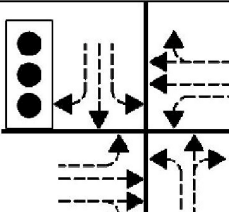
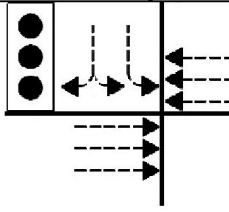
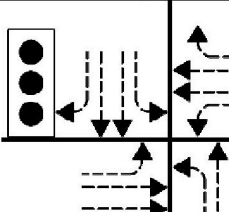
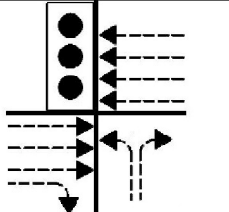
11	15th St W/ SR 14 NB Ramp & Ave K		16	70th St W & Ave L	
12	70th St W & Ave K-4	Future Intersection	17	65th St W & Ave L	
13	70th St W & Ave K-8	Future Intersection	18	Walmart Dwy/ QHHS Dwy & Ave L	
14	65th St W & Ave K-8	Future Intersection	19	60th St W & Ave L	
15	60th St W & Ave K-8		20	55th St W & Ave L	

Table 2 - CONTINUED
Study Intersection Existing Configurations

21	50th St W & Ave L			26	25th St W & Ave L	
22	45th St W & Ave L			27	20th St W & Ave L	
23	40th St W & Ave L			28	15th St W & Ave L	
24	35th St W & Ave L			29	SR 14 SB Ramp & Ave L	
25	30th St W & Ave L			30	SR 14 NB Ramp & Ave L	

PROJECT SITE

A. Existing Land Use and Zoning

The current General Plan land use designation for the 234-acre project subarea located east of 70th Street W is UR (Urban Residential) with a Specific Plan overlay. This designation allows for residential densities ranging between 2.1 and 6.5 dwelling units per acre. This subarea is currently zoned SP (Specific Plan).

The 73-acre project subarea located west of 70th Street W has a current General Plan land use designation of NU (Non-Urban Residential) which allows for residential densities ranging from one dwelling unit per 2.5 acres to two dwelling units per acre. This subarea would be subject to a General Plan Amendment to revise the designation to UR (Urban Residential) with a Specific Plan overlay. This subarea has existing zoning designations of RR-2.5 (Rural Residential: one dwelling unit per minimum 100,000 square feet) and RR-1 (Rural Residential: one dwelling unit per minimum 40,000 square feet).

B. Existing and Proposed Site Uses and Site Access

Historically, the project site was used for agricultural purposes. Both subareas are currently vacant and undeveloped. It is anticipated that the residential portion of the project would provide for approximately 1,030 single-family homes, 325 apartments, 200 townhomes/condominiums and 280 senior living units. In addition, the project would include an elementary school for 850 students and 200,000 square feet of commercial retail space.

As currently planned, access to the project site will be provided by Avenue L, 70th Street W, Avenue K-8 (proposed) and 75th Street W (proposed).

C. Existing Uses Surrounding Site

Undeveloped open land is located generally north and west of the project site. Vacant land situated directly north of the 234-acre project subarea on the east side of 70th Street W is currently zoned SP (Specific Plan). The Avanti North Specific Plan, currently under review by the City of Lancaster, would provide for the development of a 237- acre residential community on this land.

Residential and commercial land uses lie generally to the south and east of the project site. Quartz Hill High School is situated across from the 234-acre project subarea on the south side of Avenue L, between 65th Street W and 60th Street W. A proposed Walmart is located due east of the project on the northwest corner of 60th St W and Avenue L. Similarly, a proposed Target is located on the southeast corner of the same intersection.

EXISTING AND FUTURE ROADWAYS

Antelope Valley Freeway (Highway 14) is located approximately five miles east of the project site. This north-south freeway exists as a six-lane facility with full interchanges at Columbia Way, W Avenue L, W Avenue K, W Avenue I, and W Avenue H, which provides access to east-west arterials throughout Lancaster. The freeway originates along the Golden State Freeway at the north end of the San Fernando Valley and extends through Santa Clarita, Palmdale, Lancaster and further north.

Avenue K is a major east-west arterial that provides access to residential and commercial land uses, State Route 14, as well as Antelope Valley College. It exists as a two-lane roadway in the project vicinity and at various stages of widening adjacent to development in other areas.

Avenue K-8 is a secondary east-west arterial at various stages of widening and is currently discontinuous in the vicinity of the project. It provides access to residential land uses through central Lancaster and a crossing at State Route 14 with no interchange.

Avenue L is designated as a major arterial from 90th Street West to 60th Street West and as a regional arterial from 60th Street West to the eastern City boundary. The larger portion of the project is bounded by Avenue L to the south. In the vicinity of the project, Avenue L exists as a two-lane facility with a two-way left turn lane where it is adjacent to Quartz Hill High School. Avenue L provides access to residential and commercial land uses as well as State Route 14.

15th Street W is a two-lane secondary arterial north of Lancaster Boulevard and a four-lane divided roadway with a two-way left-turn lane south of Lancaster Boulevard. 15th Street W generally parallels State Route 14 on the west side and provides access to residential and commercial land uses.

20th Street W is a north-south four- to six-lane divided major arterial, with a two-way left-turn lane. It provides access to residential and commercial land uses throughout the central region of Lancaster.

25th Street W is a north-south secondary arterial at various stages of widening adjacent to development. It exists as a two- or four-lane facility with a two-way left-turn south of W Avenue J and as a divided roadway north of W Avenue J. 25th Street W provides access to residential and commercial land uses throughout the central region of Lancaster.

30th Street W is a north-south major arterial at various stages of widening adjacent to development. It exists as a two- or four-lane facility with a two-way left-turn, and provides access to residential and commercial land uses as well as Antelope Valley College.

35th Street W is a north-south secondary arterial that is discontinuous between W Avenue L and W Avenue K. It exists as a two-lane facility and provides access to residential areas.

40th Street W is a major north-south arterial, but is discontinuous between W Avenue L-8 and W Avenue M-8. It exists as a three-lane facility in the vicinity of the project, and it provides access to existing and developing residential land uses in eastern Lancaster.

45th Street W is a secondary north-south arterial between Avenue G and Avenue K. In the vicinity of the project, it exists as a two-lane facility and provides access to existing and developing residential land uses in eastern Lancaster.

50th Street W is a regional north-south arterial extending between W Avenue G and Avenue N-8 W. It exists as a two-lane facility that provides access to residential and commercial land uses in eastern Lancaster.

55th Street W is a north-south arterial that terminates on the south side of W Avenue L. 55th Street W exists as a two-lane facility and provides access to residential areas in southwest Lancaster.

60th Street W is a regional north-south arterial at various stages of widening adjacent to development. In the vicinity of the project, 60th Street W exists as a two-lane facility and provides access to residential land uses, as well as, Quartz Hill High School in the south and Antelope Valley State Prison to the north.

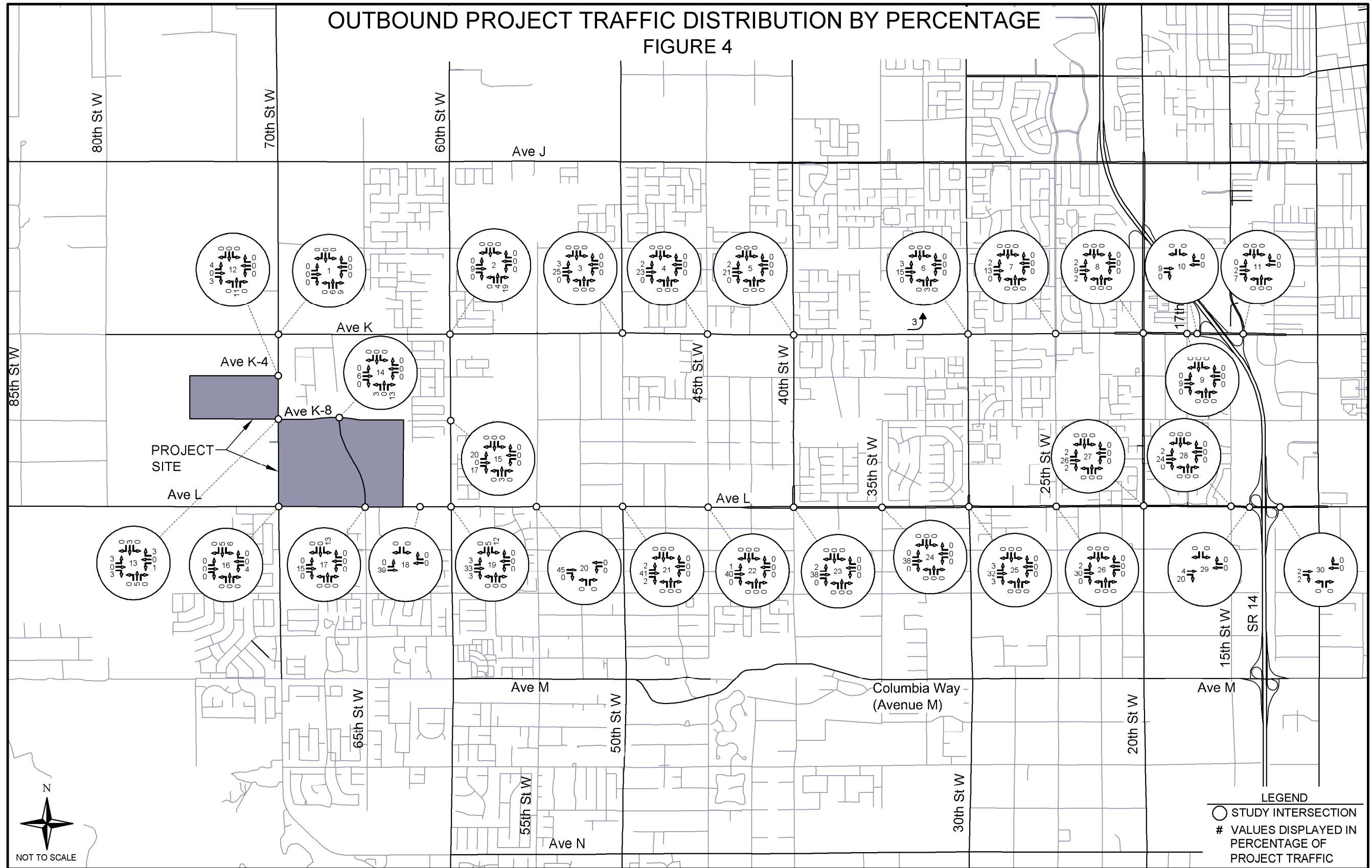
65th Street W is a secondary north-south arterial that extends north from W Avenue M-8 to W Avenue L. A portion of the roadway extends south from W Avenue J, but is discontinuous between W Avenue J and W Avenue L. 65th Street W exists as a two-lane facility that provides access to existing and developing residential land uses on the west side of Lancaster.

70th Street W is a major north-south arterial that exists as a two-lane facility in the project vicinity. It provides access to residential land uses on the west side of Lancaster. To the north of the California Aqueduct, 70th Street W curves easterly and becomes W Avenue N.

B. Trip Distribution and Traffic Assignment

The trip distribution in Figure 4 represents the likely outbound percentages, at each intersection, of the overall project traffic accessing the site. Project traffic distribution was estimated based on a review of the proposed land use types, potential draw from population centers within the region, and input from the City of Lancaster Traffic Engineering Team. Assignment of project peak hour traffic to the study intersections is shown in Figure 6.

OUTBOUND PROJECT TRAFFIC DISTRIBUTION BY PERCENTAGE
FIGURE 4

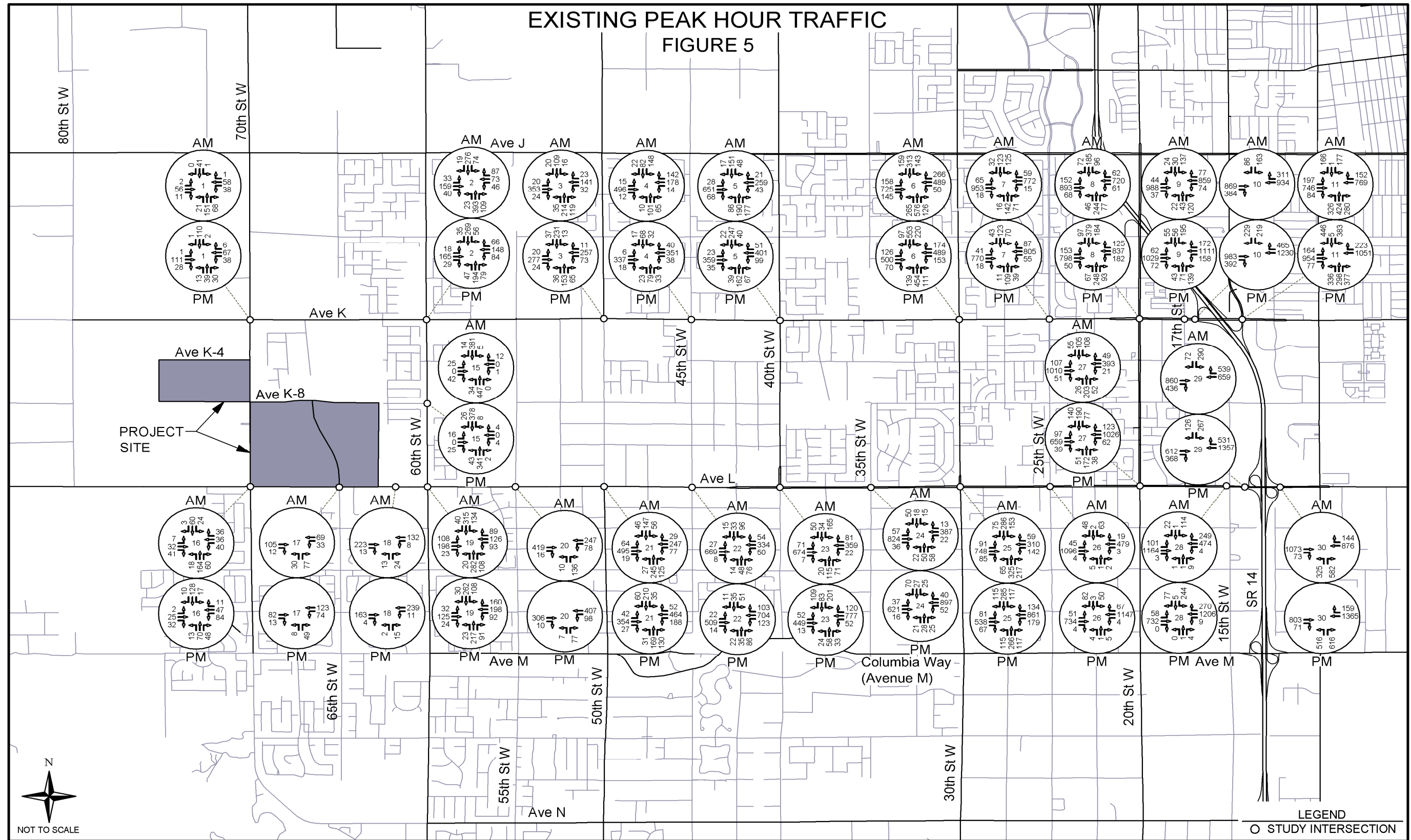


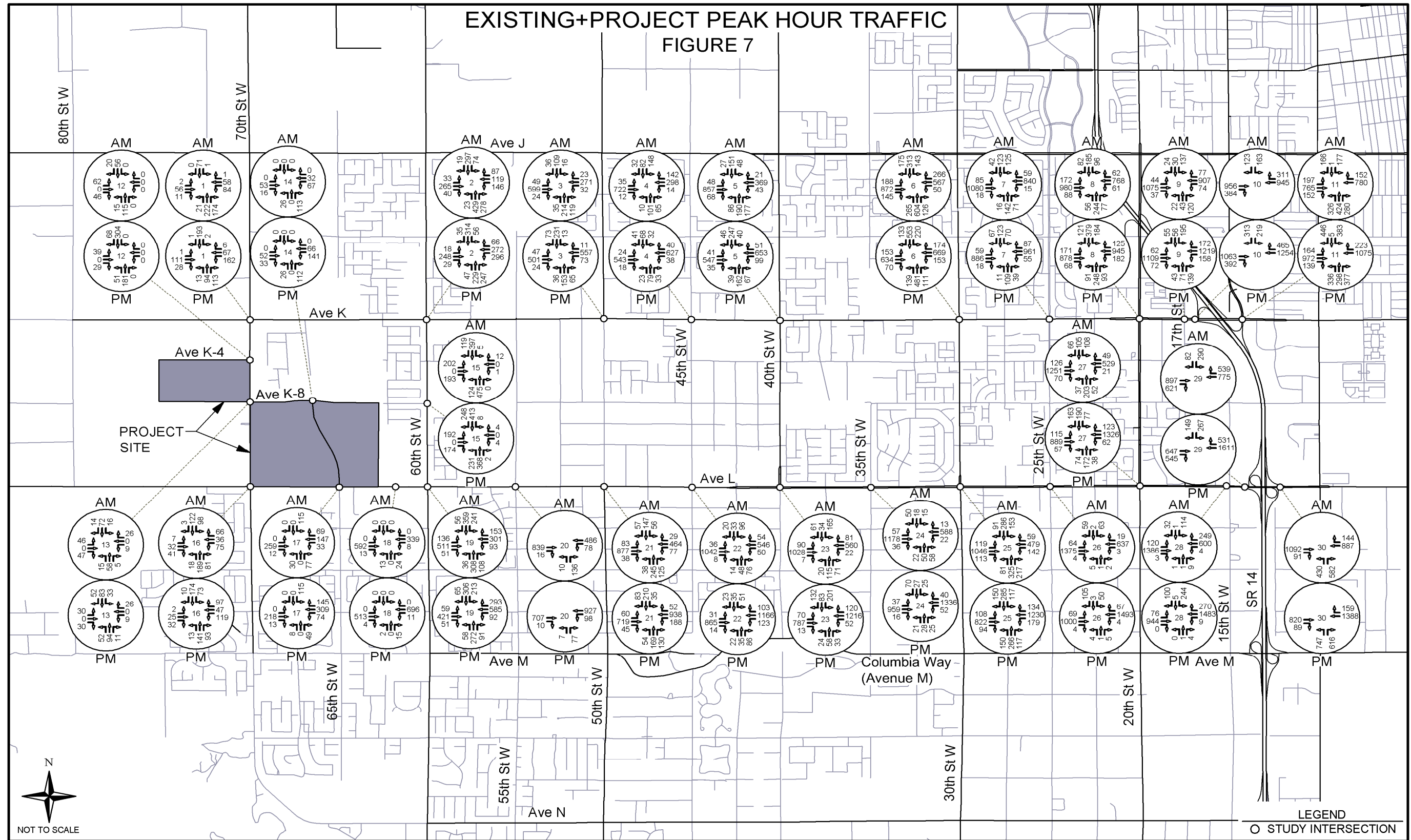
EXISTING AND FUTURE TRAFFIC

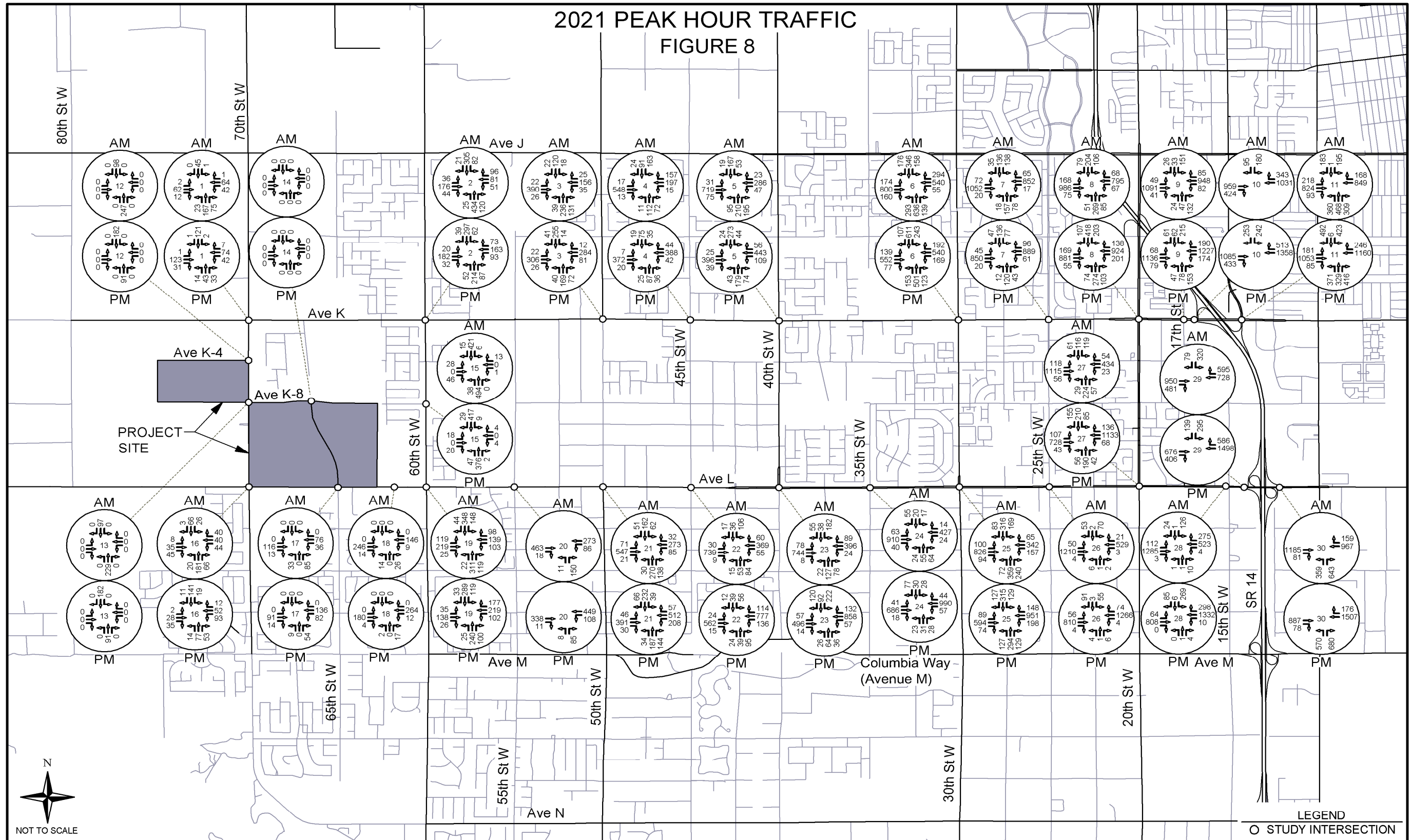
Weekday AM and PM peak hour volumes and turning movements were field measured at the study intersections in April 2016. Existing peak hour volumes are shown in Figure 5, and existing plus project peak hour volumes are shown in Figure 7.

An annual growth rate of 2 percent was applied to existing traffic volumes to estimate future traffic volumes for the year 2021. This growth rate was provided by the City of Lancaster Traffic Engineering Team. Future peak hour volumes are shown in Figure 8.

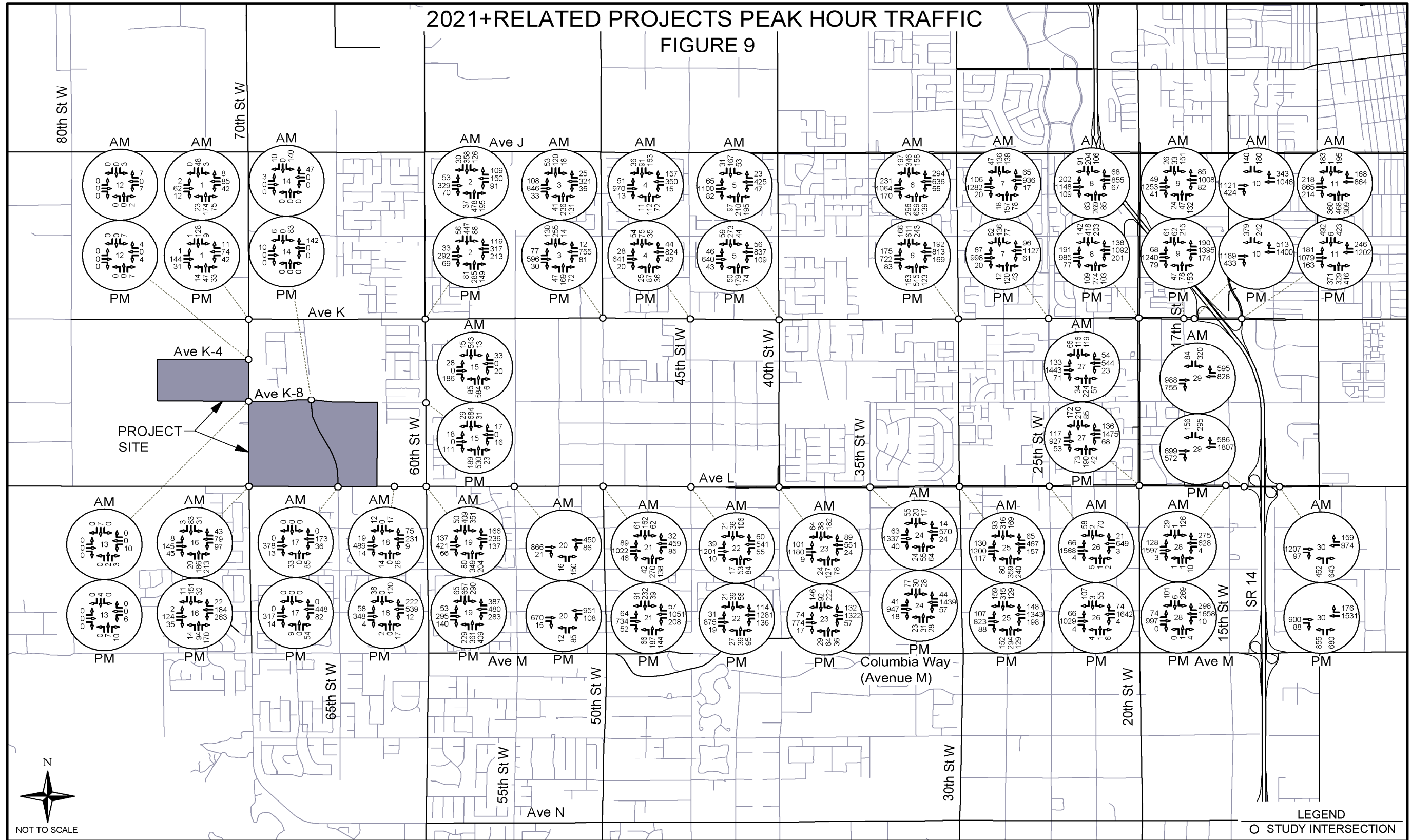
Figure 9 presents future traffic plus traffic generated by related projects. Figure 10 presents future traffic generated by related project plus project traffic. The City of Lancaster provided a list of “related projects” for use in this study. These projects are located in the area bounded by Avenue J-8 on the north, Avenue M on the south, 85th Street W on the west and 50th Street W on the east. The list includes projects that have been submitted to the City for approval, projects approved for construction and projects currently under construction. A map and list of the related projects used for this study are provided in the Appendix.



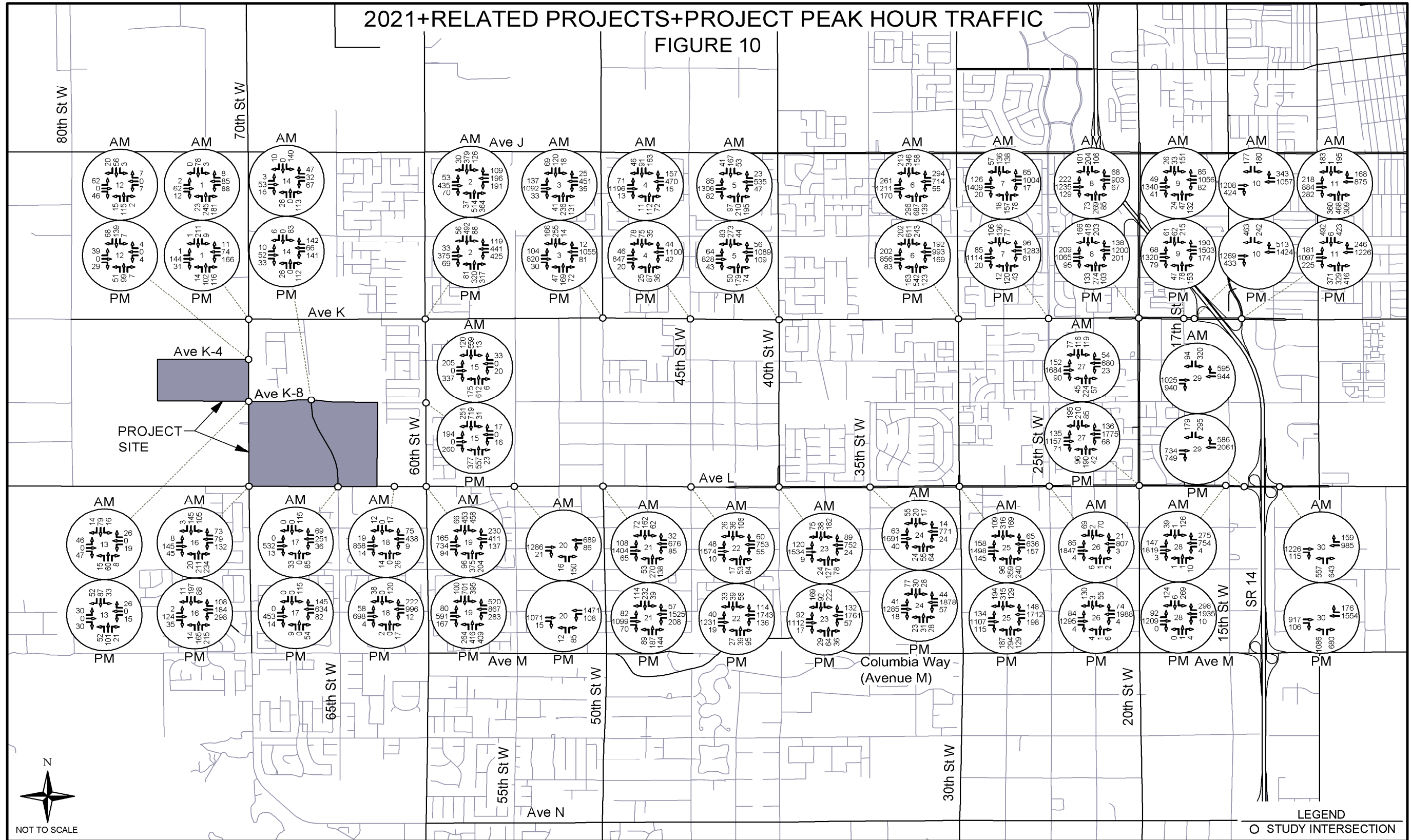




2021+RELATED PROJECTS PEAK HOUR TRAFFIC
FIGURE 9



2021+RELATED PROJECTS+PROJECT PEAK HOUR TRAFFIC
FIGURE 10



THRESHOLDS OF SIGNIFICANT IMPACT

The City of Lancaster utilizes the following criteria to evaluate whether the addition of project traffic would result in a significant impact to an intersection or roadway segment, and therefore, require mitigation.

- A significant impact is indicated when the addition of project traffic degrades the level of service from LOS A, B, C or D to LOS E or F.
- If level of service for a signalized intersection or roadway segment is already at LOS E or F without project traffic, then a significant impact is indicated when the addition of project traffic increases the volume-to-capacity (v/c) ratio by at least 0.020.
- If level of service for an unsignalized intersection is already at LOS E or F without project traffic, then a significant impact is indicated when the addition of project traffic increases delay by at least two percent.

TRAFFIC IMPACT ANALYSES

In accordance with the City of Lancaster's Traffic Study Guidelines (January 2009), traffic impact analyses were performed for the following traffic scenarios.

- EXISTING (volume, pattern and roadway geometry for the current year)
- EXISTING plus PROJECT
- If necessary, EXISTING plus PROJECT plus MITIGATION
- FUTURE = EXISTING plus AMBIENT GROWTH (applied annual growth rate of two percent through the year 2021)
- FUTURE plus RELATED PROJECTS (defined previously)
- FUTURE plus RELATED PROJECTS plus PROJECT
- If necessary, FUTURE plus RELATED PROJECTS plus PROJECT plus MITIGATION

A. Intersection Analysis

A capacity analysis of the study intersections was conducted using Synchro 9 software from Trafficware. The capacity analysis methodology in the Transportation Research Board's fifth edition of the Highway Capacity Manual (HCM 2010) was used for the unsignalized intersections and the Intersection Capacity Utilization (ICU) methodology was used for the signalized intersections.

Level of service (LOS) criteria for unsignalized and signalized intersections, as described in HCM 2010, are presented in the tables below. Level of service analysis results for the study intersections are presented in Tables 4a through 5d. According to the City of Lancaster, the intersection peak hour level of service goal for the City is LOS D or better.

LEVEL OF SERVICE CRITERIA UNSIGNALIZED INTERSECTION

Level of Service	Average Control Delay (sec/veh)	Expected Delay to Minor Street Traffic
A	≤ 10	Little or no delay
B	> 10 and ≤ 15	Short traffic delays
C	> 15 and ≤ 25	Average traffic delays
D	> 25 and ≤ 35	Long traffic delays
E	> 35 and ≤ 50	Very long traffic delays
F	> 50	Extreme delays

LEVEL OF SERVICE CRITERIA SIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay (sec/veh)	Intersection Capacity Utilization
A	≤ 10	≤ 0.55
B	> 10 and ≤ 20	0.56 – 0.63
C	> 20 and ≤ 35	0.64 – 0.72
D	> 35 and ≤ 55	0.73 – 0.81
E	> 55 and ≤ 80	0.82 – 0.90
F	> 80	0.91 – 1.00

Table 4a
Unsignalized Intersections - Level of Service
Existing Weekday AM Peak Hour

#	Intersection	Movement	Existing	Existing +Project	Change in Delay (s) (ExProj-Ex)	Existing +Project w/Mitigation ¹
1	70th St W & Ave K	Overall Intersection	A (8.8)	B (11.5)	2.7	-
3	50th St W & Ave K	Overall Intersection	C (20.8)	E (47.0)	26.2	C (16.4)
12	70th St W & Ave K-4	EB WB	⁻² ₋₂	B (12.8) A (0.0)	- -	-
13	70th St W & Ave K-8	Roundabout	⁻²	A (4.3)	-	-
14	65th St W & Ave K-8	Roundabout	⁻²	A (4.4)	-	-
15	60th St W & Ave K-8	EB WB	C (16.0) B (12.1)	F (236.6) B (13.5)	220.6 1.4	A (0.54)
16	70th St W & Ave L	Overall Intersection	A (9.8)	B (11.8)	2.0	-
17	65th St W & Ave L	NB SB	B (10.0) ⁻²	B (11.4) A (0.0)	1.4 -	-
18	Walmart Dwy/QHHS Dwy & Ave L	NB SB	B (10.4) ⁻²	C (15.5) A (0.0)	1.3 -	-
20	55th St W & Ave L	NB	B (14.2)	D (33.9)	19.7	-

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to PM peak hour.

Table 4b
Unsignalized Intersections - Level of Service
Future Weekday AM Peak Hour

#	Intersection	Movement	2021	2021 +Related Projects ⁴	2021 +Related Projects ⁴ +Project	Change in Delay (s) (RelProj-Proj)	2021 +Related Projects ⁴ +Project w/Mitigation ¹
1	70th St W & Ave K	Overall Intersection	A (9.1)	A (9.4)	B (12.9)	3.5	-
3	50th St W & Ave K	Overall Intersection	D (33.0)	F (66.0)	F (69.2)	3.2	B (11.7)
12	70th St W & Ave K-4	EB WB	⁻² ₋₂	A (0.0) A (8.5)	B (10.0) A (9.8)	10.0 1.3	-
13	70th St W & Ave K-8	Roundabout	⁻²	A (3.3)	A (4.4)	1.1	-
14	65th St W & Ave K-8	Roundabout	⁻²	A (4.3)	A (5.2)	0.9	-
15	60th St W & Ave K-8	EB WB	⁻⁵	⁻⁵	⁻⁵	-	-
16	70th St W & Ave L	Overall Intersection	⁻⁵	⁻⁵	⁻⁵	-	-
17	65th St W & Ave L	NB SB	A (9.9) ₋₂	B (13.2) ₋₂	C (16.9) F (63.3)	3.7 -	B (0.59)
18	Walmart Dwy/QHHS Dwy & Ave L	NB SB	⁻⁵	⁻⁵	⁻⁵	-	-
20	55th St W & Ave L	NB	B (14.6)	D (30.9)	F (129.9)	99.0	D (0.74)

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to PM peak hour.

⁴ Related Projects – other project traffic added to future background volumes.

⁵ Analyzed with signalization for future scenarios per the Commons at Quartz Hill improvements (see Tables 5a & 5b).

Table 4c
Unsignalized Intersections - Level of Service
Existing Weekday PM Peak Hour

#	Intersection	Movement	Existing	Existing +Project	Change in Delay (s) (ExProj-Ex)	Existing +Project w/Mitigation ¹
1	70th St W & Ave K	Overall Intersection	A (8.5)	B (11.2)	2.7	-
3	50th St W & Ave K	Overall Intersection	C (23.8)	F (61.5)	37.7	C (15.5)
12	70th St W & Ave K-4	EB WB	⁻² ₋₂	B (14.3) A (0.0)	- -	-
13	70th St W & Ave K-8	Roundabout	⁻²	A (4.9)	-	
14	65th St W & Ave K-8	Roundabout	⁻²	A (5.0)	-	
15	60th St W & Ave K-8	EB WB	B (14.5) B (13.6)	F (>300) D (26.9)	(>300) (13.3)	B (0.61)
16	70th St W & Ave L	Overall Intersection	A (9.3)	B (12.1)	2.8	-
17	65th St W & Ave L	NB SB	A (9.5) ⁻²	B (11.0) A (0.0)	1.5 -	-
18	Walmart Dwy/QHHS Dwy & Ave L	NB SB	A (9.5) ⁻²	B (13.2) A (0.0)	3.2 -	-
20	55th St W & Ave L	NB	B (12.1)	D (28.8)	16.7	-

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to PM peak hour.

Table 4d
Unsignalized Intersections - Level of Service
Future Weekday PM Peak Hour

#	Intersection	Movement	2021	2021 +Related Projects ⁴	2021 +Related Projects ⁴ +Project	Change in Delay (s) (RelProj-Proj)	2021 +Related Projects ⁴ +Project w/Mitigation ¹
1	70th St W & Ave K	Overall Intersection	A (8.7)	A (9.0)	B (12.3)	3.3	-
3	50th St W & Ave K	Overall Intersection	E (47.6)	F (72.2)	F (72.9)	0.7	C (15.1)
12	70th St W & Ave K-4	EB WB	-.2 -.2	A (0.0) A (8.5)	B (11.3) B (10.7)	11.3 2.2	-
13	70th St W & Ave K-8	Roundabout	-.2	A (3.3)	A (5.0)	1.7	-
14	65th St W & Ave K-8	Roundabout	-.2	A (4.3)	A (6.2)	1.9	-
15	60th St W & Ave K-8	EB WB	-.5	-.5	-.5	-	-
16	70th St W & Ave L	Overall Intersection	-.5	-.5	-.5	-	-
17	65th St W & Ave L	NB SB	A (9.6) -.2	B (12.7) -.2	C (17.3) F (>300)	4.0 -	B (0.62)
18	Walmart Dwy/QHHS Dwy & Ave L	NB SB	-.5	-.5	-.5	-	-
20	55th St W & Ave L	NB	B (12.4)	D (28.3)	F (91.4)	63.1	C (0.71)

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to PM peak hour.

⁴ Related Projects – other project traffic added to future background volumes.

⁵ Analyzed with signalization for future scenarios per the Commons at Quartz Hill improvements (see Tables 5a & 5b).

Table 5a
Signalized Intersections - Level of Service
Existing Weekday AM Peak Hour

#	Intersection	Existing	Existing +Project	Change in ICU (ExProj-Ex)	Existing +Project w/Mitigation ¹
2	60th St W & Ave K	A (0.52)	C (0.66)	0.14	-
4	45th St W & Ave K	B (0.62)	D (0.76)	0.14	-
5	40th St W & Ave K	B (0.58)	C (0.65)	0.07	-
6	30th St W & Ave K	C (0.64)	C (0.65)	0.01	-
7	25th St W & Ave K	C (0.68)	C (0.72)	0.04	-
8	20th St W & Ave K	C (0.66)	C (0.67)	0.01	-
9	17th St W & Ave K	A (0.54)	B (0.56)	0.02	-
10	SR 14 SB Ramp & Ave K	A (0.45)	A (0.46)	0.01	-
11	SR 14 NB Ramp & Ave K	E (0.89)	E (0.89)	0.00	-
15	60th St W & Ave K-8	-.4	-.4	-.4	-
16	70th St W & Ave L	-.4	-.4	-.4	-
18	Walmart Dwy/QHHS Dwy & Ave L	-.4	-.4	-.4	-
19	60th St W & Ave L	C (0.66)	F (0.93)	0.27	D (0.79)
21	50th St W & Ave L	C (0.70)	F (0.95)	0.25	C (0.68)
22	45th St W & Ave L	C (0.69)	E (0.89)	0.20	B (0.61)
23	40th St W & Ave L	D (0.75)	F (0.97)	0.22	C (0.66)
24	35th St W & Ave L	A (0.52)	B (0.64)	0.12	-
25	30th St W & Ave L	D (0.76)	D (0.81)	0.05	D ³ (0.76)

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to PM peak hour.

⁴ Analyzed with signalization for future scenarios per the Commons at Quartz Hill improvements (see Tables 4a & 4b).

Table 5a CONTINUED
Signalized Intersections - Level of Service
Existing Weekday AM Peak Hour

#	Intersection	Existing	Existing +Project	Change in ICU (ExProj-Ex)	Existing +Project w/Mitigation ¹
26	25th St W & Ave L	B (0.58)	C (0.68)	0.10	-
27	20th St W & Ave L	C (0.69)	D (0.76)	0.07	-
28	15th St W & Ave L	A (0.54)	B (0.59)	0.05	-
29	SR 14 SB Ramp & Ave L	A (0.36)	A (0.37)	0.01	-
30	SR 14 NB Ramp & Ave L	A (0.53)	B (0.60)	0.07	-

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to PM peak hour.

⁴ Related Projects – other project traffic added to future background volumes.

Table 5b
Signalized Intersections - Level of Service
Future Weekday AM Peak Hour

#	Intersection	2021	2021 +Related Projects ⁴	2021 +Related Projects ⁴ +Project	Change in ICU (RelProj-Proj)	2021 +Related Projects ⁴ +Project w/Mitigation ¹
2	60th St W & Ave K	B (0.61)	C (0.71)	E (0.82)	0.11	C (0.73)
4	45th St W & Ave K	C (0.67)	F (0.94)	F (1.08)	0.14	D (0.79)
5	40th St W & Ave K	B (0.62)	D (0.75)	E (0.83)	0.08	D (0.80)
6	30th St W & Ave K	C (0.66)	C (0.72)	D (0.76)	0.04	-
7	25th St W & Ave K	C (0.73)	D (0.80)	E (0.84)	0.04	D (0.75)
8	20th St W & Ave K	C (0.68)	C (0.70)	C (0.71)	0.01	-
9	17th St W & Ave K	B (0.58)	B (0.62)	B (0.64)	0.02	-
10	SR 14 SB Ramp & Ave K	A (0.48)	A (0.49)	A (0.50)	0.01	-
11	SR 14 NB Ramp & Ave K	F (0.93)	F (0.93)	F (0.93)	0.00	⁶
15	60th St W & Ave K-8	A (0.40)	A (0.49)	B (0.61)	0.12	-
16	70th St W & Ave L	A (0.41)	B (0.58)	C (0.71)	0.13	-
18	Walmart Dwy/QHHS Dwy & Ave L	A (0.29)	A (0.39)	A (0.52)	0.13	A ³ (0.46)
19	60th St W & Ave L	C (0.68)	D (0.77)	D (0.81)	0.04	C ³ (0.66)
21	50th St W & Ave L	B (0.59)	D (0.75)	E (0.88)	0.13	C (0.72)
22	45th St W & Ave L	A (0.52)	C (0.67)	D (0.77)	0.10	D ³ (0.77)
23	40th St W & Ave L	C (0.70)	D (0.79)	E (0.91)	0.12	D (0.75)
24	35th St W & Ave L	B (0.55)	C (0.69)	D (0.79)	0.10	D ³ (0.79)
25	30th St W & Ave L	D (0.79)	D (0.79)	E (0.84)	0.10	D (0.76)

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to PM peak hour.

⁴ Related Projects – other project traffic added to future background volumes.

⁵ Analyzed with signalization for future scenarios per the Commons at Quartz Hill improvements (see Tables 4a & 4b).

⁶ No mitigation; increased capacity due to project traffic is less than 2%.

Table 5b CONTINUED
Signalized Intersections - Level of Service
Future Weekday AM Peak Hour

#	Intersection	2021	2021 +Related Projects ³	2021 +Related Projects ³ +Project	Change in ICU (RelProj-Proj)	2021 +Related Projects ³ +Project w/Mitigation ¹
26	25th St W & Ave L	B (0.62)	D (0.74)	E (0.83)	0.09	C (0.65)
27	20th St W & Ave L	C (0.73)	E (0.84)	F (0.92)	0.08	D (0.75)
28	15th St W & Ave L	B (0.58)	C (0.65)	C (0.70)	0.05	C ³ (0.66)
29	SR 14 SB Ramp & Ave L	A (0.39)	A (0.40)	A (0.41)	0.01	-
30	SR 14 NB Ramp & Ave L	B (0.58)	C (0.64)	C (0.71)	0.07	A ³ (0.47)

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to PM peak hour.

⁴ Related Projects – other project traffic added to future background volumes.

Table 5c
Signalized Intersections - Level of Service
Existing Weekday PM Peak Hour

#	Intersection	Existing	Existing +Project	Change in ICU (ExProj-Ex)	Existing +Project w/Mitigation ¹
2	60th St W & Ave K	A (0.45)	B (0.62)	0.17	-
4	45th St W & Ave K	A (0.46)	B (0.59)	0.13	-
5	40th St W & Ave K	B (0.62)	D (0.80)	0.08	-
6	30th St W & Ave K	B (0.63)	B (0.63)	0.00	-
7	25th St W & Ave K	A (0.53)	B (0.59)	0.06	-
8	20th St W & Ave K	C (0.69)	C (0.69)	0.00	-
9	17th St W & Ave K	C (0.65)	C (0.67)	0.02	-
10	SR 14 SB Ramp & Ave K	B (0.59)	B (0.62)	0.03	-
11	SR 14 NB Ramp & Ave K	E (0.90)	E (0.90)	0.00	-
15	60th St W & Ave K-8	_ ⁴	_ ⁴	_ ⁴	-
16	70th St W & Ave L	_ ⁴	_ ⁴	_ ⁴	-
18	Walmart Dwy/QHHS Dwy & Ave L	_ ⁴	_ ⁴	_ ⁴	-
19	60th St W & Ave L	B (0.58)	E (0.86)	0.28	D (0.74)
21	50th St W & Ave L	C (0.71)	F (1.03)	0.32	D (0.74)
22	45th St W & Ave L	D (0.76)	F (1.05)	0.29	C (0.67)
23	40th St W & Ave L	B (0.63)	E (0.84)	0.21	D (0.75)
24	35th St W & Ave L	A (0.54)	C (0.68)	0.14	-
25	30th St W & Ave L	D (0.74)	E (0.83)	0.09	D (0.76)

NOTE: ICU ()

¹See Table 8 for Mitigation Measures.

²Mitigation due to AM Peak Hour.

³Related Projects – other project traffic added to future background volumes.

⁴Analyzed with signalization for future scenarios per the Commons at Quartz Hill improvements (see Tables 4c & 4d).

Table 5c CONTINUED
Signalized Intersections - Level of Service
Existing Weekday PM Peak Hour

#	Intersection	Existing	Existing +Project	Change in ICU (ExProj-Ex)	Existing +Project w/Mitigation ¹
26	25th St W & Ave L	B (0.61)	D (0.73)	0.12	-
27	20th St W & Ave L	C (0.68)	C (0.71)	0.03	-
28	15th St W & Ave L	C (0.64)	C (0.72)	0.08	-
29	SR 14 SB Ramp & Ave L	A (0.48)	A (0.54)	0.06	-
30	SR 14 NB Ramp & Ave L	C (0.64)	D (0.80)	0.16	-

NOTE: ICU ()

¹See Table 8 for Mitigation Measures.

²Mitigation due to AM Peak Hour.

³Related Projects – other project traffic added to future background volumes.

⁴Addition of project traffic does not increase delay by more than 2% of future scenario.

Table 5d
Signalized Intersections - Level of Service
Future Weekday PM Peak Hour

#	Intersection	2021	2021 +Related Projects ³	2021 +Related Projects ³ +Project	Change in ICU (RelProj-Proj)	2021 +Related Projects ³ +Project w/Mitigation ¹
2	60th St W & Ave K	B (0.57)	C (0.67)	D (0.77)	0.10	C ³ (0.66)
4	45th St W & Ave K	A (0.52)	C (0.73)	E (0.91)	0.18	C (0.64)
5	40th St W & Ave K	C (0.67)	F (0.94)	F (1.12)	0.18	D (0.74)
6	30th St W & Ave K	C (0.65)	C (0.65)	C (0.70)	0.05	-
7	25th St W & Ave K	B (0.56)	C (0.65)	C (0.71)	0.06	C ³ (0.71)
8	20th St W & Ave K	C (0.71)	D (0.74)	D (0.78)	0.04	-
9	17th St W & Ave K	C (0.70)	C (0.73)	D (0.75)	0.02	-
10	SR 14 SB Ramp & Ave K	C (0.65)	C (0.68)	C (0.70)	0.31	-
11	SR 14 NB Ramp & Ave K	F (0.98)	F (0.99)	F (0.99)	0.00	-. ⁶
15	60th St W & Ave K-8	A (0.37)	B (0.56)	D (0.79)	0.24	-
16	70th St W & Ave L	A (0.39)	B (0.63)	D (0.76)	0.13	-
18	Walmart Dwy/QHHS Dwy & Ave L	A (0.38)	D (0.75)	F (0.98)	0.23	C (0.65)
19	60th St W & Ave L	C (0.64)	F (0.92)	F (0.95)	0.03	D (0.74)
21	50th St W & Ave L	C (0.67)	D (0.80)	F (1.00)	0.18	D (0.74)
22	45th St W & Ave L	A (0.55)	C (0.71)	E (0.87)	0.16	C (0.71)
23	40th St W & Ave L	B (0.64)	D (0.80)	F (0.96)	0.16	D (0.79)
24	35th St W & Ave L	B (0.58)	C (0.72)	E (0.83)	0.11	D (0.81)
25	30th St W & Ave L	D (0.77)	D (0.79)	E (0.87)	0.16	D (0.79)

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to AM peak hour.

⁴ Related Projects – other project traffic added to future background volumes.

Table 5d CONTINUED
Signalized Intersections - Level of Service
Future Weekday PM Peak Hour

#	Intersection	2021	2021 +Related Projects ³	2021 +Related Projects ³ +Project	Change in ICU (RelProj-Proj)	2021 +Related Projects ³ +Project w/Mitigation ¹
26	25th St W & Ave L	C (0.66)	D (0.79)	F (0.92)	0.13	C (0.72)
27	20th St W & Ave L	C (0.70)	D (0.75)	E (0.85)	0.10	D (0.79)
28	15th St W & Ave L	C (0.69)	D (0.77)	E (0.85)	0.08	D (0.76)
29	SR 14 SB Ramp & Ave L	A (0.52)	B (0.60)	C (0.66)	0.06	-
30	SR 14 NB Ramp & Ave L	C (0.70)	E (0.89)	F (1.05)	0.16	B (0.57)

NOTE: Delay/ICU ()

¹ See Table 8 for Mitigation Measures.

² Analyzed with Related Projects only or Project only where applicable.

³ Mitigation due to AM peak hour.

⁴ Related Projects – other project traffic added to future background volumes.

B. Traffic Signal Warrant Analysis

Weekday peak hour signal warrants were evaluated for each of the unsignalized intersections within the scope of the study based on the 2014 edition of the California Manual on Uniform Traffic Control Devices (2014 CA MUTCD). Signal warrants assess delay to traffic on the minor street approaches at major street intersections. Signal warrant analysis results are shown in Tables 6a through 6d.

Table 6a
Traffic Signal Warrants
Existing Weekday AM Peak Hour

#	Intersection	Existing			Existing+Project		
		Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	70th Street W at Avenue K	282	97	NO	489	143	NO
3	50th Street W at Avenue K	593	368	YES	998	368	YES
12	70th Street W at Avenue K-4	¹	¹	¹	518	108	NO
15	60th Street W at Avenue K-8	881	67	NO	1120	395	YES
16	70th Street W at Avenue L	329	112	NO	511	177	NO
17	65th Street W at Avenue L	219	107	NO	520	115	NO
18	Walmart Dwy at Avenue L	376	37	NO	952	37	NO
20	55th Street W at Avenue L	761	146	NO	1420	146	YES

¹Analyzed with Related Projects and Project traffic scenarios only.

Table 6b
Traffic Signal Warrants
Future Weekday AM Peak Hour

#	Intersection	2021			2021 +Related Projects			2021 +Related Projects+Project		
		Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	70th Street W at Avenue K	311	107	NO	323	135	NO	530	181	NO
3	50th Street W at Avenue K	654	406	YES	1368	408	YES	1773	408	YES
12	70th Street W at Avenue K-4	1 ¹	1 ¹	1 ¹	349	14	NO	555	108	NO
15	60th Street W at Avenue K-8	974	74	NO	1246	214	YES	1485	542	YES
16	70th Street W at Avenue L	362	124	NO	536	219	NO	718	284	YES
17	65th Street W at Avenue L	241	118	NO	600	118	NO	901	118	YES
18	Walmart Dwy at Avenue L	415	40	NO	837	40	NO	1413	40	NO
20	55th Street W at Avenue L	841	161	YES	1435	166	YES	2094	166	YES

¹Analyzed with Related Projects and Project traffic scenarios only.

**Table 6c
Traffic Signal Warrants
Existing Weekday PM Peak Hour**

#	Intersection	Existing			Existing+Project		
		Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	70th Street W at Avenue K	251	113	NO	416	235	NO
3	50th Street W at Avenue K	662	281	YES	1213	317	YES
12	70th Street W at Avenue K-4	- ¹	- ¹	- ¹	604	68	NO
15	60th Street W at Avenue K-8	798	41	NO	1270	366	YES
16	70th Street W at Avenue L	286	142	NO	504	263	NO
17	65th Street W at Avenue L	292	57	NO	759	115	NO
18	Walmart Dwy at Avenue L	417	17	NO	1224	17	NO
20	55th Street W at Avenue L	822	84	NO	1743	84	YES

¹Analyzed with Related Projects and Project traffic scenarios only.

Table 6d
Traffic Signal Warrants
Future Weekday PM Peak Hour

#	Intersection	2021			2021 +Related Projects			2021 +Related Projects+Project		
		Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	70th Street W at Avenue K	278	124	NO	303	138	NO	453	251	YES
3	50th Street W at Avenue K	731	310	YES	1551	399	YES	2102	435	YES
12	70th Street W at Avenue K-4	1	1	1	287	8	NO	644	68	NO
15	60th Street W at Avenue K-8	880	46	NO	1486	129	YES	1958	454	YES
16	70th Street W at Avenue L	315	157	NO	630	278	NO	751	394	YES
17	65th Street W at Avenue L	323	63	NO	861	63	NO	1328	115	YES
18	Walmart Dwy at Avenue L	460	19	NO	1183	158	YES	1990	158	YES
20	55th Street W at Avenue L	907	93	NO	1777	97	YES	2698	97	YES

¹Analyzed with Related Projects and Project traffic scenarios only.

It is important to note that a signal warrant defines the minimum condition under which signalization of an intersection might be warranted. Meeting signal warrant criteria does not suggest traffic signals are required, but rather, that other factors and conditions should be considered in order to determine whether signals are truly justified.

It is also noted that signal warrants do not necessarily correlate with level of service. An intersection may satisfy a signal warrant condition and operate at or above LOS "D," or operate below LOS "D" and not meet signal warrant criteria.

C. Roadway Analysis

The volume-to-capacity ratios shown in Tables 7a & 7b were calculated for roadways with published ADT information and future projected traffic.

A volume-to-capacity ratio (v/c) of greater than 0.80 corresponds to a LOS of less than C, as defined in the Highway Capacity Manual. The City of Lancaster's operational goal for roadway capacity is LOS D or better. Mitigation is required where project traffic reduces the LOS to below LOS D, or where the pre-existing condition of the roadway is below LOS D, and the added project traffic is 2% or more of capacity.

**Table 7a
Existing Roadway Segment Analysis**

Street	Existing ¹	Project ADT	E+P ADT	Existing Capacity	Mitigated Capacity	v/c 2016	L O S	v/c 2016+Proj	L O S	v/c Mitigation ⁴ 2016+Proj	L O S
Ave K: 70th St W - 60th St W	2861	2041	4902	22,200	-	0.13	A	0.22	A	-	-
Ave K: 60th St W - 50th St W	7179	5788	12967	22,200	-	0.32	A	0.58	A	-	-
Ave K: 50th St W - 45th St W ²	8583	5167	13750	23,300	-	0.37	A	0.59	A	-	-
Ave K: 45th St W - 40th St W	11236	4753	15989	18,300	-	0.61	B	0.87	D	-	-
Ave K: 40th St W - 30th St W ²	14618	4339	18957	40,500	-	0.36	A	0.47	A	-	-
Ave K: 30th St W - 25th St W ²	23981	3096	27077	40,500	-	0.59	A	0.67	B	-	-
Ave K: 25th St W - 20th St W ²	27623	2682	30305	50,650	-	0.55	A	0.60	A	-	-
Ave K: 20th St W - 17th St W ²	31004	1854	32858	54,000	-	0.57	A	0.61	B	-	-
Ave K: 17th St W - Ave K Ramps ²	29235	1854	31089	54,000	-	0.54	A	0.58	B	-	-
70th St W: Ave L - Ave K	2965	3402	6367	22,200	-	0.13	A	0.29	A	-	-
Ave K-8: 70th St W - 60th St W	3614	7248	10862	16,900	-	0.21	A	0.64	B	-	-
65th St W: Ave L - Ave K-8 ³	-	3077	3077	13,500	-	-	-	0.23	A	-	-
Ave L: 70th St W - 60th St W	3485	7958	11443	18,300	-	0.19	A	0.63	B	-	-
Ave L: 60th St W - 50th St W	8219	9082	17301	36,800	-	0.22	A	0.47	A	-	-
Ave L: 50th St W - 45th St W	13863	8273	22136	18,300	36800	0.76	C	1.21	F	0.60	A
Ave L: 45th St W - 40th St W ²	19508	8066	27574	19,200	36800	1.02	F	1.44	F	0.75	C
Ave L: 40th St W - 30th St W ²	23201	7662	30863	40,500	-	0.57	A	0.76	C	-	-
Ave L: 30th St W - 20th St W ²	25906	6439	32345	40,500	-	0.64	B	0.80	C	-	-
Ave L: 20th St W - 15th St W ²	27519	5226	32745	50,650	-	0.54	A	0.65	A	-	-
Ave L: 15th St W - Ave L Ramps ²	36102	4822	40924	60,800	-	0.59	A	0.67	B	-	-

¹2014 volumes provided by the City of Lancaster projected to Existing Year.

²Presence of median or two-way left-turn lane.

³Segment does not currently exist, analysis includes project traffic only.

⁴See Table 9 for mitigation measures.

**Table 7b
Future Roadway Segment Analysis**

Street	2021+ Rel Proj ADT	2021+ Rel Proj+ Proj ADT	2021 Capacity	Mitigated Capacity	v/c 2021	L O S	v/c 2021+ RelProj	L O S	v/c 2021+Proj +RelProj	L O S	v/c Mitigation ³ 2021+Proj +RelProj	L O S
Ave K: 70th St W - 60th St W	7034	9075	22,200	-	0.14	A	0.32	A	0.41	A	-	
Ave K: 60th St W - 50th St W	17785	23573	22,200	46700	0.36	A	0.80	C	1.06	F	0.50	A
Ave K: 50th St W - 45th St W	17667	22834	23,300	44400	0.41	A	0.76	C	0.98	E	0.51	A
Ave K: 45th St W - 40th St W	19993	24746	18,300	38800	0.68	B	1.09	F	1.35	F	0.64	B
Ave K: 40th St W - 30th St W ²	23006	27345	40,500	-	0.40	A	0.57	A	0.68	B	-	-
Ave K: 30th St W - 25th St W ²	31245	34341	40,500	-	0.65	B	0.77	C	0.85	D	-	-
Ave K: 25th St W - 20th St W ²	34652	37334	50,650	-	0.60	A	0.68	B	0.74	B	-	-
Ave K: 20th St W - 17th St W ²	37159	39013	54,000	-	0.63	B	0.69	B	0.72	C	-	-
Ave K: 17th St W - Ave K Ramps ²	35206	37060	54,000	-	0.60	B	0.65	C	0.69	C	-	-
70th St W: Ave L - Ave K	3812	7214	22,200	-	0.15	A	0.17	A	0.32	A	-	-
Ave K-8: 70th St W - 60th St W	6412	13660	16,900	-	0.24	A	0.38	A	0.81	D	-	-
65th St W: Ave L - Ave K-8 ³	-	3077	13,500	-	-	-	-	-	0.23	-	-	-
Ave L: 70th St W - 60th St W	12308	20266	18,300	36800	0.21	A	0.67	B	1.11	F	0.55	A
Ave L: 60th St W - 50th St W	22947	32029	36,800	-	0.25	A	0.62	B	0.87	D	-	-
Ave L: 50th St W - 45th St W	24799	33072	18,300	58300	0.84	A	1.36	B	1.81	D	-	-
Ave L: 45th St W - 40th St W ²	30331	38397	19,200	58300	1.12	A	1.58	D	2.00	F	0.66	B
Ave L: 40th St W - 30th St W ²	33602	41264	40,500	60800	0.63	B	0.83	D	1.02	F	0.68	B
Ave L: 30th St W - 20th St W ²	35286	41725	40,500	60800	0.71	C	0.87	D	1.03	F	0.69	B
Ave L: 20th St W - 15th St W ²	36206	41432	50,650	-	0.60	A	0.71	B	0.82	C	-	-
Ave L: 15th St W - Ave L Ramps ²	45403	50225	60,800	-	0.66	B	0.75	C	0.83	D	-	-

¹2014 volumes provided by the City of Lancaster projected to Build Year.

²Presence of median or two-way left-turn lane.

³Segment does not currently exist, analysis includes project traffic only.

⁴See Table 9 for mitigation measures.

MITIGATION

Intersection and roadway improvements for the existing year and future year (2021), recommended in order to maintain or improve the operational level of service of the street system in the vicinity of the project are shown in Tables 8a through 10b.

**Table 8a
Project-Only Impact – Recommended Intersection Improvements**

#	Intersection	Total Improvements (Existing+Project)
3	50 th St W & Ave K	Construct a single lane roundabout
15	60 th St W & Ave K-8	Add 1 NBT
19	60 th St W & Ave L	Change NBT/R to 1 NBT, 1 NBR Add 1 SBL
21	50 th St W & Ave L	Add 1 EBT, 1 WBT
22	45 th St W & Ave L	Add 1 EBT, 1 WBT
23	40 th St W & Ave L	Add 1 EBT
25	30 th St W & Ave L	Add 1 EBT, 1 WBT

Notes: NB = Northbound, SB = Southbound, L = Left-Turn Lane, WB = Westbound, T = Through Lane
EB = Eastbound, R = Right-Turn Lane

Table 8b
Cumulative Impact – Recommended Intersection Improvements

#	Intersection	Total Improvements (2021+Other Projects+Project)
2	60th W & Ave K	Add 1 WBT
3	50 th St W & Ave K	Increase roundabout to 2 lanes.
4	45 th St W & Ave K	Add 1 EBT, 1 WBT
5	40 th St W & Ave K	Add 1 WBT Change SBT/R to 1 SBT, 1 SBR
7	25 th St W & Ave K	Add 1 EBT
15	60 th St W & Ave K-8	Add 1 NBT
17	65 th St W & Ave L	Signal Change EBT/R to 1 EBL/T, 1 EBT, 1 EBR Change WBT/R/L to 2 WBT (1 lane addition), 1 WBR, 1 WBL
18	Walmart Dwy/QHHS Dwy & Ave L	Change WBT/L to 2 WBT (1 lane addition), 1 WBL
19	60 th St W & Ave L	Add 1EBL, 1 WBL, 1 NBL, 1 NBT
20	55 th St W & Ave L	Signal Add 1 EBT Change WBT/L to 2 WBT (1 lane addition), 1WBL
21	50 th St W & Ave L	Change SBT/R to 1 SBT, 1 SBR Change EBT/R to 1 EBT, 1 EBR, Add 1 EBT (total 3 EBT) Change WBT/R to 1 WBT, 1 WBR, Add 1 WBT (total 3 WBT)
22	45 th St W & Ave L	Change WBT/R to 1 WBT, 1 WBR, Add 1 WBT Change SBT/R to 1 SBT, 1 SBR
23	40 th St W & Ave L	Change EBT/R to 1 EBT, 1 EBR, Add 1 EBT Add 1 WBT
24	35 th St W & Ave L	Change EBT/R to EBT, EBR Change WBT/R to WBT, WBR
25	30 th St W & Ave L	Add 1 NBL, 1 SBL
26	25 th St W & Ave L	Add 1 EBT, 1 WBT
27	20 th St W & Ave L	Add 1 EBT Add 1 SBT
28	15 th St W & Ave L	Change SBT to SBT/L
30	SR 14 NB Ramp & Ave L	Add 1 NBL

Notes: NB = Northbound, SB = Southbound, L = Left-Turn Lane, WB = Westbound, T = Through Lane
 EB = Eastbound, R = Right-Turn Lane

Table 9a
Project-Only Impact – Recommended Intersection Configurations

#	Description	Existing Configuration	Proposed Configuration
3.	50th St W & Ave K		1 Lane Roundabout
15.	60th St W & Ave K-8		
19.	60th St W & Ave L		
21.	50th St W & Ave L		
22.	45th St W & Ave L		

Table 9a - CONTINUED
Project-Only Impact – Recommended Intersection Configurations

#	Description	Existing Configuration	Proposed Configuration
23.	40th St W & Ave L		
25.	30th St W & Ave L		

Table 9b
2021 Recommended Intersection Configurations

#	Description	2021 Configuration	Proposed Configuration
2.	60th St W & Ave K		
3.	50th St W & Ave K		2 Lane Roundabout
4.	45th St W & Ave K		
5.	40th St W & Ave K		
7.	25th St W & Ave K		

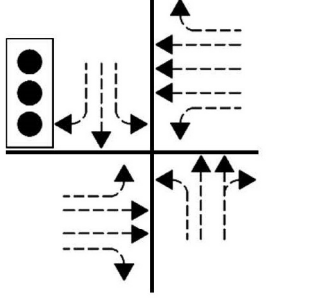
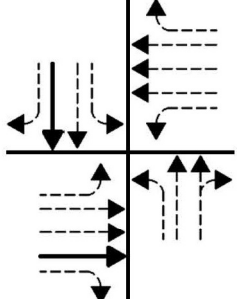
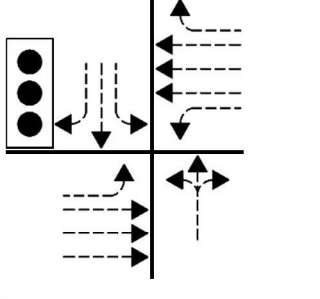
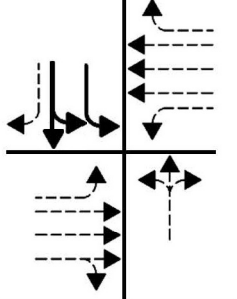
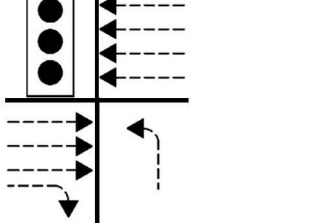
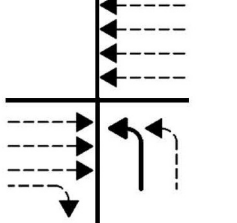
Table 9b - CONTINUED
2021 Recommended Intersection Configurations

#	Description	2021 Configuration	Proposed Configuration
17.	65th St W & Ave L		
18.	Walmart Dwy/ QHHS Dwy & Ave L		
19.	60th St W & Ave L		
20.	55th St W & Ave L		
21.	50th St W & Ave L		

Table 9b - CONTINUED
2021 Recommended Intersection Configurations

#	Description	2021 Configuration	Proposed Configuration
22.	45th St W & Ave L		
23.	40th St W & Ave L		
24.	35th St W & Ave L		
25.	30th St W & Ave L		
26.	25th St W & Ave L		

Table 9b - CONTINUED
2021 Recommended Intersection Configurations

#	Description	2021 Configuration	Proposed Configuration
27.	20th St W & Ave L		
28.	15th St W & Ave L		
30.	SR 14 NB Ramp & Ave L		

**Table 10a
Project-Only Impact - Recommended Roadway Improvements**

Roadway Segment	Total Improvements (Existing+Project)
Avenue L from 50th St W to 45th St W	Add 2 Lanes (1 lane each direction)

**Table 10b
Cumulative Impact – Recommended Roadway Improvements**

Roadway Segment	Total Improvements (2021+Related Projects Project)
Avenue K from 60th St W to 50th St W	Add 2 Lanes (1 lane each direction)
Avenue K from 50th St W to 45th St W	Add 2 Lanes (1 lane each direction)
Avenue K from 45 th St W to 40 th St W	Add 2 Lanes (1 lane each direction)
Avenue L from 70th St W to 60th St W	Add 2 Lanes (1 lane each direction)
Avenue L from 45th St W to 40th St W	Add 2 Lanes (1 lane each direction)
Avenue L from 40th St W to 30th St W	Add 2 Lanes (1 lane each direction)
Avenue L from 30th St W to 20th St W	Add 2 Lanes (1 lane each direction)

LOS ANGELES COUNTY CONGESTION MANAGEMENT PROGRAM ANALYSIS

The purpose of the Congestion Management Program (CMP) is to address the impact of local growth on the regional transportation system by linking local land use decisions with their impacts on regional transportation, and air quality, as well as by coordinating county wide efforts regarding transportation solutions that employ all modes of travel.

The CMP recommends various methodologies for intersection and freeway segment analyses in order to determine the impact a project has on a CMP facility. According to the CMP, "...a significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity ($V/C \geq 0.02$), causing LOS F ($V/C > 1$); if the facility is already at LOS F, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity ($V/C \geq 0.02$)."

The CMP identifies State Route 14 as a CMP facility therefore the following intersections are included in the CMP study area:

- Intersection #10 - State Route 14 SB Ramps & Avenue K
- Intersection #11 - State Route 14 NB Ramps & Avenue K
- Intersection #29 - State Route 14 SB Ramps & Avenue L
- Intersection #30 - State Route 14 NB Ramps & Avenue L

Intersection and roadway analyses for these CMP facilities utilizing the recommended methodologies are shown in the following sections.

A. CMP Intersection Analysis

The CMP recommends the use of the Intersection Capacity Utilization (ICU) analysis methodology for determining the level of service of an intersection within the CMP study area. Table 11 shows the volume to capacity ranges used for determining an intersection's LOS per the 2010 CMP Guidelines, Appendix A, page A-3.

Table 11
LOS & Density Ranges for Intersections

Level Of Service	V/C Ratio
A	≤ 0.60
B	> 0.60 to ≤ 0.70
C	> 0.70 to ≤ 0.80
D	> 0.80 to ≤ 0.90
E	> 0.90 to ≤ 1.00
F(0)	> 1.00 to ≤ 1.25
F(1)	> 1.25 to ≤ 1.35
F(2)	> 1.35 to ≤ 1.45
F(3)	> 1.45

*2010 CMP Appendix A, A-3

Synchro 9 software by Trafficware was configured, as described in the CMP guidelines, and utilized to determine the ICU levels of services as shown in Tables 12a and 12d.

Table 12a
ICU Level of Service
Existing Weekday AM Peak Hour

#	Intersection	Existing	Existing +Project	Change in ICU (Ex+Proj-Ex)
10	State Route 14 SB Ramps & Avenue K	A (0.45)	A (0.46)	0.01
11	State Route 14 NB Ramps & Avenue K	D (0.89)	D (0.89)	0.00
29	State Route 14 SB Ramps & Avenue L	A (0.36)	A (0.37)	0.01
30	State Route 14 NB Ramps & Avenue L	A (0.53)	A (0.60)	0.07

*LOS letter grades based on 2010 CMP Guidelines, Appendix A, page A-3

**Table 12b
ICU Level of Service
Future Weekday AM Peak Hour**

#	Intersection	Future 2021	Future 2021 +Related Projects ¹	Future 2021 +Related Projects ¹ +Project	Future 2021 +Related Projects ¹ +Project w/Mit ³
10	State Route 14 SB Ramps & Avenue K	A (0.48)	A (0.49)	A (0.50)	-
11	State Route 14 NB Ramps & Avenue K	E (0.92)	E (0.93)	E ² (0.93)	-
29	State Route 14 SB Ramps & Avenue L	A (0.39)	A (0.40)	A (0.41)	-
30	State Route 14 NB Ramps & Avenue L	A (0.58)	B (0.64)	C (0.71)	A (0.47) ⁴

*LOS letter grades based on 2010 CMP Guidelines, Appendix A, page A-3

¹Related Projects – other project traffic added to future background volumes.

²The addition of project traffic does not create a significant impact based on CMP guidelines.

³See Table 8b for Mitigation Measures.

⁴Mitigation due to PM Peak Hour.

**Table 12c
ICU Level of Service
Existing Weekday PM Peak Hour**

#	Intersection	Existing	Existing +Project	Change in ICU (Ex+Proj-Ex)
10	State Route 14 SB Ramps & Avenue K	A (0.59)	B (0.62)	0.03
11	State Route 14 NB Ramps & Avenue K	D (0.90)	D (0.90)	0.00
29	State Route 14 SB Ramps & Avenue L	A (0.48)	A (0.54)	0.06
30	State Route 14 NB Ramps & Avenue L	B (0.64)	C (0.80)	0.16

*LOS letter grades based on 2010 CMP Guidelines, Appendix A, page A-3

¹Related Projects – other project traffic added to future background volumes.

²The addition of project traffic does not create a significant impact based on CMP guidelines.

³See Table 8 for Mitigation Measures.

⁴Mitigation due to PM Peak Hour.

Table 12d
ICU Level of Service
Future Weekday PM Peak Hour

#	Intersection	Future 2021	Future 2021 +Related Projects ¹	Future 2021 +Related Projects ¹ +Project	Future 2021 +Related Projects ¹ +Project w/Mit ³
10	State Route 14 SB Ramps & Avenue K	B (0.65)	B (0.68)	B (0.70)	-
11	State Route 14 NB Ramps & Avenue K	E (0.98)	E (0.99)	E ² (0.99)	-
29	State Route 14 SB Ramps & Avenue L	A (0.52)	A (0.60)	B (0.66)	-
30	State Route 14 NB Ramps & Avenue L	C (0.70)	D (0.89)	F ³ (1.05)	A (0.57)

*LOS letter grades based on 2010 CMP Guidelines, Appendix A, page A-3

¹Related Projects– other project traffic added to future background volumes.

²The addition of project traffic does not create a significant impact based on CMP guidelines.

³See Table 8 for Mitigation Measures.

B. CMP Freeway Segment Analysis

As discussed in the CMP (Appendix A, Page A-3), freeway segment analysis methodology involves estimating freeway mainline level of service through the calculation of the demand-to-capacity (D/C) ratio. The associated level of service grades for the calculated demand-to-capacity ratios are as shown in Table 13.

Table 13
LOS & Density Ranges for Freeway Segments

Level Of Service	D/C Ratio
A	0.00 – 0.35
B	> 0.35 – 0.54
C	> 0.54 – 0.77
D	> 0.77 – 0.93
E	> 0.93 – 1.00
F(0)	> 1.00 – 1.25
F(1)	> 1.25 – 1.35
F(2)	> 1.35 – 1.45
F(3)	> 1.45

*2010 CMP Appendix A, Page A-3

The CMP identifies a significant impact if the facility is already below LOS “D,” and the proposed project increases traffic demand on a CMP facility by 2% of capacity ($V/C \geq 0.02$).

Tables 14a through 14d show the calculated density and corresponding level of service values for the segments of State Route 14 listed in the Congestion Management Program.

Table 14a
Existing AM Peak Hour CMP Freeway Segment Analysis

Freeway Segment	Peak Hr Capacity ¹	2009 CMP Demand	Existing			Existing+Project				Impact
			Peak Hr Volume ²	D/C	LOS	Added Project	Peak Hr Volume ²	D/C	LOS	
n/o SR 14 NB On-Ramps n/o Ave K	6000	2100	2412	0.402	B	68	2480	0.413	B	1.13%
n/o SR 14 SB Off-Ramps n/o Ave K	6000	4900	5629	0.938	E	37	5666	0.944	E	0.62% ³
s/o SR 14 SB On-Ramps s/o Ave L	6000	2100	2412	0.402	B	185	2597	0.433	B	3.08%
s/o SR 14 NB Off-Ramps s/o Ave L	6000	4900	5629	0.938	E	105	5734	0.956	E	1.75% ³

¹Capacity taken from 2010 Congestion Management Program for Los Angeles County.

²SR-14 Peak Hour demand taken from 2010 Congestion Management Program for Los Angeles County; Peak Hour data grown at 2% to current year.

³The addition of Project traffic does not create a significant impact based on CMP guidelines.

Table 14b
Future AM Peak Hour CMP Freeway Segment Analysis

Freeway Segment	Peak Hr Capacity ¹	2009 CMP Demand	Future 2021			Future 2021 +Related Projects				Future 2021 +Related Projects+Project				Impact
			Peak Hr Volume	D/C	LOS	Related Projects	Peak Hr Volume	D/C	LOS	Added Project	Peak Hr Volume	D/C	LOS	
n/o SR 14 NB On-Ramps n/o Ave K	6000	2100	2663	0.444	B	121	2784	0.464	B	68	2852	0.475	B	1.1%
n/o SR 14 SB Off-Ramps n/o Ave K	6000	4900	6214	1.036	F(0)	45	6259	1.043	F(0)	37	6296	1.049	F(0)	0.6% ³
s/o SR 14 SB On-Ramps s/o Ave L	6000	2100	2663	0.444	B	274	2937	0.490	B	185	3122	0.520	B	3.1%
s/o SR 14 NB Off-Ramps s/o Ave L	6000	4900	6214	1.036	F(0)	93	6307	1.051	F(0)	105	6412	1.069	F(0)	1.8% ³

¹Capacity taken from 2010 Congestion Management Program for Los Angeles County.

²SR-14 Peak Hour demand taken from 2010 Congestion Management Program for Los Angeles County; Peak Hour data grown at 2% to current year.

³The addition of Project traffic does not create a significant impact based on CMP guidelines.

Table 14c
Existing PM Peak Hour CMP Freeway Segment Analysis

Freeway Segment	Peak Hr Capacity ¹	2009 CMP Demand	Existing			Existing+Project				Impact
			Peak Hr Volume ²	D/C	LOS	Added Project	Peak Hr Volume ²	D/C	LOS	
n/o SR 14 NB On-Ramps n/o Ave K	6000	5100	5858	0.976	E	62	5920	0.987	E	1.03% ³
n/o SR 14 SB Off-Ramps n/o Ave K	6000	2500	2872	0.479	B	84	2956	0.493	B	1.40%
s/o SR 14 SB On-Ramps s/o Ave L	6000	5100	5858	0.976	E	177	6035	1.006	F(0)	2.95% ⁴
s/o SR 14 NB Off-Ramps s/o Ave L	6000	2500	2872	0.479	B	231	3103	0.517	C	3.85%

¹Capacity taken from 2010 Congestion Management Program for Los Angeles County.

²SR-14 Peak Hour demand taken from 2010 Congestion Management Program for Los Angeles County; Peak Hour data grown at 2% to current year.

³The addition of Project traffic does not create a significant impact based on CMP guidelines.

⁴Significant impact identified.

Table 14d
Future PM Peak Hour CMP Freeway Segment Analysis

Freeway Segment	Peak Hr Capacity ¹	2009 CMP Demand	Future 2021			Future 2021 +Related Projects				Future 2021 +Related Projects+Project				Impact
			Peak Hr Volume	D/C	LOS	Related Projects	Peak Hr Volume	D/C	LOS	Added Project	Peak Hr Volume	D/C	LOS	
n/o SR 14 NB On-Ramps n/o Ave K	6000	5100	6468	1.078	F(0)	78	6546	1.091	F(0)	62	6608	1.101	F(0)	1.0% ³
n/o SR 14 SB Off-Ramps n/o Ave K	6000	2500	3171	0.529	B	126	3297	0.550	C	84	3381	0.564	C	1.4%
s/o SR 14 SB On-Ramps s/o Ave L	6000	5100	6468	1.078	F(0)	166	6634	1.106	F(0)	177	6811	1.135	F(0)	3.0% ⁴
s/o SR 14 NB Off-Ramps s/o Ave L	6000	2500	3171	0.529	B	285	3456	0.576	C	231	3687	0.615	C	3.9%

¹Capacity taken from 2010 Congestion Management Program for Los Angeles County.

²SR-14 Peak Hour demand taken from 2010 Congestion Management Program for Los Angeles County; Peak Hour data grown at 2% to current year.

³The addition of Project traffic does not create a significant impact based on CMP guidelines.

⁴Significant impact identified.

SUMMARY

This study evaluated the potential traffic impact of a proposed mixed-use land development located on approximately 307 acres of vacant land in two adjoining subareas of Lancaster, California. The subareas are generally located five miles west of State Route 14 along Avenue L and Avenue K-8.

A. Intersection Analysis

Existing

With the exception of the northbound ramps at (#11) State Route 14 & Avenue K, all intersections within the study area operate at acceptable levels of service in the existing year.

Existing plus Project

With the addition of project traffic in the existing year, it is anticipated that the following intersections will also operate below acceptable levels of service:

- (#3) 50th St W & Ave K – AM & PM Peak Hours
- (#15) 60th Street W & Avenue K-8 – AM & PM Peak Hours
- (#19) 60th Street W & Avenue L – AM & PM Peak Hours
- (#20) 55th Street W & Avenue L – AM & PM Peak Hours
- (#21) 50th Street W & Avenue L – AM & PM Peak Hours
- (#22) 45th Street W & Avenue L – AM & PM Peak Hours
- (#23) 40th Street W & Avenue L – AM & PM Peak Hours
- (#25) 30th Street W & Avenue L – PM Peak Hour Only

Future (2021)

By the year 2021, it is anticipated that the intersection located at (#3) 50th Street W & Avenue K, which was previously improved, will again operate below an acceptable level of service in the PM peak hour and require additional improvements. All other intersections within the study scope, which operate at an acceptable level of service, prior to the addition of related project traffic and project traffic, are anticipated to continue to operate at acceptable levels.

Future (2021) plus Related Projects

With the addition of related project traffic, the following additional intersections are anticipated to operate below acceptable levels of service in the future year 2021:

- (#4) 45th Street W & Avenue K – AM Peak Hour Only
- (#5) 40th Street W & Avenue K – PM Peak Hour Only
- (#27) 20th Street W & Avenue L – AM Peak Hour Only
- (#30) State Route 14 NB Ramps & Avenue L – PM Peak Hour Only

It is anticipated that the following intersections, at which a Project-Only impact was identified, will again operate below an acceptable level of service and require additional improvements.

- (#19) 60th Street W & Avenue L – PM Peak Hours

All other intersections within the study scope, which are expected to operate at an acceptable level of service in the future year 2021, are anticipated to continue to operate at acceptable levels with related project traffic.

Future (2021) plus Related Projects with Project

With the addition of project traffic, the following intersections are anticipated to operate below acceptable levels of service in the future year 2021:

- (#2) 60th Street W & Avenue K – AM Peak Hour Only
- (#7) 25th Street W & Avenue K – AM Peak Hour Only
- (#17) 65th Street W & Avenue L – AM & PM Peak Hours
- (#18) Walmart Driveway/QHHS Driveway & Avenue L – PM Peak Hour Only
- (#20) 55th Street W & Avenue L – AM & PM Peak Hours
- (#24) 35th Street W & Avenue L – PM Peak Hour Only
- (#25) 30th Street W & Avenue L – AM & PM Peak Hours
- (#26) 25th Street W & Avenue L – AM & PM Peak Hours
- (#28) 15th Street W & Avenue L – PM Peak Hour Only

It is anticipated that the following intersections, at which Project-Only impacts were identified, will again operate below an acceptable level of service and require additional improvements.

(#21) 50th Street W & Avenue L – AM & PM Peak Hours

(#22) 45th Street W & Avenue L – PM Peak Hour Only

(#23) 40th Street W & Avenue L – AM & PM Peak Hours

All other intersections within the study scope, which are expected to operate at an acceptable level of service in the future year 2021 with related project traffic, are anticipated to operate at acceptable levels with the addition of project traffic.

B. Signal Warrant Analysis

Existing

Intersection (#3) 50th Street W & Avenue K meets traffic signal warrant criteria for both the AM and PM peak hours in the existing year. No other intersections meet signal warrant criteria in the existing year.

Existing plus Project

With the addition of project traffic in the existing year, the following intersections meet traffic signal warrant criteria:

(#15) 60th Street W & Avenue K-8 – AM & PM Peak Hours

(#20) 55th Street W & Avenue L – AM Peak Hour Only

Future (2021)

No additional intersections within the study scope meet signal warrant criteria in the future year prior to the addition of related project traffic and project traffic.

Future (2021) plus Related Projects

Intersection (#18) Walmart Driveway / QHHS Driveway & Avenue L meets traffic signal warrant criteria for PM peak hour in the future year with related project traffic. No other intersections within the study scope meet signal warrant criteria in the future year with the addition of related project traffic.

Future (2021) plus Related Projects with Project

For the future year traffic signal warrant analysis with related project traffic and project traffic, the following additional intersections meet signal warrant criteria:

- (#1) 70th Street W & Avenue K – PM Peak Hour Only
- (#16) 70th Street W & Avenue L – AM & PM Peak Hours
- (#17) 65th Street W & Avenue L – AM & PM Peak Hours

No other intersections within the study scope meet signal warrant criteria in the future year with the addition of related project traffic and project traffic.

C. Roadway Analysis*Existing*

With the exception of Avenue L from 45th Street W to 40th Street W, all roadway segments within the study area operate at acceptable levels of service in the existing year.

Existing plus Project

With the addition of project traffic, it is anticipated that the roadway segment of Avenue L from 50th Street W to 45th Street W, will operate below an acceptable level of service in the existing year. All roadway segments within the study area will continue to operate at acceptable levels of service.

Future (2021)

By the year 2021, it is anticipated that all intersections already operating at an acceptable level of service will continue to do so.

Future (2021) plus Related Projects

With the addition of related projects traffic, it is anticipated that the roadway segment of Avenue K from 45th Street W to 40th Street W will operate below an acceptable level of service. All other intersections within the study scope, which operate at an acceptable level of service, prior to the addition of related project traffic and project traffic, are anticipated to continue to operate at acceptable levels.

Future (2021) plus Related Projects with Project

With the addition of project traffic, the following roadway segments are anticipated to operate below acceptable levels of service in the future year 2021:

Avenue K from 60th St W to 50th St W

Avenue K from 50th St W to 45th St W

Avenue L from 70th St W to 60th St W

Avenue L from 40th St W to 30th St W

Avenue L from 30th St W to 20th St W

It is anticipated that the following roadway segment, along which Project-Only impacts were identified, will again operate below an acceptable level of service and require additional improvements.

Ave L from 45th St W to 40th St W

All other roadway segments within the study scope, which operate at an acceptable level of service in the future year 2021 with related project traffic and project traffic, are anticipated to continue to operate at acceptable levels.

D. CMP Analysis

CMP Intersection Analysis

With the exception of the northbound ramps at (#11) State Route 14 & Avenue K, all intersections within the CMP study area operate at acceptable levels of service in the existing year. With the addition of related project traffic and project traffic, it is anticipated that intersection (#30) State Route 14 NB Ramps & Avenue L will also operate below an acceptable level of service in the PM peak hour. With the improvements listed in Table 8, this impact can be reduced to less than significant.

CMP Freeway Segment Analysis

The freeway segment north of the State Route 14 southbound off-ramp and north of Avenue K, as well as the segment south of the State Route 14 northbound off-ramp and south of Avenue L operate below acceptable levels of service in the existing and future year scenarios for the AM peak hour.

The freeway segment north of the State Route 14 northbound on-ramp and north of Avenue K, as well as the segment south of the State Route 14 southbound on-ramp and south of Avenue L operate below acceptable levels of service in the existing and future year scenarios for the PM peak hour.

Caltrans is not currently proposing any improvements for these freeway segments, and the City of Lancaster does not collect impact fees for Caltrans project; therefore, the Project will have one unmitigated significant traffic impact.

CONCLUSION

The capacity analyses indicated that the addition of project traffic would result in potentially significant impacts for 19 study intersections, of which, 7 are Project-Only impacts and 12 are Cumulative impacts, and 8 roadway segments, of which, 1 is a Project-Only impact and 7 are Cumulative impacts. The signal warrant analysis resulted in 5 intersections meeting signal warrant criteria, of which, 2 are Project-Only and 3 are Cumulative.

The project does not create any CMP intersection impacts; however the addition of cumulative volumes is anticipated to result in one significant CMP Freeway impact. There are no mitigation measures

recommended for the CMP Freeway impact; therefore the project will create on unmitigated significant impact.

Based on the Los Angeles County Congestion Management Program and the City of Lancaster's standards for determining whether project traffic has a significant impact on intersections and roadways, it is anticipated that the intersections identified in this report will require the proposed mitigation measures for the existing year and 2021 respectively, in order to reduce the listed impacts to less-than-significant. It is recommended that the project should provide a fair share contribution towards the improvements listed in Tables 8a-10b.

REFERENCES

1. California Manual on Uniform Traffic Control Devices for Streets and Highways, 2014 Edition, State of California, California State Transportation Agency, Department of Transportation (Caltrans), 2014
2. Congestion Management Program, Los Angeles County Management Program, 2010
3. General Plan 2030, City of Lancaster, July 14, 2009
4. Highway Capacity Manual, Transportation Research Board, 2010
5. Traffic Study Guidelines, City of Lancaster, January 5, 2009
6. Trip Generation Manual, 9th Edition, Institute of Transportation Engineers (ITE), 2012

APPENDIX

Related Projects
Internal Capture Calculation
Level of Service
Signal Warrant Analysis
CMP ICU Analysis
Vehicle Turning Movement Counts

Related Projects

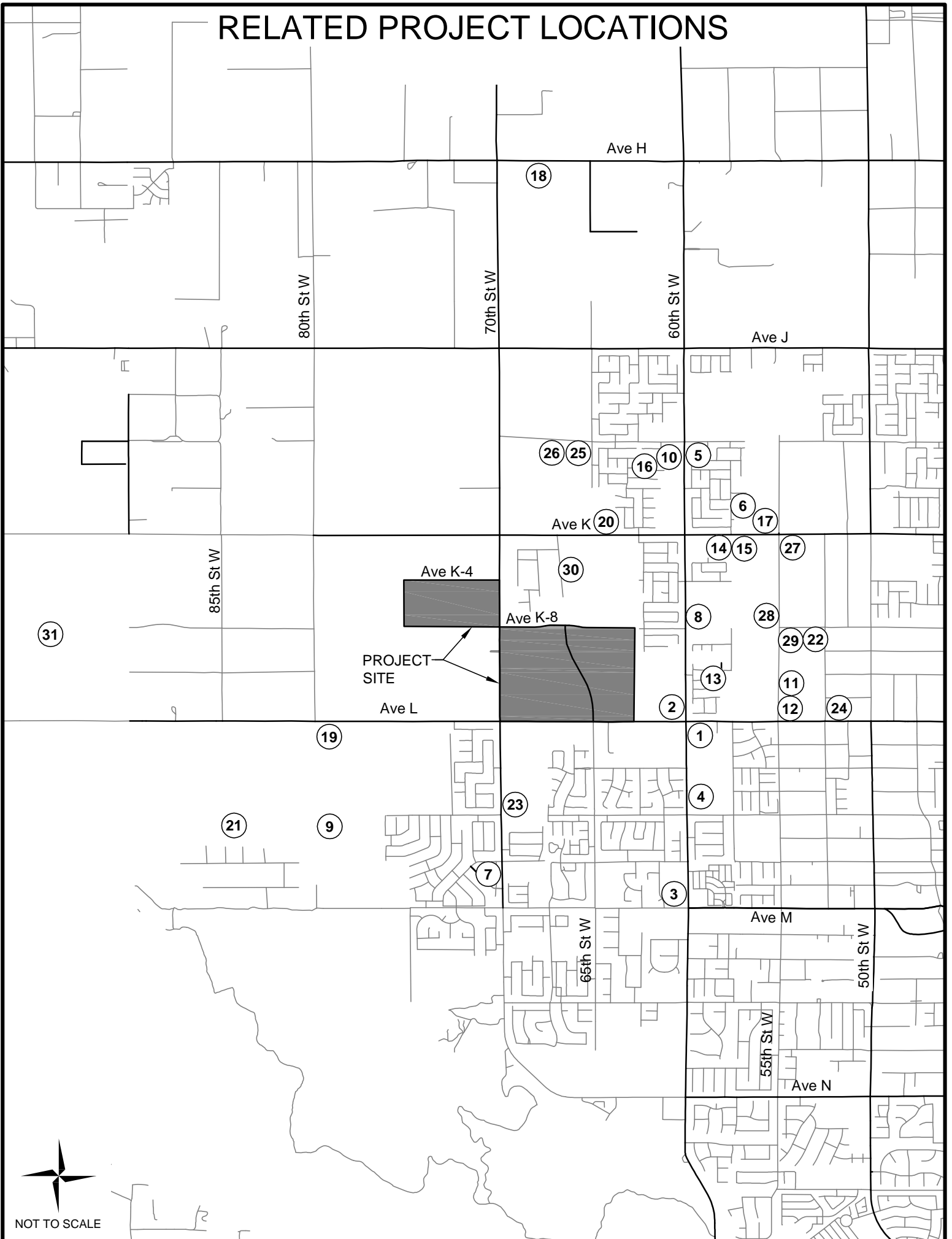
Related Projects List

bounded by 50th Street West, 85th Street West, Avenue J-8 and Avenue M.

Number	Project Description	Acreage	Location
1	395,355 sf commercial shopping center with off site alcohol sales for Target and drug store	40.26 acres	Southeast corner of Avenue L and 60th Street West
2	366,376 sf commercial shopping center, including a 217,652 sf Walmart with incidental off-site alcohol sales	40 acres	Northwest corner of Avenue L and 60th Street West
3	Expansion of Blessed Junipero Serra Parish (church and associated facilities totally 62,612 sf)	17 acres	Northwest corner of 60th Street West and Avenue M
4	11,200 sf commercial building	1.94 acres	East side of 60th Street West, north of Ave L-8
5	106 single family residences on 7,000 sf lots	27 acres	Southeast corner of 60th Street West and Avenue J-8
6	22 single family residences on 7,000 sf lots	4.3 acres	296 feet west of 56th Street West, south side of Avenue J-12
7	23 single family residences on 10,000 sf lots	8 acres	Southwest corner of Avenue L-12 and 70th Street West
8	161 single family residences on 7,000 sf lots	40 acres	Northeast corner of Avenue K-8 and 60th Street West
9	302 single family residences on 10,000 sf lots	120 acres	Southeast corner of Avenue L-8 and 80th Street West
10	49 single family residences on 7,000 sf lots	12.51 acres	West side of 60th Street West, approximately 290 feet south of Ave J-8
11	58 single family residences on 7,000 sf lots	15.1 acres	Northeast corner of future 55th Street West and future Ave K-14
12	40 single family residences on 10,000 sf lots	15.1 acres	Northeast corner of 55th Street West and Avenue L
13	33 single family residences on 7,000 sf lots	7.5 acres	640 feet east of 60th Street West, south side of Avenue K-12
14	58 single family residences on 7,000 sf lots	15 acres	Southwest corner of 57th Street West and Avenue K
15	58 single family residences on 7,000 sf lots	15.14 acres	Southeast corner of Avenue K and future 57th Street West
16	19 single family residences on 7,000 sf lots	5 acres	663 feet north of Avenue J-12, 658 west of 60th Street West
17	108 single family residences on 10,000 and 15,000 sf lots	40 acres	Northeast corner of future 55th Street West and Avenue K
18	56 single family residences on 10,000 sf lots	20.25 acres	Southwest corner of 67th Street West and Avenue I
19	204 single family residences on 10,000 sf lots	64.22 acres	Southeast corner of 80th Street West and Avenue L
20	37 single family residences on 7,000 sf lots	10 acres	Northeast corner of Avenue K and 65th Street West

21	111 single family residences on 10,000 sf lots	56.4 acres	Southeast corner of future 85th Street West and future Ave L-8
22	238 single family residences on 7,000, 10,000, and 15,000 sf lots	72.9 acres	Southwest corner of 52nd Street West and Avenue K-8
23	110 single family residences on 10,000 sf lots	40.3 acres	Northeast corner of 70th Street West and Avenue L-8
24	19 single family residences on 15,000 sf lots	9.55 acres	Northeast corner of Avenue L and 52nd Street West
25	36 single family residences on 7,000 sf lots	10 acres	Southwest corner of 65th Street West and Avenue J-8
26	Residential Planned Development for 118 lots and a park	-	Southeast corner of 67th Street West and Avenue J-8
27	Residential Planned Development for 171 lots and two park sites	-	Southeast corner of 55th Street West and Avenue K
28	2 single family residential lots	-	Vicinity of Avenue K-8 and 55th Street West
29	2 single family residential lots	-	Vicinity of Avenue K-8 and 55th Street West
30	Specific Plan for a residential planned development of 751 lots with park and trail amenities	-	Bounded by 62nd Street West, 70th Street West, Avenue K, and Avenue K-8
31	150 MW Photovoltaic Facility	1,191 acres	Generally Bounded by Avenue K, the California Aqueduct, 80th Street West, and 107th Street West

RELATED PROJECT LOCATIONS

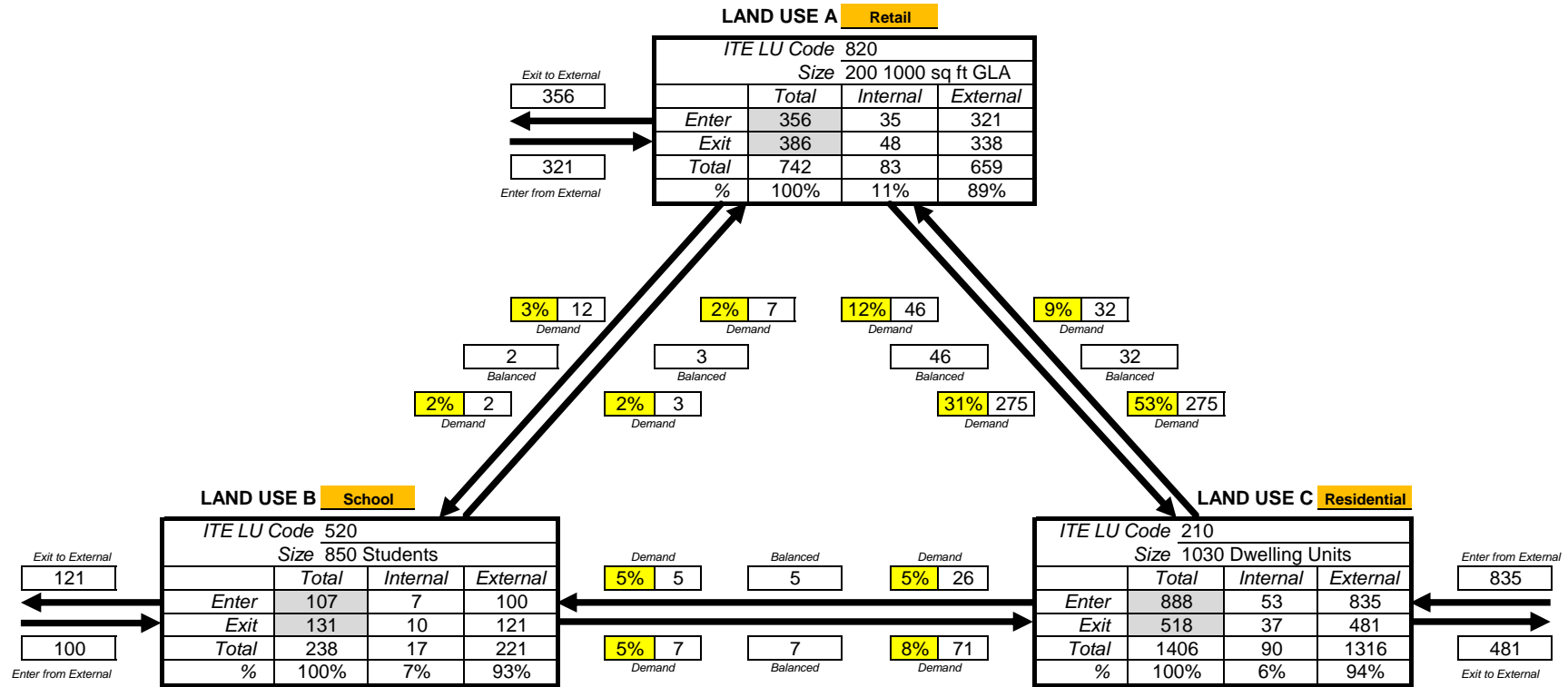


NOT TO SCALE

Internal Capture Calculation

Row	Qty	Variable	In	Out			
Land Use A	27	820	Shopping Center	200	1000 sq ft GLA	356	386
Land Use B	25	520	Elementary School	850	Students	107	131
Land Use C	17	210	Single-Family detached Housing	1030	Dwelling Units	888	518

Column: 8 Time: 0



Net External Trips for Multi-Use Development				
	LAND USE A	LAND USE B	LAND USE C	TOTAL
Enter	321	100	835	1256
Exit	338	121	481	940
Total	659	221	1316	2196
Single-Use Trip Gen. Est.	742	238	1406	2386

Source: Kaku Associates, Inc.

INTERNAL CAPTURE	8%
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Level of Service

PM Existing

Intersection

Intersection Delay, s/veh 8.5
Intersection LOS A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	1	111	28	0	38	67	6	0	13	39	30
Future Vol, veh/h	0	1	111	28	0	38	67	6	0	13	39	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	121	30	0	41	73	7	0	14	42	33
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.5	8.5	8.1
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	1%	34%	2%
Vol Thru, %	48%	79%	60%	97%
Vol Right, %	37%	20%	5%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	140	111	113
LT Vol	13	1	38	2
Through Vol	39	111	67	110
RT Vol	30	28	6	1
Lane Flow Rate	89	152	121	123
Geometry Grp	1	1	1	1
Degree of Util (X)	0.112	0.188	0.156	0.159
Departure Headway (Hd)	4.527	4.457	4.643	4.668
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	791	805	772	768
Service Time	2.56	2.485	2.671	2.7
HCM Lane V/C Ratio	0.113	0.189	0.157	0.16
HCM Control Delay	8.1	8.5	8.5	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.7	0.6	0.6

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	2	110	1
Future Vol, veh/h	0	2	110	1
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	2	120	1
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.6
HCM LOS	A

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↑	↗	↔↔	↑	↗	↖	↕		↖	↕		
Volume (vph)	18	165	29	84	148	66	47	194	79	56	269	35	
Pedestrians			5			5			5			5	
Ped Button		Yes			Yes			Yes			Yes		
Pedestrian Timing (s)		30.7			28.7			27.3			27.3		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	18	165	29	84	148	66	47	273	0	56	304	0	
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	0.98	0.85	
Saturated Flow (vph)	4612	1600	1360	4612	1600	1360	1520	2914	0	1520	2994	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.5	12.4	3.2	2.2	11.1	6.5	3.7	11.4	0.0	4.4	12.3	0.0	
Adj Reference Time (s)	8.0	19.2	12.1	8.0	17.8	13.9	8.0	17.9	0.0	8.4	18.6	0.0	
Permitted Option													
Adj Saturation A (vph)	154	1600		154	1600		101	1457		101	1497		
Reference Time A (s)	7.0	12.4		32.8	11.1		55.7	11.4		66.3	12.3		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		12.4			32.8			55.7			66.3		
Adj Reference Time (s)		19.2			36.8			59.7			70.3		
Split Option													
Ref Time Combined (s)	0.5	12.4		2.2	11.1		3.7	11.4		4.4	12.3		
Ref Time Seperate (s)	0.5	12.4		2.2	11.1		3.7	8.2		4.4	10.9		
Reference Time (s)	12.4	12.4		11.1	11.1		11.4	11.4		12.3	12.3		
Adj Reference Time (s)	19.2	19.2		17.8	17.8		17.9	17.9		18.6	18.6		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	27.2		26.6										
Permitted Option (s)	36.8		70.3										
Split Option (s)	37.0		36.4										
Minimum (s)	27.2		26.6		53.8								
Right Turns													
	EBR		WBR										
Adj Reference Time (s)	12.1		13.9										
Cross Thru Ref Time (s)	18.6		17.9										
Oncoming Left Ref Time (s)	8.0		8.0										
Combined (s)	38.7		39.7										
Intersection Summary													
Intersection Capacity Utilization	44.8%		ICU Level of Service				A						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection

Intersection Delay, s/veh 23.8
Intersection LOS C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	20	277	24	0	73	257	11	0	36	153	65
Future Vol, veh/h	0	20	277	24	0	73	257	11	0	36	153	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	22	301	26	0	79	279	12	0	39	166	71
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	24.9	27.6	19.7
HCM LOS	C	D	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	6%	21%	5%
Vol Thru, %	60%	86%	75%	82%
Vol Right, %	26%	7%	3%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	254	321	341	281
LT Vol	36	20	73	13
Through Vol	153	277	257	231
RT Vol	65	24	11	37
Lane Flow Rate	276	349	371	305
Geometry Grp	1	1	1	1
Degree of Util (X)	0.565	0.692	0.734	0.621
Departure Headway (Hd)	7.368	7.14	7.129	7.32
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	486	502	504	492
Service Time	5.456	5.222	5.208	5.404
HCM Lane V/C Ratio	0.568	0.695	0.736	0.62
HCM Control Delay	19.7	24.9	27.6	21.8
HCM Lane LOS	C	C	D	C
HCM 95th-tile Q	3.4	5.3	6.1	4.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	13	231	37
Future Vol, veh/h	0	13	231	37
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	14	251	40
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	21.8
HCM LOS	C

Lane

Intersection Capacity Utilization
4: 45th St W & Ave K

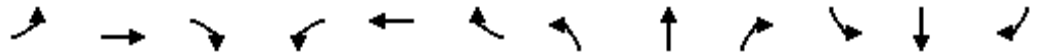
PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Volume (vph)	6	337	18	38	351	40	23	79	33	32	68	17
Pedestrians			5			5						5
Ped Button		No			No						Yes	
Pedestrian Timing (s)		17.8			21.8						25.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	6	337	18	38	351	40	23	112	0	32	68	17
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1529	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.5	25.3	2.2	3.0	26.3	4.2	1.8	8.8	0.0	2.5	5.1	2.1
Adj Reference Time (s)	8.0	29.3	21.8	8.0	30.3	25.8	8.0	12.8	0.0	8.0	12.2	11.3
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		101	1529		101	1600	
Reference Time A (s)	7.1	25.3		45.0	26.3		27.2	8.8		37.9	5.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1529		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.8	8.8		10.5	5.1	
Reference Time (s)		25.3			45.0			9.8			10.5	
Adj Reference Time (s)		29.3			49.0			13.8			16.8	
Split Option												
Ref Time Combined (s)	0.5	25.3		3.0	26.3		1.8	8.8		2.5	5.1	
Ref Time Seperate (s)	0.5	25.3		3.0	26.3		1.8	6.2		2.5	5.1	
Reference Time (s)	25.3	25.3		26.3	26.3		8.8	8.8		5.1	5.1	
Adj Reference Time (s)	29.3	29.3		30.3	30.3		12.8	12.8		12.2	12.2	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	38.3		20.8									
Permitted Option (s)	49.0		16.8									
Split Option (s)	59.6		25.0									
Minimum (s)	38.3		16.8		55.2							
Right Turns												
	EBR		WBR		SBR							
Adj Reference Time (s)	21.8		25.8		11.3							
Cross Thru Ref Time (s)	12.2		12.8		30.3							
Oncoming Left Ref Time (s)	8.0		8.0		8.0							
Combined (s)	42.0		46.6		49.6							
Intersection Summary												
Intersection Capacity Utilization	46.0%		ICU Level of Service						A			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
5: 40th St W & Ave K

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷	
Volume (vph)	23	359	35	99	401	51	39	162	67	40	247	22	
Pedestrians			5			5			5			5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		21.9			23.6			27.9			17.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	23	394	0	99	401	51	39	162	67	40	269	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.99	0.85	
Saturated Flow (vph)	1520	3006	0	1520	1600	1360	1520	3046	1360	1520	1580	0	
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	1.8	15.8	0.0	7.8	30.1	5.1	3.1	6.4	6.6	3.2	20.5	0.0	
Adj Reference Time (s)	8.0	25.9	0.0	11.8	34.1	27.6	8.0	13.7	13.8	8.0	24.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1503		101	1600		101	1523		101	1580		
Reference Time A (s)	27.2	15.8		117.2	30.1		46.2	6.4		47.4	20.5		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		27.2			117.2			46.2			47.4		
Adj Reference Time (s)		31.2			121.2			50.2			51.4		
Split Option													
Ref Time Combined (s)	1.8	15.8		7.8	30.1		3.1	6.4		3.2	20.5		
Ref Time Seperate (s)	1.8	14.4		7.8	30.1		3.1	6.4		3.2	18.8		
Reference Time (s)	15.8	15.8		30.1	30.1		6.4	6.4		20.5	20.5		
Adj Reference Time (s)	25.9	25.9		34.1	34.1		13.7	13.7		24.5	24.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	42.1		32.5										
Permitted Option (s)	121.2		51.4										
Split Option (s)	60.0		38.2										
Minimum (s)	42.1		32.5		74.6								
Right Turns													
	WBR		NBR										
Adj Reference Time (s)	27.6		13.8										
Cross Thru Ref Time (s)	13.7		25.9										
Oncoming Left Ref Time (s)	8.0		8.0										
Combined (s)	49.3		47.7										
Intersection Summary													
Intersection Capacity Utilization	62.1%		ICU Level of Service		B								
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
6: 30th St W & Ave K

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕↔		↔↔	↕↕↔		↔↔	↕↕	↔	↔↔	↕↕	↔
Volume (vph)	126	500	70	153	489	174	139	454	111	220	553	97
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.7			26.1			32.1			30.1	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	126	570	0	153	663	0	139	454	111	220	553	97
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.96	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	4278	0	4612	4187	0	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.3	16.1	0.0	4.0	19.2	0.0	3.6	17.9	10.4	5.7	21.8	9.2
Adj Reference Time (s)	8.0	32.7	0.0	8.0	30.1	0.0	8.0	24.1	17.8	9.7	27.1	16.4
Permitted Option												
Adj Saturation A (vph)	154	1426		154	1396		154	1523		154	1523	
Reference Time A (s)	49.2	16.1		59.7	19.2		54.2	17.9		85.9	21.8	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		49.2			59.7			54.2			85.9	
Adj Reference Time (s)		53.2			63.7			58.2			89.9	
Split Option												
Ref Time Combined (s)	3.3	16.1		4.0	19.2		3.6	17.9		5.7	21.8	
Ref Time Seperate (s)	3.3	14.1		4.0	14.2		3.6	17.9		5.7	21.8	
Reference Time (s)	16.1	16.1		19.2	19.2		17.9	17.9		21.8	21.8	
Adj Reference Time (s)	32.7	32.7		30.1	30.1		24.1	24.1		27.1	27.1	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	40.7		35.1									
Permitted Option (s)	63.7		89.9									
Split Option (s)	62.8		51.1									
Minimum (s)	40.7		35.1		75.8							
Right Turns												
	NBR		SBR									
Adj Reference Time (s)	17.8		16.4									
Cross Thru Ref Time (s)	32.7		30.1									
Oncoming Left Ref Time (s)	9.7		8.0									
Combined (s)	60.2		54.5									
Intersection Summary												
Intersection Capacity Utilization	63.1%		ICU Level of Service				B					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
7: 25th St W & Ave K

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷	
Volume (vph)	41	770	18	55	805	87	11	109	39	70	123	43	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		24.4			26.7			25.3			27.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	41	788	0	55	805	87	11	109	39	70	123	43	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3036	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.2	31.2	0.0	4.3	31.7	8.3	0.9	8.2	4.1	5.5	9.2	4.4	
Adj Reference Time (s)	8.0	35.2	0.0	8.3	35.7	30.7	8.0	14.8	11.3	9.5	16.0	12.0	
Permitted Option													
Adj Saturation A (vph)	101	1518		101	1523		101	1600		101	1600		
Reference Time A (s)	48.6	31.2		65.1	31.7		13.0	8.2		82.9	9.2		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		0	1600		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		13.5	9.2		
Reference Time (s)		48.6			65.1			13.0			13.5		
Adj Reference Time (s)		52.6			69.1			18.9			19.7		
Split Option													
Ref Time Combined (s)	3.2	31.2		4.3	31.7		0.9	8.2		5.5	9.2		
Ref Time Seperate (s)	3.2	30.4		4.3	31.7		0.9	8.2		5.5	9.2		
Reference Time (s)	31.2	31.2		31.7	31.7		8.2	8.2		9.2	9.2		
Adj Reference Time (s)	35.2	35.2		35.7	35.7		14.8	14.8		16.0	16.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	43.7		24.3										
Permitted Option (s)	69.1		19.7										
Split Option (s)	70.9		30.8										
Minimum (s)	43.7		19.7		63.4								
Right Turns													
	WBR		NBR		SBR								
Adj Reference Time (s)	30.7		11.3		12.0								
Cross Thru Ref Time (s)	14.8		35.2		35.7								
Oncoming Left Ref Time (s)	8.0		9.5		8.0								
Combined (s)	53.5		56.0		55.7								
Intersection Summary													
Intersection Capacity Utilization	52.8%				ICU Level of Service				A				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
8: 20th St W & Ave K

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷↷↷	↷	↶	↷↷↷		↶↷	↷		↶↷	↷↷↷	
Volume (vph)	153	798	50	182	837	125	67	248	93	184	379	97
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		30.4			31.0			29.9			33.3	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	153	798	50	182	962	0	67	341	0	184	476	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.97	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4273	0	4612	2922	0	4612	4225	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	12.1	22.0	5.1	14.4	27.1	0.0	1.7	14.2	0.0	4.8	13.7	0.0
Adj Reference Time (s)	16.1	34.4	34.4	18.4	35.0	0.0	8.0	20.6	0.0	8.8	20.7	0.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1424		154	1461		154	1408	
Reference Time A (s)	181.2	22.0		215.5	27.1		26.1	14.2		71.8	13.7	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		181.2			215.5			26.1			71.8	
Adj Reference Time (s)		185.2			219.5			30.7			75.8	
Split Option												
Ref Time Combined (s)	12.1	22.0		14.4	27.1		1.7	14.2		4.8	13.7	
Ref Time Seperate (s)	12.1	22.0		14.4	23.6		1.7	10.4		4.8	10.9	
Reference Time (s)	22.0	22.0		27.1	27.1		14.2	14.2		13.7	13.7	
Adj Reference Time (s)	34.4	34.4		35.0	35.0		20.6	20.6		20.7	20.7	
Summary												
Protected Option (s)	52.8		29.4									
Permitted Option (s)	219.5		75.8									
Split Option (s)	69.4		41.3									
Minimum (s)	52.8		29.4		82.1							
Right Turns												
Adj Reference Time (s)	34.4											
Cross Thru Ref Time (s)	20.7											
Oncoming Left Ref Time (s)	34.4											
Combined (s)	73.4											
Intersection Summary												
Intersection Capacity Utilization	68.5%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
9: 17th St W & Ave K

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑		↰	↑↑↑		↰	↑	↰	↰	↑	↰
Volume (vph)	62	1029	72	158	1111	172	43	71	139	195	56	55
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	62	1101	0	158	1283	0	43	71	139	195	56	55
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4316	0	1520	4271	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00		0.00			0.00			0.00			
Protected Option Allowed	Yes		Yes			Yes			Yes			
Reference Time (s)	4.9	30.6	0.0	12.5	36.0	0.0	3.4	5.3	12.3	15.4	4.2	4.9
Adj Reference Time (s)	8.9	34.6	0.0	16.5	40.0	0.0	8.0	9.3	16.3	19.4	8.2	8.9
Permitted Option												
Adj Saturation A (vph)	101	1439		101	1424		101	1600		101	1600	
Reference Time A (s)	73.4	30.6		187.1	36.0		50.9	5.3		230.9	4.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		11.4	5.3		23.4	4.2	
Reference Time (s)		73.4			187.1			11.4			23.4	
Adj Reference Time (s)		77.4			191.1			15.4			27.4	
Split Option												
Ref Time Combined (s)	4.9	30.6		12.5	36.0		3.4	5.3		15.4	4.2	
Ref Time Seperate (s)	4.9	28.6		12.5	31.2		3.4	5.3		15.4	4.2	
Reference Time (s)	30.6	30.6		36.0	36.0		5.3	5.3		15.4	15.4	
Adj Reference Time (s)	34.6	34.6		40.0	40.0		9.3	9.3		19.4	19.4	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	51.1		28.7									
Permitted Option (s)	191.1		27.4									
Split Option (s)	74.7		28.7									
Minimum (s)	51.1		27.4		78.5							
Right Turns	NBR		SBR									
Adj Reference Time (s)	16.3		8.9									
Cross Thru Ref Time (s)	34.6		40.0									
Oncoming Left Ref Time (s)	19.4		8.0									
Combined (s)	70.3		56.9									
Intersection Summary												
Intersection Capacity Utilization	65.4%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

PM 2016
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	983	1230	465	219	229
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	983	1695	0	448	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.90	0.85
Saturated Flow (vph)	0	4358	4179	0	4373	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	27.1	48.8	0.0		0.0
Adj Reference Time (s)	0.0	31.1	52.8	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1393		146	
Reference Time A (s)	0.0	27.1	48.8		184.7	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		27.1	48.8			
Adj Reference Time (s)		31.1	52.8			
Split Option						
Ref Time Combined (s)	0.0	27.1	48.8		12.6	
Ref Time Seperate (s)	0.0	27.1	35.5		6.3	
Reference Time (s)	27.1	27.1	48.8		12.6	
Adj Reference Time (s)	31.1	31.1	52.8		18.4	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	52.8		NA			
Permitted Option (s)	52.8		Err			
Split Option (s)	83.9		18.4			
Minimum (s)	52.8		18.4	71.3		

Right Turns

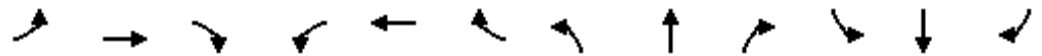
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary

Intersection Capacity Utilization 59.4% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↑↑↑			↑↑↑	↗	↘	↑	↗	↘	↗	↘
Volume (vph)	164	954	77	0	1051	223	336	298	377	383	5	446
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	164	1031	0	0	1051	223	336	298	377	0	388	446
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4310	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.3	28.8	0.0	0.0	28.9	20.3			33.9			40.0
Adj Reference Time (s)	8.3	33.9	0.0	0.0	32.9	33.3			37.9			44.0
Permitted Option												
Adj Saturation A (vph)	154	1437		0	1453		101	1600		0	204	
Reference Time A (s)	64.0	28.8		0.0	28.9		397.9	22.4		0.0	227.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		34.5	22.4		NA	NA	
Reference Time (s)		64.0			28.9			34.5			227.7	
Adj Reference Time (s)		68.0			32.9			38.5			231.7	
Split Option												
Ref Time Combined (s)	4.3	28.8		0.0	28.9		26.5	22.4		0.0	15.3	
Ref Time Seperate (s)	4.3	26.6		0.0	28.9		26.5	22.4		15.1	0.4	
Reference Time (s)	28.8	28.8		28.9	28.9		26.5	26.5		15.3	15.3	
Adj Reference Time (s)	33.9	33.9		32.9	32.9		30.5	30.5		33.3	33.3	
Summary												
Protected Option (s)	41.2		NA									
Permitted Option (s)	68.0		231.7									
Split Option (s)	66.8		63.8									
Minimum (s)	41.2		63.8		105.0							
Right Turns												
Adj Reference Time (s)	33.3	37.9	44.0									
Cross Thru Ref Time (s)	30.5	33.9	32.9									
Oncoming Left Ref Time (s)	33.3	33.3	30.5									
Combined (s)	72.1	105.1	107.5									
Intersection Summary												
Intersection Capacity Utilization	89.5%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	16	0	25	4	0	4	43	341	2	8	378	26
Future Vol, veh/h	16	0	25	4	0	4	43	341	2	8	378	26
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	240	-	-	-	216	-	-	236	-	352
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	17	0	27	4	0	4	47	371	2	9	411	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	905	904	215	698	903	382	416	0	0	378	0	0
Stage 1	433	433	-	470	470	-	-	-	-	-	-	-
Stage 2	472	471	-	228	433	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.22	-	-	2.218	-	-
Pot Cap-1 Maneuver	244	276	790	341	276	664	1139	-	-	1180	-	-
Stage 1	572	581	-	573	559	-	-	-	-	-	-	-
Stage 2	572	559	-	755	581	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	231	260	783	314	260	658	1134	-	-	1175	-	-
Mov Cap-2 Maneuver	231	260	-	314	260	-	-	-	-	-	-	-
Stage 1	546	574	-	547	534	-	-	-	-	-	-	-
Stage 2	542	534	-	720	574	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.5	13.6	0.9	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1134	-	-	231	783	425	1175	-	-
HCM Lane V/C Ratio	0.041	-	-	0.075	0.035	0.02	0.007	-	-
HCM Control Delay (s)	8.3	-	-	21.8	9.8	13.6	8.1	-	-
HCM Lane LOS	A	-	-	C	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0.1	0	-	-

Intersection

Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	2	25	32	0	84	47	11	0	13	70	48
Future Vol, veh/h	0	2	25	32	0	84	47	11	0	13	70	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	27	35	0	91	51	12	0	14	76	52
Number of Lanes	0	1	1	1	0	1	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	3	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	8.4	9.5	9.2
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	59%	0%	100%	0%	0%	81%	0%	93%
Vol Right, %	0%	41%	0%	0%	100%	0%	19%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	118	2	25	32	84	58	17	138
LT Vol	13	0	2	0	0	84	0	17	0
Through Vol	0	70	0	25	0	0	47	0	128
RT Vol	0	48	0	0	32	0	11	0	10
Lane Flow Rate	14	128	2	27	35	91	63	18	150
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.024	0.187	0.004	0.044	0.049	0.154	0.095	0.031	0.226
Departure Headway (Hd)	6.04	5.252	6.282	5.778	5.073	6.073	5.435	5.972	5.419
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	589	678	565	614	698	587	654	596	659
Service Time	3.81	3.022	4.07	3.566	2.86	3.85	3.212	3.74	3.187
HCM Lane V/C Ratio	0.024	0.189	0.004	0.044	0.05	0.155	0.096	0.03	0.228
HCM Control Delay	9	9.2	9.1	8.8	8.1	10	8.8	8.9	9.8
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0.7	0	0.1	0.2	0.5	0.3	0.1	0.9

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	17	128	10
Future Vol, veh/h	0	17	128	10
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	18	139	11
Number of Lanes	0	1	1	0

Approach SB

Opposing Approach NB

Opposing Lanes 2

Conflicting Approach Left WB

Conflicting Lanes Left 2

Conflicting Approach Right EB

Conflicting Lanes Right 3

HCM Control Delay 9.7

HCM LOS A

Lane

Intersection

Int Delay, s/veh 3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	82	13	74	123	8	49
Future Vol, veh/h	82	13	74	123	8	49
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	89	14	80	134	9	53

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	108	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1483	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1477	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	9.5
HCM LOS			A

Minor Lane/Major Mvm	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	861	-	-	1477	-
HCM Lane V/C Ratio	0.072	-	-	0.054	-
HCM Control Delay (s)	9.5	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

Intersection

Int Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	163	4	11	239	2	15
Future Vol, veh/h	163	4	11	239	2	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	- None		- None		-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	177	4	12	260	2	16

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	182
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1393
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1393
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvm	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	810	-	-	1393	-
HCM Lane V/C Ratio	0.023	-	-	0.009	-
HCM Control Delay (s)	9.5	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection Capacity Utilization
19: 60th St W & Ave L

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↑	↗	↔↔	↑	↗	↗	↗	↗	↗	↗	↗	
Volume (vph)	32	125	24	92	198	160	23	217	91	108	262	30	
Pedestrians			5			5			5			5	
Ped Button		Yes			Yes			Yes			Yes		
Pedestrian Timing (s)		27.6			16.0			39.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	32	125	24	92	198	160	23	308	0	108	292	0	
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	0.98	0.85	
Saturated Flow (vph)	4612	1600	1360	4612	1600	1360	1520	1529	0	1520	1575	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.8	9.4	2.8	2.4	14.8	14.8	1.8	24.4	0.0	8.5	22.3	0.0	
Adj Reference Time (s)	8.0	16.2	11.6	8.0	18.9	18.8	8.0	30.7	0.0	12.5	26.3	0.0	
Permitted Option													
Adj Saturation A (vph)	154	1600		154	1600		101	1529		101	1575		
Reference Time A (s)	12.5	9.4		35.9	14.8		27.2	24.4		127.9	22.3		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		12.5			35.9			27.2			127.9		
Adj Reference Time (s)		18.8			39.9			33.1			131.9		
Split Option													
Ref Time Combined (s)	0.8	9.4		2.4	14.8		1.8	24.4		8.5	22.3		
Ref Time Seperate (s)	0.8	9.4		2.4	14.8		1.8	17.2		8.5	20.0		
Reference Time (s)	9.4	9.4		14.8	14.8		24.4	24.4		22.3	22.3		
Adj Reference Time (s)	16.2	16.2		18.9	18.9		30.7	30.7		26.3	26.3		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	26.9		43.2										
Permitted Option (s)	39.9		131.9										
Split Option (s)	35.0		57.0										
Minimum (s)	26.9		43.2		70.1								
Right Turns													
	EBR		WBR										
Adj Reference Time (s)	11.6		18.8										
Cross Thru Ref Time (s)	26.3		30.7										
Oncoming Left Ref Time (s)	8.0		8.0										
Combined (s)	45.9		57.5										
Intersection Summary													
Intersection Capacity Utilization	58.4%		ICU Level of Service				B						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection

Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	306	10	98	407	7	77
Future Vol, veh/h	306	10	98	407	7	77
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	- None		- None		-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	333	11	107	442	8	84

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	338	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1221	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1216	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	12.1
HCM LOS			B

Minor Lane/Major Mvm	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	598	-	-	1216	-
HCM Lane V/C Ratio	0.153	-	-	0.088	-
HCM Control Delay (s)	12.1	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.3	-

Intersection Capacity Utilization
21: 50th St W & Ave L

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗		
Volume (vph)	42	354	27	188	464	52	31	169	130	35	210	60	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	42	381	0	188	516	0	31	169	130	35	270	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.97	0.85	
Saturated Flow (vph)	1520	1583	0	1520	1576	0	1520	1600	1360	1520	1547	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.3	28.9	0.0	14.8	39.4	0.0	2.4	12.7	12.1	2.8	21.1	0.0	
Adj Reference Time (s)	8.0	32.9	0.0	18.8	43.4	0.0	8.0	17.5	17.0	8.0	25.1	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1583		101	1576		101	1600		101	1547		
Reference Time A (s)	49.7	28.9		222.6	39.4		36.7	12.7		41.4	21.1		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		49.7			222.6			36.7			41.4		
Adj Reference Time (s)		53.7			226.6			40.7			45.4		
Split Option													
Ref Time Combined (s)	3.3	28.9		14.8	39.4		2.4	12.7		2.8	21.1		
Ref Time Seperate (s)	3.3	26.9		14.8	35.4		2.4	12.7		2.8	16.4		
Reference Time (s)	28.9	28.9		39.4	39.4		12.7	12.7		21.1	21.1		
Adj Reference Time (s)	32.9	32.9		43.4	43.4		17.5	17.5		25.1	25.1		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	51.8		33.1										
Permitted Option (s)	226.6		45.4										
Split Option (s)	76.3		42.6										
Minimum (s)	51.8		33.1		84.9								
Right Turns													
	NBR												
Adj Reference Time (s)	17.0												
Cross Thru Ref Time (s)	32.9												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	58.0												
Intersection Summary													
Intersection Capacity Utilization	70.7%				ICU Level of Service				C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷	↷	↶	↷		↶	↷	↷	↶	↷	↷	
Volume (vph)	22	509	14	123	704	103	22	35	86	51	35	11	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		25.6			16.0			20.4			22.1		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	22	509	14	123	807	0	22	35	86	51	46	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	1600	1360	1520	1569	0	1520	1600	1360	1520	1543	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	1.7	38.2	1.9	9.7	61.8	0.0	1.7	2.6	8.2	4.0	3.7	0.0	
Adj Reference Time (s)	8.0	42.2	29.6	13.7	65.8	0.0	8.0	10.5	14.1	8.0	10.8	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1600		101	1569		101	1600		101	1543		
Reference Time A (s)	26.1	38.2		145.7	61.8		26.1	2.6		60.4	3.7		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1543		
Reference Time B (s)	NA	NA		NA	NA		9.7	2.6		12.0	3.7		
Reference Time (s)		38.2			145.7			9.7			12.0		
Adj Reference Time (s)		42.2			149.7			15.4			17.6		
Split Option													
Ref Time Combined (s)	1.7	38.2		9.7	61.8		1.7	2.6		4.0	3.7		
Ref Time Seperate (s)	1.7	38.2		9.7	53.9		1.7	2.6		4.0	2.9		
Reference Time (s)	38.2	38.2		61.8	61.8		2.6	2.6		4.0	4.0		
Adj Reference Time (s)	42.2	42.2		65.8	65.8		10.5	10.5		10.8	10.8		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	73.8		18.8										
Permitted Option (s)	149.7		17.6										
Split Option (s)	108.0		21.3										
Minimum (s)	73.8		17.6		91.4								
Right Turns													
	EBR		NBR										
Adj Reference Time (s)	29.6		14.1										
Cross Thru Ref Time (s)	10.8		42.2										
Oncoming Left Ref Time (s)	3.7		8.0										
Combined (s)	54.1		64.3										

Intersection Summary

Intersection Capacity Utilization 76.1% ICU Level of Service D
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
23: 40th St W & Ave L

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↕	↖	↖	↕	↖	↖	↗	↖
Volume (vph)	52	449	13	52	777	120	24	58	33	201	83	109
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		31.0			33.3			35.6			31.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	52	462	0	52	777	120	24	58	33	201	83	109
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1593	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.1	34.8	0.0	4.1	30.6	11.2	1.9	4.3	3.6	15.9	6.2	10.3
Adj Reference Time (s)	8.1	38.8	0.0	8.1	37.3	37.3	8.0	13.1	12.9	19.9	14.1	17.5
Permitted Option												
Adj Saturation A (vph)	101	1593		101	1523		101	1600		101	1600	
Reference Time A (s)	61.6	34.8		61.6	30.6		28.4	4.3		238.0	6.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.9	4.3		23.9	6.2	
Reference Time (s)		61.6			61.6			9.9			23.9	
Adj Reference Time (s)		65.6			65.6			17.8			29.1	
Split Option												
Ref Time Combined (s)	4.1	34.8		4.1	30.6		1.9	4.3		15.9	6.2	
Ref Time Seperate (s)	4.1	33.8		4.1	30.6		1.9	4.3		15.9	6.2	
Reference Time (s)	34.8	34.8		30.6	30.6		4.3	4.3		15.9	15.9	
Adj Reference Time (s)	38.8	38.8		37.3	37.3		13.1	13.1		22.3	22.3	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	46.9		33.0									
Permitted Option (s)	65.6		29.1									
Split Option (s)	76.1		35.4									
Minimum (s)	46.9		29.1		76.0							
Right Turns												
	WBR		NBR		SBR							
Adj Reference Time (s)	37.3		12.9		17.5							
Cross Thru Ref Time (s)	13.1		38.8		37.3							
Oncoming Left Ref Time (s)	13.1		19.9		8.0							
Combined (s)	58.6		71.5		62.8							

Intersection Summary

Intersection Capacity Utilization 63.3% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
24: 35th St W & Ave L

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	621	16	52	897	40	21	28	25	25	27	70
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			23.9			25.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	37	637	0	52	937	0	21	53	0	25	27	70
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3035	0	1520	3027	0	1520	1487	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.9	25.2	0.0	4.1	37.2	0.0	1.7	4.6	0.0	2.0	2.0	6.8
Adj Reference Time (s)	8.0	29.2	0.0	8.1	41.2	0.0	8.0	11.8	0.0	8.0	8.0	10.8
Permitted Option												
Adj Saturation A (vph)	101	1517		101	1513		101	1487		101	1600	
Reference Time A (s)	43.8	25.2		61.6	37.2		24.9	4.6		29.6	2.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1487		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.7	4.6		10.0	2.0	
Reference Time (s)		43.8			61.6			9.7			10.0	
Adj Reference Time (s)		47.8			65.6			16.1			14.0	
Split Option												
Ref Time Combined (s)	2.9	25.2		4.1	37.2		1.7	4.6		2.0	2.0	
Ref Time Seperate (s)	2.9	24.6		4.1	35.6		1.7	2.6		2.0	2.0	
Reference Time (s)	25.2	25.2		37.2	37.2		4.6	4.6		2.0	2.0	
Adj Reference Time (s)	29.2	29.2		41.2	41.2		11.8	11.8		8.0	8.0	
Summary												
Protected Option (s)	49.2		19.8									
Permitted Option (s)	65.6		16.1									
Split Option (s)	70.4		19.8									
Minimum (s)	49.2		16.1		65.3							
Right Turns												
Adj Reference Time (s)	10.8											
Cross Thru Ref Time (s)	41.2											
Oncoming Left Ref Time (s)	3.0											
Combined (s)	60.0											
Intersection Summary												
Intersection Capacity Utilization	54.4%		ICU Level of Service				A					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
25: 30th St W & Ave L

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	81	538	67	179	861	134	115	266	117	117	285	115
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	81	538	67	179	861	134	115	266	117	117	285	115
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.4	21.2	6.6	14.1	33.9	12.5	9.1	10.5	11.0	9.2	11.2	10.8
Adj Reference Time (s)	10.4	39.0	39.0	18.1	37.9	37.0	13.1	18.4	18.8	13.2	18.7	18.4
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1523		101	1523	
Reference Time A (s)	95.9	21.2		212.0	33.9		136.2	10.5		138.6	11.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		95.9			212.0			136.2			138.6	
Adj Reference Time (s)		99.9			216.0			140.2			142.6	
Split Option												
Ref Time Combined (s)	6.4	21.2		14.1	33.9		9.1	10.5		9.2	11.2	
Ref Time Seperate (s)	6.4	21.2		14.1	33.9		9.1	10.5		9.2	11.2	
Reference Time (s)	21.2	21.2		33.9	33.9		10.5	10.5		11.2	11.2	
Adj Reference Time (s)	39.0	39.0		37.9	37.9		18.4	18.4		18.7	18.7	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	57.1		31.8									
Permitted Option (s)	216.0		142.6									
Split Option (s)	76.9		37.1									
Minimum (s)	57.1		31.8		88.9							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	39.0		37.0		18.8		18.4					
Cross Thru Ref Time (s)	18.7		18.4		39.0		37.9					
Oncoming Left Ref Time (s)	18.1		10.4		13.2		13.1					
Combined (s)	75.9		65.8		71.0		69.4					
Intersection Summary												
Intersection Capacity Utilization	74.1%				ICU Level of Service				D			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗	↑↑	↗	↗	↑↑	↗		↕		↗	↑	↗	
Volume (vph)	51	734	4	4	1147	67	4	1	5	50	3	82	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		25.3			22.4			16.0			30.7		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	51	734	4	4	1147	67	0	10	0	50	3	82	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.91	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1450	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			No			No		
Reference Time (s)	4.0	28.9	1.0	0.3	45.2	6.6			0.0			7.9	
Adj Reference Time (s)	8.0	32.9	31.0	8.0	49.2	26.4			0.0			15.4	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1523		0	201		709	1600		
Reference Time A (s)	60.4	28.9		4.7	45.2		0.0	6.3		8.5	0.2		
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600		
Reference Time B (s)	NA	NA		NA	NA		8.3	9.1		11.9	0.2		
Reference Time (s)		60.4			45.2			6.3			8.5		
Adj Reference Time (s)		64.4			49.2			10.3			15.9		
Split Option													
Ref Time Combined (s)	4.0	28.9		0.3	45.2		0.0	1.1		3.9	0.2		
Ref Time Seperate (s)	4.0	28.9		0.3	45.2		0.3	0.4		3.9	0.2		
Reference Time (s)	28.9	28.9		45.2	45.2		1.1	1.1		3.9	3.9		
Adj Reference Time (s)	32.9	32.9		49.2	49.2		8.0	8.0		12.1	12.1		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	57.2		NA										
Permitted Option (s)	64.4		15.9										
Split Option (s)	82.1		20.1										
Minimum (s)	57.2		15.9		73.1								
Right Turns													
	EBR		WBR		SBR								
Adj Reference Time (s)	31.0		26.4		15.4								
Cross Thru Ref Time (s)	12.1		8.0		49.2								
Oncoming Left Ref Time (s)	8.0		8.0		8.0								
Combined (s)	51.1		42.4		72.6								

Intersection Summary

Intersection Capacity Utilization 60.9% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
27: 20th St W & Ave L

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	97	659	39	62	1026	123	51	172	38	77	190	140
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	97	659	39	62	1026	123	51	210	0	77	190	140
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2964	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	7.7	26.0	4.1	4.9	28.2	11.5	4.0	8.6	0.0	6.1	14.3	13.0
Adj Reference Time (s)	11.7	32.4	34.1	8.9	40.7	40.7	8.0	15.8	0.0	10.1	21.1	20.1
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1482		101	1600	
Reference Time A (s)	114.9	26.0		73.4	28.2		60.4	8.6		91.2	14.3	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		114.9			73.4			60.4			91.2	
Adj Reference Time (s)		118.9			77.4			64.4			95.2	
Split Option												
Ref Time Combined (s)	7.7	26.0		4.9	28.2		4.0	8.6		6.1	14.3	
Ref Time Seperate (s)	7.7	26.0		4.9	28.2		4.0	7.1		6.1	14.3	
Reference Time (s)	26.0	26.0		28.2	28.2		8.6	8.6		14.3	14.3	
Adj Reference Time (s)	32.4	32.4		40.7	40.7		15.8	15.8		21.1	21.1	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	52.4		29.2									
Permitted Option (s)	118.9		95.2									
Split Option (s)	73.1		36.9									
Minimum (s)	52.4		29.2		81.5							
Right Turns												
	EBR		WBR		SBR							
Adj Reference Time (s)	34.1		40.7		20.1							
Cross Thru Ref Time (s)	21.1		15.8		40.7							
Oncoming Left Ref Time (s)	11.7		8.0		8.0							
Combined (s)	64.1		68.2		68.8							
Intersection Summary												
Intersection Capacity Utilization	67.9%		ICU Level of Service						C			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
28: 15th St W & Ave L

PM 2016
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↕↕↕		↰	↕↕↕	↰		↕↕		↰	↕	↰
Volume (vph)	58	732	0	9	1206	270	0	1	4	244	5	77
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	58	732	0	9	1206	270	0	5	0	244	5	77
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.88	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	0	1520	4358	1360	0	1408	0	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00		
Protected Option Allowed	Yes			Yes			No			No		
Reference Time (s)	4.6	20.2	0.0	0.7	33.2	23.8			0.0			6.8
Adj Reference Time (s)	8.6	24.2	0.0	8.0	37.2	27.8			0.0			10.8
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		0	1408		101	1600	
Reference Time A (s)	68.7	20.2		10.7	33.2		0.0	0.4		288.9	0.4	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1408		0	1600	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.4		27.3	0.4	
Reference Time (s)		68.7			33.2			0.4			27.3	
Adj Reference Time (s)		72.7			37.2			8.0			31.3	
Split Option												
Ref Time Combined (s)	4.6	20.2		0.7	33.2		0.0	0.4		19.3	0.4	
Ref Time Seperate (s)	4.6	20.2		0.7	33.2		0.0	0.1		19.3	0.4	
Reference Time (s)	20.2	20.2		33.2	33.2		0.4	0.4		19.3	19.3	
Adj Reference Time (s)	24.2	24.2		37.2	37.2		8.0	8.0		23.3	23.3	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	45.8		NA									
Permitted Option (s)	72.7		31.3									
Split Option (s)	61.4		31.3									
Minimum (s)	45.8		31.3		77.0							
Right Turns												
	WBR		SBR									
Adj Reference Time (s)	27.8		10.8									
Cross Thru Ref Time (s)	8.0		37.2									
Oncoming Left Ref Time (s)	8.6		8.0									
Combined (s)	44.4		56.0									
Intersection Summary												
Intersection Capacity Utilization	64.2%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

PM 2016
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	612	1357	0	267	126
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	612	1357	0	393	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4358	0	4465	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	16.9	37.4	0.0		0.0
Adj Reference Time (s)	0.0	20.9	41.4	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		149	
Reference Time A (s)	0.0	16.9	37.4		158.7	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		16.9	37.4			
Adj Reference Time (s)		20.9	41.4			
Split Option						
Ref Time Combined (s)	0.0	16.9	37.4		10.8	
Ref Time Seperate (s)	0.0	16.9	37.4		7.4	
Reference Time (s)	16.9	16.9	37.4		10.8	
Adj Reference Time (s)	20.9	20.9	41.4		16.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	41.4		NA			
Permitted Option (s)	41.4		Err			
Split Option (s)	62.2		16.2			
Minimum (s)	41.4		16.2	57.6		

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2016
5/2/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	803	0	0	1365	516	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	803	0	0	1365	516	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	1520	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	22.1	0.6	0.0	28.2		0.0
Adj Reference Time (s)	26.1	9.7	0.0	32.2		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	101	
Reference Time A (s)	22.1		0.0	28.2	611.1	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	22.1			28.2		
Adj Reference Time (s)	26.1			32.2		
Split Option						
Ref Time Combined (s)	22.1		0.0	28.2	40.7	
Ref Time Seperate (s)	22.1		0.0	28.2	40.7	
Reference Time (s)	22.1		28.2	28.2	40.7	
Adj Reference Time (s)	26.1		32.2	32.2	44.7	
Summary						
	EB	WB	NB	Combined		
Protected Option (s)	32.2		NA			
Permitted Option (s)	32.2		Err			
Split Option (s)	58.3		44.7			
Minimum (s)	32.2		44.7	76.9		
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	64.1%		ICU Level of Service		C	
Reference Times and Phasing Options do not represent an optimized timing plan.						

PM Existing+Project

Intersection												
Intersection Delay, s/veh	11.2											
Intersection LOS	B											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	1	111	28	0	162	67	6	0	13	94	113
Future Vol, veh/h	0	1	111	28	0	162	67	6	0	13	94	113
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	121	30	0	176	73	7	0	14	102	123
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB				WB				NB			
Opposing Approach	WB				EB				SB			
Opposing Lanes	1				1				1			
Conflicting Approach Left	SB				NB				EB			
Conflicting Lanes Left	1				1				1			
Conflicting Approach Right	NB				SB				WB			
Conflicting Lanes Right	1				1				1			
HCM Control Delay	10.2				12.1				10.8			
HCM LOS	B				B				B			
Lane	NBLn1		EBLn1		WBLn1		SBLn1					
Vol Left, %	6%		1%		69%		1%					
Vol Thru, %	43%		79%		29%		98%					
Vol Right, %	51%		20%		3%		1%					
Sign Control	Stop		Stop		Stop		Stop					
Traffic Vol by Lane	220		140		235		196					
LT Vol	13		1		162		2					
Through Vol	94		111		67		193					
RT Vol	113		28		6		1					
Lane Flow Rate	239		152		255		213					
Geometry Grp	1		1		1		1					
Degree of Util (X)	0.341		0.231		0.392		0.323					
Departure Headway (Hd)	5.136		5.474		5.528		5.456					
Convergence, Y/N	Yes		Yes		Yes		Yes					
Cap	698		654		651		658					
Service Time	3.177		3.521		3.568		3.498					
HCM Lane V/C Ratio	0.342		0.232		0.392		0.324					
HCM Control Delay	10.8		10.2		12.1		11.1					
HCM Lane LOS	B		B		B		B					
HCM 95th-tile Q	1.5		0.9		1.9		1.4					

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	2	193	1
Future Vol, veh/h	0	2	193	1
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	2	210	1
Number of Lanes	0	0	1	0

Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.1
HCM LOS	B

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↑	↔	↔↔	↑	↔	↔	↕↔		↔	↕↔		
Volume (vph)	18	248	29	296	272	66	47	229	247	56	314	35	
Pedestrians			5			5			5			5	
Ped Button		Yes			Yes			Yes			Yes		
Pedestrian Timing (s)		30.7			28.7			27.3			27.3		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	18	248	29	296	272	66	47	476	0	56	349	0	
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	0.98	0.85	
Saturated Flow (vph)	2952	1600	1360	2952	1600	1360	1520	2809	0	1520	3001	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.7	18.6	3.2	12.0	20.4	6.5	3.7	20.7	0.0	4.4	14.0	0.0	
Adj Reference Time (s)	8.0	24.5	12.1	16.0	25.7	13.9	8.0	25.7	0.0	8.4	20.1	0.0	
Permitted Option													
Adj Saturation A (vph)	98	1600		98	1600		101	1405		101	1500		
Reference Time A (s)	11.0	18.6		180.5	20.4		55.7	20.7		66.3	14.0		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		18.6			180.5			55.7			66.3		
Adj Reference Time (s)		24.5			184.5			59.7			70.3		
Split Option													
Ref Time Combined (s)	0.7	18.6		12.0	20.4		3.7	20.7		4.4	14.0		
Ref Time Seperate (s)	0.7	18.6		12.0	20.4		3.7	10.1		4.4	12.6		
Reference Time (s)	18.6	18.6		20.4	20.4		20.7	20.7		14.0	14.0		
Adj Reference Time (s)	24.5	24.5		25.7	25.7		25.7	25.7		20.1	20.1		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	40.5		34.1										
Permitted Option (s)	184.5		70.3										
Split Option (s)	50.1		45.7										
Minimum (s)	40.5		34.1		74.6								
Right Turns													
	EBR		WBR										
Adj Reference Time (s)	12.1		13.9										
Cross Thru Ref Time (s)	20.1		25.7										
Oncoming Left Ref Time (s)	8.0		8.0										
Combined (s)	48.2		47.6										
Intersection Summary													
Intersection Capacity Utilization	62.2%		ICU Level of Service				B						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection

Intersection Delay, s/veh 61.5
Intersection LOS F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	47	501	24	0	73	557	11	0	36	153	65
Future Vol, veh/h	0	47	501	24	0	73	557	11	0	36	153	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	51	545	26	0	79	605	12	0	39	166	71
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	73	73.1	30.2
HCM LOS	F	F	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	8%	11%	4%
Vol Thru, %	60%	88%	87%	73%
Vol Right, %	26%	4%	2%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	254	572	641	317
LT Vol	36	47	73	13
Through Vol	153	501	557	231
RT Vol	65	24	11	73
Lane Flow Rate	276	622	697	345
Geometry Grp	1	1	1	1
Degree of Util (X)	0.693	1	1	0.831
Departure Headway (Hd)	9.041	8.371	8.392	8.683
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	400	435	439	420
Service Time	7.067	6.416	6.438	6.703
HCM Lane V/C Ratio	0.69	1.43	1.588	0.821
HCM Control Delay	30.2	73	73.1	42.2
HCM Lane LOS	D	F	F	E
HCM 95th-tile Q	5.1	12.7	12.6	7.8

Intersection

Intersection Delay, s/veh
 Intersection LOS

























Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	13	231	73
Future Vol, veh/h	0	13	231	73
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	14	251	79
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	42.2
HCM LOS	E

Lane



























Intersection Capacity Utilization
4: 45th St W & Ave K

PM 2016+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	543	18	38	627	40	23	79	33	32	68	41
Pedestrians			5			5						5
Ped Button		No			No						Yes	
Pedestrian Timing (s)		17.8			21.8						25.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	24	543	18	38	627	40	23	112	0	32	68	41
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1529	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	1.9	40.7	2.2	3.0	47.0	4.2	1.8	8.8	0.0	2.5	5.1	4.3
Adj Reference Time (s)	8.0	44.7	21.8	8.0	51.0	25.8	8.0	12.8	0.0	8.0	12.2	11.5
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		101	1529		101	1600	
Reference Time A (s)	28.4	40.7		45.0	47.0		27.2	8.8		37.9	5.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1529		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.8	8.8		10.5	5.1	
Reference Time (s)		40.7			47.0			9.8			10.5	
Adj Reference Time (s)		44.7			51.0			13.8			16.8	
Split Option												
Ref Time Combined (s)	1.9	40.7		3.0	47.0		1.8	8.8		2.5	5.1	
Ref Time Seperate (s)	1.9	40.7		3.0	47.0		1.8	6.2		2.5	5.1	
Reference Time (s)	40.7	40.7		47.0	47.0		8.8	8.8		5.1	5.1	
Adj Reference Time (s)	44.7	44.7		51.0	51.0		12.8	12.8		12.2	12.2	
Summary												
Protected Option (s)	59.0		20.8									
Permitted Option (s)	51.0		16.8									
Split Option (s)	95.8		25.0									
Minimum (s)	51.0		16.8		67.9							
Right Turns												
Adj Reference Time (s)	21.8	25.8	11.5									
Cross Thru Ref Time (s)	12.2	12.8	51.0									
Oncoming Left Ref Time (s)	8.0	8.0	8.0									
Combined (s)	42.0	46.6	70.6									
Intersection Summary												
Intersection Capacity Utilization	58.8%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

































Intersection Capacity Utilization
5: 40th St W & Ave K

PM 2016+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Volume (vph)	41	547	35	99	653	51	39	162	67	40	247	46
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		21.9			23.6			27.9			17.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	41	582	0	99	653	51	39	162	67	40	293	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98	0.85
Saturated Flow (vph)	1520	3019	0	1520	1600	1360	1520	3046	1360	1520	1562	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.2	23.2	0.0	7.8	49.0	5.1	3.1	6.4	6.6	3.2	22.6	0.0
Adj Reference Time (s)	8.0	27.2	0.0	11.8	53.0	27.6	8.0	13.7	13.8	8.0	26.6	0.0
Permitted Option												
Adj Saturation A (vph)	101	1509		101	1600		101	1523		101	1562	
Reference Time A (s)	48.6	23.2		117.2	49.0		46.2	6.4		47.4	22.6	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		48.6			117.2			46.2			47.4	
Adj Reference Time (s)		52.6			121.2			50.2			51.4	
Split Option												
Ref Time Combined (s)	3.2	23.2		7.8	49.0		3.1	6.4		3.2	22.6	
Ref Time Seperate (s)	3.2	21.8		7.8	49.0		3.1	6.4		3.2	19.1	
Reference Time (s)	23.2	23.2		49.0	49.0		6.4	6.4		22.6	22.6	
Adj Reference Time (s)	27.2	27.2		53.0	53.0		13.7	13.7		26.6	26.6	
Summary												
Protected Option (s)	61.0		34.6									
Permitted Option (s)	121.2		51.4									
Split Option (s)	80.1		40.3									
Minimum (s)	61.0		34.6		95.6							
Right Turns												
Adj Reference Time (s)	27.6		13.8									
Cross Thru Ref Time (s)	13.7		27.2									
Oncoming Left Ref Time (s)	8.0		8.0									
Combined (s)	49.3		49.0									
Intersection Summary												
Intersection Capacity Utilization	79.7%				ICU Level of Service				D			
Reference Times and Phasing Options do not represent an optimized timing plan.												
























Intersection Capacity Utilization
6: 30th St W & Ave K

PM 2016+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Volume (vph)	153	634	70	153	669	174	139	481	111	220	553	133
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.7			26.1			32.1			30.1	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	153	704	0	153	843	0	139	481	111	220	553	133
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	4293	0	4612	4223	0	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.0	19.7	0.0	4.0	24.1	0.0	3.6	18.9	10.4	5.7	21.8	12.4
Adj Reference Time (s)	8.0	32.7	0.0	8.0	30.1	0.0	8.0	25.0	17.8	9.7	27.1	19.1
Permitted Option												
Adj Saturation A (vph)	154	1431		154	1408		154	1523		154	1523	
Reference Time A (s)	59.7	19.7		59.7	24.1		54.2	18.9		85.9	21.8	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		59.7			59.7			54.2			85.9	
Adj Reference Time (s)		63.7			63.7			58.2			89.9	
Split Option												
Ref Time Combined (s)	4.0	19.7		4.0	24.1		3.6	18.9		5.7	21.8	
Ref Time Seperate (s)	4.0	17.8		4.0	19.1		3.6	18.9		5.7	21.8	
Reference Time (s)	19.7	19.7		24.1	24.1		18.9	18.9		21.8	21.8	
Adj Reference Time (s)	32.7	32.7		30.1	30.1		25.0	25.0		27.1	27.1	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	40.7		35.1									
Permitted Option (s)	63.7		89.9									
Split Option (s)	62.8		52.0									
Minimum (s)	40.7		35.1		75.8							
Right Turns												
	NBR		SBR									
Adj Reference Time (s)	17.8		19.1									
Cross Thru Ref Time (s)	32.7		30.1									
Oncoming Left Ref Time (s)	9.7		8.0									
Combined (s)	60.2		57.2									
Intersection Summary												
Intersection Capacity Utilization	63.1%		ICU Level of Service				B					
Reference Times and Phasing Options do not represent an optimized timing plan.												

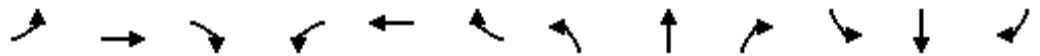
Intersection Capacity Utilization
7: 25th St W & Ave K

PM 2016+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	886	18	55	961	87	11	109	39	70	123	67
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		24.4			26.7			25.3			27.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	59	904	0	55	961	87	11	109	39	70	123	67
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3037	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.7	35.7	0.0	4.3	37.9	8.3	0.9	8.2	4.1	5.5	9.2	6.6
Adj Reference Time (s)	8.7	39.7	0.0	8.3	41.9	30.7	8.0	14.8	11.3	9.5	16.0	13.8
Permitted Option												
Adj Saturation A (vph)	101	1519		101	1523		101	1600		101	1600	
Reference Time A (s)	69.9	35.7		65.1	37.9		13.0	8.2		82.9	9.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		0	1600	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		13.5	9.2	
Reference Time (s)		69.9			65.1			13.0			13.5	
Adj Reference Time (s)		73.9			69.1			18.9			19.7	
Split Option												
Ref Time Combined (s)	4.7	35.7		4.3	37.9		0.9	8.2		5.5	9.2	
Ref Time Seperate (s)	4.7	35.0		4.3	37.9		0.9	8.2		5.5	9.2	
Reference Time (s)	35.7	35.7		37.9	37.9		8.2	8.2		9.2	9.2	
Adj Reference Time (s)	39.7	39.7		41.9	41.9		14.8	14.8		16.0	16.0	
Summary												
Protected Option (s)	50.5		24.3									
Permitted Option (s)	73.9		19.7									
Split Option (s)	81.6		30.8									
Minimum (s)	50.5		19.7		70.2							
Right Turns												
Adj Reference Time (s)	30.7	11.3	13.8									
Cross Thru Ref Time (s)	14.8	39.7	41.9									
Oncoming Left Ref Time (s)	8.7	9.5	8.0									
Combined (s)	54.2	60.6	63.6									
Intersection Summary												
Intersection Capacity Utilization	58.5%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
8: 20th St W & Ave K

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘↗	↑↗		↘↗	↑↑↑	
Volume (vph)	171	878	68	182	945	125	91	248	93	184	379	121
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		30.4			31.0			29.9			33.3	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	171	878	68	182	1070	0	91	341	0	184	500	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.96	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4282	0	4612	2922	0	4612	4200	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	13.5	24.2	6.6	14.4	30.1	0.0	2.4	14.2	0.0	4.8	14.4	0.0
Adj Reference Time (s)	17.5	34.4	34.4	18.4	35.0	0.0	8.0	20.6	0.0	8.8	21.3	0.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1427		154	1461		154	1400	
Reference Time A (s)	202.5	24.2		215.5	30.1		35.5	14.2		71.8	14.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		202.5			215.5			35.5			71.8	
Adj Reference Time (s)		206.5			219.5			39.5			75.8	
Split Option												
Ref Time Combined (s)	13.5	24.2		14.4	30.1		2.4	14.2		4.8	14.4	
Ref Time Seperate (s)	13.5	24.2		14.4	26.6		2.4	10.4		4.8	11.0	
Reference Time (s)	24.2	24.2		30.1	30.1		14.2	14.2		14.4	14.4	
Adj Reference Time (s)	34.4	34.4		35.0	35.0		20.6	20.6		21.3	21.3	
Summary												
Protected Option (s)	52.8		29.4									
Permitted Option (s)	219.5		75.8									
Split Option (s)	69.4		41.9									
Minimum (s)	52.8		29.4		82.1							
Right Turns												
Adj Reference Time (s)	34.4											
Cross Thru Ref Time (s)	21.3											
Oncoming Left Ref Time (s)	34.4											
Combined (s)	74.1											
Intersection Summary												
Intersection Capacity Utilization	68.5%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
9: 17th St W & Ave K

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑	↗	↗	↑	↗
Volume (vph)	62	1109	72	158	1219	172	43	71	139	195	56	55
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	62	1181	0	158	1391	0	43	71	139	195	56	55
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4319	0	1520	4278	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00		0.00			0.00			0.00			
Protected Option Allowed	Yes		Yes			Yes			Yes			
Reference Time (s)	4.9	32.8	0.0	12.5	39.0	0.0	3.4	5.3	12.3	15.4	4.2	4.9
Adj Reference Time (s)	8.9	36.8	0.0	16.5	43.0	0.0	8.0	9.3	16.3	19.4	8.2	8.9
Permitted Option												
Adj Saturation A (vph)	101	1440		101	1426		101	1600		101	1600	
Reference Time A (s)	73.4	32.8		187.1	39.0		50.9	5.3		230.9	4.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		11.4	5.3		23.4	4.2	
Reference Time (s)		73.4			187.1			11.4			23.4	
Adj Reference Time (s)		77.4			191.1			15.4			27.4	
Split Option												
Ref Time Combined (s)	4.9	32.8		12.5	39.0		3.4	5.3		15.4	4.2	
Ref Time Seperate (s)	4.9	30.8		12.5	34.2		3.4	5.3		15.4	4.2	
Reference Time (s)	32.8	32.8		39.0	39.0		5.3	5.3		15.4	15.4	
Adj Reference Time (s)	36.8	36.8		43.0	43.0		9.3	9.3		19.4	19.4	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	53.3		28.7									
Permitted Option (s)	191.1		27.4									
Split Option (s)	79.8		28.7									
Minimum (s)	53.3		27.4		80.7							
Right Turns	NBR		SBR									
Adj Reference Time (s)	16.3		8.9									
Cross Thru Ref Time (s)	36.8		43.0									
Oncoming Left Ref Time (s)	39.4		8.0									
Combined (s)	72.5		59.9									

Intersection Summary

Intersection Capacity Utilization 67.2% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

PM 2016+Project
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1063	1254	465	219	313
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1063	1719	0	532	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.89	0.85
Saturated Flow (vph)	0	4358	4182	0	4335	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.4	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	29.3	49.5	0.0		0.0
Adj Reference Time (s)	0.0	33.3	53.5	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1394		145	
Reference Time A (s)	0.0	29.3	49.5		221.3	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		29.3	49.5			
Adj Reference Time (s)		33.3	53.5			
Split Option						
Ref Time Combined (s)	0.0	29.3	49.5		15.1	
Ref Time Seperate (s)	0.0	29.3	36.2		6.4	
Reference Time (s)	29.3	29.3	49.5		15.1	
Adj Reference Time (s)	33.3	33.3	53.5		20.5	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	53.5		NA			
Permitted Option (s)	53.5		Err			
Split Option (s)	86.8		20.5			
Minimum (s)	53.5		20.5	74.1		

Right Turns

Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary

Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↑↑↓			↑↑↑	↗	↘	↑	↗	↘	↖	↗
Volume (vph)	164	972	139	0	1075	223	336	298	377	383	5	446
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	164	1111	0	0	1075	223	336	298	377	0	388	446
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4277	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.3	31.3	0.0	0.0	29.6	20.3			33.9			40.0
Adj Reference Time (s)	8.3	35.3	0.0	0.0	33.6	33.3			37.9			44.0
Permitted Option												
Adj Saturation A (vph)	154	1426		0	1453		101	1600		0	204	
Reference Time A (s)	64.0	31.3		0.0	29.6		397.9	22.4		0.0	227.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		34.5	22.4		NA	NA	
Reference Time (s)		64.0			29.6			34.5			227.7	
Adj Reference Time (s)		68.0			33.6			38.5			231.7	
Split Option												
Ref Time Combined (s)	4.3	31.3		0.0	29.6		26.5	22.4		0.0	15.3	
Ref Time Seperate (s)	4.3	27.4		0.0	29.6		26.5	22.4		15.1	0.4	
Reference Time (s)	31.3	31.3		29.6	29.6		26.5	26.5		15.3	15.3	
Adj Reference Time (s)	35.3	35.3		33.6	33.6		30.5	30.5		33.3	33.3	
Summary												
Protected Option (s)	41.9		NA									
Permitted Option (s)	68.0		231.7									
Split Option (s)	68.9		63.8									
Minimum (s)	41.9		63.8		105.7							
Right Turns												
Adj Reference Time (s)	33.3	37.9	44.0									
Cross Thru Ref Time (s)	30.5	35.3	33.6									
Oncoming Left Ref Time (s)	33.3	33.3	30.5									
Combined (s)	72.1	106.5	108.1									
Intersection Summary												
Intersection Capacity Utilization	90.1%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	39	0	29	0	0	0	51	181	0	0	304	68
Future Vol, veh/h	39	0	29	0	0	0	51	181	0	0	304	68
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	-	0	-	-
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	42	0	32	0	0	0	55	197	0	0	330	74

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	685	685	377	685	722	207	409	0	0	202	0	0
Stage 1	372	372	-	313	313	-	-	-	-	-	-	-
Stage 2	313	313	-	372	409	-	-	-	-	-	-	-
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	362	371	670	362	353	833	1150	-	-	1370	-	-
Stage 1	648	619	-	698	657	-	-	-	-	-	-	-
Stage 2	698	657	-	648	596	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	346	350	664	329	333	826	1145	-	-	1364	-	-
Mov Cap-2 Maneuver	346	350	-	329	333	-	-	-	-	-	-	-
Stage 1	614	616	-	662	623	-	-	-	-	-	-	-
Stage 2	662	623	-	615	594	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.3	0	1.8	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1145	-	-	346	664	-	-	1364	-	-
HCM Lane V/C Ratio	0.048	-	-	0.123	0.047	-	-	-	-	-
HCM Control Delay (s)	8.3	-	-	16.9	10.7	0	0	0	-	-
HCM Lane LOS	A	-	-	C	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.1	-	-	0	-	-

Intersection				
Intersection Delay, s/veh	4.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	66	38	171	183
Demand Flow Rate, veh/h	68	39	174	187
Vehicles Circulating, veh/h	139	196	71	68
Vehicles Exiting, veh/h	116	49	136	167
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	5
Ped Cap Adj	0.999	0.999	0.999	0.999
Approach Delay, s/veh	4.4	4.4	5.0	5.1
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	68	39	174	187
Cap Entry Lane, veh/h	983	929	1052	1056
Entry HV Adj Factor	0.971	0.974	0.983	0.980
Flow Entry, veh/h	66	38	171	183
Cap Entry, veh/h	954	904	1033	1033
V/C Ratio	0.069	0.042	0.165	0.177
Control Delay, s/veh	4.4	4.4	5.0	5.1
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	1

Intersection				
Intersection Delay, s/veh	5.0			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	93	225	150	0
Demand Flow Rate, veh/h	95	229	153	0
Vehicles Circulating, veh/h	156	29	58	258
Vehicles Exiting, veh/h	102	182	193	0
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.7	5.3	4.7	0.0
Approach LOS	A	A	A	-
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LTR
Assumed Moves	TR	LT	LR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	95	229	153	0
Cap Entry Lane, veh/h	967	1098	1066	873
Entry HV Adj Factor	0.978	0.981	0.980	1.000
Flow Entry, veh/h	93	225	150	0
Cap Entry, veh/h	945	1076	1045	873
V/C Ratio	0.098	0.209	0.143	0.000
Control Delay, s/veh	4.7	5.3	4.7	4.1
LOS	A	A	A	A
95th %tile Queue, veh	0	1	1	0

Intersection

Int Delay, s/veh 84.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	192	0	174	4	0	4	231	368	2	8	413	248
Future Vol, veh/h	192	0	174	4	0	4	231	368	2	8	413	248
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	240	-	-	-	216	-	-	236	-	352
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	209	0	189	4	0	4	251	400	2	9	449	270

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1381	1380	234	1155	1379	411	454	0	0	407	0	0
Stage 1	471	471	-	908	908	-	-	-	-	-	-	-
Stage 2	910	909	-	247	471	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.22	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 112	144	769	163	144	640	1103	-	-	1152	-	-
Stage 1	543	559	-	329	353	-	-	-	-	-	-	-
Stage 2	328	353	-	736	559	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 90	109	763	100	109	635	1098	-	-	1147	-	-
Mov Cap-2 Maneuver	~ 90	109	-	100	109	-	-	-	-	-	-	-
Stage 1	417	552	-	253	271	-	-	-	-	-	-	-
Stage 2	250	271	-	547	552	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s \$	373.6	26.9	3.6	0.1
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1098	-	-	90	763	173	1147	-	-
HCM Lane V/C Ratio	0.229	-	-	2.319	0.248	0.05	0.008	-	-
HCM Control Delay (s)	9.2	-	-	\$ 702	11.3	26.9	8.2	-	-
HCM Lane LOS	A	-	-	F	B	D	A	-	-
HCM 95th %tile Q(veh)	0.9	-	-	19	1	0.2	0	-	-

Notes

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

Intersection												
Intersection Delay, s/veh	12.1											
Intersection LOS	B											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	2	25	32	0	119	47	97	0	13	141	93
Future Vol, veh/h	0	2	25	32	0	119	47	97	0	13	141	93
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	27	35	0	129	51	105	0	14	153	101
Number of Lanes	0	1	1	1	0	1	1	0	0	1	1	0
Approach	EB				WB				NB			
Opposing Approach	WB				EB				SB			
Opposing Lanes	2				3				2			
Conflicting Approach Left	SB				NB				EB			
Conflicting Lanes Left	2				2				3			
Conflicting Approach Right	NB				SB				WB			
Conflicting Lanes Right	2				2				2			
HCM Control Delay	9.9				11.5				13.3			
HCM LOS	A				B				B			
Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2			
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%			
Vol Thru, %	0%	60%	0%	100%	0%	0%	33%	0%	95%			
Vol Right, %	0%	40%	0%	0%	100%	0%	67%	0%	5%			
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop			
Traffic Vol by Lane	13	234	2	25	32	119	144	73	184			
LT Vol	13	0	2	0	0	119	0	73	0			
Through Vol	0	141	0	25	0	0	47	0	174			
RT Vol	0	93	0	0	32	0	97	0	10			
Lane Flow Rate	14	254	2	27	35	129	157	79	200			
Geometry Grp	8	8	8	8	8	8	8	8	8			
Degree of Util (X)	0.027	0.433	0.005	0.054	0.062	0.253	0.263	0.152	0.352			
Departure Headway (Hd)	6.919	6.134	7.611	7.102	6.389	7.039	6.051	6.884	6.342			
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Cap	516	585	468	502	557	508	592	519	566			
Service Time	4.682	3.897	5.393	4.883	4.17	4.803	3.815	4.648	4.105			
HCM Lane V/C Ratio	0.027	0.434	0.004	0.054	0.063	0.254	0.265	0.152	0.353			
HCM Control Delay	9.9	13.5	10.4	10.3	9.6	12.2	11	10.9	12.5			
HCM Lane LOS	A	B	B	B	A	B	B	B	B			
HCM 95th-tile Q	0.1	2.2	0	0.2	0.2	1	1.1	0.5	1.6			

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	73	174	10
Future Vol, veh/h	0	73	174	10
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	79	189	11
Number of Lanes	0	1	1	0

Approach SB

Opposing Approach NB

Opposing Lanes 2

Conflicting Approach Left WB

Conflicting Lanes Left 2

Conflicting Approach Right EB

Conflicting Lanes Right 3

HCM Control Delay 12

HCM LOS B

Lane

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	218	13	74	309	0	8	0	49	0	0	0
Future Vol, veh/h	0	218	13	74	309	0	8	0	49	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	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	237	14	80	336	0	9	0	53	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	341	0	0	256	0	0	751	751	254	751	758	346
Stage 1	-	-	-	-	-	-	249	249	-	502	502	-
Stage 2	-	-	-	-	-	-	502	502	-	249	256	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1218	-	-	1309	-	-	327	340	785	327	336	697
Stage 1	-	-	-	-	-	-	755	701	-	552	542	-
Stage 2	-	-	-	-	-	-	552	542	-	755	696	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1213	-	-	1304	-	-	306	312	778	285	308	691
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	312	-	285	308	-
Stage 1	-	-	-	-	-	-	752	698	-	550	499	-
Stage 2	-	-	-	-	-	-	508	499	-	700	693	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.5	11	0
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	306	778	1213	-	-	1304	-	-	-
HCM Lane V/C Ratio	0.028	0.068	-	-	-0.062	-	-	-	-
HCM Control Delay (s)	17.1	10	0	-	-	7.9	0	-	0
HCM Lane LOS	C	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0.2	0	-	-	0.2	-	-	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	513	4	11	696	0	2	0	15	0	0	0
Future Vol, veh/h	0	513	4	11	696	0	2	0	15	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	180	-	0	-	-	90	-	-	0	-	-	-
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	558	4	12	757	0	2	0	16	0	0	0

























Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	757	0	0	558	0	0	1338	1338	279	1059	1338	757
Stage 1	-	-	-	-	-	-	558	558	-	780	780	-
Stage 2	-	-	-	-	-	-	780	780	-	279	558	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.218	-	-	2.22	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	854	-	-	1009	-	-	120	152	719	190	152	407
Stage 1	-	-	-	-	-	-	482	511	-	387	405	-
Stage 2	-	-	-	-	-	-	387	405	-	705	511	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	854	-	-	1009	-	-	118	149	719	183	149	407
Mov Cap-2 Maneuver	-	-	-	-	-	-	118	149	-	183	149	-
Stage 1	-	-	-	-	-	-	482	511	-	387	396	-
Stage 2	-	-	-	-	-	-	379	396	-	689	511	-

Approach	EB			WB			NB			SB
HCM Control Delay, s	0			0.1			13.2			0
HCM LOS							B			A

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	118	719	854	-	-	1009	-	-	-
HCM Lane V/C Ratio	0.018	0.023	-	-	-0.012	-	-	-	-
HCM Control Delay (s)	36.1	10.1	0	-	-	8.6	0	-	0
HCM Lane LOS	E	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	-

Intersection Capacity Utilization
19: 60th St W & Ave L

PM 2016+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	421	51	92	585	293	58	272	91	213	306	65
Pedestrians			5			5			5			5
Ped Button		Yes			Yes			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	59	421	51	92	585	293	58	363	0	213	371	0
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	0.97	0.85
Saturated Flow (vph)	4612	1600	1360	4612	1600	1360	1520	1540	0	1520	1558	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	1.5	31.6	5.1	2.4	43.9	26.5	4.6	28.4	0.0	16.8	28.7	0.0
Adj Reference Time (s)	8.0	35.6	12.6	8.0	47.9	30.5	8.6	34.2	0.0	20.8	32.7	0.0
Permitted Option												
Adj Saturation A (vph)	154	1600		154	1600		101	1540		101	1558	
Reference Time A (s)	23.0	31.6		35.9	43.9		68.7	28.4		252.2	28.7	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		31.6			43.9			68.7			252.2	
Adj Reference Time (s)		35.6			47.9			72.7			256.2	
Split Option												
Ref Time Combined (s)	1.5	31.6		2.4	43.9		4.6	28.4		16.8	28.7	
Ref Time Seperate (s)	1.5	31.6		2.4	43.9		4.6	21.4		16.8	23.7	
Reference Time (s)	31.6	31.6		43.9	43.9		28.4	28.4		28.7	28.7	
Adj Reference Time (s)	35.6	35.6		47.9	47.9		34.2	34.2		32.7	32.7	
Summary												
Protected Option (s)	55.9		55.0									
Permitted Option (s)	47.9		256.2									
Split Option (s)	83.5		66.9									
Minimum (s)	47.9		55.0		102.9							
Right Turns												
Adj Reference Time (s)	12.6	30.5										
Cross Thru Ref Time (s)	32.7	34.2										
Oncoming Left Ref Time (s)	8.0	8.0										
Combined (s)	53.3	72.7										
Intersection Summary												
Intersection Capacity Utilization	85.7%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	707	10	98	927	7	77
Future Vol, veh/h	707	10	98	927	7	77
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	768	11	107	1008	8	84

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	773	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	842	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	838	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	28.8
HCM LOS			D

Minor Lane/Major Mvm	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	241	-	-	838	-
HCM Lane V/C Ratio	0.379	-	-	0.127	-
HCM Control Delay (s)	28.8	-	-	9.9	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.7	-	-	0.4	-

Intersection Capacity Utilization
21: 50th St W & Ave L

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷		↶	↷	↷	↶	↷	↷	
Volume (vph)	60	719	45	188	938	52	54	169	130	35	210	83	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	60	764	0	188	990	0	54	169	130	35	293	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	1586	0	1520	1587	0	1520	1600	1360	1520	1532	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	4.7	57.8	0.0	14.8	74.9	0.0	4.3	12.7	12.1	2.8	23.1	0.0	
Adj Reference Time (s)	8.7	61.8	0.0	18.8	78.9	0.0	8.3	17.5	17.0	8.0	27.1	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1586		101	1587		101	1600		101	1532		
Reference Time A (s)	71.1	57.8		222.6	74.9		63.9	12.7		41.4	23.1		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		71.1			222.6			63.9			41.4		
Adj Reference Time (s)		75.1			226.6			67.9			45.4		
Split Option													
Ref Time Combined (s)	4.7	57.8		14.8	74.9		4.3	12.7		2.8	23.1		
Ref Time Seperate (s)	4.7	54.4		14.8	70.9		4.3	12.7		2.8	16.6		
Reference Time (s)	57.8	57.8		74.9	74.9		12.7	12.7		23.1	23.1		
Adj Reference Time (s)	61.8	61.8		78.9	78.9		17.5	17.5		27.1	27.1		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	87.6		35.4										
Permitted Option (s)	226.6		67.9										
Split Option (s)	140.7		44.6										
Minimum (s)	87.6		35.4		123.0								
Right Turns													
	NBR												
Adj Reference Time (s)	17.0												
Cross Thru Ref Time (s)	61.8												
Oncoming Left Ref Time (s)	61.0												
Combined (s)	86.9												
Intersection Summary													
Intersection Capacity Utilization	102.5%		ICU Level of Service						G				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	31	865	14	123	1166	103	22	35	86	51	35	23	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		25.6			16.0			20.4			22.1		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	31	865	14	123	1269	0	22	35	86	51	58	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.94	0.85	
Saturated Flow (vph)	1520	1600	1360	1520	1581	0	1520	1600	1360	1520	1505	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.3	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	2.4	64.9	1.9	9.7	96.4	0.0	1.7	2.6	8.2	4.0	4.9	0.0	
Adj Reference Time (s)	8.0	68.9	29.6	13.7	100.4	0.0	8.0	10.5	14.1	8.0	11.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1600		101	1581		101	1600		101	1505		
Reference Time A (s)	36.7	64.9		145.7	96.4		26.1	2.6		60.4	4.9		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1505		
Reference Time B (s)	NA	NA		NA	NA		9.7	2.6		12.0	4.9		
Reference Time (s)		64.9			145.7			9.7			12.0		
Adj Reference Time (s)		68.9			149.7			15.4			17.6		
Split Option													
Ref Time Combined (s)	2.4	64.9		9.7	96.4		1.7	2.6		4.0	4.9		
Ref Time Seperate (s)	2.4	64.9		9.7	88.6		1.7	2.6		4.0	3.0		
Reference Time (s)	64.9	64.9		96.4	96.4		2.6	2.6		4.9	4.9		
Adj Reference Time (s)	68.9	68.9		100.4	100.4		10.5	10.5		11.5	11.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	108.4		19.5										
Permitted Option (s)	149.7		17.6										
Split Option (s)	169.3		22.0										
Minimum (s)	108.4		17.6		126.0								
Right Turns													
	EBR		NBR										
Adj Reference Time (s)	29.6		14.1										
Cross Thru Ref Time (s)	11.5		68.9										
Oncoming Left Ref Time (s)	3.7		8.0										
Combined (s)	54.8		91.0										
Intersection Summary													
Intersection Capacity Utilization	105.0%		ICU Level of Service				G						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
23: 40th St W & Ave L

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	70	787	13	52	1216	120	24	58	33	201	83	132	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		31.0			33.3			35.6			31.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	70	800	0	52	1216	120	24	58	33	201	83	132	
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	1596	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.5	60.2	0.0	4.1	47.9	11.2	1.9	4.3	3.6	15.9	6.2	12.3	
Adj Reference Time (s)	9.5	64.2	0.0	8.1	51.9	37.3	8.0	13.1	12.9	19.9	14.1	19.3	
Permitted Option													
Adj Saturation A (vph)	101	1596		101	1523		101	1600		101	1600		
Reference Time A (s)	82.9	60.2		61.6	47.9		28.4	4.3		238.0	6.2		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600		
Reference Time B (s)	NA	NA		NA	NA		9.9	4.3		23.9	6.2		
Reference Time (s)		82.9			61.6			9.9			23.9		
Adj Reference Time (s)		86.9			65.6			17.8			29.1		
Split Option													
Ref Time Combined (s)	5.5	60.2		4.1	47.9		1.9	4.3		15.9	6.2		
Ref Time Seperate (s)	5.5	59.2		4.1	47.9		1.9	4.3		15.9	6.2		
Reference Time (s)	60.2	60.2		47.9	47.9		4.3	4.3		15.9	15.9		
Adj Reference Time (s)	64.2	64.2		51.9	51.9		13.1	13.1		22.3	22.3		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	72.3		33.0										
Permitted Option (s)	86.9		29.1										
Split Option (s)	116.1		35.4										
Minimum (s)	72.3		29.1		101.3								
Right Turns													
	WBR		NBR		SBR								
Adj Reference Time (s)	37.3		12.9		19.3								
Cross Thru Ref Time (s)	13.1		64.2		51.9								
Oncoming Left Ref Time (s)	9.5		19.9		8.0								
Combined (s)	60.0		96.9		79.2								
Intersection Summary													
Intersection Capacity Utilization	84.4%		ICU Level of Service						E				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
24: 35th St W & Ave L

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	959	16	52	1336	40	21	28	25	25	27	70
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			23.9			25.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	37	975	0	52	1376	0	21	53	0	25	27	70
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3039	0	1520	3033	0	1520	1487	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.9	38.5	0.0	4.1	54.5	0.0	1.7	4.6	0.0	2.0	2.0	6.8
Adj Reference Time (s)	8.0	42.5	0.0	8.1	58.5	0.0	8.0	11.8	0.0	8.0	8.0	10.8
Permitted Option												
Adj Saturation A (vph)	101	1519		101	1517		101	1487		101	1600	
Reference Time A (s)	43.8	38.5		61.6	54.5		24.9	4.6		29.6	2.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1487		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.7	4.6		10.0	2.0	
Reference Time (s)		43.8			61.6			9.7			10.0	
Adj Reference Time (s)		47.8			65.6			16.1			14.0	
Split Option												
Ref Time Combined (s)	2.9	38.5		4.1	54.5		1.7	4.6		2.0	2.0	
Ref Time Seperate (s)	2.9	37.9		4.1	52.9		1.7	2.6		2.0	2.0	
Reference Time (s)	38.5	38.5		54.5	54.5		4.6	4.6		2.0	2.0	
Adj Reference Time (s)	42.5	42.5		58.5	58.5		11.8	11.8		8.0	8.0	
Summary												
Protected Option (s)	66.5		19.8									
Permitted Option (s)	65.6		16.1									
Split Option (s)	101.0		19.8									
Minimum (s)	65.6		16.1		81.7							
Right Turns												
Adj Reference Time (s)	10.8											
Cross Thru Ref Time (s)	58.5											
Oncoming Left Ref Time (s)	3.0											
Combined (s)	77.3											
Intersection Summary												
Intersection Capacity Utilization	68.1%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
25: 30th St W & Ave L

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Volume (vph)	108	822	94	179	1230	134	150	266	117	117	285	150
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	108	822	94	179	1230	134	150	266	117	117	285	150
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	8.5	32.4	8.9	14.1	48.5	12.5	11.8	10.5	11.0	9.2	11.2	13.9
Adj Reference Time (s)	12.5	39.0	39.0	18.1	52.5	37.0	15.8	18.4	18.8	13.2	18.7	21.0
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1523		101	1523	
Reference Time A (s)	127.9	32.4		212.0	48.5		177.6	10.5		138.6	11.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		127.9			212.0			177.6			138.6	
Adj Reference Time (s)		131.9			216.0			181.6			142.6	
Split Option												
Ref Time Combined (s)	8.5	32.4		14.1	48.5		11.8	10.5		9.2	11.2	
Ref Time Seperate (s)	8.5	32.4		14.1	48.5		11.8	10.5		9.2	11.2	
Reference Time (s)	32.4	32.4		48.5	48.5		11.8	11.8		11.2	11.2	
Adj Reference Time (s)	39.0	39.0		52.5	52.5		19.5	19.5		18.7	18.7	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	65.0		34.6									
Permitted Option (s)	216.0		181.6									
Split Option (s)	91.5		38.3									
Minimum (s)	65.0		34.6		99.6							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	39.0		37.0		18.8		21.0					
Cross Thru Ref Time (s)	18.7		18.4		39.0		52.5					
Oncoming Left Ref Time (s)	18.1		12.5		13.2		15.8					
Combined (s)	75.9		67.9		71.0		89.3					

Intersection Summary

Intersection Capacity Utilization 83.0% ICU Level of Service E
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
26: 25th St W & Ave L

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕		↘	↑	↗
Volume (vph)	69	1000	4	4	1493	67	4	1	5	50	3	105
Pedestrians	5		5	5		5	5		5	5		5
Ped Button	No				No		Yes				Yes	
Pedestrian Timing (s)	25.3				22.4		16.0				30.7	
Free Right			No				No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	69	1000	4	4	1493	67	0	10	0	50	3	105
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.91	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1450	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00				1.00		0.15				0.15	
Protected Option Allowed	Yes				Yes		No				No	
Reference Time (s)	5.4	39.4	1.0	0.3	58.8	6.6			0.0			9.9
Adj Reference Time (s)	9.4	43.4	31.0	8.0	62.8	26.4			0.0			17.1
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		0	201		709	1600	
Reference Time A (s)	81.7	39.4		4.7	58.8		0.0	6.3		8.5	0.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.3	9.1		11.9	0.2	
Reference Time (s)		81.7			58.8			6.3			8.5	
Adj Reference Time (s)		85.7			62.8			10.3			15.9	
Split Option												
Ref Time Combined (s)	5.4	39.4		0.3	58.8		0.0	1.1		3.9	0.2	
Ref Time Seperate (s)	5.4	39.4		0.3	58.8		0.3	0.4		3.9	0.2	
Reference Time (s)	39.4	39.4		58.8	58.8		1.1	1.1		3.9	3.9	
Adj Reference Time (s)	43.4	43.4		62.8	62.8		8.0	8.0		12.1	12.1	
Summary												
Protected Option (s)	72.3		NA									
Permitted Option (s)	85.7		15.9									
Split Option (s)	106.2		20.1									
Minimum (s)	72.3		15.9		88.1							
Right Turns												
Adj Reference Time (s)	31.0	26.4	17.1									
Cross Thru Ref Time (s)	12.1	8.0	62.8									
Oncoming Left Ref Time (s)	9.0	9.4	8.0									
Combined (s)	51.1	43.8	87.9									

Intersection Summary

Intersection Capacity Utilization 73.4% ICU Level of Service D
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
27: 20th St W & Ave L

PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑	↗	
Volume (vph)	115	889	57	62	1326	123	74	172	38	77	190	163	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		28.4			36.7			29.3			33.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	115	889	57	62	1326	123	74	210	0	77	190	163	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2964	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	9.1	35.0	5.7	4.9	36.5	11.5	5.8	8.6	0.0	6.1	14.3	15.0	
Adj Reference Time (s)	13.1	39.0	34.1	8.9	40.7	40.7	9.8	15.8	0.0	10.1	21.1	21.8	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1453		101	1482		101	1600		
Reference Time A (s)	136.2	35.0		73.4	36.5		87.6	8.6		91.2	14.3		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		136.2			73.4			87.6			91.2		
Adj Reference Time (s)		140.2			77.4			91.6			95.2		
Split Option													
Ref Time Combined (s)	9.1	35.0		4.9	36.5		5.8	8.6		6.1	14.3		
Ref Time Seperate (s)	9.1	35.0		4.9	36.5		5.8	7.1		6.1	14.3		
Reference Time (s)	35.0	35.0		36.5	36.5		8.6	8.6		14.3	14.3		
Adj Reference Time (s)	39.0	39.0		40.7	40.7		15.8	15.8		21.1	21.1		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	53.8		31.0										
Permitted Option (s)	140.2		95.2										
Split Option (s)	79.7		36.9										
Minimum (s)	53.8		31.0		84.7								
Right Turns													
	EBR		WBR		SBR								
Adj Reference Time (s)	34.1		40.7		21.8								
Cross Thru Ref Time (s)	21.1		15.8		40.7								
Oncoming Left Ref Time (s)	9.9		13.1		9.8								
Combined (s)	64.1		69.6		72.3								
Intersection Summary													
Intersection Capacity Utilization	70.6%				ICU Level of Service				C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
28: 15th St W & Ave L

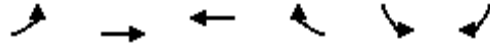
PM 2016+Project
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑	↗		↕		↗	↑	↗
Volume (vph)	76	944	0	9	1483	270	0	1	4	244	5	100
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	76	944	0	9	1483	270	0	5	0	244	5	100
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.88	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	0	1520	4358	1360	0	1408	0	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	6.0	26.0	0.0	0.7	40.8	23.8			0.0			8.8
Adj Reference Time (s)	10.0	30.0	0.0	8.0	44.8	27.8			0.0			12.8
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		0	1408		101	1600	
Reference Time A (s)	90.0	26.0		10.7	40.8		0.0	0.4		288.9	0.4	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1408		0	1600	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.4		27.3	0.4	
Reference Time (s)		90.0			40.8			0.4			27.3	
Adj Reference Time (s)		94.0			44.8			8.0			31.3	
Split Option												
Ref Time Combined (s)	6.0	26.0		0.7	40.8		0.0	0.4		19.3	0.4	
Ref Time Seperate (s)	6.0	26.0		0.7	40.8		0.0	0.1		19.3	0.4	
Reference Time (s)	26.0	26.0		40.8	40.8		0.4	0.4		19.3	19.3	
Adj Reference Time (s)	30.0	30.0		44.8	44.8		8.0	8.0		23.3	23.3	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	54.8		NA									
Permitted Option (s)	94.0		31.3									
Split Option (s)	74.8		31.3									
Minimum (s)	54.8		31.3		86.1							
Right Turns												
	WBR		SBR									
Adj Reference Time (s)	27.8		12.8									
Cross Thru Ref Time (s)	8.0		44.8									
Oncoming Left Ref Time (s)	0.0		8.0									
Combined (s)	45.8		65.7									
Intersection Summary												
Intersection Capacity Utilization	71.7%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

PM 2016+Project
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	647	1611	0	267	149
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	647	1611	0	416	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4358	0	4447	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	17.8	44.4	0.0		0.0
Adj Reference Time (s)	0.0	21.8	48.4	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		148	
Reference Time A (s)	0.0	17.8	44.4		168.6	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		17.8	44.4			
Adj Reference Time (s)		21.8	48.4			
Split Option						
Ref Time Combined (s)	0.0	17.8	44.4		11.5	
Ref Time Seperate (s)	0.0	17.8	44.4		7.4	
Reference Time (s)	17.8	17.8	44.4		11.5	
Adj Reference Time (s)	21.8	21.8	48.4		16.8	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	48.4		NA			
Permitted Option (s)	48.4		Err			
Split Option (s)	70.2		16.8			
Minimum (s)	48.4		16.8	65.2		

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2016+Project
5/2/2017























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	820	0	0	1388	747	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	820	0	0	1388	747	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	1520	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	22.6	0.6	0.0	28.7		0.0
Adj Reference Time (s)	26.6	9.7	0.0	32.7		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	101	
Reference Time A (s)	22.6		0.0	28.7	884.6	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	22.6			28.7		
Adj Reference Time (s)	26.6			32.7		
Split Option						
Ref Time Combined (s)	22.6		0.0	28.7	59.0	
Ref Time Seperate (s)	22.6		0.0	28.7	59.0	
Reference Time (s)	22.6		28.7	28.7	59.0	
Adj Reference Time (s)	26.6		32.7	32.7	63.0	
Summary						
	EB	WB	NB	Combined		
Protected Option (s)	32.7		NA			
Permitted Option (s)	32.7		Err			
Split Option (s)	59.2		63.0			
Minimum (s)	32.7		63.0	95.6		
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	79.7%		ICU Level of Service		D	
Reference Times and Phasing Options do not represent an optimized timing plan.						

PM Existing+Project – with Mitigation

























Intersection Capacity Utilization
15: 60th St W & Ave K-8

PM 2016+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	192	0	174	4	0	4	231	368	2	8	413	248
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	192	174	0	8	0	231	370	0	8	413	248
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.90	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	1360	0	1443	0	1520	3044	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			16.0			0.0	18.2	14.6	0.0	0.6	16.3	22.5
Adj Reference Time (s)			20.8			0.0	22.7	22.5	0.0	8.5	22.5	27.0
Permitted Option												
Adj Saturation A (vph)	0	861		0	165		101	1522		101	1523	
Reference Time A (s)	0.0	26.7		0.0	6.1		273.6	14.6		9.5	16.3	
Adj Saturation B (vph)	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	23.2	23.2		8.3	9.0		NA	NA		NA	NA	
Reference Time (s)		23.2			6.1			273.6			16.3	
Adj Reference Time (s)		27.7			12.5			278.1			22.5	
Split Option												
Ref Time Combined (s)	0.0	15.2		0.0	1.0		18.2	14.6		0.6	16.3	
Ref Time Seperate (s)	15.2	0.0		0.3	0.3		18.2	14.5		0.6	16.3	
Reference Time (s)	15.2	15.2		1.0	1.0		18.2	18.2		16.3	16.3	
Adj Reference Time (s)	20.1	20.1		10.6	10.6		22.7	22.7		22.5	22.5	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	NA		45.2									
Permitted Option (s)	27.7		278.1									
Split Option (s)	30.7		45.2									
Minimum (s)	27.7		45.2		72.9							
Right Turns												
	EBR		SBR									
Adj Reference Time (s)	20.8		27.0									
Cross Thru Ref Time (s)	22.5		10.6									
Oncoming Left Ref Time (s)	10.6		22.7									
Combined (s)	54.0		60.4									
Intersection Summary												
Intersection Capacity Utilization	60.7%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
19: 60th St W & Ave L

PM 2016+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	421	51	92	585	293	58	272	91	213	306	65
Pedestrians			5			5			5			5
Ped Button		Yes			Yes			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	59	421	51	92	585	293	58	272	91	213	371	0
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85
Saturated Flow (vph)	4612	1600	1360	4612	1600	1360	1520	1600	1360	2952	1558	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	1.5	31.6	5.1	2.4	43.9	26.5	4.6	20.4	8.7	8.7	28.7	0.0
Adj Reference Time (s)	8.0	35.6	12.6	8.0	47.9	30.5	8.6	27.3	19.4	12.7	32.7	0.0
Permitted Option												
Adj Saturation A (vph)	154	1600		154	1600		101	1600		98	1558	
Reference Time A (s)	23.0	31.6		35.9	43.9		68.7	20.4		129.9	28.7	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		31.6			43.9			68.7			129.9	
Adj Reference Time (s)		35.6			47.9			72.7			133.9	
Split Option												
Ref Time Combined (s)	1.5	31.6		2.4	43.9		4.6	20.4		8.7	28.7	
Ref Time Seperate (s)	1.5	31.6		2.4	43.9		4.6	20.4		8.7	23.7	
Reference Time (s)	31.6	31.6		43.9	43.9		20.4	20.4		28.7	28.7	
Adj Reference Time (s)	35.6	35.6		47.9	47.9		27.3	27.3		32.7	32.7	
Summary												
Protected Option (s)	55.9		41.3									
Permitted Option (s)	47.9		133.9									
Split Option (s)	83.5		60.0									
Minimum (s)	47.9		41.3		89.1							
Right Turns												
Adj Reference Time (s)	12.6	30.5	19.4									
Cross Thru Ref Time (s)	32.7	27.3	35.6									
Oncoming Left Ref Time (s)	8.0	8.0	12.7									
Combined (s)	53.3	65.8	67.7									
Intersection Summary												
Intersection Capacity Utilization	74.3%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
21: 50th St W & Ave L

PM 2016+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗	↖
Volume (vph)	60	719	45	188	938	52	54	169	130	35	210	83
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		20.1			19.9			18.1			18.4	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	60	764	0	188	990	0	54	169	130	35	293	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.96	0.85
Saturated Flow (vph)	1520	3019	0	1520	3022	0	1520	1600	1360	1520	1532	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.7	30.4	0.0	14.8	39.3	0.0	4.3	12.7	12.1	2.8	23.1	0.0
Adj Reference Time (s)	8.7	34.4	0.0	18.8	43.3	0.0	8.3	17.5	17.0	8.0	27.1	0.0
Permitted Option												
Adj Saturation A (vph)	101	1510		101	1511		101	1600		101	1532	
Reference Time A (s)	71.1	30.4		222.6	39.3		63.9	12.7		41.4	23.1	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		71.1			222.6			63.9			41.4	
Adj Reference Time (s)		75.1			226.6			67.9			45.4	
Split Option												
Ref Time Combined (s)	4.7	30.4		14.8	39.3		4.3	12.7		2.8	23.1	
Ref Time Seperate (s)	4.7	28.6		14.8	37.3		4.3	12.7		2.8	16.6	
Reference Time (s)	30.4	30.4		39.3	39.3		12.7	12.7		23.1	23.1	
Adj Reference Time (s)	34.4	34.4		43.3	43.3		17.5	17.5		27.1	27.1	
Summary												
Protected Option (s)	53.2		35.4									
Permitted Option (s)	226.6		67.9									
Split Option (s)	77.7		44.6									
Minimum (s)	53.2		35.4		88.6							
Right Turns												
Adj Reference Time (s)	17.0											
Cross Thru Ref Time (s)	34.4											
Oncoming Left Ref Time (s)	3.0											
Combined (s)	59.4											
Intersection Summary												
Intersection Capacity Utilization	73.9%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
22: 45th St W & Ave L

PM 2016+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗	↑↑	↗	↗	↑↑		↗	↑	↗	↗	↗	↗	
Volume (vph)	31	865	14	123	1166	103	22	35	86	51	35	23	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		25.6			16.0			20.4			22.1		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	31	865	14	123	1269	0	22	35	86	51	58	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.94	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	3009	0	1520	1600	1360	1520	1505	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.3	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	2.4	34.1	1.9	9.7	50.7	0.0	1.7	2.6	8.2	4.0	4.9	0.0	
Adj Reference Time (s)	8.0	38.1	29.6	13.7	54.7	0.0	8.0	10.5	14.1	8.0	11.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1505		101	1600		101	1505		
Reference Time A (s)	36.7	34.1		145.7	50.7		26.1	2.6		60.4	4.9		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1505		
Reference Time B (s)	NA	NA		NA	NA		9.7	2.6		12.0	4.9		
Reference Time (s)		36.7			145.7			9.7			12.0		
Adj Reference Time (s)		40.7			149.7			15.4			17.6		
Split Option													
Ref Time Combined (s)	2.4	34.1		9.7	50.7		1.7	2.6		4.0	4.9		
Ref Time Seperate (s)	2.4	34.1		9.7	46.5		1.7	2.6		4.0	3.0		
Reference Time (s)	34.1	34.1		50.7	50.7		2.6	2.6		4.9	4.9		
Adj Reference Time (s)	38.1	38.1		54.7	54.7		10.5	10.5		11.5	11.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	62.7		19.5										
Permitted Option (s)	149.7		17.6										
Split Option (s)	92.7		22.0										
Minimum (s)	62.7		17.6		80.2								
Right Turns													
	EBR		NBR										
Adj Reference Time (s)	29.6		14.1										
Cross Thru Ref Time (s)	11.5		38.1										
Oncoming Left Ref Time (s)	38.1		8.0										
Combined (s)	54.8		60.2										
Intersection Summary													
Intersection Capacity Utilization	66.9%		ICU Level of Service				C						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
23: 40th St W & Ave L

PM 2016+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗	↕		↖	↕	↗	↖	↕	↗	↖	↕	↗	
Volume (vph)	70	787	13	52	1216	120	24	58	33	201	83	132	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		31.0			33.3			35.6			31.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	70	800	0	52	1216	120	24	58	33	201	83	132	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3039	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.5	31.6	0.0	4.1	47.9	11.2	1.9	4.3	3.6	15.9	6.2	12.3	
Adj Reference Time (s)	9.5	35.6	0.0	8.1	51.9	37.3	8.0	13.1	12.9	19.9	14.1	19.3	
Permitted Option													
Adj Saturation A (vph)	101	1519		101	1523		101	1600		101	1600		
Reference Time A (s)	82.9	31.6		61.6	47.9		28.4	4.3		238.0	6.2		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600		
Reference Time B (s)	NA	NA		NA	NA		9.9	4.3		23.9	6.2		
Reference Time (s)		82.9			61.6			9.9			23.9		
Adj Reference Time (s)		86.9			65.6			17.8			29.1		
Split Option													
Ref Time Combined (s)	5.5	31.6		4.1	47.9		1.9	4.3		15.9	6.2		
Ref Time Seperate (s)	5.5	31.1		4.1	47.9		1.9	4.3		15.9	6.2		
Reference Time (s)	31.6	31.6		47.9	47.9		4.3	4.3		15.9	15.9		
Adj Reference Time (s)	35.6	35.6		51.9	51.9		13.1	13.1		22.3	22.3		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	61.4		33.0										
Permitted Option (s)	86.9		29.1										
Split Option (s)	87.5		35.4										
Minimum (s)	61.4		29.1		90.5								
Right Turns													
	WBR		NBR		SBR								
Adj Reference Time (s)	37.3		12.9		19.3								
Cross Thru Ref Time (s)	13.1		35.6		51.9								
Oncoming Left Ref Time (s)	9.5		19.9		8.0								
Combined (s)	60.0		68.3		79.2								
Intersection Summary													
Intersection Capacity Utilization	75.4%		ICU Level of Service						D				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
24: 35th St W & Ave L































PM 2016+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	37	959	16	52	1336	40	21	28	25	25	27	70	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		16.0			23.9			25.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	37	975	0	52	1376	0	21	53	0	25	27	70	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3039	0	1520	3033	0	1520	1487	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	2.9	38.5	0.0	4.1	54.5	0.0	1.7	4.6	0.0	2.0	2.0	6.8	
Adj Reference Time (s)	8.0	42.5	0.0	8.1	58.5	0.0	8.0	11.8	0.0	8.0	8.0	10.8	
Permitted Option													
Adj Saturation A (vph)	101	1519		101	1517		101	1487		101	1600		
Reference Time A (s)	43.8	38.5		61.6	54.5		24.9	4.6		29.6	2.0		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1487		0	1600		
Reference Time B (s)	NA	NA		NA	NA		9.7	4.6		10.0	2.0		
Reference Time (s)		43.8			61.6			9.7			10.0		
Adj Reference Time (s)		47.8			65.6			16.1			14.0		
Split Option													
Ref Time Combined (s)	2.9	38.5		4.1	54.5		1.7	4.6		2.0	2.0		
Ref Time Seperate (s)	2.9	37.9		4.1	52.9		1.7	2.6		2.0	2.0		
Reference Time (s)	38.5	38.5		54.5	54.5		4.6	4.6		2.0	2.0		
Adj Reference Time (s)	42.5	42.5		58.5	58.5		11.8	11.8		8.0	8.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	66.5		19.8										
Permitted Option (s)	65.6		16.1										
Split Option (s)	101.0		19.8										
Minimum (s)	65.6		16.1		81.7								
Right Turns													
	SBR												
Adj Reference Time (s)	10.8												
Cross Thru Ref Time (s)	58.5												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	77.3												
Intersection Summary													
Intersection Capacity Utilization	68.1%		ICU Level of Service						C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
25: 30th St W & Ave L

PM 2016+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	108	822	94	179	1230	134	150	266	117	117	285	150
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	108	822	94	179	1230	134	150	266	117	117	285	150
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	8.5	22.6	8.9	14.1	33.9	12.5	11.8	10.5	11.0	9.2	11.2	13.9
Adj Reference Time (s)	12.5	39.0	39.0	18.1	37.9	37.0	15.8	18.4	18.8	13.2	18.7	21.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1523		101	1523	
Reference Time A (s)	127.9	22.6		212.0	33.9		177.6	10.5		138.6	11.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		127.9			212.0			177.6			138.6	
Adj Reference Time (s)		131.9			216.0			181.6			142.6	
Split Option												
Ref Time Combined (s)	8.5	22.6		14.1	33.9		11.8	10.5		9.2	11.2	
Ref Time Seperate (s)	8.5	22.6		14.1	33.9		11.8	10.5		9.2	11.2	
Reference Time (s)	22.6	22.6		33.9	33.9		11.8	11.8		11.2	11.2	
Adj Reference Time (s)	39.0	39.0		37.9	37.9		19.5	19.5		18.7	18.7	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	57.1		34.6									
Permitted Option (s)	216.0		181.6									
Split Option (s)	76.9		38.3									
Minimum (s)	57.1		34.6		91.7							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	39.0		37.0		18.8		21.0					
Cross Thru Ref Time (s)	18.7		18.4		39.0		37.9					
Oncoming Left Ref Time (s)	18.1		12.5		13.2		15.8					
Combined (s)	75.9		67.9		71.0		74.7					

Intersection Summary

Intersection Capacity Utilization 76.4% ICU Level of Service D
Reference Times and Phasing Options do not represent an optimized timing plan.

PM 2021

Intersection

Intersection Delay, s/veh 8.7
Intersection LOS A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	1	123	31	0	42	74	7	0	14	43	33
Future Vol, veh/h	0	1	123	31	0	42	74	7	0	14	43	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	134	34	0	46	80	8	0	15	47	36
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.8	8.8	8.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	1%	34%	2%
Vol Thru, %	48%	79%	60%	98%
Vol Right, %	37%	20%	6%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	155	123	124
LT Vol	14	1	42	2
Through Vol	43	123	74	121
RT Vol	33	31	7	1
Lane Flow Rate	98	168	134	135
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.212	0.175	0.178
Departure Headway (Hd)	4.618	4.531	4.719	4.755
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	774	790	759	753
Service Time	2.661	2.566	2.756	2.795
HCM Lane V/C Ratio	0.127	0.213	0.177	0.179
HCM Control Delay	8.3	8.8	8.8	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.8	0.6	0.6

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	2	121	1
Future Vol, veh/h	0	2	121	1
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	2	132	1
Number of Lanes	0	0	1	0

Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.8
HCM LOS	A

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↑↑	↗	↗↘	↑	↗	↗	↑↑		↗	↑↑	
Volume (vph)	20	182	32	93	163	73	52	214	87	62	297	39
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		30.7			28.7			27.3			27.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	20	182	32	93	163	73	52	301	0	62	336	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	0.98	0.85
Saturated Flow (vph)	4612	3046	1360	4612	1600	1360	1520	2914	0	1520	2993	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.5	7.2	3.5	2.4	12.2	7.1	4.1	12.6	0.0	4.9	13.5	0.0
Adj Reference Time (s)	8.0	34.7	34.7	8.0	32.7	32.7	8.1	18.8	0.0	8.9	19.7	0.0
Permitted Option												
Adj Saturation A (vph)	154	1523		154	1600		101	1457		101	1497	
Reference Time A (s)	7.8	7.2		36.3	12.2		61.6	12.6		73.4	13.5	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		7.8			36.3			61.6			73.4	
Adj Reference Time (s)		34.7			40.3			65.6			77.4	
Split Option												
Ref Time Combined (s)	0.5	7.2		2.4	12.2		4.1	12.6		4.9	13.5	
Ref Time Seperate (s)	0.5	7.2		2.4	12.2		4.1	9.0		4.9	12.0	
Reference Time (s)	7.2	7.2		12.2	12.2		12.6	12.6		13.5	13.5	
Adj Reference Time (s)	34.7	34.7		32.7	32.7		18.8	18.8		19.7	19.7	
Summary												
Protected Option (s)	42.7		27.8									
Permitted Option (s)	40.3		77.4									
Split Option (s)	67.4		38.5									
Minimum (s)	40.3		27.8		68.1							
Right Turns												
Adj Reference Time (s)	34.7		32.7									
Cross Thru Ref Time (s)	19.7		18.8									
Oncoming Left Ref Time (s)	8.0		8.0									
Combined (s)	62.4		59.5									
Intersection Summary												
Intersection Capacity Utilization	56.7%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Intersection Delay, s/veh 47.6
Intersection LOS E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	22	306	26	0	81	284	12	0	40	169	72
Future Vol, veh/h	0	22	306	26	0	81	284	12	0	40	169	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	24	333	28	0	88	309	13	0	43	184	78
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	51.4	61.2	33.6
HCM LOS	F	F	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	6%	21%	5%
Vol Thru, %	60%	86%	75%	82%
Vol Right, %	26%	7%	3%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	281	354	377	310
LT Vol	40	22	81	14
Through Vol	169	306	284	255
RT Vol	72	26	12	41
Lane Flow Rate	305	385	410	337
Geometry Grp	1	1	1	1
Degree of Util (X)	0.747	0.897	0.949	0.805
Departure Headway (Hd)	8.81	8.508	8.457	8.725
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	412	427	430	418
Service Time	6.81	6.508	6.457	6.725
HCM Lane V/C Ratio	0.74	0.902	0.953	0.806
HCM Control Delay	33.6	51.4	61.2	39.2
HCM Lane LOS	D	F	F	E
HCM 95th-tile Q	6	9.5	11	7.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	14	255	41
Future Vol, veh/h	0	14	255	41
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	15	277	45
Number of Lanes	0	0	1	0

Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	39.2
HCM LOS	E

Lane

Intersection Capacity Utilization
4: 45th St W & Ave K

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	7	372	20	42	388	44	25	87	36	35	75	19
Pedestrians			5			5						5
Ped Button		No			No						Yes	
Pedestrian Timing (s)		17.8			21.8						25.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	7	372	20	42	388	44	25	123	0	35	75	19
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1530	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.6	27.9	2.4	3.3	29.1	4.5	2.0	9.6	0.0	2.8	5.6	2.3
Adj Reference Time (s)	8.0	31.9	21.8	8.0	33.1	25.8	8.0	13.6	0.0	8.0	12.7	11.3
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		101	1530		101	1600	
Reference Time A (s)	8.3	27.9		49.7	29.1		29.6	9.6		41.4	5.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1530		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		10.0	9.6		NA	NA	
Reference Time (s)		27.9			49.7			10.0			41.4	
Adj Reference Time (s)		31.9			53.7			14.0			45.4	
Split Option												
Ref Time Combined (s)	0.6	27.9		3.3	29.1		2.0	9.6		2.8	5.6	
Ref Time Seperate (s)	0.6	27.9		3.3	29.1		2.0	6.8		2.8	5.6	
Reference Time (s)	27.9	27.9		29.1	29.1		9.6	9.6		5.6	5.6	
Adj Reference Time (s)	31.9	31.9		33.1	33.1		13.6	13.6		12.7	12.7	
Summary												
Protected Option (s)	41.1		21.6									
Permitted Option (s)	53.7		45.4									
Split Option (s)	65.0		26.3									
Minimum (s)	41.1		21.6		62.7							
Right Turns												
Adj Reference Time (s)	21.8	25.8	11.3									
Cross Thru Ref Time (s)	12.7	13.6	33.1									
Oncoming Left Ref Time (s)	8.0	8.0	8.0									
Combined (s)	42.5	47.4	52.4									
Intersection Summary												
Intersection Capacity Utilization	52.3%		ICU Level of Service		A							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
5: 40th St W & Ave K

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	25	396	39	109	443	56	43	179	74	44	273	24	
Pedestrians			5			5			5			5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		21.9			23.6			27.9			17.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	25	435	0	109	443	56	43	179	74	44	297	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.99	0.85	
Saturated Flow (vph)	1520	3005	0	1520	1600	1360	1520	3046	1360	1520	1581	0	
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	2.0	17.4	0.0	8.6	33.2	5.6	3.4	7.1	7.2	3.5	22.6	0.0	
Adj Reference Time (s)	8.0	25.9	0.0	12.6	37.2	27.6	8.0	14.3	14.4	8.0	26.6	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1503		101	1600		101	1523		101	1581		
Reference Time A (s)	29.6	17.4		129.1	33.2		50.9	7.1		52.1	22.6		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		29.6			129.1			50.9			52.1		
Adj Reference Time (s)		33.6			133.1			54.9			56.1		
Split Option													
Ref Time Combined (s)	2.0	17.4		8.6	33.2		3.4	7.1		3.5	22.6		
Ref Time Seperate (s)	2.0	15.9		8.6	33.2		3.4	7.1		3.5	20.8		
Reference Time (s)	17.4	17.4		33.2	33.2		7.1	7.1		22.6	22.6		
Adj Reference Time (s)	25.9	25.9		37.2	37.2		14.3	14.3		26.6	26.6		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	45.2		34.6										
Permitted Option (s)	133.1		56.1										
Split Option (s)	63.1		40.9										
Minimum (s)	45.2		34.6		79.8								
Right Turns													
	WBR		NBR										
Adj Reference Time (s)	27.6		14.4										
Cross Thru Ref Time (s)	14.3		25.9										
Oncoming Left Ref Time (s)	8.0		8.0										
Combined (s)	49.9		48.3										
Intersection Summary													
Intersection Capacity Utilization	66.5%		ICU Level of Service						C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
6: 30th St W & Ave K

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↓		↔↔	↑↑↓		↔↔	↑↑	↔	↔↔	↑↑	↔
Volume (vph)	139	552	77	169	540	192	153	501	123	243	611	107
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.7			26.1			32.1			30.1	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	139	629	0	169	732	0	153	501	123	243	611	107
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.96	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	4278	0	4612	4187	0	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.6	17.7	0.0	4.4	21.1	0.0	4.0	19.7	11.5	6.3	24.1	10.1
Adj Reference Time (s)	8.0	32.7	0.0	8.4	30.1	0.0	8.0	25.6	18.7	10.3	29.0	17.2
Permitted Option												
Adj Saturation A (vph)	154	1426		154	1396		154	1523		154	1523	
Reference Time A (s)	54.2	17.7		66.0	21.1		59.7	19.7		94.8	24.1	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		54.2			66.0			59.7			94.8	
Adj Reference Time (s)		58.2			70.0			63.7			98.8	
Split Option												
Ref Time Combined (s)	3.6	17.7		4.4	21.1		4.0	19.7		6.3	24.1	
Ref Time Seperate (s)	3.6	15.6		4.4	15.6		4.0	19.7		6.3	24.1	
Reference Time (s)	17.7	17.7		21.1	21.1		19.7	19.7		24.1	24.1	
Adj Reference Time (s)	32.7	32.7		30.1	30.1		25.6	25.6		29.0	29.0	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	41.1		37.0									
Permitted Option (s)	70.0		98.8									
Split Option (s)	62.8		54.6									
Minimum (s)	41.1		37.0		78.1							
Right Turns												
	NBR		SBR									
Adj Reference Time (s)	18.7		17.2									
Cross Thru Ref Time (s)	32.7		30.1									
Oncoming Left Ref Time (s)	10.3		8.0									
Combined (s)	61.7		55.3									
Intersection Summary												
Intersection Capacity Utilization	65.1%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
7: 25th St W & Ave K

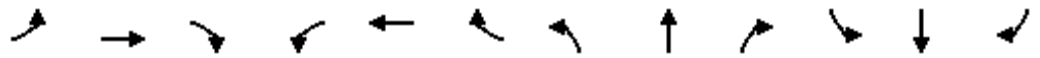
PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷	
Volume (vph)	45	850	20	61	889	96	12	120	43	77	136	47	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		24.4			26.7			25.3			27.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	45	870	0	61	889	96	12	120	43	77	136	47	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3036	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.6	34.4	0.0	4.8	35.0	9.1	0.9	9.0	4.4	6.1	10.2	4.8	
Adj Reference Time (s)	8.0	38.4	0.0	8.8	39.0	30.7	8.0	15.5	11.6	10.1	16.9	12.3	
Permitted Option													
Adj Saturation A (vph)	101	1518		101	1523		101	1600		101	1600		
Reference Time A (s)	53.3	34.4		72.2	35.0		14.2	9.0		91.2	10.2		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		0	1600		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		14.1	10.2		
Reference Time (s)		53.3			72.2			14.2			14.1		
Adj Reference Time (s)		57.3			76.2			19.9			20.2		
Split Option													
Ref Time Combined (s)	3.6	34.4		4.8	35.0		0.9	9.0		6.1	10.2		
Ref Time Seperate (s)	3.6	33.6		4.8	35.0		0.9	9.0		6.1	10.2		
Reference Time (s)	34.4	34.4		35.0	35.0		9.0	9.0		10.2	10.2		
Adj Reference Time (s)	38.4	38.4		39.0	39.0		15.5	15.5		16.9	16.9		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	47.2		25.6										
Permitted Option (s)	76.2		20.2										
Split Option (s)	77.4		32.4										
Minimum (s)	47.2		20.2		67.4								
Right Turns													
	WBR		NBR		SBR								
Adj Reference Time (s)	30.7		11.6		12.3								
Cross Thru Ref Time (s)	15.5		38.4		39.0								
Oncoming Left Ref Time (s)	8.0		10.1		8.0								
Combined (s)	54.2		60.1		59.3								
Intersection Summary													
Intersection Capacity Utilization	56.1%		ICU Level of Service						B				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
8: 20th St W & Ave K

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘↗	↑↗		↘↗	↑↑↑		
Volume (vph)	169	881	55	201	924	138	74	274	103	203	418	107	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		30.4			31.0			29.9			33.3		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	169	881	55	201	1062	0	74	377	0	203	525	0	
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.97	0.85	
Saturated Flow (vph)	1520	4358	1360	1520	4273	0	4612	2922	0	4612	4225	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	13.3	24.3	5.5	15.9	29.9	0.0	1.9	15.7	0.0	5.3	15.0	0.0	
Adj Reference Time (s)	17.3	34.4	34.4	19.9	35.0	0.0	8.0	21.8	0.0	9.3	21.8	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1453		101	1424		154	1461		154	1408		
Reference Time A (s)	200.1	24.3		238.0	29.9		28.9	15.7		79.2	15.0		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		200.1			238.0			28.9			79.2		
Adj Reference Time (s)		204.1			242.0			33.0			83.2		
Split Option													
Ref Time Combined (s)	13.3	24.3		15.9	29.9		1.9	15.7		5.3	15.0		
Ref Time Seperate (s)	13.3	24.3		15.9	26.0		1.9	11.4		5.3	12.0		
Reference Time (s)	24.3	24.3		29.9	29.9		15.7	15.7		15.0	15.0		
Adj Reference Time (s)	34.4	34.4		35.0	35.0		21.8	21.8		21.8	21.8		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	54.3		31.1										
Permitted Option (s)	242.0		83.2										
Split Option (s)	69.4		43.7										
Minimum (s)	54.3		31.1		85.4								
Right Turns													
	EBR												
Adj Reference Time (s)	34.4												
Cross Thru Ref Time (s)	21.8												
Oncoming Left Ref Time (s)	29.9												
Combined (s)	76.1												
Intersection Summary													
Intersection Capacity Utilization	71.2%		ICU Level of Service						C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
9: 17th St W & Ave K

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷↷↷		↶	↷↷↷		↶	↷	↷	↶	↷	↷
Volume (vph)	68	1136	79	174	1227	190	47	78	153	215	62	61
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	68	1215	0	174	1417	0	47	78	153	215	62	61
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4316	0	1520	4271	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.4	33.8	0.0	13.7	39.8	0.0	3.7	5.8	13.5	17.0	4.7	5.4
Adj Reference Time (s)	9.4	37.8	0.0	17.7	43.8	0.0	8.0	9.8	17.5	21.0	8.7	9.4
Permitted Option												
Adj Saturation A (vph)	101	1439		101	1424		101	1600		101	1600	
Reference Time A (s)	80.5	33.8		206.1	39.8		55.7	5.8		254.6	4.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		11.7	5.8		25.0	4.7	
Reference Time (s)		80.5			206.1			11.7			25.0	
Adj Reference Time (s)		84.5			210.1			15.7			29.0	
Split Option												
Ref Time Combined (s)	5.4	33.8		13.7	39.8		3.7	5.8		17.0	4.7	
Ref Time Seperate (s)	5.4	31.6		13.7	34.5		3.7	5.8		17.0	4.7	
Reference Time (s)	33.8	33.8		39.8	39.8		5.8	5.8		17.0	17.0	
Adj Reference Time (s)	37.8	37.8		43.8	43.8		9.8	9.8		21.0	21.0	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	55.5		30.8									
Permitted Option (s)	210.1		29.0									
Split Option (s)	81.6		30.8									
Minimum (s)	55.5		29.0		84.5							
Right Turns	NBR	SBR										
Adj Reference Time (s)	17.5	9.4										
Cross Thru Ref Time (s)	37.8	43.8										
Oncoming Left Ref Time (s)	17.0	8.0										
Combined (s)	76.3	61.2										

Intersection Summary

Intersection Capacity Utilization 70.4% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

PM 2021
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1085	1358	513	242	253
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1085	1871	0	495	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.90	0.85
Saturated Flow (vph)	0	4358	4179	0	4373	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	29.9	53.9	0.0		0.0
Adj Reference Time (s)	0.0	33.9	57.9	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1393		146	
Reference Time A (s)	0.0	29.9	53.9		204.1	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		29.9	53.9			
Adj Reference Time (s)		33.9	57.9			
Split Option						
Ref Time Combined (s)	0.0	29.9	53.9		13.9	
Ref Time Seperate (s)	0.0	29.9	39.2		7.0	
Reference Time (s)	29.9	29.9	53.9		13.9	
Adj Reference Time (s)	33.9	33.9	57.9		19.5	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	57.9		NA			
Permitted Option (s)	57.9		Err			
Split Option (s)	91.8		19.5			
Minimum (s)	57.9		19.5	77.4		

Right Turns

Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary

Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↕↗↘			↕↗↘	↗	↘	↕	↗	↘	↕	↗
Volume (vph)	181	1053	85	0	1160	246	371	329	416	423	6	492
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	181	1138	0	0	1160	246	371	329	416	0	429	492
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4310	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.7	31.7	0.0	0.0	31.9	22.3			37.3			44.1
Adj Reference Time (s)	8.7	35.7	0.0	0.0	35.9	33.3			41.3			48.1
Permitted Option												
Adj Saturation A (vph)	154	1437		0	1453		101	1600		0	205	
Reference Time A (s)	70.6	31.7		0.0	31.9		439.3	24.7		0.0	251.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		37.3	24.7		NA	NA	
Reference Time (s)		70.6			31.9			37.3			251.6	
Adj Reference Time (s)		74.6			35.9			41.3			255.6	
Split Option												
Ref Time Combined (s)	4.7	31.7		0.0	31.9		29.3	24.7		0.0	16.9	
Ref Time Seperate (s)	4.7	29.4		0.0	31.9		29.3	24.7		16.7	0.5	
Reference Time (s)	31.7	31.7		31.9	31.9		29.3	29.3		16.9	16.9	
Adj Reference Time (s)	35.7	35.7		35.9	35.9		33.3	33.3		33.3	33.3	
Summary												
Protected Option (s)	44.6		NA									
Permitted Option (s)	74.6		255.6									
Split Option (s)	71.7		66.6									
Minimum (s)	44.6		66.6		111.2							
Right Turns												
Adj Reference Time (s)	33.3	41.3	48.1									
Cross Thru Ref Time (s)	33.3	35.7	35.9									
Oncoming Left Ref Time (s)	33.3	33.3	33.3									
Combined (s)	75.3	110.4	117.3									
Intersection Summary												
Intersection Capacity Utilization	97.7%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	0	0	0	0	91	0	0	182	0
Future Vol, veh/h	0	0	0	0	0	0	0	91	0	0	182	0
Conflicting Peds, #/hr	5	0	5	0	0	0	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	-	0	-	-
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	0	0	0	0	99	0	0	198	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	302	302	208	302	302	104	203	0	0	99	0	0
Stage 1	203	203	-	99	99	-	-	-	-	-	-	-
Stage 2	99	99	-	203	203	-	-	-	-	-	-	-
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	650	611	832	650	611	951	1369	-	-	1494	-	-
Stage 1	799	733	-	907	813	-	-	-	-	-	-	-
Stage 2	907	813	-	799	733	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	645	608	825	647	608	947	1363	-	-	1488	-	-
Mov Cap-2 Maneuver	645	608	-	647	608	-	-	-	-	-	-	-
Stage 1	796	730	-	907	813	-	-	-	-	-	-	-
Stage 2	903	813	-	796	730	-	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1363	-	-	-	-	-	-	1488	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	0	0	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	0	-	-

Intersection				
Intersection Delay, s/veh	4.6			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	99	198
Demand Flow Rate, veh/h	0	0	101	202
Vehicles Circulating, veh/h	202	101	0	0
Vehicles Exiting, veh/h	0	0	202	101
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	5
Ped Cap Adj	0.999	0.999	0.999	0.999
Approach Delay, s/veh	0.0	0.0	4.0	4.9
Approach LOS	-	-	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	0	0	101	202
Cap Entry Lane, veh/h	923	1021	1130	1130
Entry HV Adj Factor	1.000	1.000	0.980	0.980
Flow Entry, veh/h	0	0	99	198
Cap Entry, veh/h	923	1021	1107	1107
V/C Ratio	0.000	0.000	0.089	0.179
Control Delay, s/veh	3.9	3.5	4.0	4.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	1

Intersection				
Intersection Delay, s/veh	0.0			
Intersection LOS	-			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	0	0	0	0
Vehicles Exiting, veh/h	0	0	0	0
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	0
Ped Cap Adj	0.999	0.999	0.999	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LTR
Assumed Moves	TR	LT	LR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	0	0	0	0
Cap Entry Lane, veh/h	1130	1130	1130	1130
Entry HV Adj Factor	1.000	1.000	1.000	1.000
Flow Entry, veh/h	0	0	0	0
Cap Entry, veh/h	1129	1129	1129	1130
V/C Ratio	0.000	0.000	0.000	0.000
Control Delay, s/veh	3.2	3.2	3.2	3.2
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection Capacity Utilization
15: 60th St W & Ave K-8

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↔		↖	↕↔		↖	↕↕	↗
Volume (vph)	18	0	28	4	0	4	47	376	2	9	417	29
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	18	28	0	8	0	47	378	0	9	417	29
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.90	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	1360	0	1443	0	1520	3044	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			3.1			0.0	3.7	14.9	0.0	0.7	16.4	3.2
Adj Reference Time (s)			10.6			0.0	8.5	22.5	0.0	8.5	22.5	22.5
Permitted Option												
Adj Saturation A (vph)	0	861		0	165		101	1522		101	1523	
Reference Time A (s)	0.0	2.5		0.0	6.1		55.7	14.9		10.7	16.4	
Adj Saturation B (vph)	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.4	9.4		8.3	9.0		NA	NA		NA	NA	
Reference Time (s)		2.5			6.1			55.7			16.4	
Adj Reference Time (s)		10.6			12.5			60.2			22.5	
Split Option												
Ref Time Combined (s)	0.0	1.4		0.0	1.0		3.7	14.9		0.7	16.4	
Ref Time Seperate (s)	1.4	0.0		0.3	0.3		3.7	14.8		0.7	16.4	
Reference Time (s)	1.4	1.4		1.0	1.0		14.9	14.9		16.4	16.4	
Adj Reference Time (s)	10.6	10.6		10.6	10.6		22.5	22.5		22.5	22.5	
Summary												
Protected Option (s)	NA		31.0									
Permitted Option (s)	12.5		60.2									
Split Option (s)	21.3		45.0									
Minimum (s)	12.5		31.0		43.5							
Right Turns												
Adj Reference Time (s)	10.6		22.5									
Cross Thru Ref Time (s)	22.5		10.6									
Oncoming Left Ref Time (s)	10.6		8.5									
Combined (s)	43.8		41.6									
Intersection Summary												
Intersection Capacity Utilization	36.5%		ICU Level of Service		A							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
16: 70th St W & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷	↷	↶	↷		↶	↷		↶	↷		
Volume (vph)	2	28	35	93	52	12	14	77	53	19	141	11	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		Yes			Yes			No			No		
Pedestrian Timing (s)		18.0			18.0			18.0			18.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	2	28	35	93	64	0	14	130	0	19	152	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.97	0.85	0.95	0.94	0.85	0.95	0.99	0.85	
Saturated Flow (vph)	1520	1600	1360	1520	1555	0	1520	1502	0	1520	1583	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.2	2.1	3.7	7.3	5.1	0.0	1.1	10.6	0.0	1.5	11.6	0.0	
Adj Reference Time (s)	8.5	10.6	10.6	11.8	11.5	0.0	8.5	22.5	0.0	8.5	22.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1600		101	1555		101	1502		101	1583		
Reference Time A (s)	2.4	2.1		110.1	5.1		16.6	10.6		22.5	11.6		
Adj Saturation B (vph)	0	1600		0	1555		NA	NA		NA	NA		
Reference Time B (s)	8.2	2.1		15.3	5.1		NA	NA		NA	NA		
Reference Time (s)		2.4			15.3			16.6			22.5		
Adj Reference Time (s)		10.6			20.3			22.5			27.0		
Split Option													
Ref Time Combined (s)	0.2	2.1		7.3	5.1		1.1	10.6		1.5	11.6		
Ref Time Seperate (s)	0.2	2.1		7.3	4.1		1.1	6.4		1.5	10.7		
Reference Time (s)	2.1	2.1		7.3	7.3		10.6	10.6		11.6	11.6		
Adj Reference Time (s)	10.6	10.6		13.5	13.5		22.5	22.5		22.5	22.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	22.5		31.0										
Permitted Option (s)	20.3		27.0										
Split Option (s)	24.1		45.0										
Minimum (s)	20.3		27.0		47.3								
Right Turns													
	EBR												
Adj Reference Time (s)	10.6												
Cross Thru Ref Time (s)	22.5												
Oncoming Left Ref Time (s)	1.8												
Combined (s)	45.0												
Intersection Summary													
Intersection Capacity Utilization	39.4%		ICU Level of Service						A				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection

Int Delay, s/veh 3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	91	14	82	136	0	9	0	54	0	0	0
Future Vol, veh/h	0	91	14	82	136	0	9	0	54	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	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	99	15	89	148	0	10	0	59	0	0	0

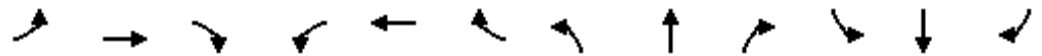
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	153	0	0	119	0	0	443	443	117	443	450	158
Stage 1	-	-	-	-	-	-	112	112	-	331	331	-
Stage 2	-	-	-	-	-	-	331	331	-	112	119	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1428	-	-	1469	-	-	525	509	935	525	504	887
Stage 1	-	-	-	-	-	-	893	803	-	682	645	-
Stage 2	-	-	-	-	-	-	682	645	-	893	797	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1422	-	-	1463	-	-	494	471	927	463	467	880
Mov Cap-2 Maneuver	-	-	-	-	-	-	494	471	-	463	467	-
Stage 1	-	-	-	-	-	-	889	800	-	679	600	-
Stage 2	-	-	-	-	-	-	634	600	-	833	794	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.9	9.6	0
HCM LOS			A	A

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	494	927	1422	-	-	1463	-	-	-
HCM Lane V/C Ratio	0.02	0.063	-	-	-0.061	-	-	-	-
HCM Control Delay (s)	12.4	9.1	0	-	-	7.6	0	-	0
HCM Lane LOS	B	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0.2	0	-	-	0.2	-	-	-

Intersection Capacity Utilization
18: QHHS Dwy/Walmart Dwy & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗		↖	↗		↖	↗		↕	
Volume (vph)	0	180	4	12	264	0	2	0	17	0	0	0
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	180	4	0	276	0	0	2	17	0	0	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	0	1597	1360	0	1520	1360	0	1600	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.4			0.0			1.5			0.0
Adj Reference Time (s)			8.5			8.5			8.5			0.0
Permitted Option												
Adj Saturation A (vph)	101	1523		0	983		0	861		0	1600	
Reference Time A (s)	0.0	7.1		0.0	33.7		0.0	0.3		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.2	8.2		0.0	0.0	
Reference Time (s)		7.1			33.7			0.3			0.0	
Adj Reference Time (s)		11.6			38.2			8.5			8.5	
Split Option												
Ref Time Combined (s)	0.0	7.1		0.0	20.7		0.0	0.2		0.0	0.0	
Ref Time Seperate (s)	0.0	7.1		0.9	19.8		0.2	0.0		0.0	0.0	
Reference Time (s)	7.1	7.1		20.7	20.7		0.2	0.2		0.0	0.0	
Adj Reference Time (s)	11.6	11.6		25.2	25.2		8.5	8.5		0.0	0.0	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	NA		NA									
Permitted Option (s)	38.2		8.5									
Split Option (s)	36.8		8.5									
Minimum (s)	36.8		8.5		45.3							
Right Turns												
	EBR		WBR		NBR							
Adj Reference Time (s)	8.5		8.5		8.5							
Cross Thru Ref Time (s)	0.0		0.0		11.6							
Oncoming Left Ref Time (s)	8.5		0.0		0.0							
Combined (s)	33.7		0.0		20.1							
Intersection Summary												
Intersection Capacity Utilization	37.8%		ICU Level of Service		A							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
19: 60th St W & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	35	138	26	102	219	177	25	240	100	119	289	33
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	2500	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	5.7
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	35	138	26	102	219	177	25	240	100	119	289	33
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1600	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.8	5.4	2.9	8.1	8.6	16.3	2.0	18.0	9.5	3.1	11.4	3.6
Adj Reference Time (s)	8.0	31.6	31.6	12.1	12.6	20.3	8.0	25.3	20.1	8.0	15.4	9.7
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1600		154	1523	
Reference Time A (s)	41.4	5.4		120.8	8.6		29.6	18.0		46.4	11.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		41.4			120.8			29.6			46.4	
Adj Reference Time (s)		45.4			124.8			35.1			50.4	
Split Option												
Ref Time Combined (s)	2.8	5.4		8.1	8.6		2.0	18.0		3.1	11.4	
Ref Time Seperate (s)	2.8	5.4		8.1	8.6		2.0	18.0		3.1	11.4	
Reference Time (s)	5.4	5.4		8.6	8.6		18.0	18.0		11.4	11.4	
Adj Reference Time (s)	31.6	31.6		12.6	12.6		25.3	25.3		15.4	15.4	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	43.7		33.3									
Permitted Option (s)	124.8		50.4									
Split Option (s)	44.2		40.7									
Minimum (s)	43.7		33.3		77.0							
Right Turns												
	EBR	WBR	NBR	SBR								
Adj Reference Time (s)	31.6	20.3	20.1	9.7								
Cross Thru Ref Time (s)	15.4	25.3	31.6	12.6								
Oncoming Left Ref Time (s)	2.1	8.0	8.0	8.0								
Combined (s)	59.0	53.6	59.7	30.3								
Intersection Summary												
Intersection Capacity Utilization	64.1%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	338	11	108	449	8	85
Future Vol, veh/h	338	11	108	449	8	85
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	367	12	117	488	9	92

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	372
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1186
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1181
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	12.4
HCM LOS			B

Minor Lane/Major Mvm	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	202	664	-	-	1181	-
HCM Lane V/C Ratio	0.043	0.139	-	-	0.099	-
HCM Control Delay (s)	23.6	11.3	-	-	8.4	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.5	-	-	0.3	-

Intersection Capacity Utilization
21: 50th St W & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗		
Volume (vph)	46	391	30	208	512	57	34	187	144	39	232	66	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	46	421	0	208	569	0	34	187	144	39	298	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.97	0.85	
Saturated Flow (vph)	1520	3014	0	1520	3001	0	1520	1600	1360	1520	1547	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.6	16.8	0.0	16.4	22.8	0.0	2.7	14.0	13.3	3.1	23.3	0.0	
Adj Reference Time (s)	8.0	24.1	0.0	20.4	26.8	0.0	8.0	18.7	18.1	8.0	27.3	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1507		101	1500		101	1600		101	1547		
Reference Time A (s)	54.5	16.8		246.3	22.8		40.3	14.0		46.2	23.3		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		54.5			246.3			40.3			46.2		
Adj Reference Time (s)		58.5			250.3			44.3			50.2		
Split Option													
Ref Time Combined (s)	3.6	16.8		16.4	22.8		2.7	14.0		3.1	23.3		
Ref Time Seperate (s)	3.6	15.6		16.4	20.5		2.7	14.0		3.1	18.1		
Reference Time (s)	16.8	16.8		22.8	22.8		14.0	14.0		23.3	23.3		
Adj Reference Time (s)	24.1	24.1		26.8	26.8		18.7	18.7		27.3	27.3		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	44.5		35.3										
Permitted Option (s)	250.3		50.2										
Split Option (s)	50.9		45.9										
Minimum (s)	44.5		35.3		79.8								
Right Turns													
	NBR												
Adj Reference Time (s)	18.1												
Cross Thru Ref Time (s)	24.1												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	50.2												
Intersection Summary													
Intersection Capacity Utilization	66.5%		ICU Level of Service						C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷		↶	↷	↷	↶	↷	↷
Volume (vph)	24	562	15	136	777	114	24	39	95	56	39	12
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.6			16.0			20.4			22.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	24	562	15	136	891	0	24	39	95	56	51	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.96	0.85
Saturated Flow (vph)	1520	3046	1360	1520	2988	0	1520	1600	1360	1520	1544	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	1.9	22.1	2.0	10.7	35.9	0.0	1.9	2.9	9.0	4.4	4.1	0.0
Adj Reference Time (s)	8.0	29.6	29.6	14.7	39.9	0.0	8.0	10.5	14.8	8.4	10.9	0.0
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1494		101	1600		101	1544	
Reference Time A (s)	28.4	22.1		161.1	35.9		28.4	2.9		66.3	4.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1544	
Reference Time B (s)	NA	NA		NA	NA		9.9	2.9		12.4	4.1	
Reference Time (s)		28.4			161.1			9.9			12.4	
Adj Reference Time (s)		32.4			165.1			15.5			17.9	
Split Option												
Ref Time Combined (s)	1.9	22.1		10.7	35.9		1.9	2.9		4.4	4.1	
Ref Time Seperate (s)	1.9	22.1		10.7	31.3		1.9	2.9		4.4	3.2	
Reference Time (s)	22.1	22.1		35.9	35.9		2.9	2.9		4.4	4.4	
Adj Reference Time (s)	29.6	29.6		39.9	39.9		10.5	10.5		11.1	11.1	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	47.9		18.9									
Permitted Option (s)	165.1		17.9									
Split Option (s)	69.5		21.7									
Minimum (s)	47.9		17.9		65.8							
Right Turns												
	EBR		NBR									
Adj Reference Time (s)	29.6		14.8									
Cross Thru Ref Time (s)	10.9		29.6									
Oncoming Left Ref Time (s)	10.9		8.4									
Combined (s)	55.2		52.8									
Intersection Summary												
Intersection Capacity Utilization	54.8%		ICU Level of Service		A							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
23: 40th St W & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷	
Volume (vph)	57	496	14	57	858	132	26	64	36	222	92	120	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		31.0			33.3			35.6			31.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	57	510	0	57	858	132	26	64	36	222	92	120	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3034	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	4.5	20.2	0.0	4.5	33.8	12.3	2.1	4.8	3.8	17.5	6.9	11.2	
Adj Reference Time (s)	8.5	35.0	0.0	8.5	37.8	37.3	8.0	13.5	12.9	21.5	14.7	18.4	
Permitted Option													
Adj Saturation A (vph)	101	1517		101	1523		101	1600		101	1600		
Reference Time A (s)	67.5	20.2		67.5	33.8		30.8	4.8		262.9	6.9		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600		
Reference Time B (s)	NA	NA		NA	NA		10.1	4.8		25.5	6.9		
Reference Time (s)		67.5			67.5			10.1			25.5		
Adj Reference Time (s)		71.5			71.5			18.0			30.5		
Split Option													
Ref Time Combined (s)	4.5	20.2		4.5	33.8		2.1	4.8		17.5	6.9		
Ref Time Seperate (s)	4.5	19.6		4.5	33.8		2.1	4.8		17.5	6.9		
Reference Time (s)	20.2	20.2		33.8	33.8		4.8	4.8		17.5	17.5		
Adj Reference Time (s)	35.0	35.0		37.8	37.8		13.5	13.5		23.7	23.7		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	46.3		35.1										
Permitted Option (s)	71.5		30.5										
Split Option (s)	72.8		37.2										
Minimum (s)	46.3		30.5		76.8								
Right Turns													
	WBR		NBR		SBR								
Adj Reference Time (s)	37.3		12.9		18.4								
Cross Thru Ref Time (s)	13.5		35.0		37.8								
Oncoming Left Ref Time (s)	13.5		21.5		8.0								
Combined (s)	59.3		69.4		64.2								
Intersection Summary													
Intersection Capacity Utilization	64.0%		ICU Level of Service						B				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
24: 35th St W & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕		↗	↕		↗	↕		↗	↕	↗
Volume (vph)	41	686	18	57	990	44	23	31	28	28	30	77
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			23.9			25.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	41	704	0	57	1034	0	23	59	0	28	30	77
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3035	0	1520	3027	0	1520	1486	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.2	27.9	0.0	4.5	41.0	0.0	1.8	5.1	0.0	2.2	2.3	7.4
Adj Reference Time (s)	8.0	31.9	0.0	8.5	45.0	0.0	8.0	12.2	0.0	8.0	8.0	11.4
Permitted Option												
Adj Saturation A (vph)	101	1517		101	1513		101	1486		101	1600	
Reference Time A (s)	48.6	27.9		67.5	41.0		27.2	5.1		33.2	2.3	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1486		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.8	5.1		10.2	2.3	
Reference Time (s)		48.6			67.5			9.8			10.2	
Adj Reference Time (s)		52.6			71.5			16.2			14.2	
Split Option												
Ref Time Combined (s)	3.2	27.9		4.5	41.0		1.8	5.1		2.2	2.3	
Ref Time Seperate (s)	3.2	27.1		4.5	39.3		1.8	2.8		2.2	2.3	
Reference Time (s)	27.9	27.9		41.0	41.0		5.1	5.1		2.3	2.3	
Adj Reference Time (s)	31.9	31.9		45.0	45.0		12.2	12.2		8.0	8.0	
Summary												
Protected Option (s)	53.0		20.2									
Permitted Option (s)	71.5		16.2									
Split Option (s)	76.9		20.2									
Minimum (s)	53.0		16.2		69.3							
Right Turns												
Adj Reference Time (s)	11.4											
Cross Thru Ref Time (s)	45.0											
Oncoming Left Ref Time (s)	3.0											
Combined (s)	64.5											
Intersection Summary												
Intersection Capacity Utilization	57.7%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
25: 30th St W & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	89	594	74	198	951	148	127	294	129	129	315	127
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	89	594	74	198	951	148	127	294	129	129	315	127
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	7.0	16.4	7.2	15.6	26.2	13.7	10.0	11.6	12.0	10.2	12.4	11.8
Adj Reference Time (s)	11.0	39.0	39.0	19.6	37.0	37.0	14.0	19.3	19.7	14.2	19.7	19.3
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1523		101	1523	
Reference Time A (s)	105.4	16.4		234.5	26.2		150.4	11.6		152.8	12.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		105.4			234.5			150.4			152.8	
Adj Reference Time (s)		109.4			238.5			154.4			156.8	
Split Option												
Ref Time Combined (s)	7.0	16.4		15.6	26.2		10.0	11.6		10.2	12.4	
Ref Time Seperate (s)	7.0	16.4		15.6	26.2		10.0	11.6		10.2	12.4	
Reference Time (s)	16.4	16.4		26.2	26.2		11.6	11.6		12.4	12.4	
Adj Reference Time (s)	39.0	39.0		37.0	37.0		19.3	19.3		19.7	19.7	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	58.6		33.8									
Permitted Option (s)	238.5		156.8									
Split Option (s)	76.0		39.1									
Minimum (s)	58.6		33.8		92.4							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	39.0		37.0		19.7		19.3					
Cross Thru Ref Time (s)	19.7		19.3		39.0		37.0					
Oncoming Left Ref Time (s)	19.6		11.0		14.2		14.0					
Combined (s)	78.4		67.3		72.9		70.3					
Intersection Summary												
Intersection Capacity Utilization	77.0%				ICU Level of Service				D			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷	↷		↷		↶	↷	↷
Volume (vph)	56	810	4	4	1266	74	4	1	6	55	3	91
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.3			22.4			16.0			30.7	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	56	810	4	4	1266	74	0	11	0	55	3	91
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.90	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1442	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.4	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.4	31.9	1.0	0.3	49.9	7.2			0.0			8.7
Adj Reference Time (s)	8.4	35.9	31.0	8.0	53.9	26.4			0.0			16.1
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		0	217		654	1600	
Reference Time A (s)	66.3	31.9		4.7	49.9		0.0	6.4		10.1	0.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.3	9.3		12.3	0.2	
Reference Time (s)		66.3			49.9			6.4			10.1	
Adj Reference Time (s)		70.3			53.9			10.4			17.3	
Split Option												
Ref Time Combined (s)	4.4	31.9		0.3	49.9		0.0	1.3		4.3	0.2	
Ref Time Seperate (s)	4.4	31.9		0.3	49.9		0.3	0.4		4.3	0.2	
Reference Time (s)	31.9	31.9		49.9	49.9		1.3	1.3		4.3	4.3	
Adj Reference Time (s)	35.9	35.9		53.9	53.9		8.0	8.0		12.4	12.4	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	62.3		NA									
Permitted Option (s)	70.3		17.3									
Split Option (s)	89.8		20.4									
Minimum (s)	62.3		17.3		79.5							
Right Turns												
	EBR		WBR		SBR							
Adj Reference Time (s)	31.0		26.4		16.1							
Cross Thru Ref Time (s)	12.4		8.0		53.9							
Oncoming Left Ref Time (s)	8.0		8.4		8.0							
Combined (s)	51.4		42.8		77.9							
Intersection Summary												
Intersection Capacity Utilization	66.3%		ICU Level of Service			C						
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
27: 20th St W & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑	↗
Volume (vph)	107	728	43	68	1133	136	56	190	42	85	210	155
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	107	728	43	68	1133	136	56	232	0	85	210	155
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2964	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	8.4	28.7	4.4	5.4	31.2	12.6	4.4	9.5	0.0	6.7	15.8	14.3
Adj Reference Time (s)	12.4	32.7	34.1	9.4	40.7	40.7	8.4	16.5	0.0	10.7	22.4	21.2
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1482		101	1600	
Reference Time A (s)	126.7	28.7		80.5	31.2		66.3	9.5		100.7	15.8	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		126.7			80.5			66.3			100.7	
Adj Reference Time (s)		130.7			84.5			70.3			104.7	
Split Option												
Ref Time Combined (s)	8.4	28.7		5.4	31.2		4.4	9.5		6.7	15.8	
Ref Time Seperate (s)	8.4	28.7		5.4	31.2		4.4	7.8		6.7	15.8	
Reference Time (s)	28.7	28.7		31.2	31.2		9.5	9.5		15.8	15.8	
Adj Reference Time (s)	32.7	32.7		40.7	40.7		16.5	16.5		22.4	22.4	
Summary												
Protected Option (s)	53.1		30.8									
Permitted Option (s)	130.7		104.7									
Split Option (s)	73.4		38.9									
Minimum (s)	53.1		30.8		84.0							
Right Turns												
Adj Reference Time (s)	34.1	40.7	21.2									
Cross Thru Ref Time (s)	22.4	16.5	40.7									
Oncoming Left Ref Time (s)	9.4	12.4	8.4									
Combined (s)	65.9	69.7	70.3									
Intersection Summary												
Intersection Capacity Utilization	70.0%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
28: 15th St W & Ave L

PM 2021
6/15/2017



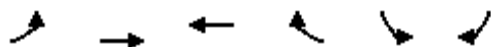
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↕↕↕		↰	↕↕↕	↰		↕↕		↰	↕	↰
Volume (vph)	64	808	0	10	1332	298	0	1	4	269	6	85
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No		No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	64	808	0	10	1332	298	0	5	0	269	6	85
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.88	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	0	1520	4358	1360	0	1408	0	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.1	22.2	0.0	0.8	36.7	26.3			0.0			7.5
Adj Reference Time (s)	9.1	26.2	0.0	8.0	40.7	30.3			0.0			11.5
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		0	1408		101	1600	
Reference Time A (s)	75.8	22.2		11.8	36.7		0.0	0.4		318.6	0.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1408		0	1600	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.4		29.2	0.5	
Reference Time (s)		75.8			36.7			0.4			29.2	
Adj Reference Time (s)		79.8			40.7			8.0			33.2	
Split Option												
Ref Time Combined (s)	5.1	22.2		0.8	36.7		0.0	0.4		21.2	0.5	
Ref Time Seperate (s)	5.1	22.2		0.8	36.7		0.0	0.1		21.2	0.5	
Reference Time (s)	22.2	22.2		36.7	36.7		0.4	0.4		21.2	21.2	
Adj Reference Time (s)	26.2	26.2		40.7	40.7		8.0	8.0		25.2	25.2	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	49.7		NA									
Permitted Option (s)	79.8		33.2									
Split Option (s)	66.9		33.2									
Minimum (s)	49.7		33.2		83.0							
Right Turns	WBR	SBR										
Adj Reference Time (s)	30.3	11.5										
Cross Thru Ref Time (s)	8.0	40.7										
Oncoming Left Ref Time (s)	9.1	8.0										
Combined (s)	47.3	60.2										

Intersection Summary

Intersection Capacity Utilization 69.1% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

PM 2021
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	676	1498	0	295	139
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	676	1498	0	434	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4358	0	4465	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	18.6	41.2	0.0		0.0
Adj Reference Time (s)	0.0	22.6	45.2	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		149	
Reference Time A (s)	0.0	18.6	41.2		175.2	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		18.6	41.2			
Adj Reference Time (s)		22.6	45.2			
Split Option						
Ref Time Combined (s)	0.0	18.6	41.2		11.9	
Ref Time Seperate (s)	0.0	18.6	41.2		8.1	
Reference Time (s)	18.6	18.6	41.2		11.9	
Adj Reference Time (s)	22.6	22.6	45.2		17.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	45.2		NA			
Permitted Option (s)	45.2		Err			
Split Option (s)	67.9		17.2			
Minimum (s)	45.2		17.2	62.4		

Right Turns

Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary

Intersection Capacity Utilization 52.0% ICU Level of Service A
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	887	0	0	1507	0	570	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	887	0	0	1507	0	570	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	24.4	0.6	0.0	31.1	0.0	45.0	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	28.4	9.7	0.0	35.1	0.0	49.0	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	24.4		0.0	31.1		675.0	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		53.0	0.0		0.0	0.0	
Reference Time (s)		24.4			31.1			53.0			0.0	
Adj Reference Time (s)		28.4			35.1			57.0			9.8	
Split Option												
Ref Time Combined (s)	0.0	24.4		0.0	31.1		45.0	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	24.4		0.0	31.1		45.0	0.0		0.0	0.0	
Reference Time (s)	24.4	24.4		31.1	31.1		45.0	45.0		0.0	0.0	
Adj Reference Time (s)	28.4	28.4		35.1	35.1		49.0	49.0		9.8	9.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	35.1		49.0									
Permitted Option (s)	35.1		57.0									
Split Option (s)	63.5		58.8									
Minimum (s)	35.1		49.0		84.1							
Right Turns												
	EBR											
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	70.1%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

PM 2021+Related Projects

Intersection

Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	1	144	31	0	42	74	11	0	14	47	33
Future Vol, veh/h	0	1	144	31	0	42	74	11	0	14	47	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	157	34	0	46	80	12	0	15	51	36
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.2	8.9	8.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	1%	33%	7%
Vol Thru, %	50%	82%	58%	93%
Vol Right, %	35%	18%	9%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	94	176	127	138
LT Vol	14	1	42	9
Through Vol	47	144	74	128
RT Vol	33	31	11	1
Lane Flow Rate	102	191	138	150
Geometry Grp	1	1	1	1
Degree of Util (X)	0.134	0.245	0.183	0.202
Departure Headway (Hd)	4.722	4.607	4.785	4.845
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	756	777	747	738
Service Time	2.774	2.653	2.835	2.893
HCM Lane V/C Ratio	0.135	0.246	0.185	0.203
HCM Control Delay	8.5	9.2	8.9	9.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	1	0.7	0.8

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	9	128	1
Future Vol, veh/h	0	9	128	1
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	10	139	1
Number of Lanes	0	0	1	0

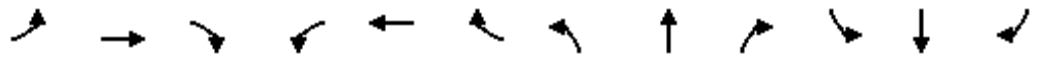
Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.1
HCM LOS	A

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↑↑	↗	↔↔	↑	↗	↖	↑↑		↖	↑↑		
Volume (vph)	33	292	69	213	317	119	81	285	149	88	447	56	
Pedestrians			5			5			5			5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		30.7			28.7			27.3			27.3		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	33	292	69	213	317	119	81	434	0	88	503	0	
Lane Utilization Factor	0.97	0.95	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.98	0.85	
Saturated Flow (vph)	4612	3046	1360	4612	1600	1360	1520	2890	0	1520	2996	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.9	11.5	6.7	5.5	23.8	11.1	6.4	18.2	0.0	6.9	20.2	0.0	
Adj Reference Time (s)	8.0	34.7	34.7	9.5	32.7	32.7	10.4	23.6	0.0	10.9	25.3	0.0	
Permitted Option													
Adj Saturation A (vph)	154	1523		154	1600		101	1445		101	1498		
Reference Time A (s)	12.9	11.5		83.1	23.8		95.9	18.2		104.2	20.2		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		12.9			83.1			95.9			104.2		
Adj Reference Time (s)		34.7			87.1			99.9			108.2		
Split Option													
Ref Time Combined (s)	0.9	11.5		5.5	23.8		6.4	18.2		6.9	20.2		
Ref Time Seperate (s)	0.9	11.5		5.5	23.8		6.4	12.1		6.9	18.0		
Reference Time (s)	11.5	11.5		23.8	23.8		18.2	18.2		20.2	20.2		
Adj Reference Time (s)	34.7	34.7		32.7	32.7		23.6	23.6		25.3	25.3		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	44.2		35.7										
Permitted Option (s)	87.1		108.2										
Split Option (s)	67.4		48.9										
Minimum (s)	44.2		35.7		79.9								
Right Turns													
	EBR		WBR										
Adj Reference Time (s)	34.7		32.7										
Cross Thru Ref Time (s)	25.3		23.6										
Oncoming Left Ref Time (s)	9.5		8.0										
Combined (s)	69.6		64.3										
Intersection Summary													
Intersection Capacity Utilization	66.6%		ICU Level of Service				C						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection												
Intersection Delay, s/veh	72.2											
Intersection LOS	F											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	77	596	30	0	81	755	12	0	47	169	72
Future Vol, veh/h	0	77	596	30	0	81	755	12	0	47	169	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	84	648	33	0	88	821	13	0	51	184	78
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB				WB				NB			
Opposing Approach	WB				EB				SB			
Opposing Lanes	1				1				1			
Conflicting Approach Left	SB				NB				EB			
Conflicting Lanes Left	1				1				1			
Conflicting Approach Right	NB				SB				WB			
Conflicting Lanes Right	1				1				1			
HCM Control Delay	76.4				76.5				44.7			
HCM LOS	F				F				E			
Lane	NBLn1		EBLn1		WBLn1		SBLn1					
Vol Left, %	16%		11%		10%		4%					
Vol Thru, %	59%		85%		89%		64%					
Vol Right, %	25%		4%		1%		33%					
Sign Control	Stop		Stop		Stop		Stop					
Traffic Vol by Lane	288		703		848		399					
LT Vol	47		77		81		14					
Through Vol	169		596		755		255					
RT Vol	72		30		12		130					
Lane Flow Rate	313		764		922		434					
Geometry Grp	1		1		1		1					
Degree of Util (X)	0.827		1		1		1					
Departure Headway (Hd)	9.514		9.178		9.192		8.993					
Convergence, Y/N	Yes		Yes		Yes		Yes					
Cap	382		405		406		408					
Service Time	7.514		7.178		7.192		6.993					
HCM Lane V/C Ratio	0.819		1.886		2.271		1.064					
HCM Control Delay	44.7		76.4		76.5		75.6					
HCM Lane LOS	E		F		F		F					
HCM 95th-tile Q	7.5		12.1		12.1		12.3					

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	14	255	130
Future Vol, veh/h	0	14	255	130
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	15	277	141
Number of Lanes	0	0	1	0

























Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	75.6
HCM LOS	F

Lane



























Intersection Capacity Utilization
4: 45th St W & Ave K

PM 2021+Related Projects
5/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	28	641	20	42	824	44	25	87	36	35	75	54	
Pedestrians			5			5						5	
Ped Button		No			No						Yes		
Pedestrian Timing (s)		17.8			21.8						25.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	28	641	20	42	824	44	25	123	0	35	75	54	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1530	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	2.2	48.1	2.4	3.3	61.8	4.5	2.0	9.6	0.0	2.8	5.6	5.4	
Adj Reference Time (s)	8.0	52.1	21.8	8.0	65.8	25.8	8.0	13.6	0.0	8.0	12.7	12.5	
Permitted Option													
Adj Saturation A (vph)	101	1600		101	1600		101	1530		101	1600		
Reference Time A (s)	33.2	48.1		49.7	61.8		29.6	9.6		41.4	5.6		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1530		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		10.0	9.6		NA	NA		
Reference Time (s)		48.1			61.8			10.0			41.4		
Adj Reference Time (s)		52.1			65.8			14.0			45.4		
Split Option													
Ref Time Combined (s)	2.2	48.1		3.3	61.8		2.0	9.6		2.8	5.6		
Ref Time Seperate (s)	2.2	48.1		3.3	61.8		2.0	6.8		2.8	5.6		
Reference Time (s)	48.1	48.1		61.8	61.8		9.6	9.6		5.6	5.6		
Adj Reference Time (s)	52.1	52.1		65.8	65.8		13.6	13.6		12.7	12.7		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	73.8		21.6										
Permitted Option (s)	65.8		45.4										
Split Option (s)	117.9		26.3										
Minimum (s)	65.8		21.6		87.4								
Right Turns													
	EBR		WBR		SBR								
Adj Reference Time (s)	21.8		25.8		12.5								
Cross Thru Ref Time (s)	12.7		13.6		65.8								
Oncoming Left Ref Time (s)	8.0		8.0		8.0								
Combined (s)	42.5		47.4		86.3								
Intersection Summary													
Intersection Capacity Utilization	72.9%				ICU Level of Service				C				
Reference Times and Phasing Options do not represent an optimized timing plan.													























Intersection Capacity Utilization
5: 40th St W & Ave K

PM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Volume (vph)	46	640	43	109	837	56	50	179	74	44	273	59
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		21.9			23.6			27.9			17.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	46	683	0	109	837	56	50	179	74	44	332	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85
Saturated Flow (vph)	1520	3018	0	1520	1600	1360	1520	3046	1360	1520	1557	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.6	27.2	0.0	8.6	62.8	5.6	3.9	7.1	7.2	3.5	25.7	0.0
Adj Reference Time (s)	8.0	31.2	0.0	12.6	66.8	27.6	8.0	14.3	14.4	8.0	29.7	0.0
Permitted Option												
Adj Saturation A (vph)	101	1509		101	1600		101	1523		101	1557	
Reference Time A (s)	54.5	27.2		129.1	62.8		59.2	7.1		52.1	25.7	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		54.5			129.1			59.2			52.1	
Adj Reference Time (s)		58.5			133.1			63.2			56.1	
Split Option												
Ref Time Combined (s)	3.6	27.2		8.6	62.8		3.9	7.1		3.5	25.7	
Ref Time Seperate (s)	3.6	25.5		8.6	62.8		3.9	7.1		3.5	21.2	
Reference Time (s)	27.2	27.2		62.8	62.8		7.1	7.1		25.7	25.7	
Adj Reference Time (s)	31.2	31.2		66.8	66.8		14.3	14.3		29.7	29.7	
Summary												
Protected Option (s)	74.8		37.7									
Permitted Option (s)	133.1		63.2									
Split Option (s)	98.0		43.9									
Minimum (s)	74.8		37.7		112.5							
Right Turns												
Adj Reference Time (s)	27.6		14.4									
Cross Thru Ref Time (s)	14.3		31.2									
Oncoming Left Ref Time (s)	8.0		8.0									
Combined (s)	49.9		53.6									
Intersection Summary												
Intersection Capacity Utilization	93.7%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												
























Intersection Capacity Utilization
6: 30th St W & Ave K

PM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	722	83	169	813	192	163	515	123	243	611	166
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.7			26.1			32.1			30.1	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	175	805	0	169	1005	0	163	515	123	243	611	166
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	4291	0	4612	4234	0	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.6	22.6	0.0	4.4	28.6	0.0	4.2	20.3	11.5	6.3	24.1	15.3
Adj Reference Time (s)	8.6	32.7	0.0	8.4	32.6	0.0	8.2	26.1	18.7	10.3	29.0	21.6
Permitted Option												
Adj Saturation A (vph)	154	1430		154	1411		154	1523		154	1523	
Reference Time A (s)	68.3	22.6		66.0	28.6		63.6	20.3		94.8	24.1	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		68.3			66.0			63.6			94.8	
Adj Reference Time (s)		72.3			70.0			67.6			98.8	
Split Option												
Ref Time Combined (s)	4.6	22.6		4.4	28.6		4.2	20.3		6.3	24.1	
Ref Time Seperate (s)	4.6	20.3		4.4	23.2		4.2	20.3		6.3	24.1	
Reference Time (s)	22.6	22.6		28.6	28.6		20.3	20.3		24.1	24.1	
Adj Reference Time (s)	32.7	32.7		32.6	32.6		26.1	26.1		29.0	29.0	
Summary												
Protected Option (s)	41.2		37.2									
Permitted Option (s)	72.3		98.8									
Split Option (s)	65.3		55.1									
Minimum (s)	41.2		37.2		78.4							
Right Turns												
Adj Reference Time (s)	18.7		21.6									
Cross Thru Ref Time (s)	32.7		32.6									
Oncoming Left Ref Time (s)	30.3		8.2									
Combined (s)	61.7		62.4									
Intersection Summary												
Intersection Capacity Utilization	65.3%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
7: 25th St W & Ave K

PM 2021+Related Projects
5/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	67	998	20	61	1127	96	12	120	43	77	136	82	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		24.4			26.7			25.3			27.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	67	1018	0	61	1127	96	12	120	43	77	136	82	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3037	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.3	40.2	0.0	4.8	44.4	9.1	0.9	9.0	4.4	6.1	10.2	7.9	
Adj Reference Time (s)	9.3	44.2	0.0	8.8	48.4	30.7	8.0	15.5	11.6	10.1	16.9	14.9	
Permitted Option													
Adj Saturation A (vph)	101	1519		101	1523		101	1600		101	1600		
Reference Time A (s)	79.3	40.2		72.2	44.4		14.2	9.0		91.2	10.2		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		0	1600		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		14.1	10.2		
Reference Time (s)		79.3			72.2			14.2			14.1		
Adj Reference Time (s)		83.3			76.2			19.9			20.2		
Split Option													
Ref Time Combined (s)	5.3	40.2		4.8	44.4		0.9	9.0		6.1	10.2		
Ref Time Seperate (s)	5.3	39.4		4.8	44.4		0.9	9.0		6.1	10.2		
Reference Time (s)	40.2	40.2		44.4	44.4		9.0	9.0		10.2	10.2		
Adj Reference Time (s)	44.2	44.2		48.4	48.4		15.5	15.5		16.9	16.9		
Summary													
Protected Option (s)	57.7		25.6										
Permitted Option (s)	83.3		20.2										
Split Option (s)	92.6		32.4										
Minimum (s)	57.7		20.2		77.8								
Right Turns													
Adj Reference Time (s)	30.7	11.6	14.9										
Cross Thru Ref Time (s)	15.5	44.2	48.4										
Oncoming Left Ref Time (s)	9.3	10.1	8.0										
Combined (s)	55.5	65.9	71.3										
Intersection Summary													
Intersection Capacity Utilization	64.9%		ICU Level of Service		C								
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
8: 20th St W & Ave K

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘↗	↑↗		↘↗	↑↑↑		
Volume (vph)	191	985	77	201	1092	138	109	274	103	203	418	142	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		30.4			31.0			29.9			33.3		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	191	985	77	201	1230	0	109	377	0	203	560	0	
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	4358	1360	1520	4285	0	4612	2922	0	4612	4193	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	15.1	27.1	7.4	15.9	34.5	0.0	2.8	15.7	0.0	5.3	16.2	0.0	
Adj Reference Time (s)	19.1	34.4	34.4	19.9	38.5	0.0	8.0	21.8	0.0	9.3	22.8	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1453		101	1428		154	1461		154	1398		
Reference Time A (s)	226.2	27.1		238.0	34.5		42.5	15.7		79.2	16.2		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		226.2			238.0			42.5			79.2		
Adj Reference Time (s)		230.2			242.0			46.5			83.2		
Split Option													
Ref Time Combined (s)	15.1	27.1		15.9	34.5		2.8	15.7		5.3	16.2		
Ref Time Seperate (s)	15.1	27.1		15.9	30.7		2.8	11.4		5.3	12.1		
Reference Time (s)	27.1	27.1		34.5	34.5		15.7	15.7		16.2	16.2		
Adj Reference Time (s)	34.4	34.4		38.5	38.5		21.8	21.8		22.8	22.8		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	57.6		31.1										
Permitted Option (s)	242.0		83.2										
Split Option (s)	72.9		44.7										
Minimum (s)	57.6		31.1		88.7								
Right Turns													
	EBR												
Adj Reference Time (s)	34.4												
Cross Thru Ref Time (s)	22.8												
Oncoming Left Ref Time (s)	19.9												
Combined (s)	77.1												
Intersection Summary													
Intersection Capacity Utilization	73.9%				ICU Level of Service				D				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
9: 17th St W & Ave K

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑	↗	↗	↑	↗
Volume (vph)	68	1240	79	174	1395	190	47	78	153	215	62	61
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	68	1319	0	174	1585	0	47	78	153	215	62	61
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4319	0	1520	4280	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00		0.00			0.00			0.00		0.00	
Protected Option Allowed	Yes		Yes			Yes			Yes		Yes	
Reference Time (s)	5.4	36.6	0.0	13.7	44.4	0.0	3.7	5.8	13.5	17.0	4.7	5.4
Adj Reference Time (s)	9.4	40.6	0.0	17.7	48.4	0.0	8.0	9.8	17.5	21.0	8.7	9.4
Permitted Option												
Adj Saturation A (vph)	101	1440		101	1427		101	1600		101	1600	
Reference Time A (s)	80.5	36.6		206.1	44.4		55.7	5.8		254.6	4.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		11.7	5.8		25.0	4.7	
Reference Time (s)		80.5			206.1			11.7			25.0	
Adj Reference Time (s)		84.5			210.1			15.7			29.0	
Split Option												
Ref Time Combined (s)	5.4	36.6		13.7	44.4		3.7	5.8		17.0	4.7	
Ref Time Seperate (s)	5.4	34.5		13.7	39.1		3.7	5.8		17.0	4.7	
Reference Time (s)	36.6	36.6		44.4	44.4		5.8	5.8		17.0	17.0	
Adj Reference Time (s)	40.6	40.6		48.4	48.4		9.8	9.8		21.0	21.0	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	58.4		30.8									
Permitted Option (s)	210.1		29.0									
Split Option (s)	89.1		30.8									
Minimum (s)	58.4		29.0		87.4							
Right Turns	NBR		SBR									
Adj Reference Time (s)	17.5		9.4									
Cross Thru Ref Time (s)	40.6		48.4									
Oncoming Left Ref Time (s)	17.0		8.0									
Combined (s)	79.1		65.8									
Intersection Summary												
Intersection Capacity Utilization	72.8%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

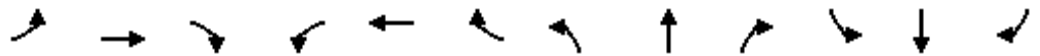
PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1189	1400	513	242	379
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1189	1913	0	621	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.89	0.85
Saturated Flow (vph)	0	4358	4183	0	4325	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.4	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	32.7	55.1	0.0		0.0
Adj Reference Time (s)	0.0	36.7	59.1	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1394		144	
Reference Time A (s)	0.0	32.7	55.1		258.9	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		32.7	55.1			
Adj Reference Time (s)		36.7	59.1			
Split Option						
Ref Time Combined (s)	0.0	32.7	55.1		17.6	
Ref Time Seperate (s)	0.0	32.7	40.3		7.1	
Reference Time (s)	32.7	32.7	55.1		17.6	
Adj Reference Time (s)	36.7	36.7	59.1		22.7	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	59.1		NA			
Permitted Option (s)	59.1		Err			
Split Option (s)	95.8		22.7			
Minimum (s)	59.1		22.7	81.7		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	68.1%		ICU Level of Service		C	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕↕			↕↕↕	↕	↕	↕	↕	↕	↕	↕
Volume (vph)	181	1079	163	0	1202	246	371	329	416	423	6	492
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	181	1242	0	0	1202	246	371	329	416	0	429	492
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4273	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.7	35.0	0.0	0.0	33.1	22.3			37.3			44.1
Adj Reference Time (s)	8.7	39.0	0.0	0.0	37.1	33.3			41.3			48.1
Permitted Option												
Adj Saturation A (vph)	154	1424		0	1453		101	1600		0	205	
Reference Time A (s)	70.6	35.0		0.0	33.1		439.3	24.7		0.0	251.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		37.3	24.7		NA	NA	
Reference Time (s)		70.6			33.1			37.3			251.6	
Adj Reference Time (s)		74.6			37.1			41.3			255.6	
Split Option												
Ref Time Combined (s)	4.7	35.0		0.0	33.1		29.3	24.7		0.0	16.9	
Ref Time Seperate (s)	4.7	30.4		0.0	33.1		29.3	24.7		16.7	0.5	
Reference Time (s)	35.0	35.0		33.1	33.1		29.3	29.3		16.9	16.9	
Adj Reference Time (s)	39.0	39.0		37.1	37.1		33.3	33.3		33.3	33.3	
Summary												
Protected Option (s)	45.8		NA									
Permitted Option (s)	74.6		255.6									
Split Option (s)	76.1		66.6									
Minimum (s)	45.8		66.6		112.4							
Right Turns												
Adj Reference Time (s)	33.3	41.3	48.1									
Cross Thru Ref Time (s)	33.3	39.0	37.1									
Oncoming Left Ref Time (s)	33.3	33.3	33.3									
Combined (s)	75.3	113.6	118.4									
Intersection Summary												
Intersection Capacity Utilization	98.7%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	4	0	4	0	0	7	7	0	0
Future Vol, veh/h	0	0	0	4	0	4	0	0	7	7	0	0
Conflicting Peds, #/hr	5	0	5	0	0	0	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	-	0	-	-
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	4	0	4	0	0	8	8	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	24	28	10	24	24	9	5	0	0	8	0	0
Stage 1	20	20	-	4	4	-	-	-	-	-	-	-
Stage 2	4	8	-	20	20	-	-	-	-	-	-	-
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	987	865	1071	987	869	1073	1616	-	-	1612	-	-
Stage 1	999	879	-	1018	892	-	-	-	-	-	-	-
Stage 2	1018	889	-	999	879	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	971	857	1062	979	861	1069	1609	-	-	1605	-	-
Mov Cap-2 Maneuver	971	857	-	979	861	-	-	-	-	-	-	-
Stage 1	995	871	-	1018	892	-	-	-	-	-	-	-
Stage 2	1010	889	-	990	871	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.5	0	7.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1609	-	-	-	-	979	1069	1605	-	-
HCM Lane V/C Ratio	-	-	-	-	-0.004	0.004	0.005	-	-	-
HCM Control Delay (s)	0	-	-	0	0	8.7	8.4	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0	-	-

Intersection				
Intersection Delay, s/veh	3.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	7	19	4
Demand Flow Rate, veh/h	0	7	19	4
Vehicles Circulating, veh/h	11	8	0	7
Vehicles Exiting, veh/h	0	11	11	8
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	5
Ped Cap Adj	0.999	0.999	0.999	0.999
Approach Delay, s/veh	0.0	3.3	3.4	3.3
Approach LOS	-	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	0	7	19	4
Cap Entry Lane, veh/h	1118	1121	1130	1122
Entry HV Adj Factor	1.000	1.000	0.992	0.980
Flow Entry, veh/h	0	7	19	4
Cap Entry, veh/h	1117	1120	1120	1099
V/C Ratio	0.000	0.006	0.017	0.004
Control Delay, s/veh	3.2	3.3	3.4	3.3
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection				
Intersection Delay, s/veh	4.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	11	154	0	97
Demand Flow Rate, veh/h	11	157	0	99
Vehicles Circulating, veh/h	92	11	103	0
Vehicles Exiting, veh/h	7	92	0	168
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	0
Ped Cap Adj	0.999	0.999	0.999	1.000
Approach Delay, s/veh	3.6	4.5	0.0	4.0
Approach LOS	A	A	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	11	157	0	99
Cap Entry Lane, veh/h	1031	1118	1019	1130
Entry HV Adj Factor	1.000	0.981	1.000	0.980
Flow Entry, veh/h	11	154	0	97
Cap Entry, veh/h	1030	1095	1019	1107
V/C Ratio	0.011	0.141	0.000	0.088
Control Delay, s/veh	3.6	4.5	3.5	4.0
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection Capacity Utilization
15: 60th St W & Ave K-8

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↔		↖	↕	↔	↖	↕	↗
Volume (vph)	18	0	111	16	0	17	189	530	23	31	684	29
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	18	111	0	33	0	189	553	0	31	684	29
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.90	0.85	0.95	0.99	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	1360	0	1441	0	1520	3027	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			10.4			0.0	14.9	21.9	0.0	2.4	26.9	3.2
Adj Reference Time (s)			16.1			0.0	19.4	26.4	0.0	8.5	31.4	22.5
Permitted Option												
Adj Saturation A (vph)	0	838		0	169		101	1514		101	1523	
Reference Time A (s)	0.0	2.6		0.0	23.8		223.8	21.9		36.7	26.9	
Adj Saturation B (vph)	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.4	9.4		9.3	11.1		NA	NA		NA	NA	
Reference Time (s)		2.6			11.1			223.8			36.7	
Adj Reference Time (s)		10.6			16.6			228.3			41.2	
Split Option												
Ref Time Combined (s)	0.0	1.4		0.0	3.1		14.9	21.9		2.4	26.9	
Ref Time Seperate (s)	1.4	0.0		1.3	0.3		14.9	21.0		2.4	26.9	
Reference Time (s)	1.4	1.4		3.1	3.1		21.9	21.9		26.9	26.9	
Adj Reference Time (s)	10.6	10.6		10.6	10.6		26.4	26.4		31.4	31.4	
Summary												
Protected Option (s)	NA		50.9									
Permitted Option (s)	16.6		228.3									
Split Option (s)	21.3		57.9									
Minimum (s)	16.6		50.9		67.5							
Right Turns												
Adj Reference Time (s)	16.1		22.5									
Cross Thru Ref Time (s)	31.4		10.6									
Oncoming Left Ref Time (s)	31.4		19.4									
Combined (s)	58.2		52.6									

Intersection Summary

Intersection Capacity Utilization 56.3% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
16: 70th St W & Ave L

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷	↷	↶	↷		↶	↷		↶	↷		
Volume (vph)	2	124	35	263	184	22	14	94	170	32	151	11	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		Yes			Yes			No			No		
Pedestrian Timing (s)		18.0			18.0			18.0			18.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	2	124	35	263	206	0	14	264	0	32	162	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.90	0.85	0.95	0.99	0.85	
Saturated Flow (vph)	1520	1600	1360	1520	1574	0	1520	1445	0	1520	1584	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.4	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.2	9.3	3.7	20.8	15.8	0.0	1.1	22.3	0.0	2.5	12.3	0.0	
Adj Reference Time (s)	8.5	15.1	10.6	25.3	20.6	0.0	8.5	26.8	0.0	8.5	22.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1600		101	1574		101	1445		101	1584		
Reference Time A (s)	2.4	9.3		311.4	15.8		16.6	22.3		37.9	12.3		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		9.3			311.4			22.3			37.9		
Adj Reference Time (s)		15.1			315.9			26.8			42.4		
Split Option													
Ref Time Combined (s)	0.2	9.3		20.8	15.8		1.1	22.3		2.5	12.3		
Ref Time Seperate (s)	0.2	9.3		20.8	14.1		1.1	8.2		2.5	11.5		
Reference Time (s)	9.3	9.3		20.8	20.8		22.3	22.3		12.3	12.3		
Adj Reference Time (s)	15.1	15.1		25.3	25.3		26.8	26.8		22.5	22.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	40.4		35.3										
Permitted Option (s)	315.9		42.4										
Split Option (s)	40.4		49.3										
Minimum (s)	40.4		35.3		75.7								
Right Turns													
	EBR												
Adj Reference Time (s)	10.6												
Cross Thru Ref Time (s)	22.5												
Oncoming Left Ref Time (s)	25.3												
Combined (s)	58.4												
Intersection Summary													
Intersection Capacity Utilization	63.1%				ICU Level of Service				B				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	317	14	82	448	0	9	0	54	0	0	0
Future Vol, veh/h	0	317	14	82	448	0	9	0	54	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	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	345	15	89	487	0	10	0	59	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	492	0	0	365	0	0	1027	1027	362	1027	1035	497
Stage 1	-	-	-	-	-	-	357	357	-	670	670	-
Stage 2	-	-	-	-	-	-	670	670	-	357	365	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1071	-	-	1194	-	-	213	234	683	213	232	573
Stage 1	-	-	-	-	-	-	661	628	-	446	455	-
Stage 2	-	-	-	-	-	-	446	455	-	661	623	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1067	-	-	1189	-	-	195	208	677	178	206	568
Mov Cap-2 Maneuver	-	-	-	-	-	-	195	208	-	178	206	-
Stage 1	-	-	-	-	-	-	658	625	-	444	406	-
Stage 2	-	-	-	-	-	-	398	406	-	601	620	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.3	12.7	0
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	195	677	1067	-	-	1189	-	-	-
HCM Lane V/C Ratio	0.05	0.087	-	-	-0.075	-	-	-	-
HCM Control Delay (s)	24.4	10.8	0	-	-	8.3	0	-	0
HCM Lane LOS	C	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0.3	0	-	-	0.2	-	-	-

Intersection Capacity Utilization
18: QHHS Dwy/Walmart Dwy & Ave L

























PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗		↘	↗		↘	↗		↕	
Volume (vph)	58	348	4	12	539	222	2	0	17	120	0	38
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	58	348	4	0	551	222	0	2	17	0	158	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.93	0.85
Saturated Flow (vph)	1520	3046	1360	0	1598	1360	0	1520	1360	0	1484	0
Ped Intf Time (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
Pedestrian Frequency (%)	0.00		0.00		0.00		0.00		0.00		0.00	
Protected Option Allowed	No		No		No		No		No		No	
Reference Time (s)			0.4			19.6			1.5			0.0
Adj Reference Time (s)			8.5			24.1			8.5			0.0
Permitted Option												
Adj Saturation A (vph)	101	1523	0		1221	0		1256	0		120	
Reference Time A (s)	68.7	13.7	0.0		54.2	0.0		0.2	0.0		157.7	
Adj Saturation B (vph)	NA	NA	NA		NA	0		0	0		0	
Reference Time B (s)	NA	NA	NA		NA	8.2		8.2	17.5		20.8	
Reference Time (s)	68.7				54.2			0.2			20.8	
Adj Reference Time (s)	73.2				58.7			8.5			25.3	
Split Option												
Ref Time Combined (s)	4.6	13.7	0.0		41.4	0.0		0.2	0.0		12.8	
Ref Time Seperate (s)	4.6	13.7	0.9		40.4	0.2		0.0	9.5		0.0	
Reference Time (s)	13.7	13.7	41.4		41.4	0.2		0.2	12.8		12.8	
Adj Reference Time (s)	18.2	18.2	45.9		45.9	8.5		8.5	17.3		17.3	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	NA		NA									
Permitted Option (s)	73.2		25.3									
Split Option (s)	64.1		25.8									
Minimum (s)	64.1		25.3		89.4							
Right Turns												
	EBR		WBR		NBR							
Adj Reference Time (s)	8.5		24.1		8.5							
Cross Thru Ref Time (s)	17.3		8.5		18.2							
Oncoming Left Ref Time (s)	45.9		18.2		17.3							
Combined (s)	71.6		50.8		44.0							
Intersection Summary												
Intersection Capacity Utilization	74.5%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
19: 60th St W & Ave L

PM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	295	140	283	480	387	229	361	409	290	657	65
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	2500	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	5.7
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	53	295	140	283	480	387	229	361	409	290	657	65
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1600	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.2	11.6	13.0	22.3	18.9	34.8	18.1	27.1	36.7	7.5	25.9	6.4
Adj Reference Time (s)	8.2	31.6	31.6	26.3	22.9	38.8	22.1	33.0	43.2	11.5	29.9	12.1
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1600		154	1523	
Reference Time A (s)	62.8	11.6		335.1	18.9		271.2	27.1		113.2	25.9	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		62.8			335.1			271.2			113.2	
Adj Reference Time (s)		66.8			339.1			275.2			117.2	
Split Option												
Ref Time Combined (s)	4.2	11.6		22.3	18.9		18.1	27.1		7.5	25.9	
Ref Time Seperate (s)	4.2	11.6		22.3	18.9		18.1	27.1		7.5	25.9	
Reference Time (s)	11.6	11.6		22.3	22.3		27.1	27.1		25.9	25.9	
Adj Reference Time (s)	31.6	31.6		26.3	26.3		33.0	33.0		29.9	29.9	
Summary												
Protected Option (s)	57.9		52.0									
Permitted Option (s)	339.1		275.2									
Split Option (s)	57.9		62.9									
Minimum (s)	57.9		52.0		109.9							
Right Turns												
Adj Reference Time (s)	31.6	38.8	43.2	12.1								
Cross Thru Ref Time (s)	29.9	33.0	31.6	22.9								
Oncoming Left Ref Time (s)	31.6	8.2	11.5	22.1								
Combined (s)	87.8	80.0	86.3	57.1								

Intersection Summary

Intersection Capacity Utilization 91.6% ICU Level of Service F
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection

Int Delay, s/veh 2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	670	15	108	951	12	85
Future Vol, veh/h	670	15	108	951	12	85
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	728	16	117	1034	13	92

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	733	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	872	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	868	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	28.3
HCM LOS			D

Minor Lane/Major Mvm	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	45	415	-	-	868	-
HCM Lane V/C Ratio	0.29	0.223	-	-	0.135	-
HCM Control Delay (s)	114.9	16.1	-	-	9.8	0
HCM Lane LOS	F	C	-	-	A	A
HCM 95th %tile Q(veh)	1	0.8	-	-	0.5	-

Intersection Capacity Utilization
21: 50th St W & Ave L

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷		↶	↷	↷	↶	↷	↷	
Volume (vph)	64	734	52	208	1051	57	66	187	144	39	232	91	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	64	786	0	208	1108	0	66	187	144	39	323	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	3016	0	1520	3023	0	1520	1600	1360	1520	1532	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.1	31.3	0.0	16.4	44.0	0.0	5.2	14.0	13.3	3.1	25.5	0.0	
Adj Reference Time (s)	9.1	35.3	0.0	20.4	48.0	0.0	9.2	18.7	18.1	8.0	29.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1508		101	1511		101	1600		101	1532		
Reference Time A (s)	75.8	31.3		246.3	44.0		78.2	14.0		46.2	25.5		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		75.8			246.3			78.2			46.2		
Adj Reference Time (s)		79.8			250.3			82.2			50.2		
Split Option													
Ref Time Combined (s)	5.1	31.3		16.4	44.0		5.2	14.0		3.1	25.5		
Ref Time Seperate (s)	5.1	29.2		16.4	41.8		5.2	14.0		3.1	18.3		
Reference Time (s)	31.3	31.3		44.0	44.0		14.0	14.0		25.5	25.5		
Adj Reference Time (s)	35.3	35.3		48.0	48.0		18.7	18.7		29.5	29.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	57.1		38.7										
Permitted Option (s)	250.3		82.2										
Split Option (s)	83.3		48.1										
Minimum (s)	57.1		38.7		95.8								
Right Turns													
	NBR												
Adj Reference Time (s)	18.1												
Cross Thru Ref Time (s)	35.3												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	61.4												
Intersection Summary													
Intersection Capacity Utilization	79.8%		ICU Level of Service						D				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷		↶	↷	↷	↶	↷	↷
Volume (vph)	31	875	19	136	1281	114	27	39	95	56	39	21
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.6			16.0			20.4			22.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	31	875	19	136	1395	0	27	39	95	56	60	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3009	0	1520	1600	1360	1520	1516	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.4	34.5	2.3	10.7	55.7	0.0	2.1	2.9	9.0	4.4	5.0	0.0
Adj Reference Time (s)	8.0	38.5	29.6	14.7	59.7	0.0	8.0	10.5	14.8	8.4	11.6	0.0
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1505		101	1600		101	1516	
Reference Time A (s)	36.7	34.5		161.1	55.7		32.0	2.9		66.3	5.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1516	
Reference Time B (s)	NA	NA		NA	NA		10.1	2.9		12.4	5.0	
Reference Time (s)		36.7			161.1			10.1			12.4	
Adj Reference Time (s)		40.7			165.1			15.7			17.9	
Split Option												
Ref Time Combined (s)	2.4	34.5		10.7	55.7		2.1	2.9		4.4	5.0	
Ref Time Seperate (s)	2.4	34.5		10.7	51.1		2.1	2.9		4.4	3.3	
Reference Time (s)	34.5	34.5		55.7	55.7		2.9	2.9		5.0	5.0	
Adj Reference Time (s)	38.5	38.5		59.7	59.7		10.5	10.5		11.6	11.6	
Summary												
Protected Option (s)	67.7		19.6									
Permitted Option (s)	165.1		17.9									
Split Option (s)	98.2		22.1									
Minimum (s)	67.7		17.9		85.6							
Right Turns												
Adj Reference Time (s)	29.6		14.8									
Cross Thru Ref Time (s)	11.6		38.5									
Oncoming Left Ref Time (s)	11.6		8.4									
Combined (s)	55.9		61.7									
Intersection Summary												
Intersection Capacity Utilization	71.3%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
23: 40th St W & Ave L

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↕		↖	↕	↖	↖	↕	↖	↖	↕	↖	
Volume (vph)	74	774	17	57	1322	132	29	64	36	222	92	146	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		31.0			33.3			35.6			31.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	74	791	0	57	1322	132	29	64	36	222	92	146	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3037	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.8	31.3	0.0	4.5	52.1	12.3	2.3	4.8	3.8	17.5	6.9	13.5	
Adj Reference Time (s)	9.8	35.3	0.0	8.5	56.1	37.3	8.0	13.5	12.9	21.5	14.7	20.3	
Permitted Option													
Adj Saturation A (vph)	101	1518		101	1523		101	1600		101	1600		
Reference Time A (s)	87.6	31.3		67.5	52.1		34.3	4.8		262.9	6.9		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600		
Reference Time B (s)	NA	NA		NA	NA		10.3	4.8		25.5	6.9		
Reference Time (s)		87.6			67.5			10.3			25.5		
Adj Reference Time (s)		91.6			71.5			18.2			30.5		
Split Option													
Ref Time Combined (s)	5.8	31.3		4.5	52.1		2.3	4.8		17.5	6.9		
Ref Time Seperate (s)	5.8	30.6		4.5	52.1		2.3	4.8		17.5	6.9		
Reference Time (s)	31.3	31.3		52.1	52.1		4.8	4.8		17.5	17.5		
Adj Reference Time (s)	35.3	35.3		56.1	56.1		13.5	13.5		23.7	23.7		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	65.9		35.1										
Permitted Option (s)	91.6		30.5										
Split Option (s)	91.3		37.2										
Minimum (s)	65.9		30.5		96.4								
Right Turns													
	WBR		NBR		SBR								
Adj Reference Time (s)	37.3		12.9		20.3								
Cross Thru Ref Time (s)	13.5		35.3		56.1								
Oncoming Left Ref Time (s)	9.8		21.5		8.0								
Combined (s)	60.7		69.7		84.4								
Intersection Summary													
Intersection Capacity Utilization	80.3%		ICU Level of Service						D				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
24: 35th St W & Ave L

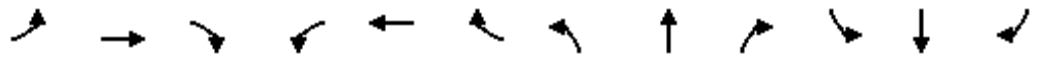
PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	41	947	18	57	1439	44	23	31	28	28	30	77	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		16.0			23.9			25.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	41	965	0	57	1483	0	23	59	0	28	30	77	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3038	0	1520	3033	0	1520	1486	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.2	38.1	0.0	4.5	58.7	0.0	1.8	5.1	0.0	2.2	2.3	7.4	
Adj Reference Time (s)	8.0	42.1	0.0	8.5	62.7	0.0	8.0	12.2	0.0	8.0	8.0	11.4	
Permitted Option													
Adj Saturation A (vph)	101	1519		101	1516		101	1486		101	1600		
Reference Time A (s)	48.6	38.1		67.5	58.7		27.2	5.1		33.2	2.3		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1486		0	1600		
Reference Time B (s)	NA	NA		NA	NA		9.8	5.1		10.2	2.3		
Reference Time (s)		48.6			67.5			9.8			10.2		
Adj Reference Time (s)		52.6			71.5			16.2			14.2		
Split Option													
Ref Time Combined (s)	3.2	38.1		4.5	58.7		1.8	5.1		2.2	2.3		
Ref Time Seperate (s)	3.2	37.4		4.5	57.0		1.8	2.8		2.2	2.3		
Reference Time (s)	38.1	38.1		58.7	58.7		5.1	5.1		2.3	2.3		
Adj Reference Time (s)	42.1	42.1		62.7	62.7		12.2	12.2		8.0	8.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	70.7		20.2										
Permitted Option (s)	71.5		16.2										
Split Option (s)	104.8		20.2										
Minimum (s)	70.7		16.2		86.9								
Right Turns													
	SBR												
Adj Reference Time (s)	11.4												
Cross Thru Ref Time (s)	62.7												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	82.1												
Intersection Summary													
Intersection Capacity Utilization	72.4%		ICU Level of Service						C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
25: 30th St W & Ave L

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Volume (vph)	107	823	88	198	1343	148	152	294	129	129	315	159
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	107	823	88	198	1343	148	152	294	129	129	315	159
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	8.4	22.7	8.4	15.6	37.0	13.7	12.0	11.6	12.0	10.2	12.4	14.7
Adj Reference Time (s)	12.4	39.0	39.0	19.6	41.0	37.0	16.0	19.3	19.7	14.2	19.7	21.7
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1523		101	1523	
Reference Time A (s)	126.7	22.7		234.5	37.0		180.0	11.6		152.8	12.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		126.7			234.5			180.0			152.8	
Adj Reference Time (s)		130.7			238.5			184.0			156.8	
Split Option												
Ref Time Combined (s)	8.4	22.7		15.6	37.0		12.0	11.6		10.2	12.4	
Ref Time Seperate (s)	8.4	22.7		15.6	37.0		12.0	11.6		10.2	12.4	
Reference Time (s)	22.7	22.7		37.0	37.0		12.0	12.0		12.4	12.4	
Adj Reference Time (s)	39.0	39.0		41.0	41.0		19.7	19.7		19.7	19.7	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	58.6		35.7									
Permitted Option (s)	238.5		184.0									
Split Option (s)	80.0		39.4									
Minimum (s)	58.6		35.7		94.4							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	39.0		37.0		19.7		21.7					
Cross Thru Ref Time (s)	19.7		19.3		39.0		41.0					
Oncoming Left Ref Time (s)	19.6		12.4		14.2		16.0					
Combined (s)	78.4		68.8		72.9		78.6					
Intersection Summary												
Intersection Capacity Utilization			78.6%		ICU Level of Service				D			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L

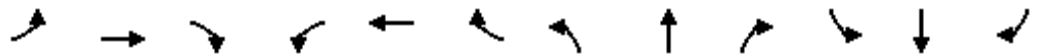
PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕		↘	↑	↗
Volume (vph)	66	1029	4	4	1642	74	4	1	6	55	3	107
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.3			22.4			16.0			30.7	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	66	1029	4	4	1642	74	0	11	0	55	3	107
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.90	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1442	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.4	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.2	40.5	1.0	0.3	64.7	7.2			0.0			10.1
Adj Reference Time (s)	9.2	44.5	31.0	8.0	68.7	26.4			0.0			17.2
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		0	217		654	1600	
Reference Time A (s)	78.2	40.5		4.7	64.7		0.0	6.4		10.1	0.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.3	9.3		12.3	0.2	
Reference Time (s)		78.2			64.7			6.4			10.1	
Adj Reference Time (s)		82.2			68.7			10.4			17.3	
Split Option												
Ref Time Combined (s)	5.2	40.5		0.3	64.7		0.0	1.3		4.3	0.2	
Ref Time Seperate (s)	5.2	40.5		0.3	64.7		0.3	0.4		4.3	0.2	
Reference Time (s)	40.5	40.5		64.7	64.7		1.3	1.3		4.3	4.3	
Adj Reference Time (s)	44.5	44.5		68.7	68.7		8.0	8.0		12.4	12.4	
Summary												
Protected Option (s)	77.9		NA									
Permitted Option (s)	82.2		17.3									
Split Option (s)	113.2		20.4									
Minimum (s)	77.9		17.3		95.1							
Right Turns												
Adj Reference Time (s)	31.0	26.4	17.2									
Cross Thru Ref Time (s)	12.4	8.0	68.7									
Oncoming Left Ref Time (s)	8.0	9.2	8.0									
Combined (s)	51.4	43.6	93.9									
Intersection Summary												
Intersection Capacity Utilization	79.3%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
27: 20th St W & Ave L

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑	↗
Volume (vph)	117	927	53	68	1475	136	73	190	42	85	210	172
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	117	927	53	68	1475	136	73	232	0	85	210	172
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2964	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	9.2	36.5	5.3	5.4	40.6	12.6	5.8	9.5	0.0	6.7	15.8	15.8
Adj Reference Time (s)	13.2	40.5	34.1	9.4	44.6	40.7	9.8	16.5	0.0	10.7	22.4	22.5
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1482		101	1600	
Reference Time A (s)	138.6	36.5		80.5	40.6		86.4	9.5		100.7	15.8	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		138.6			80.5			86.4			100.7	
Adj Reference Time (s)		142.6			84.5			90.4			104.7	
Split Option												
Ref Time Combined (s)	9.2	36.5		5.4	40.6		5.8	9.5		6.7	15.8	
Ref Time Seperate (s)	9.2	36.5		5.4	40.6		5.8	7.8		6.7	15.8	
Reference Time (s)	36.5	36.5		40.6	40.6		9.5	9.5		15.8	15.8	
Adj Reference Time (s)	40.5	40.5		44.6	44.6		16.5	16.5		22.4	22.4	
Summary												
Protected Option (s)	57.8		32.2									
Permitted Option (s)	142.6		104.7									
Split Option (s)	85.1		38.9									
Minimum (s)	57.8		32.2		90.0							
Right Turns												
Adj Reference Time (s)	34.1	40.7	22.5									
Cross Thru Ref Time (s)	22.4	16.5	44.6									
Oncoming Left Ref Time (s)	9.4	13.2	9.8									
Combined (s)	65.9	70.5	76.8									
Intersection Summary												
Intersection Capacity Utilization	75.0%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
28: 15th St W & Ave L

PM 2021+Related Projects
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑		↰	↑↑↑	↰		↕		↰	↑	↰
Volume (vph)	74	997	0	10	1658	298	0	1	4	269	6	101
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	74	997	0	10	1658	298	0	5	0	269	6	101
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.88	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	0	1520	4358	1360	0	1408	0	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00		
Protected Option Allowed	Yes			Yes			No			No		
Reference Time (s)	5.8	27.5	0.0	0.8	45.6	26.3			0.0			8.9
Adj Reference Time (s)	9.8	31.5	0.0	8.0	49.6	30.3			0.0			12.9
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		0	1408		101	1600	
Reference Time A (s)	87.6	27.5		11.8	45.6		0.0	0.4		318.6	0.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1408		0	1600	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.4		29.2	0.5	
Reference Time (s)		87.6			45.6			0.4			29.2	
Adj Reference Time (s)		91.6			49.6			8.0			33.2	
Split Option												
Ref Time Combined (s)	5.8	27.5		0.8	45.6		0.0	0.4		21.2	0.5	
Ref Time Seperate (s)	5.8	27.5		0.8	45.6		0.0	0.1		21.2	0.5	
Reference Time (s)	27.5	27.5		45.6	45.6		0.4	0.4		21.2	21.2	
Adj Reference Time (s)	31.5	31.5		49.6	49.6		8.0	8.0		25.2	25.2	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	59.5		NA									
Permitted Option (s)	91.6		33.2									
Split Option (s)	81.1		33.2									
Minimum (s)	59.5		33.2		92.7							
Right Turns												
	WBR		SBR									
Adj Reference Time (s)	30.3		12.9									
Cross Thru Ref Time (s)	8.0		49.6									
Oncoming Left Ref Time (s)	9.8		8.0									
Combined (s)	48.1		70.6									
Intersection Summary												
Intersection Capacity Utilization	77.3%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	699	1807	0	295	156
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	699	1807	0	451	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4358	0	4453	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	19.2	49.8	0.0		0.0
Adj Reference Time (s)	0.0	23.2	53.8	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		148	
Reference Time A (s)	0.0	19.2	49.8		182.5	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		19.2	49.8			
Adj Reference Time (s)		23.2	53.8			
Split Option						
Ref Time Combined (s)	0.0	19.2	49.8		12.4	
Ref Time Seperate (s)	0.0	19.2	49.8		8.2	
Reference Time (s)	19.2	19.2	49.8		12.4	
Adj Reference Time (s)	23.2	23.2	53.8		17.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	53.8		NA			
Permitted Option (s)	53.8		Err			
Split Option (s)	77.0		17.6			
Minimum (s)	53.8		17.6	71.4		

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary			
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	900	0	0	1531	0	855	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	900	0	0	1531	0	855	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	24.8	0.6	0.0	31.6	0.0	67.5	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	28.8	9.7	0.0	35.6	0.0	71.5	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	24.8		0.0	31.6		1012.5	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		75.5	0.0		0.0	0.0	
Reference Time (s)		24.8			31.6			75.5			0.0	
Adj Reference Time (s)		28.8			35.6			79.5			9.8	
Split Option												
Ref Time Combined (s)	0.0	24.8		0.0	31.6		67.5	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	24.8		0.0	31.6		67.5	0.0		0.0	0.0	
Reference Time (s)	24.8	24.8		31.6	31.6		67.5	67.5		0.0	0.0	
Adj Reference Time (s)	28.8	28.8		35.6	35.6		71.5	71.5		9.8	9.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	35.6		71.5									
Permitted Option (s)	35.6		79.5									
Split Option (s)	64.4		81.3									
Minimum (s)	35.6		71.5		107.1							
Right Turns												
	EBR											
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	89.3%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

PM 2021+Related Projects+Project

Intersection												
Intersection Delay, s/veh	12.3											
Intersection LOS	B											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	1	144	31	0	166	74	11	0	14	102	116
Future Vol, veh/h	0	1	144	31	0	166	74	11	0	14	102	116
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	157	34	0	180	80	12	0	15	111	126
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB				WB				NB			
Opposing Approach	WB				EB				SB			
Opposing Lanes	1				1				1			
Conflicting Approach Left	SB				NB				EB			
Conflicting Lanes Left	1				1				1			
Conflicting Approach Right	NB				SB				WB			
Conflicting Lanes Right	1				1				1			
HCM Control Delay	11.3				13.3				11.8			
HCM LOS	B				B				B			
Lane	NBLn1		EBLn1		WBLn1		SBLn1					
Vol Left, %	6%		1%		66%		4%					
Vol Thru, %	44%		82%		29%		95%					
Vol Right, %	50%		18%		4%		0%					
Sign Control	Stop		Stop		Stop		Stop					
Traffic Vol by Lane	232		176		251		221					
LT Vol	14		1		166		9					
Through Vol	102		144		74		211					
RT Vol	116		31		11		1					
Lane Flow Rate	252		191		273		240					
Geometry Grp	1		1		1		1					
Degree of Util (X)	0.38		0.304		0.437		0.382					
Departure Headway (Hd)	5.424		5.719		5.767		5.72					
Convergence, Y/N	Yes		Yes		Yes		Yes					
Cap	658		624		622		625					
Service Time	3.493		3.791		3.832		3.788					
HCM Lane V/C Ratio	0.383		0.306		0.439		0.384					
HCM Control Delay	11.8		11.3		13.3		12.3					
HCM Lane LOS	B		B		B		B					
HCM 95th-tile Q	1.8		1.3		2.2		1.8					

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	9	211	1
Future Vol, veh/h	0	9	211	1
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	10	229	1
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.3
HCM LOS	B

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

PM 2021+Related Projects+Project
5/2/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	33	375	69	425	441	119	81	320	317	88	492	56	
Pedestrians			5			5			5			5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		30.7			28.7			27.3			27.3		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	33	375	69	425	441	119	81	637	0	88	548	0	
Lane Utilization Factor	0.97	0.95	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	0.98	0.85	
Saturated Flow (vph)	4612	3046	1360	4612	1600	1360	1520	2819	0	1520	3000	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.9	14.8	6.7	11.1	33.1	11.1	6.4	27.4	0.0	6.9	22.0	0.0	
Adj Reference Time (s)	8.0	34.7	34.7	15.1	37.1	32.7	10.4	31.4	0.0	10.9	26.8	0.0	
Permitted Option													
Adj Saturation A (vph)	154	1523		154	1600		101	1409		101	1500		
Reference Time A (s)	12.9	14.8		165.9	33.1		95.9	27.4		104.2	22.0		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		14.8			165.9			95.9			104.2		
Adj Reference Time (s)		34.7			169.9			99.9			108.2		
Split Option													
Ref Time Combined (s)	0.9	14.8		11.1	33.1		6.4	27.4		6.9	22.0		
Ref Time Seperate (s)	0.9	14.8		11.1	33.1		6.4	13.9		6.9	19.7		
Reference Time (s)	14.8	14.8		33.1	33.1		27.4	27.4		22.0	22.0		
Adj Reference Time (s)	34.7	34.7		37.1	37.1		31.4	31.4		26.8	26.8		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	49.8		42.4										
Permitted Option (s)	169.9		108.2										
Split Option (s)	71.8		58.2										
Minimum (s)	49.8		42.4		92.1								
Right Turns													
	EBR		WBR										
Adj Reference Time (s)	34.7		32.7										
Cross Thru Ref Time (s)	26.8		31.4										
Oncoming Left Ref Time (s)	15.1		8.0										
Combined (s)	76.6		72.1										

Intersection Summary

Intersection Capacity Utilization 76.8% ICU Level of Service D
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection

Intersection Delay, s/veh 72.9
Intersection LOS F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	104	820	30	0	81	1055	12	0	47	169	72
Future Vol, veh/h	0	104	820	30	0	81	1055	12	0	47	169	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	113	891	33	0	88	1147	13	0	51	184	78
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	76.4	76.4	43.9
HCM LOS	F	F	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	11%	7%	3%
Vol Thru, %	59%	86%	92%	59%
Vol Right, %	25%	3%	1%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	954	1148	435
LT Vol	47	104	81	14
Through Vol	169	820	1055	255
RT Vol	72	30	12	166
Lane Flow Rate	313	1037	1248	473
Geometry Grp	1	1	1	1
Degree of Util (X)	0.821	1	1	1
Departure Headway (Hd)	9.444	9.169	9.174	8.944
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	382	404	412	411
Service Time	7.514	7.169	7.174	6.944
HCM Lane V/C Ratio	0.819	2.567	3.029	1.151
HCM Control Delay	43.9	76.4	76.4	75.4
HCM Lane LOS	E	F	F	F
HCM 95th-tile Q	7.4	12.1	12.1	12.3

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	14	255	166
Future Vol, veh/h	0	14	255	166
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	15	277	180
Number of Lanes	0	0	1	0

























Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	75.4
HCM LOS	F

Lane

Intersection Capacity Utilization
4: 45th St W & Ave K

PM 2021+Related Projects+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	847	20	42	1100	44	25	87	36	35	75	78
Pedestrians			5			5						5
Ped Button		No			No						Yes	
Pedestrian Timing (s)		17.8			21.8						25.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	46	847	20	42	1100	44	25	123	0	35	75	78
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1530	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.6	63.5	2.4	3.3	82.5	4.5	2.0	9.6	0.0	2.8	5.6	7.5
Adj Reference Time (s)	8.0	67.5	21.8	8.0	86.5	25.8	8.0	13.6	0.0	8.0	12.7	14.3
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		101	1530		101	1600	
Reference Time A (s)	54.5	63.5		49.7	82.5		29.6	9.6		41.4	5.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1530		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		10.0	9.6		NA	NA	
Reference Time (s)		63.5			82.5			10.0			41.4	
Adj Reference Time (s)		67.5			86.5			14.0			45.4	
Split Option												
Ref Time Combined (s)	3.6	63.5		3.3	82.5		2.0	9.6		2.8	5.6	
Ref Time Seperate (s)	3.6	63.5		3.3	82.5		2.0	6.8		2.8	5.6	
Reference Time (s)	63.5	63.5		82.5	82.5		9.6	9.6		5.6	5.6	
Adj Reference Time (s)	67.5	67.5		86.5	86.5		13.6	13.6		12.7	12.7	
Summary												
Protected Option (s)	94.5		21.6									
Permitted Option (s)	86.5		45.4									
Split Option (s)	154.0		26.3									
Minimum (s)	86.5		21.6		108.1							
Right Turns												
Adj Reference Time (s)	21.8	25.8	14.3									
Cross Thru Ref Time (s)	12.7	13.6	86.5									
Oncoming Left Ref Time (s)	8.0	8.0	8.0									
Combined (s)	42.5	47.4	108.8									
Intersection Summary												
Intersection Capacity Utilization	90.7%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
5: 40th St W & Ave K

































PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	64	828	43	109	1089	56	50	179	74	44	273	83	
Pedestrians			5			5			5			5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		21.9			23.6			27.9			17.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	64	871	0	109	1089	56	50	179	74	44	356	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	
Saturated Flow (vph)	1520	3024	0	1520	1600	1360	1520	3046	1360	1520	1544	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.1	34.6	0.0	8.6	81.7	5.6	3.9	7.1	7.2	3.5	27.8	0.0	
Adj Reference Time (s)	9.1	38.6	0.0	12.6	85.7	27.6	8.0	14.3	14.4	8.0	31.8	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1512		101	1600		101	1523		101	1544		
Reference Time A (s)	75.8	34.6		129.1	81.7		59.2	7.1		52.1	27.8		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		75.8			129.1			59.2			52.1		
Adj Reference Time (s)		79.8			133.1			63.2			56.1		
Split Option													
Ref Time Combined (s)	5.1	34.6		8.6	81.7		3.9	7.1		3.5	27.8		
Ref Time Seperate (s)	5.1	32.9		8.6	81.7		3.9	7.1		3.5	21.4		
Reference Time (s)	34.6	34.6		81.7	81.7		7.1	7.1		27.8	27.8		
Adj Reference Time (s)	38.6	38.6		85.7	85.7		14.3	14.3		31.8	31.8		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	94.7		39.8										
Permitted Option (s)	133.1		63.2										
Split Option (s)	124.3		46.1										
Minimum (s)	94.7		39.8		134.5								
Right Turns													
	WBR		NBR										
Adj Reference Time (s)	27.6		14.4										
Cross Thru Ref Time (s)	14.3		38.6										
Oncoming Left Ref Time (s)	9.1		8.0										
Combined (s)	50.9		61.0										
Intersection Summary													
Intersection Capacity Utilization	112.1%		ICU Level of Service		H								
Reference Times and Phasing Options do not represent an optimized timing plan.													
























Intersection Capacity Utilization
6: 30th St W & Ave K

PM 2021+Related Projects+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Volume (vph)	202	856	83	169	993	192	163	542	123	243	611	202
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.7			26.1			32.1			30.1	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	202	939	0	169	1185	0	163	542	123	243	611	202
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	4301	0	4612	4252	0	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.3	26.3	0.0	4.4	33.5	0.0	4.2	21.3	11.5	6.3	24.1	18.5
Adj Reference Time (s)	9.3	32.7	0.0	8.4	37.5	0.0	8.2	27.0	18.7	10.3	29.0	24.3
Permitted Option												
Adj Saturation A (vph)	154	1434		154	1417		154	1523		154	1523	
Reference Time A (s)	78.8	26.3		66.0	33.5		63.6	21.3		94.8	24.1	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		78.8			66.0			63.6			94.8	
Adj Reference Time (s)		82.8			70.0			67.6			98.8	
Split Option												
Ref Time Combined (s)	5.3	26.3		4.4	33.5		4.2	21.3		6.3	24.1	
Ref Time Seperate (s)	5.3	23.9		4.4	28.1		4.2	21.3		6.3	24.1	
Reference Time (s)	26.3	26.3		33.5	33.5		21.3	21.3		24.1	24.1	
Adj Reference Time (s)	32.7	32.7		37.5	37.5		27.0	27.0		29.0	29.0	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	46.8		37.3									
Permitted Option (s)	82.8		98.8									
Split Option (s)	70.2		56.0									
Minimum (s)	46.8		37.3		84.1							
Right Turns												
	NBR		SBR									
Adj Reference Time (s)	18.7		24.3									
Cross Thru Ref Time (s)	32.7		37.5									
Oncoming Left Ref Time (s)	10.3		8.2									
Combined (s)	61.7		70.0									
Intersection Summary												
Intersection Capacity Utilization	70.1%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
7: 25th St W & Ave K

PM 2021+Related Projects+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	1114	20	61	1283	96	12	120	43	77	136	106
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		24.4			26.7			25.3			27.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	85	1134	0	61	1283	96	12	120	43	77	136	106
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3038	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.7	44.8	0.0	4.8	50.5	9.1	0.9	9.0	4.4	6.1	10.2	10.0
Adj Reference Time (s)	10.7	48.8	0.0	8.8	54.5	30.7	8.0	15.5	11.6	10.1	16.9	16.7
Permitted Option												
Adj Saturation A (vph)	101	1519		101	1523		101	1600		101	1600	
Reference Time A (s)	100.7	44.8		72.2	50.5		14.2	9.0		91.2	10.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		0	1600	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		14.1	10.2	
Reference Time (s)		100.7			72.2			14.2			14.1	
Adj Reference Time (s)		104.7			76.2			19.9			20.2	
Split Option												
Ref Time Combined (s)	6.7	44.8		4.8	50.5		0.9	9.0		6.1	10.2	
Ref Time Seperate (s)	6.7	44.0		4.8	50.5		0.9	9.0		6.1	10.2	
Reference Time (s)	44.8	44.8		50.5	50.5		9.0	9.0		10.2	10.2	
Adj Reference Time (s)	48.8	48.8		54.5	54.5		15.5	15.5		16.9	16.9	
Summary												
Protected Option (s)	65.2		25.6									
Permitted Option (s)	104.7		20.2									
Split Option (s)	103.3		32.4									
Minimum (s)	65.2		20.2		85.4							
Right Turns												
Adj Reference Time (s)	30.7	11.6	16.7									
Cross Thru Ref Time (s)	15.5	48.8	54.5									
Oncoming Left Ref Time (s)	10.7	10.1	8.0									
Combined (s)	56.9	70.5	79.2									
Intersection Summary												
Intersection Capacity Utilization	71.2%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
8: 20th St W & Ave K

PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷↷↷	↷	↶	↷↷↷		↶↷	↷		↶↷	↷↷↷		
Volume (vph)	209	1065	95	201	1200	138	133	274	103	203	418	166	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		30.4			31.0			29.9			33.3		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	209	1065	95	201	1338	0	133	377	0	203	584	0	
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	4358	1360	1520	4291	0	4612	2922	0	4612	4173	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	16.5	29.3	9.0	15.9	37.5	0.0	3.5	15.7	0.0	5.3	17.0	0.0	
Adj Reference Time (s)	20.5	34.4	34.4	19.9	41.5	0.0	8.0	21.8	0.0	9.3	23.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1453		101	1430		154	1461		154	1391		
Reference Time A (s)	247.5	29.3		238.0	37.5		51.9	15.7		79.2	17.0		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		247.5			238.0			51.9			79.2		
Adj Reference Time (s)		251.5			242.0			55.9			83.2		
Split Option													
Ref Time Combined (s)	16.5	29.3		15.9	37.5		3.5	15.7		5.3	17.0		
Ref Time Seperate (s)	16.5	29.3		15.9	33.6		3.5	11.4		5.3	12.2		
Reference Time (s)	29.3	29.3		37.5	37.5		15.7	15.7		17.0	17.0		
Adj Reference Time (s)	34.4	34.4		41.5	41.5		21.8	21.8		23.5	23.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	62.0		31.5										
Permitted Option (s)	251.5		83.2										
Split Option (s)	75.9		45.3										
Minimum (s)	62.0		31.5		93.5								
Right Turns													
	EBR												
Adj Reference Time (s)	34.4												
Cross Thru Ref Time (s)	23.5												
Oncoming Left Ref Time (s)	19.9												
Combined (s)	77.8												
Intersection Summary													
Intersection Capacity Utilization	77.9%				ICU Level of Service				D				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
9: 17th St W & Ave K

PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑	↗	↗	↑	↗
Volume (vph)	68	1320	79	174	1503	190	47	78	153	215	62	61
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	68	1399	0	174	1693	0	47	78	153	215	62	61
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4321	0	1520	4285	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00		0.00		0.00		0.00		0.00		0.00	
Protected Option Allowed	Yes		Yes		Yes		Yes		Yes		Yes	
Reference Time (s)	5.4	38.8	0.0	13.7	47.4	0.0	3.7	5.8	13.5	17.0	4.7	5.4
Adj Reference Time (s)	9.4	42.8	0.0	17.7	51.4	0.0	8.0	9.8	17.5	21.0	8.7	9.4
Permitted Option												
Adj Saturation A (vph)	101	1440		101	1428		101	1600		101	1600	
Reference Time A (s)	80.5	38.8		206.1	47.4		55.7	5.8		254.6	4.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		11.7	5.8		25.0	4.7	
Reference Time (s)		80.5			206.1			11.7			25.0	
Adj Reference Time (s)		84.5			210.1			15.7			29.0	
Split Option												
Ref Time Combined (s)	5.4	38.8		13.7	47.4		3.7	5.8		17.0	4.7	
Ref Time Seperate (s)	5.4	36.7		13.7	42.1		3.7	5.8		17.0	4.7	
Reference Time (s)	38.8	38.8		47.4	47.4		5.8	5.8		17.0	17.0	
Adj Reference Time (s)	42.8	42.8		51.4	51.4		9.8	9.8		21.0	21.0	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	60.8		30.8									
Permitted Option (s)	210.1		29.0									
Split Option (s)	94.3		30.8									
Minimum (s)	60.8		29.0		89.8							
Right Turns	NBR		SBR									
Adj Reference Time (s)	17.5		9.4									
Cross Thru Ref Time (s)	42.8		51.4									
Oncoming Left Ref Time (s)	11.0		8.0									
Combined (s)	81.3		68.8									
Intersection Summary												
Intersection Capacity Utilization	74.8%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp



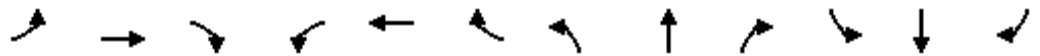
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1269	1424	513	242	463
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1269	1937	0	705	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.89	0.85
Saturated Flow (vph)	0	4358	4185	0	4302	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.4	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	34.9	55.7	0.0		0.0
Adj Reference Time (s)	0.0	38.9	59.7	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1395		143	
Reference Time A (s)	0.0	34.9	55.7		295.4	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		34.9	55.7			
Adj Reference Time (s)		38.9	59.7			
Split Option						
Ref Time Combined (s)	0.0	34.9	55.7		20.1	
Ref Time Seperate (s)	0.0	34.9	41.0		7.2	
Reference Time (s)	34.9	34.9	55.7		20.1	
Adj Reference Time (s)	38.9	38.9	59.7		24.8	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	59.7		NA			
Permitted Option (s)	59.7		Err			
Split Option (s)	98.6		24.8			
Minimum (s)	59.7		24.8	84.5		

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary
 Intersection Capacity Utilization 70.4% ICU Level of Service C
 Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕↕			↕↕↕	↔	↔	↕	↔	↔	↕	↔
Volume (vph)	181	1097	225	0	1226	246	371	329	416	423	6	492
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	181	1322	0	0	1226	246	371	329	416	0	429	492
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4247	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.7	37.5	0.0	0.0	33.8	22.3			37.3			44.1
Adj Reference Time (s)	8.7	41.5	0.0	0.0	37.8	33.3			41.3			48.1
Permitted Option												
Adj Saturation A (vph)	154	1416		0	1453		101	1600		0	205	
Reference Time A (s)	70.6	37.5		0.0	33.8		439.3	24.7		0.0	251.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		37.3	24.7		NA	NA	
Reference Time (s)		70.6			33.8			37.3			251.6	
Adj Reference Time (s)		74.6			37.8			41.3			255.6	
Split Option												
Ref Time Combined (s)	4.7	37.5		0.0	33.8		29.3	24.7		0.0	16.9	
Ref Time Seperate (s)	4.7	31.1		0.0	33.8		29.3	24.7		16.7	0.5	
Reference Time (s)	37.5	37.5		33.8	33.8		29.3	29.3		16.9	16.9	
Adj Reference Time (s)	41.5	41.5		37.8	37.8		33.3	33.3		33.3	33.3	
Summary												
Protected Option (s)	46.5		NA									
Permitted Option (s)	74.6		255.6									
Split Option (s)	79.2		66.6									
Minimum (s)	46.5		66.6		113.1							
Right Turns												
Adj Reference Time (s)	33.3	41.3	48.1									
Cross Thru Ref Time (s)	33.3	41.5	37.8									
Oncoming Left Ref Time (s)	33.3	33.3	33.3									
Combined (s)	75.3	116.1	119.1									
Intersection Summary												
Intersection Capacity Utilization	99.2%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	39	0	29	4	0	4	51	99	7	7	139	68
Future Vol, veh/h	39	0	29	4	0	4	51	99	7	7	139	68
Conflicting Peds, #/hr	5	0	5	0	0	0	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	-	0	-	-
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	42	0	32	4	0	4	55	108	8	8	151	74

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	430	434	198	430	467	116	230	0	0	115	0	0
Stage 1	208	208	-	222	222	-	-	-	-	-	-	-
Stage 2	222	226	-	208	245	-	-	-	-	-	-	-
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	535	515	843	535	493	936	1338	-	-	1474	-	-
Stage 1	794	730	-	780	720	-	-	-	-	-	-	-
Stage 2	780	717	-	794	703	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	509	489	836	494	468	932	1332	-	-	1468	-	-
Mov Cap-2 Maneuver	509	489	-	494	468	-	-	-	-	-	-	-
Stage 1	758	723	-	748	690	-	-	-	-	-	-	-
Stage 2	741	687	-	757	696	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	10.7	2.5	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1332	-	-	509	836	494	932	1468	-	-
HCM Lane V/C Ratio	0.042	-	-	0.083	0.038	0.009	0.005	0.005	-	-
HCM Control Delay (s)	7.8	-	-	12.7	9.5	12.4	8.9	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	0	0	-	-

Intersection				
Intersection Delay, s/veh	5.0			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	66	44	190	188
Demand Flow Rate, veh/h	68	45	193	192
Vehicles Circulating, veh/h	150	204	71	74
Vehicles Exiting, veh/h	116	60	147	175
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	5
Ped Cap Adj	0.999	0.999	0.999	0.999
Approach Delay, s/veh	4.5	4.4	5.2	5.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	68	45	193	192
Cap Entry Lane, veh/h	973	921	1052	1049
Entry HV Adj Factor	0.971	0.978	0.983	0.980
Flow Entry, veh/h	66	44	190	188
Cap Entry, veh/h	943	900	1034	1027
V/C Ratio	0.070	0.049	0.183	0.183
Control Delay, s/veh	4.5	4.4	5.2	5.2
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	1

Intersection				
Intersection Delay, s/veh	6.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	104	379	150	97
Demand Flow Rate, veh/h	106	386	153	99
Vehicles Circulating, veh/h	248	40	161	258
Vehicles Exiting, veh/h	109	274	193	168
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	0
Ped Cap Adj	0.999	0.999	0.999	1.000
Approach Delay, s/veh	5.3	7.0	5.3	5.3
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	106	386	153	99
Cap Entry Lane, veh/h	882	1086	962	873
Entry HV Adj Factor	0.980	0.981	0.980	0.980
Flow Entry, veh/h	104	379	150	97
Cap Entry, veh/h	863	1064	942	855
V/C Ratio	0.120	0.356	0.159	0.113
Control Delay, s/veh	5.3	7.0	5.3	5.3
LOS	A	A	A	A
95th %tile Queue, veh	0	2	1	0

Intersection Capacity Utilization
15: 60th St W & Ave K-8

PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↔		↖	↕		↖	↕	↗
Volume (vph)	194	0	260	16	0	17	377	557	23	31	719	251
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	194	260	0	33	0	377	580	0	31	719	251
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.90	0.85	0.95	0.99	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	1360	0	1441	0	1520	3028	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			23.6			0.0	29.8	23.0	0.0	2.4	28.3	22.8
Adj Reference Time (s)			28.1			0.0	34.3	27.5	0.0	8.5	32.8	27.3
Permitted Option												
Adj Saturation A (vph)	0	838		0	169		101	1514		101	1523	
Reference Time A (s)	0.0	27.8		0.0	23.8		446.4	23.0		36.7	28.3	
Adj Saturation B (vph)	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	23.3	23.3		9.3	11.1		NA	NA		NA	NA	
Reference Time (s)		23.3			11.1			446.4			36.7	
Adj Reference Time (s)		27.8			16.6			450.9			41.2	
Split Option												
Ref Time Combined (s)	0.0	15.3		0.0	3.1		29.8	23.0		2.4	28.3	
Ref Time Seperate (s)	15.3	0.0		1.3	0.3		29.8	22.1		2.4	28.3	
Reference Time (s)	15.3	15.3		3.1	3.1		29.8	29.8		28.3	28.3	
Adj Reference Time (s)	20.2	20.2		10.6	10.6		34.3	34.3		32.8	32.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	NA		67.1									
Permitted Option (s)	27.8		450.9									
Split Option (s)	30.9		67.1									
Minimum (s)	27.8		67.1		94.9							
Right Turns												
	EBR		SBR									
Adj Reference Time (s)	28.1		27.3									
Cross Thru Ref Time (s)	32.8		10.6									
Oncoming Left Ref Time (s)	30.6		34.3									
Combined (s)	71.6		72.2									
Intersection Summary												
Intersection Capacity Utilization	79.1%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
16: 70th St W & Ave L

PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	2	124	35	298	184	108	14	165	215	88	197	11	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		Yes			Yes			No			No		
Pedestrian Timing (s)		18.0			18.0			18.0			18.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	2	124	35	298	292	0	14	380	0	88	208	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.94	0.85	0.95	0.92	0.85	0.95	0.99	0.85	
Saturated Flow (vph)	1520	1600	1360	1520	1511	0	1520	1464	0	1520	1587	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.4	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.2	9.3	3.7	23.5	23.4	0.0	1.1	31.5	0.0	6.9	15.8	0.0	
Adj Reference Time (s)	8.5	15.1	10.6	28.0	27.9	0.0	8.5	36.0	0.0	11.4	22.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1600		101	1511		101	1464		101	1587		
Reference Time A (s)	2.4	9.3		352.9	23.4		16.6	31.5		104.2	15.8		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		9.3			352.9			31.5			104.2		
Adj Reference Time (s)		15.1			357.4			36.0			108.7		
Split Option													
Ref Time Combined (s)	0.2	9.3		23.5	23.4		1.1	31.5		6.9	15.8		
Ref Time Seperate (s)	0.2	9.3		23.5	14.8		1.1	13.9		6.9	14.9		
Reference Time (s)	9.3	9.3		23.5	23.5		31.5	31.5		15.8	15.8		
Adj Reference Time (s)	15.1	15.1		28.0	28.0		36.0	36.0		22.5	22.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	43.2		47.5										
Permitted Option (s)	357.4		108.7										
Split Option (s)	43.2		58.5										
Minimum (s)	43.2		47.5		90.6								
Right Turns													
	EBR												
Adj Reference Time (s)	10.6												
Cross Thru Ref Time (s)	22.5												
Oncoming Left Ref Time (s)	31.0												
Combined (s)	61.2												
Intersection Summary													
Intersection Capacity Utilization	75.5%				ICU Level of Service				D				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection

Int Delay, s/veh 28.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	453	14	82	634	145	9	0	54	115	0	0
Future Vol, veh/h	0	453	14	82	634	145	9	0	54	115	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	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	492	15	89	689	158	10	0	59	125	0	0

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	852	0	0	513	0	0	1456	1535	510	1456	1464	778
Stage 1	-	-	-	-	-	-	505	505	-	951	951	-
Stage 2	-	-	-	-	-	-	951	1030	-	505	513	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	787	-	-	1052	-	-	108	116	563	~ 108	128	396
Stage 1	-	-	-	-	-	-	549	540	-	312	338	-
Stage 2	-	-	-	-	-	-	312	311	-	549	536	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	784	-	-	1048	-	-	93	96	558	~ 84	106	393
Mov Cap-2 Maneuver	-	-	-	-	-	-	93	96	-	~ 84	106	-
Stage 1	-	-	-	-	-	-	547	538	-	311	281	-
Stage 2	-	-	-	-	-	-	259	258	-	489	534	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	17.3	\$ 359.6
HCM LOS			C	F

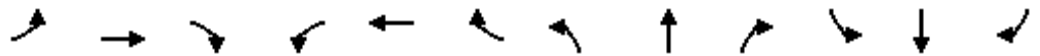
Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	93	558	784	-	-	1048	-	-	84
HCM Lane V/C Ratio	0.105	0.105	-	-	-0.085	-	-	-1.488	
HCM Control Delay (s)	48.2	12.2	0	-	-	8.8	0	\$ 359.6	
HCM Lane LOS	E	B	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	0.3	0.4	0	-	-	0.3	-	-	9.9

Notes

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

Intersection Capacity Utilization
18: QHHS Dwy/Walmart Dwy & Ave L

PM 2021+Related Projects+Project
5/2/2017



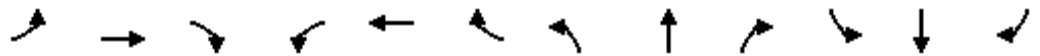
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗		↘	↗		↘	↗		↕	
Volume (vph)	58	698	4	12	996	222	2	0	17	120	0	38
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	58	698	4	0	1008	222	0	2	17	0	158	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.93	0.85
Saturated Flow (vph)	1520	3046	1360	0	1599	1360	0	1520	1360	0	1484	0
Ped Intf Time (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
Pedestrian Frequency (%)	0.00				0.00				0.00		0.00	
Protected Option Allowed	No				No				No		No	
Reference Time (s)			0.4			19.6			1.5			0.0
Adj Reference Time (s)			8.5			24.1			8.5			0.0
Permitted Option												
Adj Saturation A (vph)	101	1523	0		1369	0		1256	0		120	
Reference Time A (s)	68.7	27.5	0.0		88.3	0.0		0.2	0.0		157.7	
Adj Saturation B (vph)	NA	NA	NA		NA	0		0	0		0	
Reference Time B (s)	NA	NA	NA		NA	8.2		8.2	17.5		20.8	
Reference Time (s)	68.7				88.3			0.2			20.8	
Adj Reference Time (s)	73.2				92.8			8.5			25.3	
Split Option												
Ref Time Combined (s)	4.6	27.5	0.0		75.6	0.0		0.2	0.0		12.8	
Ref Time Seperate (s)	4.6	27.5	0.9		74.7	0.2		0.0	9.5		0.0	
Reference Time (s)	27.5	27.5	75.6		75.6	0.2		0.2	12.8		12.8	
Adj Reference Time (s)	32.0	32.0	80.1		80.1	8.5		8.5	17.3		17.3	
Summary												
Protected Option (s)	NA		NA									
Permitted Option (s)	92.8		25.3									
Split Option (s)	112.1		25.8									
Minimum (s)	92.8		25.3		118.1							
Right Turns												
Adj Reference Time (s)	8.5	24.1	8.5									
Cross Thru Ref Time (s)	17.3	8.5	32.0									
Oncoming Left Ref Time (s)	32.0	17.3	32.0									
Combined (s)	105.9	64.6	57.8									

Intersection Summary

Intersection Capacity Utilization 98.4% ICU Level of Service F
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
19: 60th St W & Ave L

PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↘	↘	↑↑	↘	↘	↑	↘	↘↘	↑↑	↘
Volume (vph)	80	591	167	283	867	520	264	416	409	395	701	100
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	2500	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	5.7
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	80	591	167	283	867	520	264	416	409	395	701	100
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1600	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.3	23.3	15.4	22.3	34.2	46.5	20.8	31.2	36.7	10.3	27.6	9.5
Adj Reference Time (s)	10.3	31.6	31.6	26.3	38.2	50.5	24.8	36.5	43.2	14.3	31.6	15.2
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1600		154	1523	
Reference Time A (s)	94.7	23.3		335.1	34.2		312.6	31.2		154.2	27.6	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		94.7			335.1			312.6			154.2	
Adj Reference Time (s)		98.7			339.1			316.6			158.2	
Split Option												
Ref Time Combined (s)	6.3	23.3		22.3	34.2		20.8	31.2		10.3	27.6	
Ref Time Seperate (s)	6.3	23.3		22.3	34.2		20.8	31.2		10.3	27.6	
Reference Time (s)	23.3	23.3		34.2	34.2		31.2	31.2		27.6	27.6	
Adj Reference Time (s)	31.6	31.6		38.2	38.2		36.5	36.5		31.6	31.6	
Summary												
Protected Option (s)	57.9		56.5									
Permitted Option (s)	339.1		316.6									
Split Option (s)	69.8		68.1									
Minimum (s)	57.9		56.5		114.4							
Right Turns												
Adj Reference Time (s)	31.6	50.5	43.2	15.2								
Cross Thru Ref Time (s)	31.6	36.5	31.6	38.2								
Oncoming Left Ref Time (s)	31.6	10.3	14.3	24.8								
Combined (s)	89.6	97.3	89.0	78.2								
Intersection Summary												
Intersection Capacity Utilization	95.3%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	1071	15	108	1471	12	85
Future Vol, veh/h	1071	15	108	1471	12	85
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1164	16	117	1599	13	92

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1169
Stage 1	-	-	1169
Stage 2	-	-	1834
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	598
Stage 1	-	-	295
Stage 2	-	-	139
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	596
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	294
Stage 2	-	-	138

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	91.4
HCM LOS			F

Minor Lane/Major Mvm	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	15	232	-	-	596	-
HCM Lane V/C Ratio	0.87	0.398	-	-	0.197	-
HCM Control Delay (s)	523.5	30.4	-	-	12.5	0
HCM Lane LOS	F	D	-	-	B	A
HCM 95th %tile Q(veh)	2.1	1.8	-	-	0.7	-

Intersection Capacity Utilization
21: 50th St W & Ave L

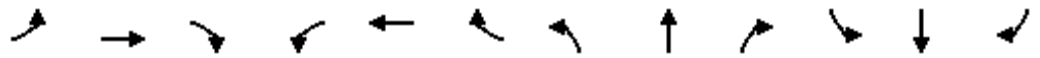
PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	82	1099	70	208	1525	57	89	187	144	39	232	114	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	82	1169	0	208	1582	0	89	187	144	39	346	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.95	0.85	
Saturated Flow (vph)	1520	3019	0	1520	3030	0	1520	1600	1360	1520	1521	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	6.5	46.5	0.0	16.4	62.7	0.0	7.0	14.0	13.3	3.1	27.5	0.0	
Adj Reference Time (s)	10.5	50.5	0.0	20.4	66.7	0.0	11.0	18.7	18.1	8.0	31.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1510		101	1515		101	1600		101	1521		
Reference Time A (s)	97.1	46.5		246.3	62.7		105.4	14.0		46.2	27.5		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		97.1			246.3			105.4			46.2		
Adj Reference Time (s)		101.1			250.3			109.4			50.2		
Split Option													
Ref Time Combined (s)	6.5	46.5		16.4	62.7		7.0	14.0		3.1	27.5		
Ref Time Seperate (s)	6.5	43.7		16.4	60.4		7.0	14.0		3.1	18.5		
Reference Time (s)	46.5	46.5		62.7	62.7		14.0	14.0		27.5	27.5		
Adj Reference Time (s)	50.5	50.5		66.7	66.7		18.7	18.7		31.5	31.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	77.2		42.5										
Permitted Option (s)	250.3		109.4										
Split Option (s)	117.2		50.2										
Minimum (s)	77.2		42.5		119.7								
Right Turns													
	NBR												
Adj Reference Time (s)	18.1												
Cross Thru Ref Time (s)	50.5												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	76.6												
Intersection Summary													
Intersection Capacity Utilization	99.7%				ICU Level of Service				F				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L

PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷		↶	↷	↷	↶	↷	↷
Volume (vph)	40	1231	19	136	1743	114	27	39	95	56	39	33
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.6			16.0			20.4			22.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	40	1231	19	136	1857	0	27	39	95	56	72	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.93	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3018	0	1520	1600	1360	1520	1490	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.2	48.5	2.3	10.7	73.9	0.0	2.1	2.9	9.0	4.4	6.1	0.0
Adj Reference Time (s)	8.0	52.5	29.6	14.7	77.9	0.0	8.0	10.5	14.8	8.4	12.6	0.0
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1509		101	1600		101	1490	
Reference Time A (s)	47.4	48.5		161.1	73.9		32.0	2.9		66.3	6.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1490	
Reference Time B (s)	NA	NA		NA	NA		10.1	2.9		12.4	6.1	
Reference Time (s)		48.5			161.1			10.1			12.4	
Adj Reference Time (s)		52.5			165.1			15.7			17.9	
Split Option												
Ref Time Combined (s)	3.2	48.5		10.7	73.9		2.1	2.9		4.4	6.1	
Ref Time Seperate (s)	3.2	48.5		10.7	69.3		2.1	2.9		4.4	3.4	
Reference Time (s)	48.5	48.5		73.9	73.9		2.9	2.9		6.1	6.1	
Adj Reference Time (s)	52.5	52.5		77.9	77.9		10.5	10.5		12.6	12.6	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	85.9		20.6									
Permitted Option (s)	165.1		17.9									
Split Option (s)	130.4		23.1									
Minimum (s)	85.9		17.9		103.8							
Right Turns												
	EBR		NBR									
Adj Reference Time (s)	29.6		14.8									
Cross Thru Ref Time (s)	12.6		52.5									
Oncoming Left Ref Time (s)	14.7		8.4									
Combined (s)	56.9		75.7									
Intersection Summary												
Intersection Capacity Utilization	86.5%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
23: 40th St W & Ave L

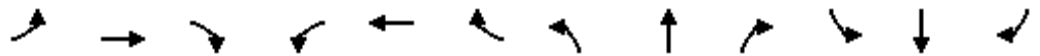
PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷	
Volume (vph)	92	1112	17	57	1761	132	29	64	36	222	92	169	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		31.0			33.3			35.6			31.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	92	1129	0	57	1761	132	29	64	36	222	92	169	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3040	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	7.3	44.6	0.0	4.5	69.4	12.3	2.3	4.8	3.8	17.5	6.9	15.6	
Adj Reference Time (s)	11.3	48.6	0.0	8.5	73.4	37.3	8.0	13.5	12.9	21.5	14.7	22.0	
Permitted Option													
Adj Saturation A (vph)	101	1520		101	1523		101	1600		101	1600		
Reference Time A (s)	108.9	44.6		67.5	69.4		34.3	4.8		262.9	6.9		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600		
Reference Time B (s)	NA	NA		NA	NA		10.3	4.8		25.5	6.9		
Reference Time (s)		108.9			69.4			10.3			25.5		
Adj Reference Time (s)		112.9			73.4			18.2			30.5		
Split Option													
Ref Time Combined (s)	7.3	44.6		4.5	69.4		2.3	4.8		17.5	6.9		
Ref Time Seperate (s)	7.3	43.9		4.5	69.4		2.3	4.8		17.5	6.9		
Reference Time (s)	44.6	44.6		69.4	69.4		4.8	4.8		17.5	17.5		
Adj Reference Time (s)	48.6	48.6		73.4	73.4		13.5	13.5		23.7	23.7		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	84.6		35.1										
Permitted Option (s)	112.9		30.5										
Split Option (s)	121.9		37.2										
Minimum (s)	84.6		30.5		115.1								
Right Turns													
	WBR		NBR		SBR								
Adj Reference Time (s)	37.3		12.9		22.0								
Cross Thru Ref Time (s)	13.5		48.6		73.4								
Oncoming Left Ref Time (s)	11.3		21.5		8.0								
Combined (s)	62.1		83.0		103.4								
Intersection Summary													
Intersection Capacity Utilization	95.9%		ICU Level of Service						F				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
24: 35th St W & Ave L

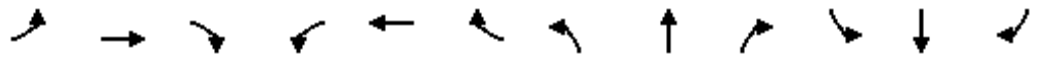
PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	1285	18	57	1878	44	23	31	28	28	30	77
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			23.9			25.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	41	1303	0	57	1922	0	23	59	0	28	30	77
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3040	0	1520	3036	0	1520	1486	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.2	51.4	0.0	4.5	76.0	0.0	1.8	5.1	0.0	2.2	2.3	7.4
Adj Reference Time (s)	8.0	55.4	0.0	8.5	80.0	0.0	8.0	12.2	0.0	8.0	8.0	11.4
Permitted Option												
Adj Saturation A (vph)	101	1520		101	1518		101	1486		101	1600	
Reference Time A (s)	48.6	51.4		67.5	76.0		27.2	5.1		33.2	2.3	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1486		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.8	5.1		10.2	2.3	
Reference Time (s)		51.4			76.0			9.8			10.2	
Adj Reference Time (s)		55.4			80.0			16.2			14.2	
Split Option												
Ref Time Combined (s)	3.2	51.4		4.5	76.0		1.8	5.1		2.2	2.3	
Ref Time Seperate (s)	3.2	50.7		4.5	74.2		1.8	2.8		2.2	2.3	
Reference Time (s)	51.4	51.4		76.0	76.0		5.1	5.1		2.3	2.3	
Adj Reference Time (s)	55.4	55.4		80.0	80.0		12.2	12.2		8.0	8.0	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	88.0		20.2									
Permitted Option (s)	80.0		16.2									
Split Option (s)	135.4		20.2									
Minimum (s)	80.0		16.2		96.2							
Right Turns												
	SBR											
Adj Reference Time (s)	11.4											
Cross Thru Ref Time (s)	80.0											
Oncoming Left Ref Time (s)	80.0											
Combined (s)	99.4											
Intersection Summary												
Intersection Capacity Utilization	82.9%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
25: 30th St W & Ave L

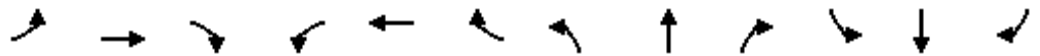
PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Volume (vph)	134	1107	115	198	1712	148	187	294	129	129	315	194
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	134	1107	115	198	1712	148	187	294	129	129	315	194
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.6	30.5	10.8	15.6	47.1	13.7	14.8	11.6	12.0	10.2	12.4	17.8
Adj Reference Time (s)	14.6	39.0	39.0	19.6	51.1	37.0	18.8	19.3	19.7	14.2	19.7	24.3
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1523		101	1523	
Reference Time A (s)	158.7	30.5		234.5	47.1		221.4	11.6		152.8	12.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		158.7			234.5			221.4			152.8	
Adj Reference Time (s)		162.7			238.5			225.4			156.8	
Split Option												
Ref Time Combined (s)	10.6	30.5		15.6	47.1		14.8	11.6		10.2	12.4	
Ref Time Seperate (s)	10.6	30.5		15.6	47.1		14.8	11.6		10.2	12.4	
Reference Time (s)	30.5	30.5		47.1	47.1		14.8	14.8		12.4	12.4	
Adj Reference Time (s)	39.0	39.0		51.1	51.1		22.0	22.0		19.7	19.7	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	65.7		38.5									
Permitted Option (s)	238.5		225.4									
Split Option (s)	90.1		41.7									
Minimum (s)	65.7		38.5		104.2							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	39.0		37.0		19.7		24.3					
Cross Thru Ref Time (s)	19.7		19.3		39.0		51.1					
Oncoming Left Ref Time (s)	19.6		14.6		14.2		18.8					
Combined (s)	78.4		70.9		72.9		94.2					
Intersection Summary												
Intersection Capacity Utilization			86.8%		ICU Level of Service				E			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L





























PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕		↘	↑	↗
Volume (vph)	84	1295	4	4	1988	74	4	1	6	55	3	130
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.3			22.4			16.0			30.7	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	84	1295	4	4	1988	74	0	11	0	55	3	130
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.90	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1442	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.4	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	6.6	51.0	1.0	0.3	78.3	7.2			0.0			12.1
Adj Reference Time (s)	10.6	55.0	31.0	8.0	82.3	26.4			0.0			19.0
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		0	217		654	1600	
Reference Time A (s)	99.5	51.0		4.7	78.3		0.0	6.4		10.1	0.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.3	9.3		12.3	0.2	
Reference Time (s)		99.5			78.3			6.4			10.1	
Adj Reference Time (s)		103.5			82.3			10.4			17.3	
Split Option												
Ref Time Combined (s)	6.6	51.0		0.3	78.3		0.0	1.3		4.3	0.2	
Ref Time Seperate (s)	6.6	51.0		0.3	78.3		0.3	0.4		4.3	0.2	
Reference Time (s)	51.0	51.0		78.3	78.3		1.3	1.3		4.3	4.3	
Adj Reference Time (s)	55.0	55.0		82.3	82.3		8.0	8.0		12.4	12.4	
Summary												
Protected Option (s)	92.9		NA									
Permitted Option (s)	103.5		17.3									
Split Option (s)	137.3		20.4									
Minimum (s)	92.9		17.3		110.2							
Right Turns												
Adj Reference Time (s)	31.0	26.4	19.0									
Cross Thru Ref Time (s)	12.4	8.0	82.3									
Oncoming Left Ref Time (s)	8.0	10.6	8.0									
Combined (s)	51.4	45.0	109.3									
Intersection Summary												
Intersection Capacity Utilization	91.8%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
27: 20th St W & Ave L

PM 2021+Related Projects+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  			 			 	
Volume (vph)	135	1157	71	68	1775	136	96	190	42	85	210	195
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	135	1157	71	68	1775	136	96	232	0	85	210	195
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2964	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.7	45.6	6.9	5.4	48.9	12.6	7.6	9.5	0.0	6.7	15.8	17.8
Adj Reference Time (s)	14.7	49.6	34.1	9.4	52.9	40.7	11.6	16.5	0.0	10.7	22.4	24.2
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1482		101	1600	
Reference Time A (s)	159.9	45.6		80.5	48.9		113.7	9.5		100.7	15.8	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		159.9			80.5			113.7			100.7	
Adj Reference Time (s)		163.9			84.5			117.7			104.7	
Split Option												
Ref Time Combined (s)	10.7	45.6		5.4	48.9		7.6	9.5		6.7	15.8	
Ref Time Seperate (s)	10.7	45.6		5.4	48.9		7.6	7.8		6.7	15.8	
Reference Time (s)	45.6	45.6		48.9	48.9		9.5	9.5		15.8	15.8	
Adj Reference Time (s)	49.6	49.6		52.9	52.9		16.5	16.5		22.4	22.4	
Summary												
Protected Option (s)	67.5		34.0									
Permitted Option (s)	163.9		117.7									
Split Option (s)	102.4		38.9									
Minimum (s)	67.5		34.0		101.5							
Right Turns												
Adj Reference Time (s)	34.1	40.7	24.2									
Cross Thru Ref Time (s)	22.4	16.5	52.9									
Oncoming Left Ref Time (s)	9.4	14.7	11.6									
Combined (s)	65.9	71.9	88.6									
Intersection Summary												
Intersection Capacity Utilization	84.6%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
28: 15th St W & Ave L

PM 2021+Related Projects+Project
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↕↕↕		↰	↕↕↕	↰		↕↕		↰	↕	↰
Volume (vph)	92	1209	0	10	1935	298	0	1	4	269	6	124
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	92	1209	0	10	1935	298	0	5	0	269	6	124
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.88	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	0	1520	4358	1360	0	1408	0	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00		0.00			0.00			0.00			
Protected Option Allowed	Yes			Yes			No			No		
Reference Time (s)	7.3	33.3	0.0	0.8	53.3	26.3			0.0			10.9
Adj Reference Time (s)	11.3	37.3	0.0	8.0	57.3	30.3			0.0			14.9
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		0	1408		101	1600	
Reference Time A (s)	108.9	33.3		11.8	53.3		0.0	0.4		318.6	0.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1408		0	1600	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.4		29.2	0.5	
Reference Time (s)		108.9			53.3			0.4			29.2	
Adj Reference Time (s)		112.9			57.3			8.0			33.2	
Split Option												
Ref Time Combined (s)	7.3	33.3		0.8	53.3		0.0	0.4		21.2	0.5	
Ref Time Seperate (s)	7.3	33.3		0.8	53.3		0.0	0.1		21.2	0.5	
Reference Time (s)	33.3	33.3		53.3	53.3		0.4	0.4		21.2	21.2	
Adj Reference Time (s)	37.3	37.3		57.3	57.3		8.0	8.0		25.2	25.2	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	68.5		NA									
Permitted Option (s)	112.9		33.2									
Split Option (s)	94.6		33.2									
Minimum (s)	68.5		33.2		101.8							
Right Turns	WBR		SBR									
Adj Reference Time (s)	30.3		14.9									
Cross Thru Ref Time (s)	8.0		57.3									
Oncoming Left Ref Time (s)	11.3		8.0									
Combined (s)	49.6		80.2									
Intersection Summary												
Intersection Capacity Utilization	84.8%		ICU Level of Service				E					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	734	2061	0	295	179
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	734	2061	0	474	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.91	0.85
Saturated Flow (vph)	0	4358	4358	0	4437	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	20.2	56.7	0.0		0.0
Adj Reference Time (s)	0.0	24.2	60.7	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		148	
Reference Time A (s)	0.0	20.2	56.7		192.5	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		20.2	56.7			
Adj Reference Time (s)		24.2	60.7			
Split Option						
Ref Time Combined (s)	0.0	20.2	56.7		13.1	
Ref Time Seperate (s)	0.0	20.2	56.7		8.2	
Reference Time (s)	20.2	20.2	56.7		13.1	
Adj Reference Time (s)	24.2	24.2	60.7		18.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	60.7		NA			
Permitted Option (s)	60.7		Err			
Split Option (s)	85.0		18.2			
Minimum (s)	60.7		18.2	78.9		

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary
 Intersection Capacity Utilization 65.8% ICU Level of Service C
 Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2021+Related Projects+Project
5/2/2017
































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	917	0	0	1554	0	1086	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	917	0	0	1554	0	1086	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	25.2	0.6	0.0	32.1	0.0	85.7	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	29.2	9.7	0.0	36.1	0.0	89.7	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	25.2		0.0	32.1		1286.1	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		93.7	0.0		0.0	0.0	
Reference Time (s)		25.2			32.1			93.7			0.0	
Adj Reference Time (s)		29.2			36.1			97.7			9.8	
Split Option												
Ref Time Combined (s)	0.0	25.2		0.0	32.1		85.7	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	25.2		0.0	32.1		85.7	0.0		0.0	0.0	
Reference Time (s)	25.2	25.2		32.1	32.1		85.7	85.7		0.0	0.0	
Adj Reference Time (s)	29.2	29.2		36.1	36.1		89.7	89.7		9.8	9.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	36.1		89.7									
Permitted Option (s)	36.1		97.7									
Split Option (s)	65.3		99.6									
Minimum (s)	36.1		89.7		125.8							
Right Turns												
	EBR											
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	104.9%		ICU Level of Service		G							
Reference Times and Phasing Options do not represent an optimized timing plan.												

PM 2021+Related Projects+Project – with Mitigation

Intersection Capacity Utilization
2: 60th St W & Ave K

PM 2021+Related Projects+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Volume (vph)	33	375	69	425	441	119	81	320	317	88	492	56
Pedestrians			5			5			5			5
Ped Button		Yes			Yes			Yes			Yes	
Pedestrian Timing (s)		30.7			28.7			27.3			27.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	33	375	69	425	441	119	81	637	0	88	548	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	0.98	0.85
Saturated Flow (vph)	4612	3046	1360	4612	3046	1360	1520	2819	0	1520	3000	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.9	14.8	6.7	11.1	17.4	11.1	6.4	27.4	0.0	6.9	22.0	0.0
Adj Reference Time (s)	8.0	21.2	14.4	15.1	23.1	17.8	10.4	31.4	0.0	10.9	26.8	0.0
Permitted Option												
Adj Saturation A (vph)	154	1523		154	1523		101	1409		101	1500	
Reference Time A (s)	12.9	14.8		165.9	17.4		95.9	27.4		104.2	22.0	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		14.8			165.9			95.9			104.2	
Adj Reference Time (s)		21.2			169.9			99.9			108.2	
Split Option												
Ref Time Combined (s)	0.9	14.8		11.1	17.4		6.4	27.4		6.9	22.0	
Ref Time Seperate (s)	0.9	14.8		11.1	17.4		6.4	13.9		6.9	19.7	
Reference Time (s)	14.8	14.8		17.4	17.4		27.4	27.4		22.0	22.0	
Adj Reference Time (s)	21.2	21.2		23.1	23.1		31.4	31.4		26.8	26.8	
Summary												
Protected Option (s)	36.3		42.4									
Permitted Option (s)	169.9		108.2									
Split Option (s)	44.3		58.2									
Minimum (s)	36.3		42.4		78.7							
Right Turns												
Adj Reference Time (s)	14.4		17.8									
Cross Thru Ref Time (s)	26.8		31.4									
Oncoming Left Ref Time (s)	5.1		8.0									
Combined (s)	56.3		57.3									

Intersection Summary

Intersection Capacity Utilization 65.5% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
4: 45th St W & Ave K
























PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↗		↘	↑	↗	
Volume (vph)	46	847	20	42	1100	44	25	87	36	35	75	78	
Pedestrians			5			5						5	
Ped Button		No			No						Yes		
Pedestrian Timing (s)		17.8			21.8						25.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	3.2	4.0	4.0	2.8	4.0	4.0	3.2	4.0	4.0	3.2	4.0	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	46	847	20	42	1100	44	25	123	0	35	75	78	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1530	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.6	33.4	2.4	3.3	43.3	4.5	2.0	9.6	0.0	2.8	5.6	7.5	
Adj Reference Time (s)	8.0	37.4	21.8	8.0	47.3	25.8	8.0	13.6	0.0	8.0	12.7	14.3	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1523		101	1530		101	1600		
Reference Time A (s)	54.5	33.4		49.7	43.3		29.6	9.6		41.4	5.6		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1530		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		10.0	9.6		NA	NA		
Reference Time (s)		54.5			49.7			10.0			41.4		
Adj Reference Time (s)		58.5			53.7			14.0			45.4		
Split Option													
Ref Time Combined (s)	3.6	33.4		3.3	43.3		2.0	9.6		2.8	5.6		
Ref Time Seperate (s)	3.6	33.4		3.3	43.3		2.0	6.8		2.8	5.6		
Reference Time (s)	33.4	33.4		43.3	43.3		9.6	9.6		5.6	5.6		
Adj Reference Time (s)	37.4	37.4		47.3	47.3		13.6	13.6		12.7	12.7		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	55.3		21.6										
Permitted Option (s)	58.5		45.4										
Split Option (s)	84.7		26.3										
Minimum (s)	55.3		21.6		77.0								
Right Turns													
	EBR		WBR		SBR								
Adj Reference Time (s)	21.8		25.8		14.3								
Cross Thru Ref Time (s)	12.7		13.6		47.3								
Oncoming Left Ref Time (s)	8.0		8.0		8.0								
Combined (s)	42.5		47.4		69.6								
Intersection Summary													
Intersection Capacity Utilization	64.1%		ICU Level of Service						C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
5: 40th St W & Ave K

PM 2021+Related Projects+Project with Mitigation
5/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	64	828	43	109	1089	56	50	179	74	44	273	83	
Pedestrians			5			5			5			5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		21.9			23.6			27.9			17.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.7	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	64	871	0	109	1089	56	50	179	74	44	273	83	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3024	0	1520	3046	1360	1520	3046	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.1	34.6	0.0	8.6	42.9	5.6	3.9	7.1	7.2	3.5	20.5	8.0	
Adj Reference Time (s)	9.1	38.6	0.0	12.6	46.9	27.6	8.0	14.3	14.4	8.0	24.5	15.1	
Permitted Option													
Adj Saturation A (vph)	101	1512		101	1523		101	1523		101	1600		
Reference Time A (s)	75.8	34.6		129.1	42.9		59.2	7.1		52.1	20.5		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		75.8			129.1			59.2			52.1		
Adj Reference Time (s)		79.8			133.1			63.2			56.1		
Split Option													
Ref Time Combined (s)	5.1	34.6		8.6	42.9		3.9	7.1		3.5	20.5		
Ref Time Seperate (s)	5.1	32.9		8.6	42.9		3.9	7.1		3.5	20.5		
Reference Time (s)	34.6	34.6		42.9	42.9		7.1	7.1		20.5	20.5		
Adj Reference Time (s)	38.6	38.6		46.9	46.9		14.3	14.3		24.5	24.5		
Summary													
Protected Option (s)	55.9		32.5										
Permitted Option (s)	133.1		63.2										
Split Option (s)	85.5		38.7										
Minimum (s)	55.9		32.5		88.4								
Right Turns													
Adj Reference Time (s)	27.6	14.4	15.1										
Cross Thru Ref Time (s)	14.3	38.6	46.9										
Oncoming Left Ref Time (s)	9.1	8.0	8.0										
Combined (s)	50.9	61.0	70.0										
Intersection Summary													
Intersection Capacity Utilization	73.7%		ICU Level of Service		D								
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
7: 25th St W & Ave K

PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↗↗		↗	↗↗	↗	↗	↗	↗	↗	↗	↗
Volume (vph)	85	1114	20	61	1283	96	12	120	43	77	136	106
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		24.4			26.7			25.3			27.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	85	1134	0	61	1283	96	12	120	43	77	136	106
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4347	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.7	31.3	0.0	4.8	50.5	9.1	0.9	9.0	4.4	6.1	10.2	10.0
Adj Reference Time (s)	10.7	35.3	0.0	8.8	54.5	30.7	8.0	15.5	11.6	10.1	16.9	16.7
Permitted Option												
Adj Saturation A (vph)	101	1449		101	1523		101	1600		101	1600	
Reference Time A (s)	100.7	31.3		72.2	50.5		14.2	9.0		91.2	10.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		0	1600	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		14.1	10.2	
Reference Time (s)		100.7			72.2			14.2			14.1	
Adj Reference Time (s)		104.7			76.2			19.9			20.2	
Split Option												
Ref Time Combined (s)	6.7	31.3		4.8	50.5		0.9	9.0		6.1	10.2	
Ref Time Seperate (s)	6.7	30.8		4.8	50.5		0.9	9.0		6.1	10.2	
Reference Time (s)	31.3	31.3		50.5	50.5		9.0	9.0		10.2	10.2	
Adj Reference Time (s)	35.3	35.3		54.5	54.5		15.5	15.5		16.9	16.9	
Summary												
Protected Option (s)	65.2		25.6									
Permitted Option (s)	104.7		20.2									
Split Option (s)	89.9		32.4									
Minimum (s)	65.2		20.2		85.4							
Right Turns												
Adj Reference Time (s)	30.7	11.6	16.7									
Cross Thru Ref Time (s)	15.5	35.3	54.5									
Oncoming Left Ref Time (s)	10.7	10.1	8.0									
Combined (s)	56.9	57.0	79.2									
Intersection Summary												
Intersection Capacity Utilization	71.2%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
17: 65th St W & Ave L

PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↕↕	↗		↕	↗		↕↔	
Volume (vph)	0	453	14	82	634	145	9	0	54	115	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	453	14	82	634	145	0	9	54	0	115	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3046	1360	1520	3046	1360	0	1520	1360	0	1520	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			1.9			13.4			5.4			0.0
Adj Reference Time (s)			22.5			22.5			22.5			0.0
Permitted Option												
Adj Saturation A (vph)	0	1523		101	1523		0	1621		0	101	
Reference Time A (s)	0.0	17.8		97.1	25.0		0.0	0.7		0.0	136.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.7	8.7		17.1	17.1	
Reference Time (s)		17.8			97.1			0.7			17.1	
Adj Reference Time (s)		22.5			101.6			22.5			22.5	
Split Option												
Ref Time Combined (s)	0.0	17.8		6.5	25.0		0.0	0.7		0.0	9.1	
Ref Time Seperate (s)	0.0	17.8		6.5	25.0		0.7	0.0		9.1	0.0	
Reference Time (s)	17.8	17.8		25.0	25.0		0.7	0.7		9.1	9.1	
Adj Reference Time (s)	22.5	22.5		29.5	29.5		22.5	22.5		22.5	22.5	
Summary												
Protected Option (s)	NA		NA									
Permitted Option (s)	101.6		22.5									
Split Option (s)	52.0		45.0									
Minimum (s)	52.0		22.5		74.5							
Right Turns												
Adj Reference Time (s)	22.5	22.5	22.5									
Cross Thru Ref Time (s)	22.5	22.5	22.5									
Oncoming Left Ref Time (s)	22.5	22.5	22.5									
Combined (s)	74.5	67.5	67.5									
Intersection Summary												
Intersection Capacity Utilization	62.1%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
18: QHHS Dwy/Walmart Dwy & Ave L

























PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↗	↗		↕	
Volume (vph)	58	698	4	12	996	222	2	0	17	120	0	38
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	58	698	4	12	996	222	0	2	17	0	158	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.93	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1520	1360	0	1484	0
Ped Intf Time (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
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00		
Protected Option Allowed	Yes			Yes			No			No		
Reference Time (s)	4.6	27.5	0.4	0.9	39.2	19.6			1.5			0.0
Adj Reference Time (s)	9.1	32.0	8.5	8.5	43.7	24.1			8.5			0.0
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		0	1256		0	120	
Reference Time A (s)	68.7	27.5		14.2	39.2		0.0	0.2		0.0	157.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.2	8.2		17.5	20.8	
Reference Time (s)		68.7			39.2			0.2			20.8	
Adj Reference Time (s)		73.2			43.7			8.5			25.3	
Split Option												
Ref Time Combined (s)	4.6	27.5		0.9	39.2		0.0	0.2		0.0	12.8	
Ref Time Seperate (s)	4.6	27.5		0.9	39.2		0.2	0.0		9.5	0.0	
Reference Time (s)	27.5	27.5		39.2	39.2		0.2	0.2		12.8	12.8	
Adj Reference Time (s)	32.0	32.0		43.7	43.7		8.5	8.5		17.3	17.3	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	52.8		NA									
Permitted Option (s)	73.2		25.3									
Split Option (s)	75.7		25.8									
Minimum (s)	52.8		25.3		78.1							
Right Turns												
	EBR		WBR		NBR							
Adj Reference Time (s)	8.5		24.1		8.5							
Cross Thru Ref Time (s)	17.3		8.5		32.0							
Oncoming Left Ref Time (s)	8.5		9.1		17.3							
Combined (s)	34.3		41.7		57.8							
Intersection Summary												
Intersection Capacity Utilization	65.1%		ICU Level of Service						C			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
19: 60th St W & Ave L

PM 2021+Related Projects+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	591	167	283	867	520	264	416	409	395	701	100
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	5.7
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	80	591	167	283	867	520	264	416	409	395	701	100
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	3046	1360	4612	3046	1360	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.1	23.3	15.4	7.4	34.2	46.5	6.9	16.4	36.7	10.3	27.6	9.5
Adj Reference Time (s)	8.0	31.6	31.6	11.4	38.2	50.5	10.9	24.0	43.2	14.3	31.6	15.2
Permitted Option												
Adj Saturation A (vph)	154	1523		154	1523		154	1523		154	1523	
Reference Time A (s)	31.2	23.3		110.4	34.2		103.0	16.4		154.2	27.6	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		31.2			110.4			103.0			154.2	
Adj Reference Time (s)		35.2			114.4			107.0			158.2	
Split Option												
Ref Time Combined (s)	2.1	23.3		7.4	34.2		6.9	16.4		10.3	27.6	
Ref Time Seperate (s)	2.1	23.3		7.4	34.2		6.9	16.4		10.3	27.6	
Reference Time (s)	23.3	23.3		34.2	34.2		16.4	16.4		27.6	27.6	
Adj Reference Time (s)	31.6	31.6		38.2	38.2		24.0	24.0		31.6	31.6	
Summary												
Protected Option (s)	46.2		42.5									
Permitted Option (s)	114.4		158.2									
Split Option (s)	69.8		55.6									
Minimum (s)	46.2		42.5		88.6							
Right Turns												
Adj Reference Time (s)	31.6	50.5	43.2	15.2								
Cross Thru Ref Time (s)	31.6	24.0	31.6	38.2								
Oncoming Left Ref Time (s)	11.4	8.0	14.3	10.9								
Combined (s)	74.6	82.5	89.0	64.2								
Intersection Summary												
Intersection Capacity Utilization	74.2%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												



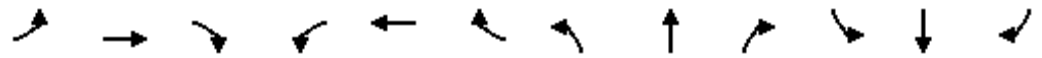
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	1071	15	108	1471	12	85
Pedestrians		5	5		5	5
Ped Button	No				No	
Pedestrian Timing (s)	18.0				18.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	1071	15	108	1471	12	85
Lane Utilization Factor	0.95	1.00	1.00	0.95	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	3046	1360	1520	3046	1520	1360
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	1.00	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	42.2	2.0	8.5	57.9		8.1
Adj Reference Time (s)	46.7	22.5	13.0	62.4		22.5
Permitted Option						
Adj Saturation A (vph)	1523		101	1523	101	
Reference Time A (s)	42.2		127.9	57.9	14.2	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	42.2			127.9		
Adj Reference Time (s)	46.7			132.4		
Split Option						
Ref Time Combined (s)	42.2		8.5	57.9	0.9	
Ref Time Seperate (s)	42.2		8.5	57.9	0.9	
Reference Time (s)	42.2		57.9	57.9	0.9	
Adj Reference Time (s)	46.7		62.4	62.4	22.5	
Summary						
	EB	WB		NB		Combined
Protected Option (s)	62.4			NA		
Permitted Option (s)	132.4			Err		
Split Option (s)	109.1			22.5		
Minimum (s)	62.4			22.5		84.9
Right Turns						
	EBR			NBR		
Adj Reference Time (s)	22.5			22.5		
Cross Thru Ref Time (s)	0.0			46.7		
Oncoming Left Ref Time (s)	0.0			0.0		
Combined (s)	35.5			69.2		

Intersection Summary

Intersection Capacity Utilization 70.8% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
21: 50th St W & Ave L

PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑	↗	↘	↑	↗
Volume (vph)	82	1099	70	208	1525	57	89	187	144	39	232	114
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		20.1			19.9			18.1			18.4	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.2	4.0	5.3	4.0	4.0	5.3	3.9	4.0	4.0	3.9	4.0	4.6
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	82	1099	70	208	1525	57	89	187	144	39	232	114
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.5	30.3	6.8	16.4	42.0	5.7	7.0	14.0	13.3	3.1	17.4	10.7
Adj Reference Time (s)	10.5	34.3	25.4	20.4	46.0	25.2	11.0	18.7	18.1	8.0	21.6	16.5
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1600		101	1600	
Reference Time A (s)	97.1	30.3		246.3	42.0		105.4	14.0		46.2	17.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		97.1			246.3			105.4			46.2	
Adj Reference Time (s)		101.1			250.3			109.4			50.2	
Split Option												
Ref Time Combined (s)	6.5	30.3		16.4	42.0		7.0	14.0		3.1	17.4	
Ref Time Seperate (s)	6.5	30.3		16.4	42.0		7.0	14.0		3.1	17.4	
Reference Time (s)	30.3	30.3		42.0	42.0		14.0	14.0		17.4	17.4	
Adj Reference Time (s)	34.3	34.3		46.0	46.0		18.7	18.7		21.6	21.6	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	56.5		32.6									
Permitted Option (s)	250.3		109.4									
Split Option (s)	80.2		40.2									
Minimum (s)	56.5		32.6		89.0							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	25.4		25.2		18.1		16.5					
Cross Thru Ref Time (s)	21.6		18.7		34.3		46.0					
Oncoming Left Ref Time (s)	10.4		10.5		8.0		11.0					
Combined (s)	67.4		54.3		60.3		73.5					
Intersection Summary												
Intersection Capacity Utilization	74.2%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
22: 45th St W & Ave L

PM 2021+Related Projects+Project with Mitigation
5/2/2017



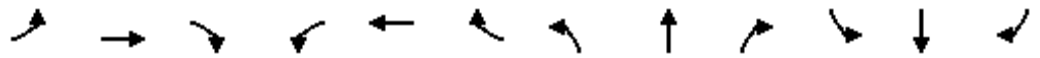
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↗	↘	↑	↗	↘	↑	↗
Volume (vph)	40	1231	19	136	1743	114	27	39	95	56	39	33
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.6			16.0			20.4			22.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	5.3	4.0	4.0	4.0	4.0	4.0	5.3
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	40	1231	19	136	1743	114	27	39	95	56	39	33
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.2	48.5	2.3	10.7	48.0	10.7	2.1	2.9	9.0	4.4	2.9	3.6
Adj Reference Time (s)	8.0	52.5	29.6	14.7	52.0	16.0	8.0	10.5	14.8	8.4	10.8	12.1
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1600		101	1600	
Reference Time A (s)	47.4	48.5		161.1	48.0		32.0	2.9		66.3	2.9	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		10.1	2.9		12.4	2.9	
Reference Time (s)		48.5			161.1			10.1			12.4	
Adj Reference Time (s)		52.5			165.1			15.7			17.9	
Split Option												
Ref Time Combined (s)	3.2	48.5		10.7	48.0		2.1	2.9		4.4	2.9	
Ref Time Seperate (s)	3.2	48.5		10.7	48.0		2.1	2.9		4.4	2.9	
Reference Time (s)	48.5	48.5		48.0	48.0		2.9	2.9		4.4	4.4	
Adj Reference Time (s)	52.5	52.5		52.0	52.0		10.5	10.5		11.1	11.1	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	67.2		18.9									
Permitted Option (s)	165.1		17.9									
Split Option (s)	104.5		21.7									
Minimum (s)	67.2		17.9		85.1							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	29.6		16.0		14.8		12.1					
Cross Thru Ref Time (s)	10.8		10.5		52.5		52.0					
Oncoming Left Ref Time (s)	10.8		8.0		8.4		8.0					
Combined (s)	55.1		34.5		75.7		72.1					

Intersection Summary

Intersection Capacity Utilization 70.9% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
23: 40th St W & Ave L

PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷↷↷	↷	↶	↷↷↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	92	1112	17	57	1761	132	29	64	36	222	92	169
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		31.0			33.3			35.6			31.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	92	1112	17	57	1761	132	29	64	36	222	92	169
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	7.3	30.6	2.1	4.5	48.5	12.3	2.3	4.8	3.8	17.5	6.9	15.6
Adj Reference Time (s)	11.3	35.0	36.3	8.5	52.5	37.3	8.0	13.5	12.9	21.5	14.7	22.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1600		101	1600	
Reference Time A (s)	108.9	30.6		67.5	48.5		34.3	4.8		262.9	6.9	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		10.3	4.8		25.5	6.9	
Reference Time (s)		108.9			67.5			10.3			25.5	
Adj Reference Time (s)		112.9			71.5			18.2			30.5	
Split Option												
Ref Time Combined (s)	7.3	30.6		4.5	48.5		2.3	4.8		17.5	6.9	
Ref Time Seperate (s)	7.3	30.6		4.5	48.5		2.3	4.8		17.5	6.9	
Reference Time (s)	30.6	30.6		48.5	48.5		4.8	4.8		17.5	17.5	
Adj Reference Time (s)	35.0	35.0		52.5	52.5		13.5	13.5		23.7	23.7	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	63.7		35.1									
Permitted Option (s)	112.9		30.5									
Split Option (s)	87.5		37.2									
Minimum (s)	63.7		30.5		94.2							
Right Turns												
	EBR	WBR	NBR	SBR								
Adj Reference Time (s)	36.3	37.3	12.9	22.0								
Cross Thru Ref Time (s)	14.7	13.5	35.0	52.5								
Oncoming Left Ref Time (s)	11.3	11.3	21.5	8.0								
Combined (s)	59.5	62.1	69.4	82.5								
Intersection Summary												
Intersection Capacity Utilization	78.5%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
24: 35th St W & Ave L

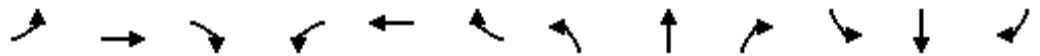
PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	41	1285	18	57	1878	44	23	31	28	28	30	77
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			23.9			25.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	41	1285	18	57	1878	44	23	59	0	28	30	77
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1486	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.2	50.6	2.2	4.5	74.0	4.5	1.8	5.1	0.0	2.2	2.3	7.4
Adj Reference Time (s)	8.0	54.6	9.7	8.5	78.0	29.6	8.0	12.2	0.0	8.0	8.0	11.4
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1486		101	1600	
Reference Time A (s)	48.6	50.6		67.5	74.0		27.2	5.1		33.2	2.3	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1486		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.8	5.1		10.2	2.3	
Reference Time (s)		50.6			74.0			9.8			10.2	
Adj Reference Time (s)		54.6			78.0			16.2			14.2	
Split Option												
Ref Time Combined (s)	3.2	50.6		4.5	74.0		1.8	5.1		2.2	2.3	
Ref Time Seperate (s)	3.2	50.6		4.5	74.0		1.8	2.8		2.2	2.3	
Reference Time (s)	50.6	50.6		74.0	74.0		5.1	5.1		2.3	2.3	
Adj Reference Time (s)	54.6	54.6		78.0	78.0		12.2	12.2		8.0	8.0	
Summary												
Protected Option (s)	86.0		20.2									
Permitted Option (s)	78.0		16.2									
Split Option (s)	132.6		20.2									
Minimum (s)	78.0		16.2		94.2							
Right Turns												
Adj Reference Time (s)	9.7	29.6	11.4									
Cross Thru Ref Time (s)	8.0	12.2	78.0									
Oncoming Left Ref Time (s)	8.5	8.0	8.0									
Combined (s)	26.2	49.8	97.4									
Intersection Summary												
Intersection Capacity Utilization	81.2%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
25: 30th St W & Ave L

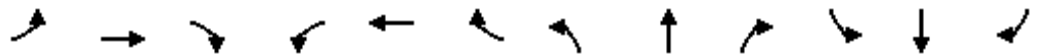
PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰↱	↑↑	↱	↰↱	↑↑	↱
Volume (vph)	134	1107	115	198	1712	148	187	294	129	129	315	194
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (s)	2.8	4.0	4.0	2.8	4.0	4.0	2.8	4.0	4.0	2.8	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	134	1107	115	198	1712	148	187	294	129	129	315	194
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.6	30.5	10.8	15.6	47.1	13.7	4.9	11.6	12.0	3.4	12.4	17.8
Adj Reference Time (s)	14.6	39.0	39.0	19.6	51.1	37.0	8.9	19.3	19.7	8.0	19.7	24.3
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		154	1523		154	1523	
Reference Time A (s)	158.7	30.5		234.5	47.1		73.0	11.6		50.3	12.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		158.7			234.5			73.0			50.3	
Adj Reference Time (s)		162.7			238.5			77.0			54.3	
Split Option												
Ref Time Combined (s)	10.6	30.5		15.6	47.1		4.9	11.6		3.4	12.4	
Ref Time Seperate (s)	10.6	30.5		15.6	47.1		4.9	11.6		3.4	12.4	
Reference Time (s)	30.5	30.5		47.1	47.1		11.6	11.6		12.4	12.4	
Adj Reference Time (s)	39.0	39.0		51.1	51.1		19.3	19.3		19.7	19.7	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	65.7		28.6									
Permitted Option (s)	238.5		77.0									
Split Option (s)	90.1		39.1									
Minimum (s)	65.7		28.6		94.3							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	39.0		37.0		19.7		24.3					
Cross Thru Ref Time (s)	19.7		19.3		39.0		51.1					
Oncoming Left Ref Time (s)	19.6		14.6		8.0		8.9					
Combined (s)	78.4		70.9		66.7		84.3					
Intersection Summary												
Intersection Capacity Utilization			78.6%		ICU Level of Service				D			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L

PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗		↕		↘	↑	↗
Volume (vph)	84	1295	4	4	1988	74	4	1	6	55	3	130
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.3			22.4			16.0			30.7	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	84	1295	4	4	1988	74	0	11	0	55	3	130
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.90	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	0	1442	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.4	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	6.6	35.7	1.0	0.3	54.7	7.2			0.0			12.1
Adj Reference Time (s)	10.6	39.7	31.0	8.0	58.7	26.4			0.0			19.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		0	217		654	1600	
Reference Time A (s)	99.5	35.7		4.7	54.7		0.0	6.4		10.1	0.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.3	9.3		12.3	0.2	
Reference Time (s)		99.5			54.7			6.4			10.1	
Adj Reference Time (s)		103.5			58.7			10.4			17.3	
Split Option												
Ref Time Combined (s)	6.6	35.7		0.3	54.7		0.0	1.3		4.3	0.2	
Ref Time Seperate (s)	6.6	35.7		0.3	54.7		0.3	0.4		4.3	0.2	
Reference Time (s)	35.7	35.7		54.7	54.7		1.3	1.3		4.3	4.3	
Adj Reference Time (s)	39.7	39.7		58.7	58.7		8.0	8.0		12.4	12.4	
Summary												
Protected Option (s)	69.4		NA									
Permitted Option (s)	103.5		17.3									
Split Option (s)	98.4		20.4									
Minimum (s)	69.4		17.3		86.6							
Right Turns												
Adj Reference Time (s)	31.0	26.4	19.0									
Cross Thru Ref Time (s)	12.4	8.0	58.7									
Oncoming Left Ref Time (s)	10.6	8.0										
Combined (s)	51.4	45.0	85.7									

Intersection Summary

Intersection Capacity Utilization 72.2% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
27: 20th St W & Ave L

PM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑	↗	↗	↑↑↑	↗	↗	↑↑		↗	↑↑	↗
Volume (vph)	135	1157	71	68	1775	136	96	190	42	85	210	195
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	135	1157	71	68	1775	136	96	232	0	85	210	195
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	2964	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.7	31.9	6.9	5.4	48.9	12.6	7.6	9.5	0.0	6.7	8.3	17.8
Adj Reference Time (s)	14.7	35.9	34.1	9.4	52.9	40.7	11.6	16.5	0.0	10.7	16.1	24.2
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1482		101	1523	
Reference Time A (s)	159.9	31.9		80.5	48.9		113.7	9.5		100.7	8.3	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		159.9			80.5			113.7			100.7	
Adj Reference Time (s)		163.9			84.5			117.7			104.7	
Split Option												
Ref Time Combined (s)	10.7	31.9		5.4	48.9		7.6	9.5		6.7	8.3	
Ref Time Seperate (s)	10.7	31.9		5.4	48.9		7.6	7.8		6.7	8.3	
Reference Time (s)	31.9	31.9		48.9	48.9		9.5	9.5		8.3	8.3	
Adj Reference Time (s)	35.9	35.9		52.9	52.9		16.5	16.5		16.1	16.1	
Summary												
Protected Option (s)	67.5		27.6									
Permitted Option (s)	163.9		117.7									
Split Option (s)	88.7		32.6									
Minimum (s)	67.5		27.6		95.2							
Right Turns												
Adj Reference Time (s)	34.1	40.7	24.2									
Cross Thru Ref Time (s)	16.1	16.5	52.9									
Oncoming Left Ref Time (s)	9.4	14.7	11.6									
Combined (s)	59.5	71.9	88.6									

Intersection Summary

Intersection Capacity Utilization 79.3% ICU Level of Service D
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
28: 15th St W & Ave L

PM 2021+Related Projects+Project with Mitigation
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕↕↕		↗	↕↕↕	↗		↕↕		↗	↕↕	↗
Volume (vph)	92	1209	0	10	1935	298	0	1	4	269	6	124
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	92	1209	0	10	1935	298	0	5	0	0	275	124
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.88	0.85	0.95	0.95	0.85
Saturated Flow (vph)	1520	4358	0	1520	4358	1360	0	1408	0	0	3043	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	7.3	33.3	0.0	0.8	53.3	26.3			0.0			10.9
Adj Reference Time (s)	11.3	37.3	0.0	8.0	57.3	30.3			0.0			14.9
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		0	1408		0	206	
Reference Time A (s)	108.9	33.3		11.8	53.3		0.0	0.4		0.0	160.4	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1408		0	0	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.4		18.6	18.8	
Reference Time (s)		108.9			53.3			0.4			18.8	
Adj Reference Time (s)		112.9			57.3			8.0			22.8	
Split Option												
Ref Time Combined (s)	7.3	33.3		0.8	53.3		0.0	0.4		0.0	10.8	
Ref Time Seperate (s)	7.3	33.3		0.8	53.3		0.0	0.1		10.6	0.5	
Reference Time (s)	33.3	33.3		53.3	53.3		0.4	0.4		10.8	10.8	
Adj Reference Time (s)	37.3	37.3		57.3	57.3		8.0	8.0		14.8	14.8	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	68.5		NA									
Permitted Option (s)	112.9		22.8									
Split Option (s)	94.6		22.8									
Minimum (s)	68.5		22.8		91.4							
Right Turns	WBR	SBR										
Adj Reference Time (s)	30.3	14.9										
Cross Thru Ref Time (s)	8.0	57.3										
Oncoming Left Ref Time (s)	11.3	8.0										
Combined (s)	49.6	80.2										

Intersection Summary

Intersection Capacity Utilization 76.2% ICU Level of Service D
Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	917	0	0	1554	1086	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	917	0	0	1554	1086	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	0.97	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	4612	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	25.2	0.6	0.0	32.1		0.0
Adj Reference Time (s)	29.2	9.7	0.0	36.1		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	154	
Reference Time A (s)	25.2		0.0	32.1	423.8	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	25.2			32.1		
Adj Reference Time (s)	29.2			36.1		
Split Option						
Ref Time Combined (s)	25.2		0.0	32.1	28.3	
Ref Time Seperate (s)	25.2		0.0	32.1	28.3	
Reference Time (s)	25.2		32.1	32.1	28.3	
Adj Reference Time (s)	29.2		36.1	36.1	32.3	
Summary						
	EB	WB		NB		Combined
Protected Option (s)	36.1			NA		
Permitted Option (s)	36.1			Err		
Split Option (s)	65.3			32.3		
Minimum (s)	36.1			32.3		68.3
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	57.0%		ICU Level of Service		B	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Roundabouts

INTERSECTION SUMMARY

 **Site: PM 50th St & W Ave K**

PM Existing+Project with Mitigation
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	29.9 mph	29.9 mph
Travel Distance (Total)	953.5 veh-mi/h	1144.2 pers-mi/h
Travel Time (Total)	31.9 veh-h/h	38.2 pers-h/h
Demand Flows (Total)	1502 veh/h	1803 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.782	
Practical Spare Capacity	8.7 %	
Effective Intersection Capacity	1921 veh/h	
Control Delay (Total)	6.47 veh-h/h	7.76 pers-h/h
Control Delay (Average)	15.5 sec	15.5 sec
Control Delay (Worst Lane)	22.6 sec	
Control Delay (Worst Movement)	22.6 sec	22.6 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	15.5 sec	
Idling Time (Average)	9.5 sec	
Intersection Level of Service (LOS)	LOS C	
95% Back of Queue - Vehicles (Worst Lane)	10.9 veh	
95% Back of Queue - Distance (Worst Lane)	277.4 ft	
Queue Storage Ratio (Worst Lane)	0.23	
Total Effective Stops	1199 veh/h	1439 pers/h
Effective Stop Rate	0.80 per veh	0.80 per pers
Proportion Queued	0.80	0.80
Performance Index	84.0	84.0
Cost (Total)	512.95 \$/h	512.95 \$/h
Fuel Consumption (Total)	39.6 gal/h	
Carbon Dioxide (Total)	354.3 kg/h	
Hydrocarbons (Total)	0.032 kg/h	
Carbon Monoxide (Total)	0.439 kg/h	
NOx (Total)	0.418 kg/h	

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	721,043 veh/y	865,252 pers/y
Delay	3,104 veh-h/y	3,724 pers-h/y
Effective Stops	575,498 veh/y	690,598 pers/y
Travel Distance	457,683 veh-mi/y	549,220 pers-mi/y
Travel Time	15,294 veh-h/y	18,352 pers-h/y
Cost	246,214 \$/y	246,214 \$/y
Fuel Consumption	19,024 gal/y	
Carbon Dioxide	170,081 kg/y	
Hydrocarbons	15 kg/y	
Carbon Monoxide	211 kg/y	
NOx	201 kg/y	

MOVEMENT SUMMARY

 Site: PM 50th St & W Ave K

PM Existing+Project with Mitigation
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: 50th Street											
3	L2	39	2.0	0.509	15.9	LOS C	4.1	104.8	0.91	0.97	29.9
8	T1	166	2.0	0.509	15.9	LOS C	4.1	104.8	0.91	0.97	29.8
18	R2	71	2.0	0.509	15.9	LOS C	4.1	104.8	0.91	0.97	29.1
Approach		276	2.0	0.509	15.9	LOS C	4.1	104.8	0.91	0.97	29.7
East: W Avenue K											
1	L2	82	2.0	0.291	7.1	LOS A	1.8	47.0	0.56	0.41	33.4
6	T1	166	2.0	0.291	7.1	LOS A	1.8	47.0	0.56	0.41	33.3
16	R2	12	2.0	0.291	7.1	LOS A	1.8	47.0	0.56	0.41	32.4
Approach		260	2.0	0.291	7.1	LOS A	1.8	47.0	0.56	0.41	33.3
North: 50th Street											
7	L2	79	2.0	0.389	8.6	LOS A	2.6	65.3	0.61	0.48	32.9
4	T1	251	2.0	0.389	8.6	LOS A	2.6	65.3	0.61	0.48	32.8
14	R2	14	2.0	0.389	8.6	LOS A	2.6	65.3	0.61	0.48	31.9
Approach		345	2.0	0.389	8.6	LOS A	2.6	65.3	0.61	0.48	32.8
West: W Avenue K											
5	L2	51	2.0	0.782	22.6	LOS C	10.9	277.4	0.96	1.06	27.6
2	T1	545	2.0	0.782	22.6	LOS C	10.9	277.4	0.96	1.06	27.6
12	R2	26	2.0	0.782	22.6	LOS C	10.9	277.4	0.96	1.06	26.9
Approach		622	2.0	0.782	22.6	LOS C	10.9	277.4	0.96	1.06	27.5
All Vehicles		1502	2.0	0.782	15.5	LOS C	10.9	277.4	0.80	0.80	29.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: N:\551-03\Traffic\SIDRA\PM Existing+Proj wMit_50th ST & W Ave K.sip6

LANE SUMMARY

 **Site: PM 50th St & W Ave K**

PM Existing+Project with Mitigation
Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Cap. veh/h					Veh	Dist ft				
South: 50th Street													
Lane 1 ^d	276	2.0	542	0.509	100	15.9	LOS C	4.1	104.8	Full	1600	0.0	0.0
Approach	276	2.0		0.509		15.9	LOS C	4.1	104.8				
East: W Avenue K													
Lane 1 ^d	260	2.0	893	0.291	100	7.1	LOS A	1.8	47.0	Full	1600	0.0	0.0
Approach	260	2.0		0.291		7.1	LOS A	1.8	47.0				
North: 50th Street													
Lane 1 ^d	345	2.0	885	0.389	100	8.6	LOS A	2.6	65.3	Full	1600	0.0	0.0
Approach	345	2.0		0.389		8.6	LOS A	2.6	65.3				
West: W Avenue K													
Lane 1 ^d	622	2.0	795	0.782	100	22.6	LOS C	10.9	277.4	Full	1600	0.0	0.0
Approach	622	2.0		0.782		22.6	LOS C	10.9	277.4				
Intersection	1502	2.0		0.782		15.5	LOS C	10.9	277.4				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

LANE FLOWS

 **Site: PM 50th St & W Ave K**

PM Existing+Project with Mitigation
Roundabout

Approach Lane Flows (veh/h)									
South: 50th Street									
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %
From S To Exit:	W	N	E						
Lane 1	39	166	71	276	2.0	542	0.509	100	NA
Approach	39	166	71	276	2.0		0.509		
East: W Avenue K									
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %
From E To Exit:	S	W	N						
Lane 1	82	166	12	260	2.0	893	0.291	100	NA
Approach	82	166	12	260	2.0		0.291		
North: 50th Street									
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %
From N To Exit:	E	S	W						
Lane 1	79	251	14	345	2.0	885	0.389	100	NA
Approach	79	251	14	345	2.0		0.389		
West: W Avenue K									
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %
From W To Exit:	N	E	S						
Lane 1	51	545	26	622	2.0	795	0.782	100	NA
Approach	51	545	26	622	2.0		0.782		
Total									
Intersectio	1502	2.0	0.782						
n									

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

LEVEL OF SERVICE

 **Site: PM 50th St & W Ave K**

PM Existing+Project with Mitigation
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	C	A	A	C	C

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

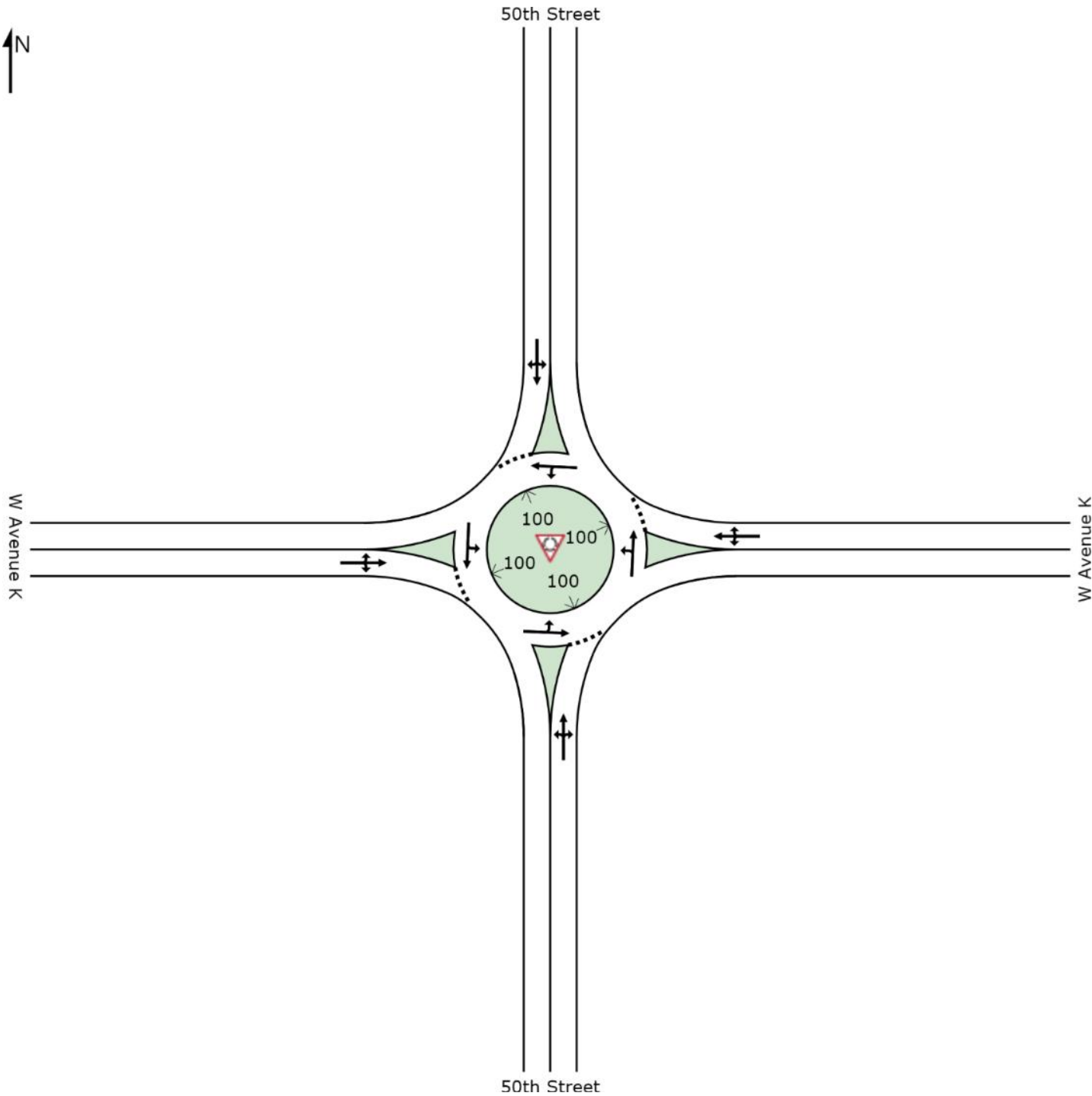
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

SITE LAYOUT

 Site: PM 50th St & W Ave K

PM Existing+Project with Mitigation
Roundabout



INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: PM 50th St & W Ave K

PM Existing+Project with Mitigation
Roundabout

Volume Display Method: Total and %

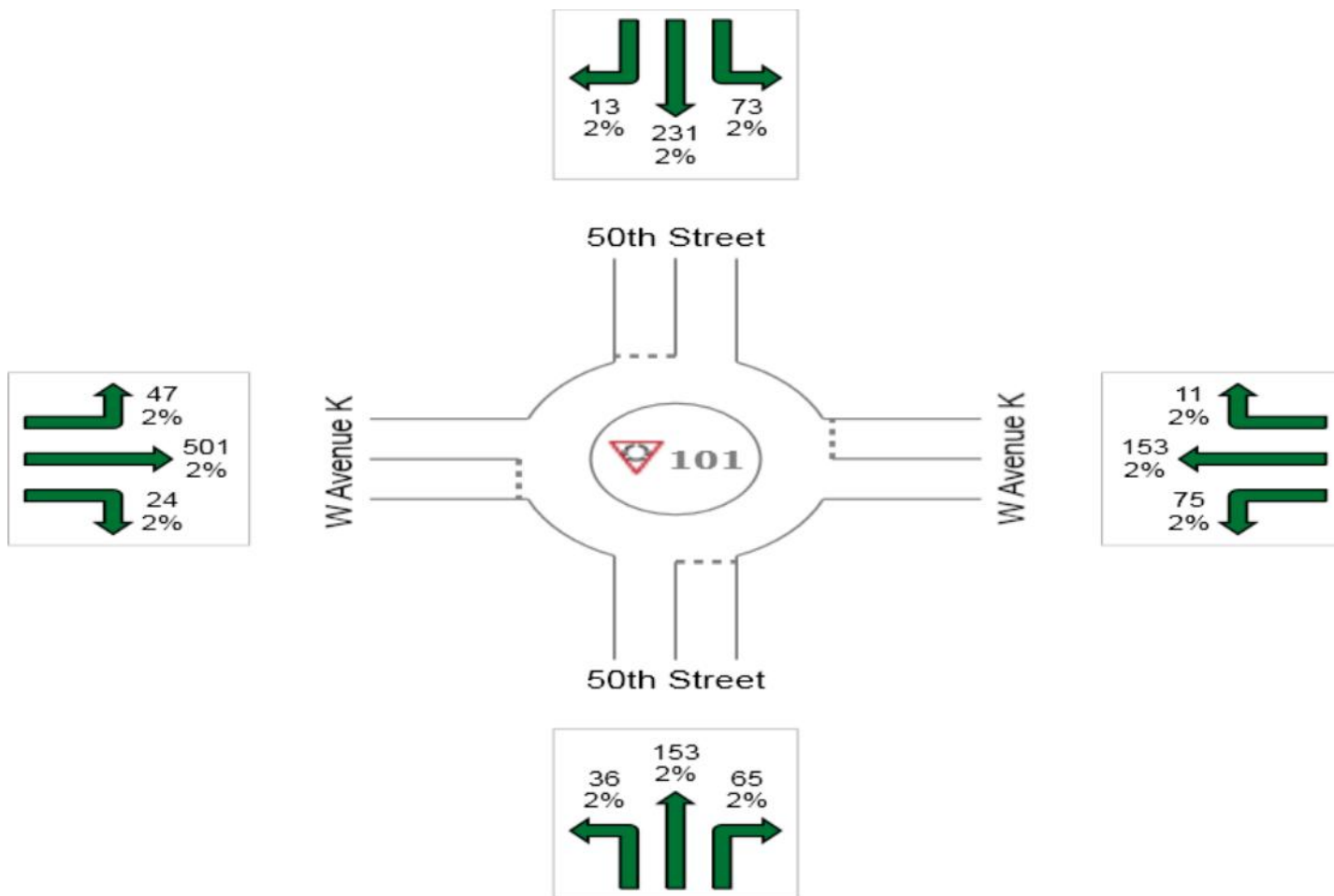
Volumes are shown for Movement Class(es): All Classes and Heavy Vehicles

Total Intersection Volumes (veh)

All Movement Classes: 1382

Light Vehicles (LV): 1354

Heavy Vehicles (HV): 28

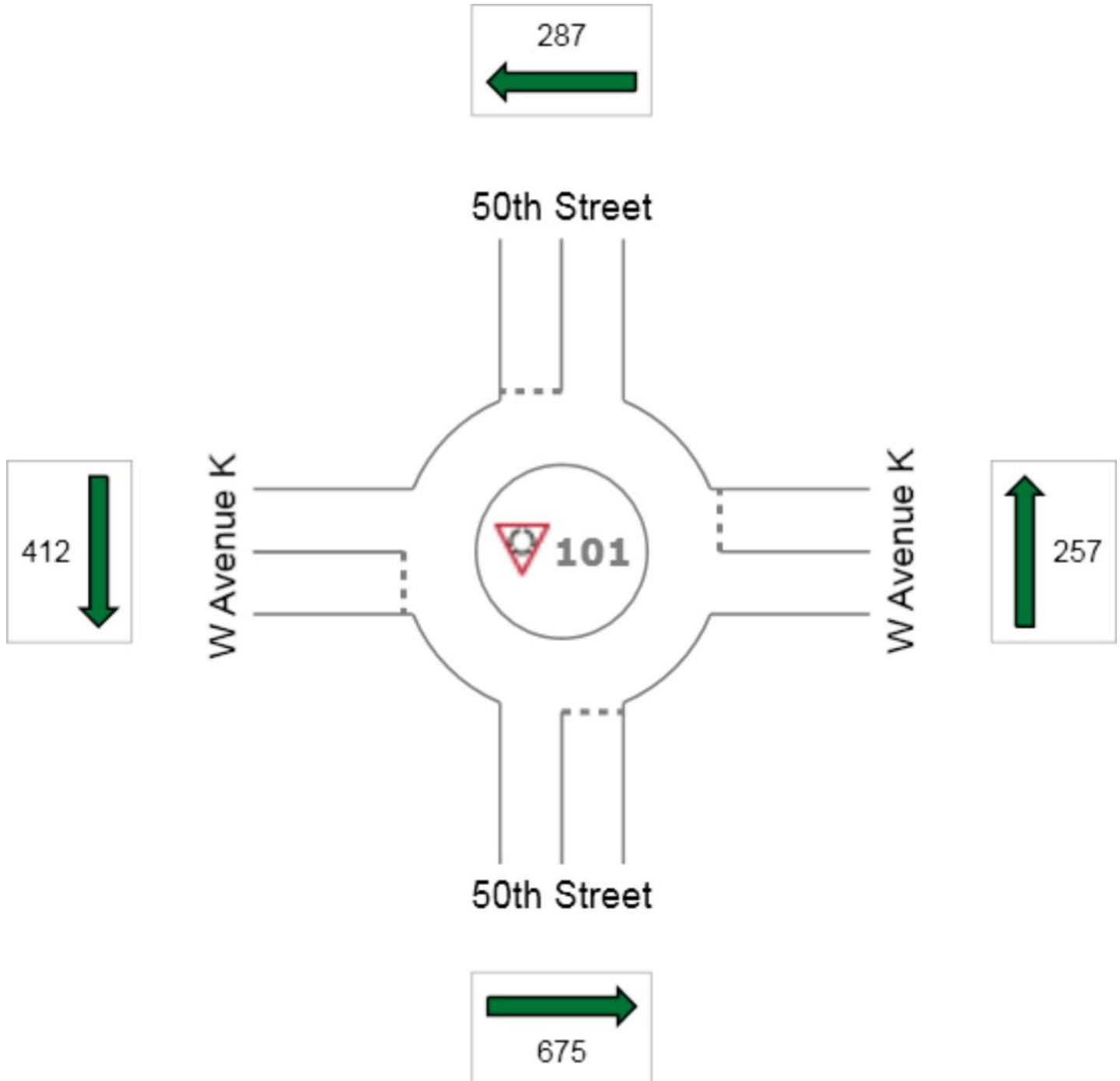


ROUNABOUT CIRCULATING FLOWS

Total Values for All Movement Classes Based on Site Arrival Flow Rates including Capacity Constraint Effects (veh/h)

 Site: PM 50th St & W Ave K

PM Existing+Project with Mitigation
Roundabout



DELAY (CONTROL)

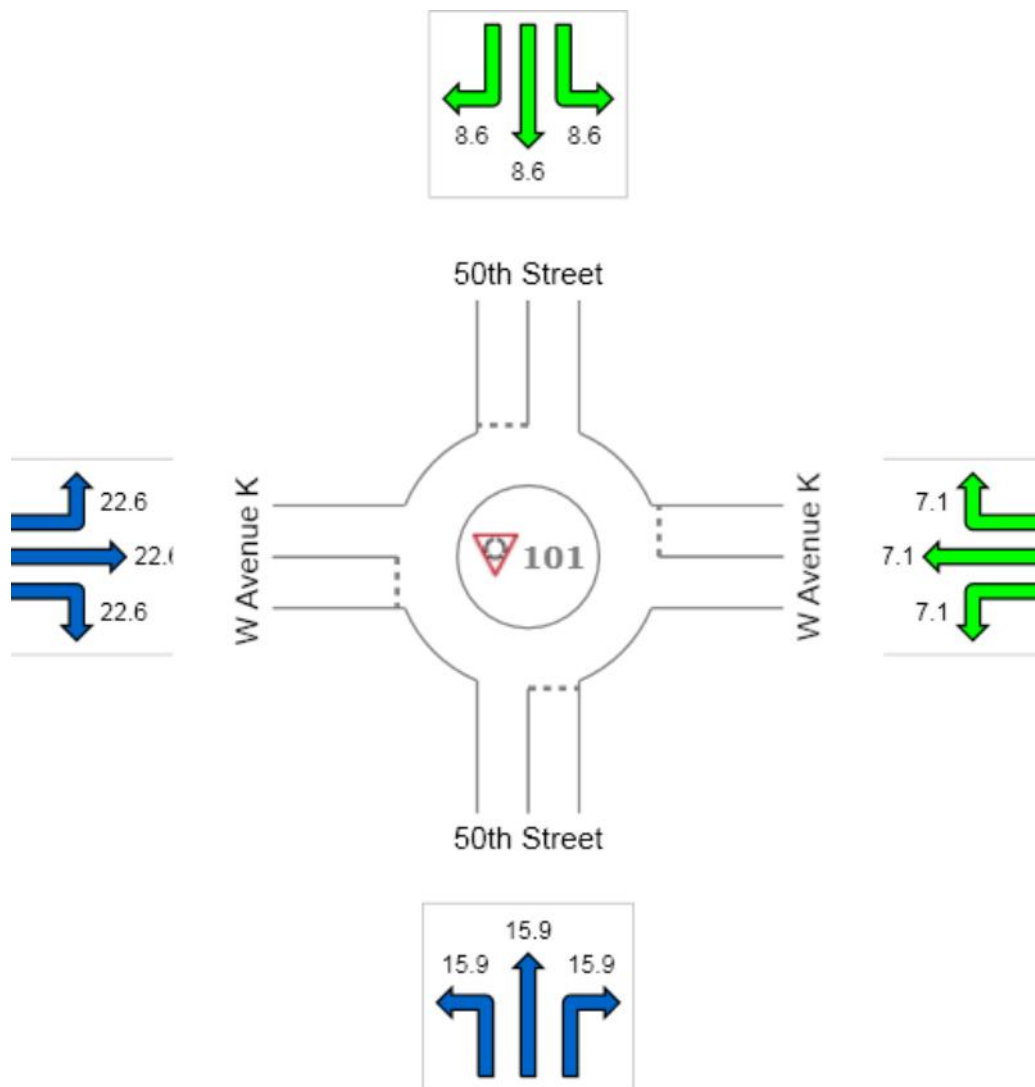
Average control delay per vehicle, or average pedestrian delay (seconds)

 Site: PM 50th St & W Ave K

PM Existing+Project with Mitigation
Roundabout

All Movement Classes

	South	East	North	West	Intersection
	15.9	7.1	8.6	22.6	15.5
LOS	C	A	A	C	C



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F Continuous

Level of Service Method: Delay & v/c (HCM 2010)

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

INTERSECTION SUMMARY

 **Site: PM 50th St & W Ave K**

PM 2021+Related Projects+Project with Mitigation
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	30.2 mph	30.2 mph
Travel Distance (Total)	1943.9 veh-mi/h	2332.7 pers-mi/h
Travel Time (Total)	64.3 veh-h/h	77.2 pers-h/h
Demand Flows (Total)	3071 veh/h	3685 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.678	
Practical Spare Capacity	25.4 %	
Effective Intersection Capacity	4531 veh/h	
Control Delay (Total)	12.85 veh-h/h	15.42 pers-h/h
Control Delay (Average)	15.1 sec	15.1 sec
Control Delay (Worst Lane)	21.3 sec	
Control Delay (Worst Movement)	21.3 sec	21.3 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	15.1 sec	
Idling Time (Average)	9.6 sec	
Intersection Level of Service (LOS)	LOS C	
95% Back of Queue - Vehicles (Worst Lane)	6.7 veh	
95% Back of Queue - Distance (Worst Lane)	169.7 ft	
Queue Storage Ratio (Worst Lane)	0.39	
Total Effective Stops	2304 veh/h	2764 pers/h
Effective Stop Rate	0.75 per veh	0.75 per pers
Proportion Queued	0.77	0.77
Performance Index	114.4	114.4
Cost (Total)	1018.11 \$/h	1018.11 \$/h
Fuel Consumption (Total)	79.4 gal/h	
Carbon Dioxide (Total)	709.6 kg/h	
Hydrocarbons (Total)	0.064 kg/h	
Carbon Monoxide (Total)	0.885 kg/h	
NOx (Total)	0.839 kg/h	

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,473,913 veh/y	1,768,696 pers/y
Delay	6,168 veh-h/y	7,401 pers-h/y
Effective Stops	1,105,709 veh/y	1,326,851 pers/y
Travel Distance	933,088 veh-mi/y	1,119,706 pers-mi/y
Travel Time	30,866 veh-h/y	37,039 pers-h/y
Cost	488,691 \$/y	488,691 \$/y
Fuel Consumption	38,093 gal/y	
Carbon Dioxide	340,591 kg/y	
Hydrocarbons	31 kg/y	
Carbon Monoxide	425 kg/y	
NOx	403 kg/y	

MOVEMENT SUMMARY

 Site: PM 50th St & W Ave K

PM 2021+Related Projects+Project with Mitigation Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: 50th Street											
3	L2	51	2.0	0.406	12.5	LOS B	2.1	52.9	0.75	0.78	31.2
8	T1	184	2.0	0.406	12.5	LOS B	2.1	52.9	0.75	0.78	31.1
18	R2	78	2.0	0.223	14.3	LOS B	0.9	22.3	0.72	0.72	29.7
Approach		313	2.0	0.406	12.9	LOS B	2.1	52.9	0.74	0.77	30.8
East: W Avenue K											
1	L2	88	2.0	0.678	15.1	LOS C	6.7	169.7	0.77	0.73	30.3
6	T1	1147	2.0	0.678	15.1	LOS C	6.7	169.7	0.77	0.73	30.4
16	R2	13	2.0	0.678	15.1	LOS C	6.7	169.7	0.77	0.73	29.7
Approach		1248	2.0	0.678	15.1	LOS C	6.7	169.7	0.77	0.73	30.3
North: 50th Street											
7	L2	15	2.0	0.606	21.3	LOS C	3.7	93.3	0.85	0.94	28.1
4	T1	277	2.0	0.606	21.3	LOS C	3.7	93.3	0.85	0.94	28.1
14	R2	180	2.0	0.461	19.1	LOS C	2.3	58.6	0.81	0.86	27.9
Approach		473	2.0	0.606	20.5	LOS C	3.7	93.3	0.84	0.91	28.0
West: W Avenue K											
5	L2	113	2.0	0.600	13.2	LOS B	5.1	128.7	0.74	0.70	30.9
2	T1	891	2.0	0.600	13.2	LOS B	5.1	128.7	0.74	0.70	31.1
12	R2	33	2.0	0.600	13.2	LOS B	5.1	128.7	0.74	0.70	30.4
Approach		1037	2.0	0.600	13.2	LOS B	5.1	128.7	0.74	0.70	31.0
All Vehicles		3071	2.0	0.678	15.1	LOS C	6.7	169.7	0.77	0.75	30.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: N:\551-03\Traffic\SIDRA\PM 50th ST & W Ave K.sip6

LANE SUMMARY

 **Site: PM 50th St & W Ave K**

PM 2021+Related Projects+Project with Mitigation
Roundabout

Lane Use and Performance													
	Demand Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %						Veh	Dist ft				
South: 50th Street													
Lane 1 ^d	235	2.0	578	0.406	100	12.5	LOS B	2.1	52.9	Full	1600	0.0	0.0
Lane 2	78	2.0	350	0.223	55 ⁵	14.3	LOS B	0.9	22.3	Short	200	0.0	NA
Approach	313	2.0		0.406		12.9	LOS B	2.1	52.9				
East: W Avenue K													
Lane 1	624	2.0	921	0.678	100	15.1	LOS C	6.7	169.7	Full	1600	0.0	0.0
Lane 2 ^d	624	2.0	921	0.678	100	15.1	LOS C	6.7	169.7	Full	1600	0.0	0.0
Approach	1248	2.0		0.678		15.1	LOS C	6.7	169.7				
North: 50th Street													
Lane 1 ^d	292	2.0	483	0.606	100	21.3	LOS C	3.7	93.3	Full	1600	0.0	0.0
Lane 2	180	2.0	391	0.461	76 ⁵	19.1	LOS C	2.3	58.6	Short	200	0.0	NA
Approach	473	2.0		0.606		20.5	LOS C	3.7	93.3				
West: W Avenue K													
Lane 1	518	2.0	865	0.600	100	13.2	LOS B	5.1	128.7	Full	1600	0.0	0.0
Lane 2 ^d	518	2.0	865	0.600	100	13.2	LOS B	5.1	128.7	Full	1600	0.0	0.0
Approach	1037	2.0		0.600		13.2	LOS B	5.1	128.7				
Intersection	3071	2.0		0.678		15.1	LOS C	6.7	169.7				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

LANE FLOWS

 Site: PM 50th St & W Ave K

PM 2021+Related Projects+Project with Mitigation
Roundabout

Approach Lane Flows (veh/h)																	
South: 50th Street																	
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %								
From S To Exit:	W	N	E														
Lane 1	51	184	-	235	2.0	578	0.406	100	NA								
Lane 2	-	-	78	78	2.0	350	0.223	55 ⁵	0.0								
Approach	51	184	78	313	2.0		0.406										
East: W Avenue K																	
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %								
From E To Exit:	S	W	N														
Lane 1	88	536	-	624	2.0	921	0.678	100	NA								
Lane 2	-	611	13	624	2.0	921	0.678	100	NA								
Approach	88	1147	13	1248	2.0		0.678										
North: 50th Street																	
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %								
From N To Exit:	E	S	W														
Lane 1	15	277	-	292	2.0	483	0.606	100	NA								
Lane 2	-	-	180	180	2.0	391	0.461	76 ⁵	0.0								
Approach	15	277	180	473	2.0		0.606										
West: W Avenue K																	
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %								
From W To Exit:	N	E	S														
Lane 1	113	405	-	518	2.0	865	0.600	100	NA								
Lane 2	-	486	33	518	2.0	865	0.600	100	NA								
Approach	113	891	33	1037	2.0		0.600										
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Total</th> <th>%HV</th> <th>Deg. Satn (v/c)</th> </tr> </thead> <tbody> <tr> <td>Intersection</td> <td>3071</td> <td>2.0</td> <td>0.678</td> </tr> </tbody> </table>											Total	%HV	Deg. Satn (v/c)	Intersection	3071	2.0	0.678
	Total	%HV	Deg. Satn (v/c)														
Intersection	3071	2.0	0.678														

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

⁵ Lane under-utilisation found by the program

LEVEL OF SERVICE

 **Site: PM 50th St & W Ave K**

PM 2021+Related Projects+Project with Mitigation
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	B	C	C	B	C

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

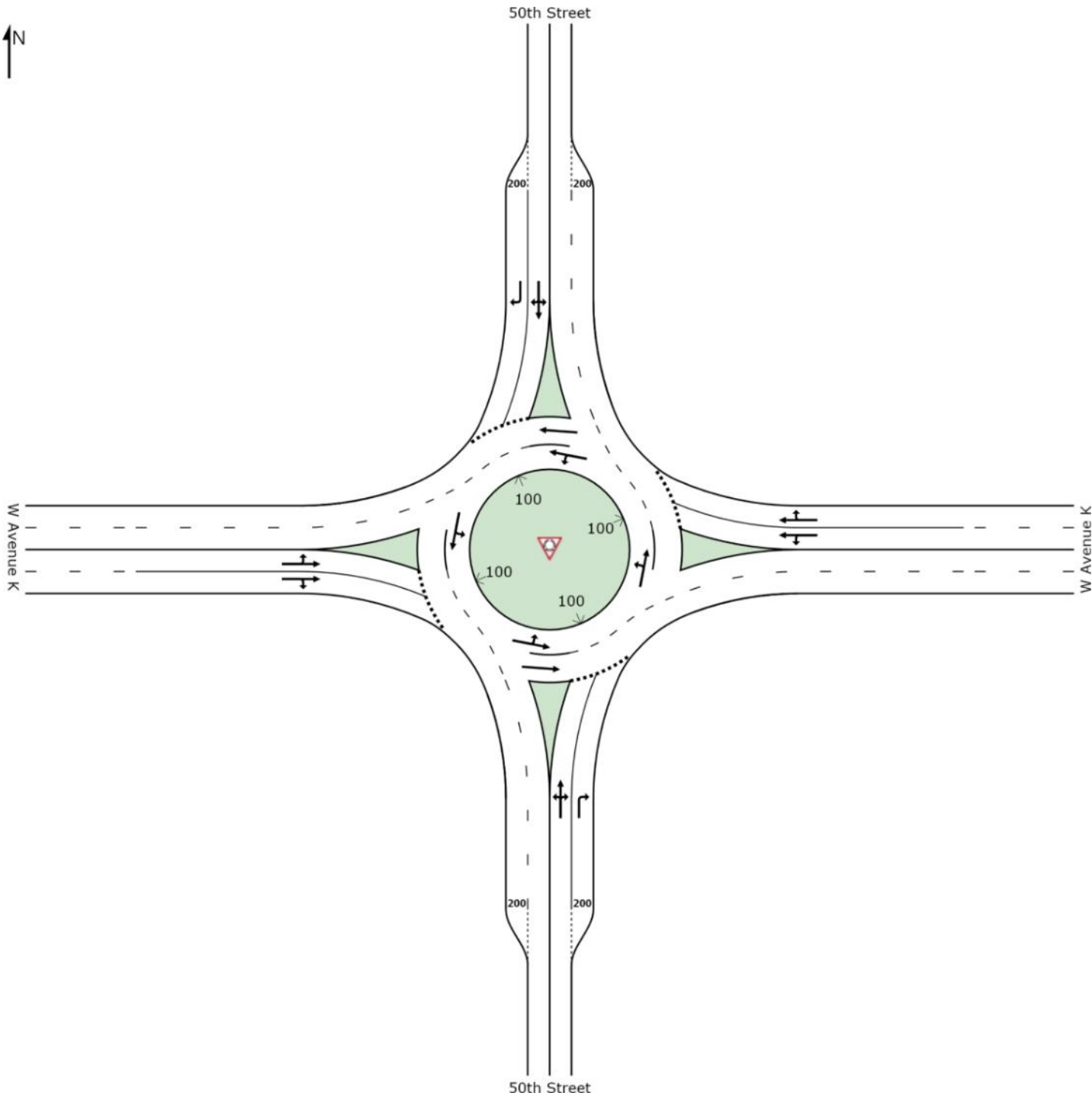
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

SITE LAYOUT

 **Site: PM 50th St & W Ave K**

PM 2021+Related Projects+Project with Mitigation
Roundabout



INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: PM 50th St & W Ave K

PM 2021+Related Projects+Project with Mitigation Roundabout

Volume Display Method: Total and %

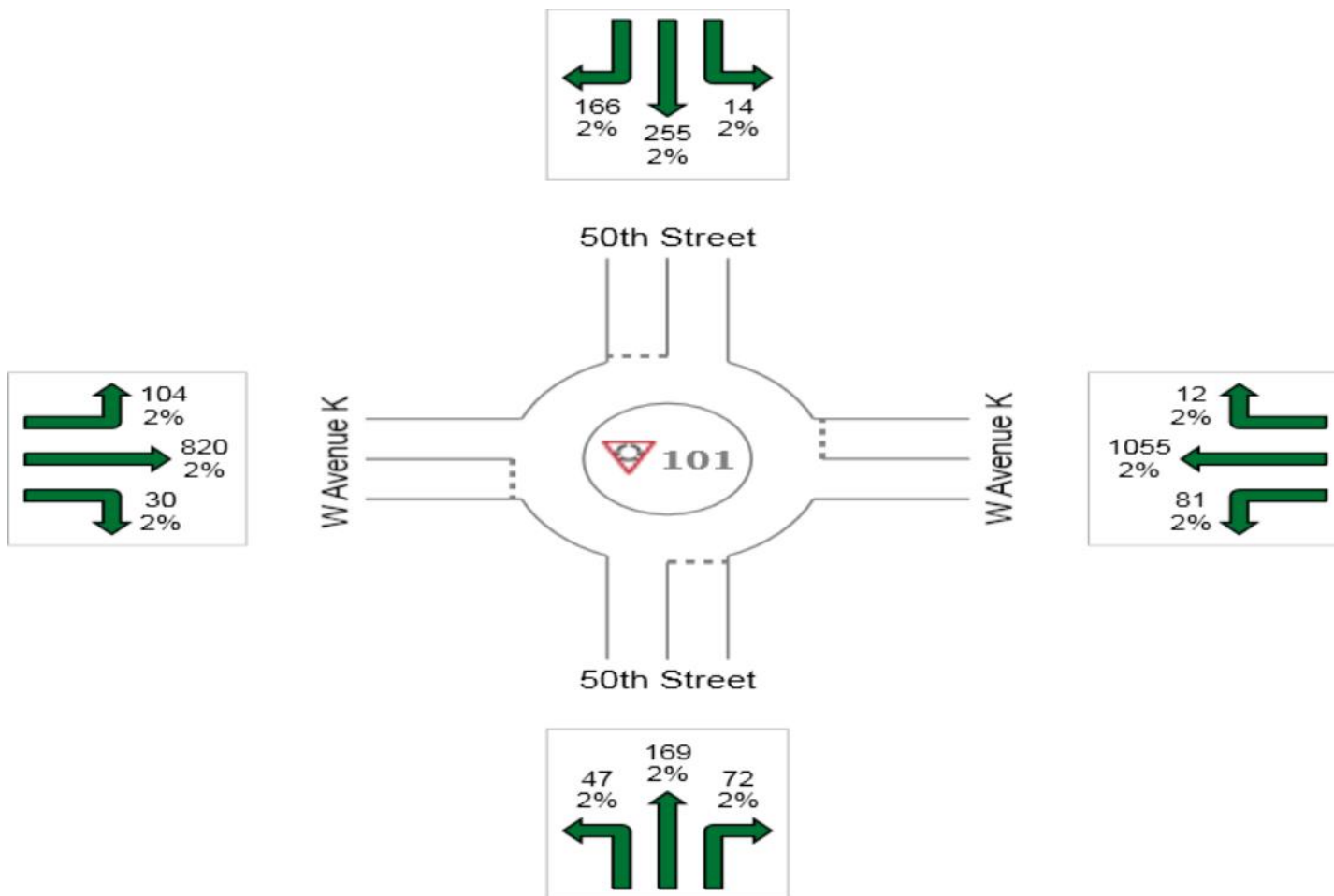
Volumes are shown for Movement Class(es): All Classes and Heavy Vehicles

Total Intersection Volumes (veh)

All Movement Classes: 2825

Light Vehicles (LV): 2769

Heavy Vehicles (HV): 57

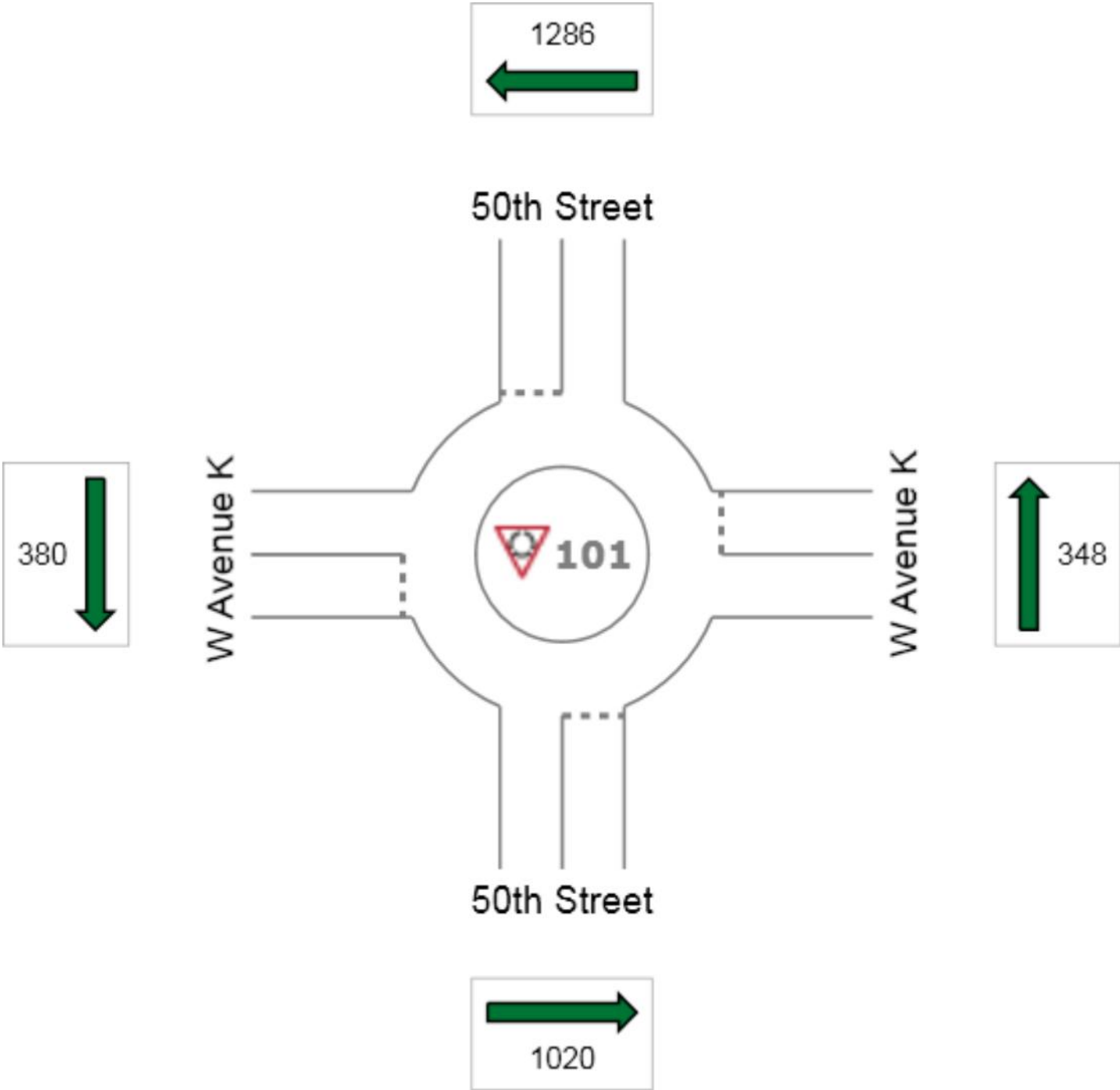


ROUNABOUT CIRCULATING FLOWS

Total Values for All Movement Classes Based on Site Arrival Flow Rates including Capacity Constraint Effects (veh/h)

 Site: PM 50th St & W Ave K

PM 2021+Related Projects+Project with Mitigation Roundabout



DELAY (CONTROL)

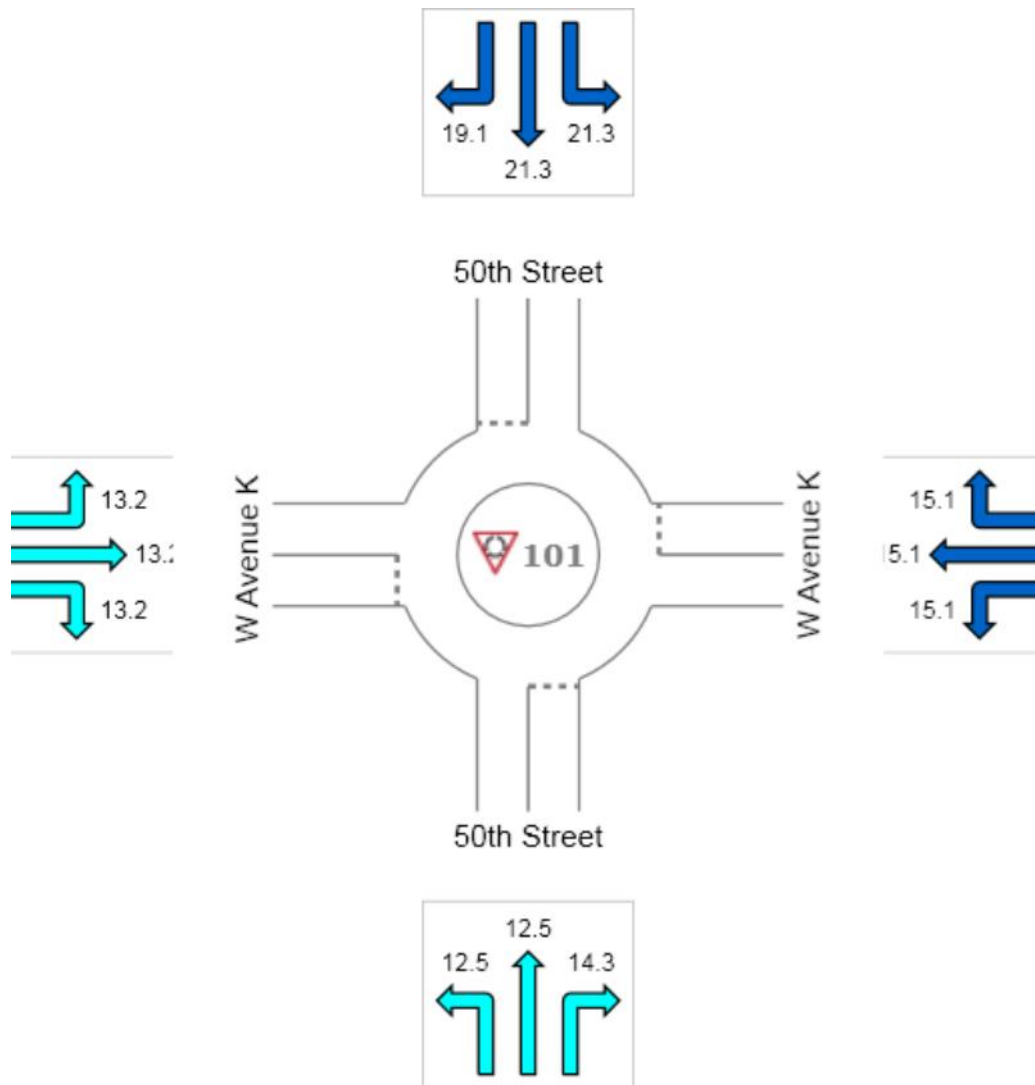
Average control delay per vehicle, or average pedestrian delay (seconds)

 Site: PM 50th St & W Ave K

PM 2021+Related Projects+Project with Mitigation Roundabout

All Movement Classes

	South	East	North	West	Intersection
	12.9	15.1	20.5	13.2	15.1
LOS	B	C	C	B	C



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F Continuous

Level of Service Method: Delay & v/c (HCM 2010)

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

AM Existing

Intersection

Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	2	56	11	0	38	58	1	0	21	151	68
Future Vol, veh/h	0	2	56	11	0	38	58	1	0	21	151	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	61	12	0	41	63	1	0	23	164	74
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.2	8.6	9.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	3%	39%	2%
Vol Thru, %	63%	81%	60%	98%
Vol Right, %	28%	16%	1%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	69	97	42
LT Vol	21	2	38	1
Through Vol	151	56	58	41
RT Vol	68	11	1	0
Lane Flow Rate	261	75	105	46
Geometry Grp	1	1	1	1
Degree of Util (X)	0.31	0.097	0.14	0.059
Departure Headway (Hd)	4.273	4.665	4.786	4.66
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	843	768	749	769
Service Time	2.292	2.696	2.816	2.688
HCM Lane V/C Ratio	0.31	0.098	0.14	0.06
HCM Control Delay	9.2	8.2	8.6	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.3	0.3	0.5	0.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	1	41	0
Future Vol, veh/h	0	1	41	0
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	1	45	0
Number of Lanes	0	0	1	0

Approach

SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8
HCM LOS	A

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗	↔↔	↑	↗	↖	↕↔		↖	↕↔	
Volume (vph)	33	159	40	46	73	87	23	393	109	74	276	19
Pedestrians			5			5			5			5
Ped Button		Yes			Yes			Yes			Yes	
Pedestrian Timing (s)		30.7			28.7			27.3			27.3	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	33	159	40	46	73	87	23	502	0	74	295	0
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	0.99	0.85
Saturated Flow (vph)	2952	1600	1360	2952	1600	1360	1520	2947	0	1520	3017	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	1.3	11.9	4.2	1.9	5.5	8.3	1.8	20.6	0.0	5.8	11.8	0.0
Adj Reference Time (s)	8.0	18.8	12.2	8.0	13.0	15.4	8.0	25.6	0.0	9.8	18.2	0.0
Permitted Option												
Adj Saturation A (vph)	98	1600		98	1600		101	1474		101	1508	
Reference Time A (s)	20.1	11.9		28.1	5.5		27.2	20.6		87.6	11.8	
Adj Saturation B (vph)	0	1600		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	9.3	11.9		NA	NA		NA	NA		NA	NA	
Reference Time (s)		11.9			28.1			27.2			87.6	
Adj Reference Time (s)		18.8			32.2			31.2			91.6	
Split Option												
Ref Time Combined (s)	1.3	11.9		1.9	5.5		1.8	20.6		5.8	11.8	
Ref Time Seperate (s)	1.3	11.9		1.9	5.5		1.8	16.1		5.8	11.0	
Reference Time (s)	11.9	11.9		5.5	5.5		20.6	20.6		11.8	11.8	
Adj Reference Time (s)	18.8	18.8		13.0	13.0		25.6	25.6		18.2	18.2	
Summary												
Protected Option (s)	26.8		35.5									
Permitted Option (s)	32.2		91.6									
Split Option (s)	31.8		43.8									
Minimum (s)	26.8		35.5		62.3							
Right Turns												
Adj Reference Time (s)	12.2		15.4									
Cross Thru Ref Time (s)	18.2		25.6									
Oncoming Left Ref Time (s)	8.0		8.0									
Combined (s)	38.4		49.1									
Intersection Summary												
Intersection Capacity Utilization	51.9%		ICU Level of Service		A							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Intersection Delay, s/veh 20.8
Intersection LOS C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	20	353	24	0	32	141	23	0	35	214	119
Future Vol, veh/h	0	20	353	24	0	32	141	23	0	35	214	119
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	22	384	26	0	35	153	25	0	38	233	129
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	25.6	14.2	22.1
HCM LOS	D	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	5%	16%	11%
Vol Thru, %	58%	89%	72%	75%
Vol Right, %	32%	6%	12%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	368	397	196	145
LT Vol	35	20	32	16
Through Vol	214	353	141	109
RT Vol	119	24	23	20
Lane Flow Rate	400	432	213	158
Geometry Grp	1	1	1	1
Degree of Util (X)	0.691	0.747	0.397	0.304
Departure Headway (Hd)	6.219	6.232	6.716	6.941
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	580	578	533	515
Service Time	4.285	4.296	4.798	5.027
HCM Lane V/C Ratio	0.69	0.747	0.4	0.307
HCM Control Delay	22.1	25.6	14.2	13.1
HCM Lane LOS	C	D	B	B
HCM 95th-tile Q	5.4	6.5	1.9	1.3

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	16	109	20
Future Vol, veh/h	0	16	109	20
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	17	118	22
Number of Lanes	0	0	1	0
























Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	13.1
HCM LOS	B

Lane



























Intersection Capacity Utilization
4: 45th St W & Ave K

AM 2016
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	496	12	14	178	142	10	101	65	148	82	22
Pedestrians			5			5						5
Ped Button		No			No						Yes	
Pedestrian Timing (s)		17.8			21.8						25.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	15	496	12	14	178	142	10	166	0	148	82	22
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1506	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	1.2	37.2	1.7	1.1	13.3	13.2	0.8	13.2	0.0	11.7	6.2	2.6
Adj Reference Time (s)	8.0	41.2	21.8	8.0	25.8	25.8	8.0	17.2	0.0	15.7	13.1	11.3
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		101	1506		101	1600	
Reference Time A (s)	17.8	37.2		16.6	13.3		11.8	13.2		175.3	6.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1506		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		8.8	13.2		NA	NA	
Reference Time (s)		37.2			16.6			13.2			175.3	
Adj Reference Time (s)		41.2			25.8			17.2			179.3	
Split Option												
Ref Time Combined (s)	1.2	37.2		1.1	13.3		0.8	13.2		11.7	6.2	
Ref Time Seperate (s)	1.2	37.2		1.1	13.3		0.8	8.0		11.7	6.2	
Reference Time (s)	37.2	37.2		13.3	13.3		13.2	13.2		11.7	11.7	
Adj Reference Time (s)	41.2	41.2		25.8	25.8		17.2	17.2		17.8	17.8	
Summary												
Protected Option (s)	49.2		32.9									
Permitted Option (s)	41.2		179.3									
Split Option (s)	67.0		35.0									
Minimum (s)	41.2		32.9		74.1							
Right Turns												
Adj Reference Time (s)	21.8	25.8	11.3									
Cross Thru Ref Time (s)	13.1	17.2	25.8									
Oncoming Left Ref Time (s)	8.0	8.0	8.0									
Combined (s)	42.9	51.0	45.1									
Intersection Summary												
Intersection Capacity Utilization	61.8%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
5: 40th St W & Ave K

AM 2016
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Volume (vph)	28	651	68	43	259	21	86	190	177	48	151	17
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		21.9			23.6			27.9			17.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	28	719	0	43	259	21	86	190	177	48	168	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98	0.85
Saturated Flow (vph)	1520	3003	0	1520	1600	1360	1520	3046	1360	1520	1576	0
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.2	28.8	0.0	3.4	19.4	2.5	6.8	7.5	16.3	3.8	12.9	0.0
Adj Reference Time (s)	8.0	32.8	0.0	8.0	27.6	27.6	10.8	14.6	22.0	8.0	17.6	0.0
Permitted Option												
Adj Saturation A (vph)	101	1502		101	1600		101	1523		101	1576	
Reference Time A (s)	33.2	28.8		50.9	19.4		101.8	7.5		56.8	12.9	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		33.2			50.9			101.8			56.8	
Adj Reference Time (s)		37.2			54.9			105.8			60.8	
Split Option												
Ref Time Combined (s)	2.2	28.8		3.4	19.4		6.8	7.5		3.8	12.9	
Ref Time Seperate (s)	2.2	26.1		3.4	19.4		6.8	7.5		3.8	11.6	
Reference Time (s)	28.8	28.8		19.4	19.4		7.5	7.5		12.9	12.9	
Adj Reference Time (s)	32.8	32.8		27.6	27.6		14.6	14.6		17.6	17.6	
Summary												
Protected Option (s)	40.8		28.4									
Permitted Option (s)	54.9		105.8									
Split Option (s)	60.4		32.2									
Minimum (s)	40.8		28.4		69.2							
Right Turns												
Adj Reference Time (s)	27.6		22.0									
Cross Thru Ref Time (s)	14.6		32.8									
Oncoming Left Ref Time (s)	8.0		8.0									
Combined (s)	50.2		62.8									
Intersection Summary												
Intersection Capacity Utilization	57.6%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
6: 30th St W & Ave K

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↕↕↔		↔↔	↕↕↔		↔↔	↕↕	↔	↔↔	↕↕	↔	
Volume (vph)	158	725	145	50	489	266	265	576	126	143	313	159	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		28.7			26.1			32.1			30.1		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	158	870	0	50	755	0	265	576	126	143	313	159	
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00	
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	4612	4249	0	4612	4128	0	4612	3046	1360	4612	3046	1360	
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	4.1	24.7	0.0	1.3	22.2	0.0	6.9	22.7	11.8	3.7	12.3	14.7	
Adj Reference Time (s)	8.1	32.7	0.0	8.0	30.1	0.0	10.9	28.1	18.9	8.0	19.1	21.0	
Permitted Option													
Adj Saturation A (vph)	154	1416		154	1376		154	1523		154	1523		
Reference Time A (s)	61.7	24.7		19.5	22.2		103.4	22.7		55.8	12.3		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		61.7			22.2			103.4			55.8		
Adj Reference Time (s)		65.7			30.1			107.4			59.8		
Split Option													
Ref Time Combined (s)	4.1	24.7		1.3	22.2		6.9	22.7		3.7	12.3		
Ref Time Seperate (s)	4.1	20.6		1.3	14.4		6.9	22.7		3.7	12.3		
Reference Time (s)	24.7	24.7		22.2	22.2		22.7	22.7		12.3	12.3		
Adj Reference Time (s)	32.7	32.7		30.1	30.1		28.1	28.1		19.1	19.1		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	40.7		36.1										
Permitted Option (s)	65.7		107.4										
Split Option (s)	62.8		47.2										
Minimum (s)	40.7		36.1		76.8								
Right Turns													
	NBR		SBR										
Adj Reference Time (s)	18.9		21.0										
Cross Thru Ref Time (s)	32.7		30.1										
Oncoming Left Ref Time (s)	8.0		10.9										
Combined (s)	59.6		62.0										
Intersection Summary													
Intersection Capacity Utilization	64.0%		ICU Level of Service				C						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
7: 25th St W & Ave K

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	65	953	18	15	772	59	16	142	71	125	123	32
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		24.4			26.7			25.3			27.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	65	971	0	15	772	59	16	142	71	125	123	32
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3038	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.1	38.4	0.0	1.2	30.4	5.8	1.3	10.7	6.9	9.9	9.2	3.5
Adj Reference Time (s)	9.1	42.4	0.0	8.0	34.4	30.7	8.0	16.9	13.7	13.9	16.0	11.6
Permitted Option												
Adj Saturation A (vph)	101	1519		101	1523		101	1600		101	1600	
Reference Time A (s)	77.0	38.4		17.8	30.4		18.9	10.7		148.0	9.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		77.0			30.4			18.9			148.0	
Adj Reference Time (s)		81.0			34.4			23.9			152.0	
Split Option												
Ref Time Combined (s)	5.1	38.4		1.2	30.4		1.3	10.7		9.9	9.2	
Ref Time Seperate (s)	5.1	37.7		1.2	30.4		1.3	10.7		9.9	9.2	
Reference Time (s)	38.4	38.4		30.4	30.4		10.7	10.7		9.9	9.9	
Adj Reference Time (s)	42.4	42.4		34.4	34.4		16.9	16.9		16.6	16.6	
Summary												
Protected Option (s)	50.4		30.8									
Permitted Option (s)	81.0		152.0									
Split Option (s)	76.8		33.5									
Minimum (s)	50.4		30.8		81.1							
Right Turns												
Adj Reference Time (s)	30.7	13.7	11.6									
Cross Thru Ref Time (s)	16.9	42.4	34.4									
Oncoming Left Ref Time (s)	9.1	13.9	8.0									
Combined (s)	56.7	70.0	54.0									
Intersection Summary												
Intersection Capacity Utilization	67.6%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
8: 20th St W & Ave K

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↑↑↑	↵	↵	↑↑↑		↵↵	↑↵		↵↵	↑↑↑	
Volume (vph)	152	893	68	61	720	62	46	244	77	96	185	72
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		30.4			31.0			29.9			33.3	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	152	893	68	61	782	0	46	321	0	96	257	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.96	0.85	0.95	0.96	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4307	0	4612	2937	0	4612	4175	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	12.0	24.6	6.6	4.8	21.8	0.0	1.2	13.3	0.0	2.5	7.6	0.0
Adj Reference Time (s)	16.0	34.4	34.4	8.8	35.0	0.0	8.0	19.8	0.0	8.0	15.5	0.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1436		154	1468		154	1392	
Reference Time A (s)	180.0	24.6		72.2	21.8		18.0	13.3		37.5	7.6	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		180.0			72.2			18.0			37.5	
Adj Reference Time (s)		184.0			76.2			23.8			41.5	
Split Option												
Ref Time Combined (s)	12.0	24.6		4.8	21.8		1.2	13.3		2.5	7.6	
Ref Time Seperate (s)	12.0	24.6		4.8	20.1		1.2	10.1		2.5	5.5	
Reference Time (s)	24.6	24.6		21.8	21.8		13.3	13.3		7.6	7.6	
Adj Reference Time (s)	34.4	34.4		35.0	35.0		19.8	19.8		15.5	15.5	
Summary												
Protected Option (s)	51.0		27.8									
Permitted Option (s)	184.0		41.5									
Split Option (s)	69.4		35.3									
Minimum (s)	51.0		27.8		78.8							
Right Turns												
Adj Reference Time (s)	34.4											
Cross Thru Ref Time (s)	15.5											
Oncoming Left Ref Time (s)	3.8											
Combined (s)	58.7											
Intersection Summary												
Intersection Capacity Utilization	65.7%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
9: 17th St W & Ave K

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑	↗	↗	↑	↗
Volume (vph)	44	988	37	74	859	77	22	43	120	137	30	24
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	44	1025	0	74	936	0	22	43	120	137	30	24
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4335	0	1520	4305	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00		
Protected Option Allowed	Yes			Yes			Yes			Yes		
Reference Time (s)	3.5	28.4	0.0	5.8	26.1	0.0	1.7	3.2	10.6	10.8	2.3	2.1
Adj Reference Time (s)	8.0	32.4	0.0	9.8	30.1	0.0	8.0	8.0	14.6	14.8	8.0	8.0
Permitted Option												
Adj Saturation A (vph)	101	1445		101	1435		101	1600		101	1600	
Reference Time A (s)	52.1	28.4		87.6	26.1		26.1	3.2		162.2	2.3	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.7	3.2		18.8	2.3	
Reference Time (s)		52.1			87.6			9.7			18.8	
Adj Reference Time (s)		56.1			91.6			13.7			22.8	
Split Option												
Ref Time Combined (s)	3.5	28.4		5.8	26.1		1.7	3.2		10.8	2.3	
Ref Time Seperate (s)	3.5	27.4		5.8	23.9		1.7	3.2		10.8	2.3	
Reference Time (s)	28.4	28.4		26.1	26.1		3.2	3.2		10.8	10.8	
Adj Reference Time (s)	32.4	32.4		30.1	30.1		8.0	8.0		14.8	14.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	42.2		22.8									
Permitted Option (s)	91.6		22.8									
Split Option (s)	62.5		22.8									
Minimum (s)	42.2		22.8		65.0							
Right Turns												
	NBR		SBR									
Adj Reference Time (s)	14.6		8.0									
Cross Thru Ref Time (s)	32.4		30.1									
Oncoming Left Ref Time (s)	14.8		8.0									
Combined (s)	61.8		46.1									
Intersection Summary												
Intersection Capacity Utilization	54.2%		ICU Level of Service				A					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

AM 2016
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	869	934	311	163	86
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	869	1245	0	249	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4195	0	4453	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	23.9	35.8	0.0		0.0
Adj Reference Time (s)	0.0	27.9	39.8	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1398		148	
Reference Time A (s)	0.0	23.9	35.8		100.9	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		23.9	35.8			
Adj Reference Time (s)		27.9	39.8			
Split Option						
Ref Time Combined (s)	0.0	23.9	35.8		6.9	
Ref Time Seperate (s)	0.0	23.9	26.9		4.6	
Reference Time (s)	23.9	23.9	35.8		6.9	
Adj Reference Time (s)	27.9	27.9	39.8		13.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	39.8		NA			
Permitted Option (s)	39.8		Err			
Split Option (s)	67.7		13.6			
Minimum (s)	39.8		13.6	53.4		

Right Turns

Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary

Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↔			↑↑↑	↔	↔	↑	↔	↔	↔	↔
Volume (vph)	197	746	84	0	769	152	326	424	280	177	1	166
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	197	830	0	0	769	152	326	424	280	0	178	166
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4292	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.1	23.3	0.0	0.0	21.2	14.1			25.3			15.3
Adj Reference Time (s)	9.1	33.9	0.0	0.0	29.0	33.3			29.3			19.3
Permitted Option												
Adj Saturation A (vph)	154	1431		0	1453		101	1600		0	203	
Reference Time A (s)	76.9	23.3		0.0	21.2		386.1	31.8		0.0	105.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		33.7	31.8		NA	NA	
Reference Time (s)		76.9			21.2			33.7			105.0	
Adj Reference Time (s)		80.9			29.0			37.7			109.0	
Split Option												
Ref Time Combined (s)	5.1	23.3		0.0	21.2		25.7	31.8		0.0	7.0	
Ref Time Seperate (s)	5.1	20.9		0.0	21.2		25.7	31.8		7.0	0.1	
Reference Time (s)	23.3	23.3		21.2	21.2		31.8	31.8		7.0	7.0	
Adj Reference Time (s)	33.9	33.9		29.0	29.0		35.8	35.8		33.3	33.3	
Summary												
Protected Option (s)	38.1		NA									
Permitted Option (s)	80.9		109.0									
Split Option (s)	62.9		69.1									
Minimum (s)	38.1		69.1		107.2							
Right Turns												
Adj Reference Time (s)	33.3	29.3	19.3									
Cross Thru Ref Time (s)	35.8	33.9	29.0									
Oncoming Left Ref Time (s)	39.1	33.3	35.8									
Combined (s)	78.2	96.5	84.1									
Intersection Summary												
Intersection Capacity Utilization	89.4%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	25	0	42	1	0	12	34	447	0	5	381	14
Future Vol, veh/h	25	0	42	1	0	12	34	447	0	5	381	14
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	240	-	-	-	216	-	-	236	-	352
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	27	0	46	1	0	13	37	486	0	5	414	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1001	995	217	788	995	496	419	0	0	491	0	0
Stage 1	430	430	-	565	565	-	-	-	-	-	-	-
Stage 2	571	565	-	223	430	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.22	-	-	2.218	-	-
Pot Cap-1 Maneuver	209	244	788	295	244	573	1137	-	-	1072	-	-
Stage 1	574	583	-	509	507	-	-	-	-	-	-	-
Stage 2	505	507	-	760	583	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	197	233	781	268	233	568	1132	-	-	1068	-	-
Mov Cap-2 Maneuver	197	233	-	268	233	-	-	-	-	-	-	-
Stage 1	553	578	-	490	488	-	-	-	-	-	-	-
Stage 2	475	488	-	709	578	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	12.1	0.6	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1132	-	-	197	781	523	1068	-	-
HCM Lane V/C Ratio	0.033	-	-	0.138	0.058	0.027	0.005	-	-
HCM Control Delay (s)	8.3	-	-	26.2	9.9	12.1	8.4	-	-
HCM Lane LOS	A	-	-	D	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.2	0.1	0	-	-

Intersection												
Intersection Delay, s/veh	9.8											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	7	32	41	0	40	36	36	0	18	164	60
Future Vol, veh/h	0	7	32	41	0	40	36	36	0	18	164	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	8	35	45	0	43	39	39	0	20	178	65
Number of Lanes	0	1	1	1	0	1	1	0	0	1	1	0
Approach	EB			WB				NB				
Opposing Approach	WB			EB				SB				
Opposing Lanes	2			3				2				
Conflicting Approach Left	SB			NB				EB				
Conflicting Lanes Left	2			2				3				
Conflicting Approach Right	NB			SB				WB				
Conflicting Lanes Right	2			2				2				
HCM Control Delay	8.7			9.2				10.6				
HCM LOS	A			A				B				
Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2			
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%			
Vol Thru, %	0%	73%	0%	100%	0%	0%	50%	0%	95%			
Vol Right, %	0%	27%	0%	0%	100%	0%	50%	0%	5%			
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop			
Traffic Vol by Lane	18	224	7	32	41	40	72	24	63			
LT Vol	18	0	7	0	0	40	0	24	0			
Through Vol	0	164	0	32	0	0	36	0	60			
RT Vol	0	60	0	0	41	0	36	0	3			
Lane Flow Rate	20	243	8	35	45	43	78	26	68			
Geometry Grp	8	8	8	8	8	8	8	8	8			
Degree of Util (X)	0.032	0.349	0.013	0.056	0.063	0.076	0.117	0.045	0.107			
Departure Headway (Hd)	5.846	5.156	6.33	5.826	5.121	6.255	5.398	6.176	5.64			
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Cap	610	694	561	609	692	569	658	575	630			
Service Time	3.608	2.919	4.118	3.614	2.908	4.036	3.177	3.959	3.423			
HCM Lane V/C Ratio	0.033	0.35	0.014	0.057	0.065	0.076	0.119	0.045	0.108			
HCM Control Delay	8.8	10.7	9.2	9	8.3	9.6	8.9	9.3	9.1			
HCM Lane LOS	A	B	A	A	A	A	A	A	A			
HCM 95th-tile Q	0.1	1.6	0	0.2	0.2	0.2	0.4	0.1	0.4			

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	24	60	3
Future Vol, veh/h	0	24	60	3
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	26	65	3
Number of Lanes	0	1	1	0

Approach SB

Opposing Approach NB

Opposing Lanes 2

Conflicting Approach Left WB

Conflicting Lanes Left 2

Conflicting Approach Right EB

Conflicting Lanes Right 3

HCM Control Delay 9.2

HCM LOS A

Lane

Intersection

Int Delay, s/veh 4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	105	12	33	69	30	77
Future Vol, veh/h	105	12	33	69	30	77
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	- None		- None		-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	114	13	36	75	33	84

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	132
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1453
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1447
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10
HCM LOS			B

Minor Lane/Major Mvm	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	837	-	-	1447	-
HCM Lane V/C Ratio	0.139	-	-	0.025	-
HCM Control Delay (s)	10	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection

Int Delay, s/veh 1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	223	13	8	132	13	24
Future Vol, veh/h	223	13	8	132	13	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	- None		- None		-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	242	14	9	143	14	26

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	257	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1308	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1308	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

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

Minor Lane/Major Mvm	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	708	-	-	1308	-
HCM Lane V/C Ratio	0.057	-	-	0.007	-
HCM Control Delay (s)	10.4	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection Capacity Utilization
19: 60th St W & Ave L

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↑	↗	↔↔	↑	↗	↔	↔	↔	↗	↗		
Volume (vph)	108	198	23	93	126	89	20	282	108	134	315	40	
Pedestrians			5			5			5			5	
Ped Button		Yes			Yes			Yes			Yes		
Pedestrian Timing (s)		27.6			16.0			39.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	108	198	23	93	126	89	20	390	0	134	355	0	
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	0.98	0.85	
Saturated Flow (vph)	4612	1600	1360	4612	1600	1360	1520	1534	0	1520	1573	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	2.8	14.8	2.7	2.4	9.4	8.5	1.6	30.7	0.0	10.6	27.2	0.0	
Adj Reference Time (s)	8.0	20.8	11.6	8.0	13.4	12.5	8.0	36.1	0.0	14.6	31.2	0.0	
Permitted Option													
Adj Saturation A (vph)	154	1600		154	1600		101	1534		101	1573		
Reference Time A (s)	42.1	14.8		36.3	9.4		23.7	30.7		158.7	27.2		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		42.1			36.3			30.7			158.7		
Adj Reference Time (s)		46.1			40.3			36.1			162.7		
Split Option													
Ref Time Combined (s)	2.8	14.8		2.4	9.4		1.6	30.7		10.6	27.2		
Ref Time Seperate (s)	2.8	14.8		2.4	9.4		1.6	22.2		10.6	24.1		
Reference Time (s)	14.8	14.8		9.4	9.4		30.7	30.7		27.2	27.2		
Adj Reference Time (s)	20.8	20.8		13.4	13.4		36.1	36.1		31.2	31.2		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	28.8		50.6										
Permitted Option (s)	46.1		162.7										
Split Option (s)	34.3		67.2										
Minimum (s)	28.8		50.6		79.4								
Right Turns													
	EBR		WBR										
Adj Reference Time (s)	11.6		12.5										
Cross Thru Ref Time (s)	31.2		36.1										
Oncoming Left Ref Time (s)	8.0		8.0										
Combined (s)	50.8		56.6										
Intersection Summary													
Intersection Capacity Utilization	66.2%		ICU Level of Service				C						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection

Int Delay, s/veh 3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	419	16	78	247	10	136
Future Vol, veh/h	419	16	78	247	10	136
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	455	17	85	268	11	148

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	460	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1101	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1096	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	14.2
HCM LOS			B

Minor Lane/Major Mvm	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	550	-	-	1096	-
HCM Lane V/C Ratio	0.289	-	-	0.077	-
HCM Control Delay (s)	14.2	-	-	8.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.3	-

Intersection Capacity Utilization
21: 50th St W & Ave L

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	495	19	77	247	29	27	245	125	56	147	46
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		20.1			19.9			18.1			18.4	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	64	514	0	77	276	0	27	245	125	56	193	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.96	0.85
Saturated Flow (vph)	1520	1591	0	1520	1575	0	1520	1600	1360	1520	1543	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.1	38.8	0.0	6.1	21.1	0.0	2.1	18.4	11.7	4.4	15.2	0.0
Adj Reference Time (s)	9.1	42.8	0.0	10.1	25.1	0.0	8.0	22.4	16.7	8.4	19.7	0.0
Permitted Option												
Adj Saturation A (vph)	101	1591		101	1575		101	1600		101	1543	
Reference Time A (s)	75.8	38.8		91.2	21.1		32.0	18.4		66.3	15.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		75.8			91.2			32.0			66.3	
Adj Reference Time (s)		79.8			95.2			36.0			70.3	
Split Option												
Ref Time Combined (s)	5.1	38.8		6.1	21.1		2.1	18.4		4.4	15.2	
Ref Time Seperate (s)	5.1	37.4		6.1	18.9		2.1	18.4		4.4	11.6	
Reference Time (s)	38.8	38.8		21.1	21.1		18.4	18.4		15.2	15.2	
Adj Reference Time (s)	42.8	42.8		25.1	25.1		22.4	22.4		19.7	19.7	
Summary												
Protected Option (s)	52.9		30.8									
Permitted Option (s)	95.2		70.3									
Split Option (s)	67.9		42.0									
Minimum (s)	52.9		30.8		83.7							
Right Turns												
Adj Reference Time (s)	16.7											
Cross Thru Ref Time (s)	42.8											
Oncoming Left Ref Time (s)	38.4											
Combined (s)	67.9											
Intersection Summary												
Intersection Capacity Utilization	69.7%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
22: 45th St W & Ave L

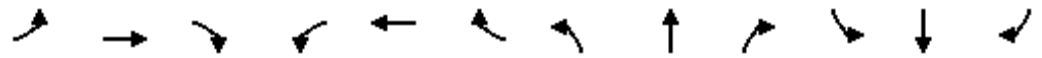
AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	27	669	8	50	334	54	14	48	76	96	33	15	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		25.6			16.0			20.4			22.1		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	27	669	8	50	388	0	14	48	76	96	48	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	0.85	
Saturated Flow (vph)	1520	1600	1360	1520	1567	0	1520	1600	1360	1520	1525	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	2.1	50.2	1.3	3.9	29.8	0.0	1.1	3.6	7.3	7.6	4.0	0.0	
Adj Reference Time (s)	8.0	54.2	29.6	8.0	33.8	0.0	8.0	10.5	13.4	11.6	10.8	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1600		101	1567		101	1600		101	1525		
Reference Time A (s)	32.0	50.2		59.2	29.8		16.6	3.6		113.7	4.0		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1525		
Reference Time B (s)	NA	NA		NA	NA		9.1	3.6		15.6	4.0		
Reference Time (s)		50.2			59.2			9.1			15.6		
Adj Reference Time (s)		54.2			63.2			14.8			20.6		
Split Option													
Ref Time Combined (s)	2.1	50.2		3.9	29.8		1.1	3.6		7.6	4.0		
Ref Time Seperate (s)	2.1	50.2		3.9	25.7		1.1	3.6		7.6	2.8		
Reference Time (s)	50.2	50.2		29.8	29.8		3.6	3.6		7.6	7.6		
Adj Reference Time (s)	54.2	54.2		33.8	33.8		10.5	10.5		13.8	13.8		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	62.2		22.1										
Permitted Option (s)	63.2		20.6										
Split Option (s)	88.0		24.3										
Minimum (s)	62.2		20.6		82.8								
Right Turns													
	EBR		NBR										
Adj Reference Time (s)	29.6		13.4										
Cross Thru Ref Time (s)	10.8		54.2										
Oncoming Left Ref Time (s)	8.0		11.6										
Combined (s)	48.4		79.1										
Intersection Summary													
Intersection Capacity Utilization	69.0%		ICU Level of Service				C						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
23: 40th St W & Ave L

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	71	674	7	22	359	81	20	115	71	165	34	50
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		31.0			33.3			35.6			31.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	71	681	0	22	359	81	20	115	71	165	34	50
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1598	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.6	51.2	0.0	1.7	14.1	7.8	1.6	8.6	6.9	13.0	2.5	5.1
Adj Reference Time (s)	9.6	55.2	0.0	8.0	37.3	37.3	8.0	16.8	15.3	17.0	12.2	13.1
Permitted Option												
Adj Saturation A (vph)	101	1598		101	1523		101	1600		101	1600	
Reference Time A (s)	84.1	51.2		26.1	14.1		23.7	8.6		195.4	2.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.6	8.6		21.0	2.5	
Reference Time (s)		84.1			26.1			9.6			21.0	
Adj Reference Time (s)		88.1			37.3			17.6			26.6	
Split Option												
Ref Time Combined (s)	5.6	51.2		1.7	14.1		1.6	8.6		13.0	2.5	
Ref Time Seperate (s)	5.6	50.6		1.7	14.1		1.6	8.6		13.0	2.5	
Reference Time (s)	51.2	51.2		14.1	14.1		8.6	8.6		13.0	13.0	
Adj Reference Time (s)	55.2	55.2		37.3	37.3		16.8	16.8		19.9	19.9	
Summary												
Protected Option (s)	63.2		33.8									
Permitted Option (s)	88.1		26.6									
Split Option (s)	92.5		36.6									
Minimum (s)	63.2		26.6		89.8							
Right Turns												
Adj Reference Time (s)	37.3	15.3	13.1									
Cross Thru Ref Time (s)	16.8	55.2	37.3									
Oncoming Left Ref Time (s)	9.6	17.0	8.0									
Combined (s)	63.7	87.5	58.4									
Intersection Summary												
Intersection Capacity Utilization	74.8%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
24: 35th St W & Ave L

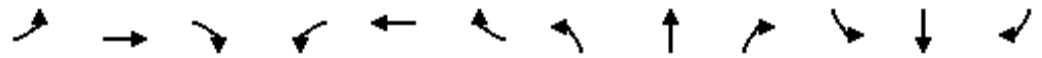
AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗	↗↘		↗	↗↘		↗	↘		↗	↘	↗	
Volume (vph)	57	824	36	22	387	13	22	50	58	15	18	50	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		16.0			23.9			25.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	57	860	0	22	400	0	22	108	0	15	18	50	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3027	0	1520	3032	0	1520	1471	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	4.5	34.1	0.0	1.7	15.9	0.0	1.7	9.2	0.0	1.2	1.4	5.1	
Adj Reference Time (s)	8.5	38.1	0.0	8.0	27.9	0.0	8.0	15.7	0.0	8.0	8.0	9.1	
Permitted Option													
Adj Saturation A (vph)	101	1514		101	1516		101	1471		101	1600		
Reference Time A (s)	67.5	34.1		26.1	15.9		26.1	9.2		17.8	1.4		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1471		0	1600		
Reference Time B (s)	NA	NA		NA	NA		9.7	9.2		9.2	1.4		
Reference Time (s)		67.5			26.1			9.7			9.2		
Adj Reference Time (s)		71.5			30.1			16.2			13.2		
Split Option													
Ref Time Combined (s)	4.5	34.1		1.7	15.9		1.7	9.2		1.2	1.4		
Ref Time Seperate (s)	4.5	32.7		1.7	15.3		1.7	4.4		1.2	1.4		
Reference Time (s)	34.1	34.1		15.9	15.9		9.2	9.2		1.4	1.4		
Adj Reference Time (s)	38.1	38.1		27.9	27.9		15.7	15.7		8.0	8.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	46.1		23.7										
Permitted Option (s)	71.5		16.2										
Split Option (s)	66.0		23.7										
Minimum (s)	46.1		16.2		62.3								
Right Turns													
	SBR												
Adj Reference Time (s)	9.1												
Cross Thru Ref Time (s)	27.9												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	45.0												
Intersection Summary													
Intersection Capacity Utilization	51.9%		ICU Level of Service						A				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
25: 30th St W & Ave L

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↘	↘	↑↑	↘	↘	↑↑	↘	↘	↑↑	↘
Volume (vph)	91	748	85	142	310	59	65	325	217	153	286	75
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	91	748	85	142	310	59	65	325	217	153	286	75
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	7.2	29.5	8.1	11.2	12.2	5.8	5.1	12.8	19.8	12.1	11.3	7.3
Adj Reference Time (s)	11.2	39.0	39.0	15.2	37.0	37.0	9.1	20.3	26.3	16.1	18.8	15.4
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1523		101	1523	
Reference Time A (s)	107.8	29.5		168.2	12.2		77.0	12.8		181.2	11.3	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		107.8			168.2			77.0			181.2	
Adj Reference Time (s)		111.8			172.2			81.0			185.2	
Split Option												
Ref Time Combined (s)	7.2	29.5		11.2	12.2		5.1	12.8		12.1	11.3	
Ref Time Seperate (s)	7.2	29.5		11.2	12.2		5.1	12.8		12.1	11.3	
Reference Time (s)	29.5	29.5		12.2	12.2		12.8	12.8		12.1	12.1	
Adj Reference Time (s)	39.0	39.0		37.0	37.0		20.3	20.3		19.5	19.5	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	54.2		36.4									
Permitted Option (s)	172.2		185.2									
Split Option (s)	76.0		39.8									
Minimum (s)	54.2		36.4		90.6							
Right Turns												
	EBR	WBR	NBR	SBR								
Adj Reference Time (s)	39.0	37.0	26.3	15.4								
Cross Thru Ref Time (s)	18.8	20.3	39.0	37.0								
Oncoming Left Ref Time (s)	15.2	11.2	16.1	9.1								
Combined (s)	73.0	68.5	81.3	61.5								
Intersection Summary												
Intersection Capacity Utilization	75.5%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕		↘	↑	↗
Volume (vph)	45	1096	4	3	479	19	5	1	2	63	2	48
Pedestrians	5		5	5		5	5		5	5		5
Ped Button	No				No		Yes				Yes	
Pedestrian Timing (s)	25.3				22.4		16.0				30.7	
Free Right			No				No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	45	1096	4	3	479	19	0	8	0	63	2	48
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1492	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00				1.00		0.15				0.15	
Protected Option Allowed	Yes				Yes		No				No	
Reference Time (s)	3.6	43.2	1.0	0.2	18.9	2.3			0.0			4.9
Adj Reference Time (s)	8.0	47.2	31.0	8.0	26.4	26.4			0.0			12.8
Permitted Option												
Adj Saturation A (vph)	101	1523			101	1523	0	141			1051	1600
Reference Time A (s)	53.3	43.2			3.6	18.9	0.0	7.0			7.2	0.1
Adj Saturation B (vph)	NA	NA			NA	NA	0	0			0	1600
Reference Time B (s)	NA	NA			NA	NA	8.4	8.8			13.0	0.1
Reference Time (s)	53.3				18.9		7.0				7.2	
Adj Reference Time (s)	57.3				26.4		11.0				14.8	
Split Option												
Ref Time Combined (s)	3.6	43.2			0.2	18.9	0.0	0.8			5.0	0.1
Ref Time Seperate (s)	3.6	43.2			0.2	18.9	0.4	0.2			5.0	0.1
Reference Time (s)	43.2	43.2			18.9	18.9	0.8	0.8			5.0	5.0
Adj Reference Time (s)	47.2	47.2			26.4	26.4	8.0	8.0			12.9	12.9
Summary												
Protected Option (s)	55.2		NA									
Permitted Option (s)	57.3		14.8									
Split Option (s)	73.6		20.9									
Minimum (s)	55.2		14.8		70.0							
Right Turns												
Adj Reference Time (s)	31.0	26.4	12.8									
Cross Thru Ref Time (s)	12.9	8.0	26.4									
Oncoming Left Ref Time (s)	8.0	8.0	8.0									
Combined (s)	51.9	42.4	47.2									

Intersection Summary

Intersection Capacity Utilization 58.3% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
27: 20th St W & Ave L

AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑	↗
Volume (vph)	107	1010	51	21	393	49	26	203	52	108	105	55
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	107	1010	51	21	393	49	26	255	0	108	105	55
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2953	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	8.4	39.8	5.1	1.7	10.8	5.0	2.1	10.5	0.0	8.5	7.9	5.5
Adj Reference Time (s)	12.4	43.8	34.1	8.0	40.7	40.7	8.0	17.4	0.0	12.5	15.7	13.7
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1477		101	1600	
Reference Time A (s)	126.7	39.8		24.9	10.8		30.8	10.5		127.9	7.9	
Adj Saturation B (vph)	NA	NA		NA	NA		0	2953		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		10.1	10.5		NA	NA	
Reference Time (s)		126.7			24.9			10.5			127.9	
Adj Reference Time (s)		130.7			40.7			17.4			131.9	
Split Option												
Ref Time Combined (s)	8.4	39.8		1.7	10.8		2.1	10.5		8.5	7.9	
Ref Time Seperate (s)	8.4	39.8		1.7	10.8		2.1	8.4		8.5	7.9	
Reference Time (s)	39.8	39.8		10.8	10.8		10.5	10.5		8.5	8.5	
Adj Reference Time (s)	43.8	43.8		40.7	40.7		17.4	17.4		16.3	16.3	
Summary												
Protected Option (s)	53.1		29.9									
Permitted Option (s)	130.7		131.9									
Split Option (s)	84.5		33.7									
Minimum (s)	53.1		29.9		83.1							
Right Turns												
Adj Reference Time (s)	34.1	40.7	13.7									
Cross Thru Ref Time (s)	15.7	17.4	40.7									
Oncoming Left Ref Time (s)	8.0	12.4	8.0									
Combined (s)	57.8	70.5	62.4									
Intersection Summary												
Intersection Capacity Utilization	69.2%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
28: 15th St W & Ave L

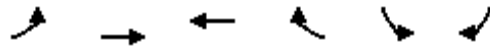
AM 2016
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑		↰	↑↑↑	↰		↕		↰	↑	↰
Volume (vph)	101	1164	3	4	474	249	1	1	9	114	1	22
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	101	1167	0	4	474	249	0	11	0	114	1	22
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.87	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4357	0	1520	4358	1360	0	1397	0	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	8.0	32.1	0.0	0.3	13.1	22.0			0.0			1.9
Adj Reference Time (s)	12.0	36.1	0.0	8.0	17.1	26.0			0.0			8.0
Permitted Option												
Adj Saturation A (vph)	101	1452		101	1453		0	598		240	1600	
Reference Time A (s)	119.6	32.1		4.7	13.1		0.0	2.2		57.1	0.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.1	8.9		17.0	0.1	
Reference Time (s)		119.6			13.1			2.2			17.0	
Adj Reference Time (s)		123.6			17.1			8.0			21.0	
Split Option												
Ref Time Combined (s)	8.0	32.1		0.3	13.1		0.0	0.9		9.0	0.1	
Ref Time Seperate (s)	8.0	32.1		0.3	13.1		0.1	0.1		9.0	0.1	
Reference Time (s)	32.1	32.1		13.1	13.1		0.9	0.9		9.0	9.0	
Adj Reference Time (s)	36.1	36.1		17.1	17.1		8.0	8.0		13.0	13.0	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	44.1		NA									
Permitted Option (s)	123.6		21.0									
Split Option (s)	53.2		21.0									
Minimum (s)	44.1		21.0		65.1							
Right Turns												
	WBR		SBR									
Adj Reference Time (s)	26.0		8.0									
Cross Thru Ref Time (s)	8.0		17.1									
Oncoming Left Ref Time (s)	2.0		8.0									
Combined (s)	45.9		33.1									
Intersection Summary												
Intersection Capacity Utilization	54.3%		ICU Level of Service		A							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

AM 2016
5/2/2017



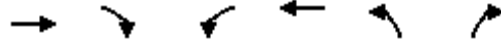
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	860	659	0	290	72
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	860	659	0	362	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4521	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	23.7	18.1	0.0		0.0
Adj Reference Time (s)	0.0	27.7	22.1	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		151	
Reference Time A (s)	0.0	23.7	18.1		144.2	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		23.7	18.1			
Adj Reference Time (s)		27.7	22.1			
Split Option						
Ref Time Combined (s)	0.0	23.7	18.1		9.7	
Ref Time Seperate (s)	0.0	23.7	18.1		7.8	
Reference Time (s)	23.7	23.7	18.1		9.7	
Adj Reference Time (s)	27.7	27.7	22.1		15.4	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	27.7		NA			
Permitted Option (s)	27.7		Err			
Split Option (s)	49.8		15.4			
Minimum (s)	27.7		15.4	43.1		

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary			
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2016
5/2/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	1073	0	0	876	325	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	1073	0	0	876	325	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	1520	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	29.5	0.6	0.0	18.1		0.0
Adj Reference Time (s)	33.5	9.7	0.0	22.1		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	101	
Reference Time A (s)	29.5		0.0	18.1	384.9	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	29.5			18.1		
Adj Reference Time (s)	33.5			22.1		
Split Option						
Ref Time Combined (s)	29.5		0.0	18.1	25.7	
Ref Time Seperate (s)	29.5		0.0	18.1	25.7	
Reference Time (s)	29.5		18.1	18.1	25.7	
Adj Reference Time (s)	33.5		22.1	22.1	29.7	
Summary						
	EB	WB	NB	Combined		
Protected Option (s)	33.5		NA			
Permitted Option (s)	33.5		Err			
Split Option (s)	55.6		29.7			
Minimum (s)	33.5		29.7	63.2		
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	52.7%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

AM Existing+Project

Intersection

Intersection Delay, s/veh 11.5
Intersection LOS B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	2	56	11	0	84	58	1	0	21	222	174
Future Vol, veh/h	0	2	56	11	0	84	58	1	0	21	222	174
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	61	12	0	91	63	1	0	23	241	189
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9	10.1	12.8
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	3%	59%	1%
Vol Thru, %	53%	81%	41%	99%
Vol Right, %	42%	16%	1%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	417	69	143	72
LT Vol	21	2	84	1
Through Vol	222	56	58	71
RT Vol	174	11	1	0
Lane Flow Rate	453	75	155	78
Geometry Grp	1	1	1	1
Degree of Util (X)	0.554	0.11	0.231	0.11
Departure Headway (Hd)	4.404	5.283	5.355	5.067
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	816	671	664	701
Service Time	2.454	3.376	3.438	3.145
HCM Lane V/C Ratio	0.555	0.112	0.233	0.111
HCM Control Delay	12.8	9	10.1	8.8
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	3.5	0.4	0.9	0.4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	1	71	0
Future Vol, veh/h	0	1	71	0
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	1	77	0
Number of Lanes	0	0	1	0































Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.8
HCM LOS	A

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

AM 2016+Project
5/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 		 	 		 	 	 		 	 		
Volume (vph)	33	265	40	146	119	87	23	429	278	74	297	19	
Pedestrians			5			5			5			5	
Ped Button		Yes			Yes			Yes			Yes		
Pedestrian Timing (s)		30.7			28.7			27.3			27.3		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	33	265	40	146	119	87	23	707	0	74	316	0	
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	0.99	0.85	
Saturated Flow (vph)	2952	1600	1360	2952	1600	1360	1520	2867	0	1520	3019	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	1.3	19.9	4.2	5.9	8.9	8.3	1.8	29.8	0.0	5.8	12.6	0.0	
Adj Reference Time (s)	8.0	25.5	12.2	9.9	16.0	15.4	8.0	33.8	0.0	9.8	18.9	0.0	
Permitted Option													
Adj Saturation A (vph)	98	1600		98	1600		101	1433		101	1509		
Reference Time A (s)	20.1	19.9		89.0	8.9		27.2	29.8		87.6	12.6		
Adj Saturation B (vph)	0	1600		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	9.3	19.9		NA	NA		NA	NA		NA	NA		
Reference Time (s)		19.9			89.0			29.8			87.6		
Adj Reference Time (s)		25.5			93.0			33.8			91.6		
Split Option													
Ref Time Combined (s)	1.3	19.9		5.9	8.9		1.8	29.8		5.8	12.6		
Ref Time Seperate (s)	1.3	19.9		5.9	8.9		1.8	18.2		5.8	11.8		
Reference Time (s)	19.9	19.9		8.9	8.9		29.8	29.8		12.6	12.6		
Adj Reference Time (s)	25.5	25.5		16.0	16.0		33.8	33.8		18.9	18.9		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	35.5		43.7										
Permitted Option (s)	93.0		91.6										
Split Option (s)	41.5		52.7										
Minimum (s)	35.5		43.7		79.2								
Right Turns													
	EBR		WBR										
Adj Reference Time (s)	12.2		15.4										
Cross Thru Ref Time (s)	18.9		33.8										
Oncoming Left Ref Time (s)	9.9		8.0										
Combined (s)	41.0		57.3										
Intersection Summary													
Intersection Capacity Utilization	66.0%		ICU Level of Service				C						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection												
Intersection Delay, s/veh	47											
Intersection LOS	E											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	49	599	24	0	32	271	23	0	35	214	119
Future Vol, veh/h	0	49	599	24	0	32	271	23	0	35	214	119
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	53	651	26	0	35	295	25	0	38	233	129
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB			WB				NB				
Opposing Approach	WB			EB				SB				
Opposing Lanes	1			1				1				
Conflicting Approach Left	SB			NB				EB				
Conflicting Lanes Left	1			1				1				
Conflicting Approach Right	NB			SB				WB				
Conflicting Lanes Right	1			1				1				
HCM Control Delay	68			30				36.7				
HCM LOS	F			D				E				
Lane	NBLn1		EBLn1		WBLn1		SBLn1					
Vol Left, %	10%		7%		10%		10%					
Vol Thru, %	58%		89%		83%		68%					
Vol Right, %	32%		4%		7%		22%					
Sign Control	Stop		Stop		Stop		Stop					
Traffic Vol by Lane	368		672		326		161					
LT Vol	35		49		32		16					
Through Vol	214		599		271		109					
RT Vol	119		24		23		36					
Lane Flow Rate	400		730		354		175					
Geometry Grp	1		1		1		1					
Degree of Util (X)	0.824		1		0.747		0.408					
Departure Headway (Hd)	7.42		7.288		7.591		8.396					
Convergence, Y/N	Yes		Yes		Yes		Yes					
Cap	488		497		475		427					
Service Time	5.471		5.375		5.656		6.469					
HCM Lane V/C Ratio	0.82		1.469		0.745		0.41					
HCM Control Delay	36.7		68		30		17.2					
HCM Lane LOS	E		F		D		C					
HCM 95th-tile Q	8		13.5		6.2		1.9					

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	16	109	36
Future Vol, veh/h	0	16	109	36
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	17	118	39
Number of Lanes	0	0	1	0
























Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	17.2
HCM LOS	C

Lane

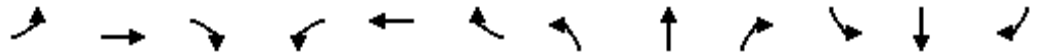
Intersection Capacity Utilization
4: 45th St W & Ave K

AM 2016+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	722	12	14	298	142	10	101	65	148	82	32
Pedestrians			5			5						5
Ped Button		No			No						Yes	
Pedestrian Timing (s)		17.8			21.8						25.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	35	722	12	14	298	142	10	166	0	148	82	32
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1506	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.8	54.1	1.7	1.1	22.4	13.2	0.8	13.2	0.0	11.7	6.2	3.5
Adj Reference Time (s)	8.0	58.1	21.8	8.0	26.4	25.8	8.0	17.2	0.0	15.7	13.1	11.3
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		101	1506		101	1600	
Reference Time A (s)	41.4	54.1		16.6	22.4		11.8	13.2		175.3	6.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1506		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		8.8	13.2		NA	NA	
Reference Time (s)		54.1			22.4			13.2			175.3	
Adj Reference Time (s)		58.1			26.4			17.2			179.3	
Split Option												
Ref Time Combined (s)	2.8	54.1		1.1	22.4		0.8	13.2		11.7	6.2	
Ref Time Seperate (s)	2.8	54.1		1.1	22.4		0.8	8.0		11.7	6.2	
Reference Time (s)	54.1	54.1		22.4	22.4		13.2	13.2		11.7	11.7	
Adj Reference Time (s)	58.1	58.1		26.4	26.4		17.2	17.2		17.8	17.8	
Summary												
Protected Option (s)	66.2		32.9									
Permitted Option (s)	58.1		179.3									
Split Option (s)	84.5		35.0									
Minimum (s)	58.1		32.9		91.1							
Right Turns												
Adj Reference Time (s)	21.8	25.8	11.3									
Cross Thru Ref Time (s)	13.1	17.2	26.4									
Oncoming Left Ref Time (s)	8.0	8.0	8.0									
Combined (s)	42.9	51.0	45.7									
Intersection Summary												
Intersection Capacity Utilization	75.9%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
5: 40th St W & Ave K























AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	857	68	43	369	21	86	190	177	48	151	27
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		21.9			23.6			27.9			17.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	48	925	0	43	369	21	86	190	177	48	178	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98	0.85
Saturated Flow (vph)	1520	3013	0	1520	1600	1360	1520	3046	1360	1520	1564	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.8	36.9	0.0	3.4	27.7	2.5	6.8	7.5	16.3	3.8	13.8	0.0
Adj Reference Time (s)	8.0	40.9	0.0	8.0	31.7	27.6	10.8	14.6	22.0	8.0	18.3	0.0
Permitted Option												
Adj Saturation A (vph)	101	1506		101	1600		101	1523		101	1564	
Reference Time A (s)	56.8	36.9		50.9	27.7		101.8	7.5		56.8	13.8	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		56.8			50.9			101.8			56.8	
Adj Reference Time (s)		60.8			54.9			105.8			60.8	
Split Option												
Ref Time Combined (s)	3.8	36.9		3.4	27.7		6.8	7.5		3.8	13.8	
Ref Time Seperate (s)	3.8	34.2		3.4	27.7		6.8	7.5		3.8	11.7	
Reference Time (s)	36.9	36.9		27.7	27.7		7.5	7.5		13.8	13.8	
Adj Reference Time (s)	40.9	40.9		31.7	31.7		14.6	14.6		18.3	18.3	
Summary												
Protected Option (s)	48.9		29.1									
Permitted Option (s)	60.8		105.8									
Split Option (s)	72.6		33.0									
Minimum (s)	48.9		29.1		78.0							
Right Turns												
Adj Reference Time (s)	27.6		22.0									
Cross Thru Ref Time (s)	14.6		40.9									
Oncoming Left Ref Time (s)	8.0		8.0									
Combined (s)	50.2		70.9									
Intersection Summary												
Intersection Capacity Utilization	65.0%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												
























Intersection Capacity Utilization
6: 30th St W & Ave K

AM 2016+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	188	872	145	50	567	266	265	604	126	143	313	175
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.7			26.1			32.1			30.1	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	188	1017	0	50	833	0	265	604	126	143	313	175
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	4265	0	4612	4150	0	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.9	28.7	0.0	1.3	24.3	0.0	6.9	23.8	11.8	3.7	12.3	16.1
Adj Reference Time (s)	8.9	32.7	0.0	8.0	30.1	0.0	10.9	29.1	18.9	8.0	19.1	22.2
Permitted Option												
Adj Saturation A (vph)	154	1422		154	1383		154	1523		154	1523	
Reference Time A (s)	73.4	28.7		19.5	24.3		103.4	23.8		55.8	12.3	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		73.4			24.3			103.4			55.8	
Adj Reference Time (s)		77.4			30.1			107.4			59.8	
Split Option												
Ref Time Combined (s)	4.9	28.7		1.3	24.3		6.9	23.8		3.7	12.3	
Ref Time Seperate (s)	4.9	24.6		1.3	16.6		6.9	23.8		3.7	12.3	
Reference Time (s)	28.7	28.7		24.3	24.3		23.8	23.8		12.3	12.3	
Adj Reference Time (s)	32.7	32.7		30.1	30.1		29.1	29.1		19.1	19.1	
Summary												
Protected Option (s)	40.7		37.1									
Permitted Option (s)	77.4		107.4									
Split Option (s)	62.8		48.1									
Minimum (s)	40.7		37.1		77.8							
Right Turns												
Adj Reference Time (s)	18.9		22.2									
Cross Thru Ref Time (s)	32.7		30.1									
Oncoming Left Ref Time (s)	8.0		10.9									
Combined (s)	59.6		63.2									
Intersection Summary												
Intersection Capacity Utilization	64.8%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

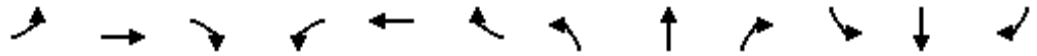
Intersection Capacity Utilization
7: 25th St W & Ave K

AM 2016+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	1080	18	15	840	59	16	142	71	125	123	42
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		24.4			26.7			25.3			27.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	85	1098	0	15	840	59	16	142	71	125	123	42
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3039	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.7	43.4	0.0	1.2	33.1	5.8	1.3	10.7	6.9	9.9	9.2	4.3
Adj Reference Time (s)	10.7	47.4	0.0	8.0	37.1	30.7	8.0	16.9	13.7	13.9	16.0	11.9
Permitted Option												
Adj Saturation A (vph)	101	1519		101	1523		101	1600		101	1600	
Reference Time A (s)	100.7	43.4		17.8	33.1		18.9	10.7		148.0	9.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		100.7			33.1			18.9			148.0	
Adj Reference Time (s)		104.7			37.1			23.9			152.0	
Split Option												
Ref Time Combined (s)	6.7	43.4		1.2	33.1		1.3	10.7		9.9	9.2	
Ref Time Seperate (s)	6.7	42.7		1.2	33.1		1.3	10.7		9.9	9.2	
Reference Time (s)	43.4	43.4		33.1	33.1		10.7	10.7		9.9	9.9	
Adj Reference Time (s)	47.4	47.4		37.1	37.1		16.9	16.9		16.6	16.6	
Summary												
Protected Option (s)	55.4		30.8									
Permitted Option (s)	104.7		152.0									
Split Option (s)	84.5		33.5									
Minimum (s)	55.4		30.8		86.1							
Right Turns												
Adj Reference Time (s)	30.7	13.7	11.9									
Cross Thru Ref Time (s)	16.9	47.4	37.1									
Oncoming Left Ref Time (s)	10.7	13.9	8.0									
Combined (s)	58.3	75.0	57.0									
Intersection Summary												
Intersection Capacity Utilization	71.8%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
8: 20th St W & Ave K

AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘↗	↑↗		↘↗	↑↑↑	
Volume (vph)	172	980	88	61	768	62	56	244	77	96	185	82
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		30.4			31.0			29.9			33.3	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	172	980	88	61	830	0	56	321	0	96	267	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.96	0.85	0.95	0.95	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4310	0	4612	2937	0	4612	4158	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	13.6	27.0	8.4	4.8	23.2	0.0	1.5	13.3	0.0	2.5	7.9	0.0
Adj Reference Time (s)	17.6	34.4	34.4	8.8	35.0	0.0	8.0	19.8	0.0	8.0	15.8	0.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1437		154	1468		154	1386	
Reference Time A (s)	203.7	27.0		72.2	23.2		21.9	13.3		37.5	7.9	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		203.7			72.2			21.9			37.5	
Adj Reference Time (s)		207.7			76.2			27.1			41.5	
Split Option												
Ref Time Combined (s)	13.6	27.0		4.8	23.2		1.5	13.3		2.5	7.9	
Ref Time Seperate (s)	13.6	27.0		4.8	21.4		1.5	10.1		2.5	5.5	
Reference Time (s)	27.0	27.0		23.2	23.2		13.3	13.3		7.9	7.9	
Adj Reference Time (s)	34.4	34.4		35.0	35.0		19.8	19.8		15.8	15.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	52.6		27.8									
Permitted Option (s)	207.7		41.5									
Split Option (s)	69.4		35.6									
Minimum (s)	52.6		27.8		80.4							
Right Turns												
	EBR											
Adj Reference Time (s)	34.4											
Cross Thru Ref Time (s)	15.8											
Oncoming Left Ref Time (s)	3.8											
Combined (s)	59.0											
Intersection Summary												
Intersection Capacity Utilization	67.0%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
9: 17th St W & Ave K

AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷↷↷		↶	↷↷↷		↶	↷	↷	↶	↷	↷
Volume (vph)	44	1075	37	74	907	77	22	43	120	137	30	24
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	44	1112	0	74	984	0	22	43	120	137	30	24
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4337	0	1520	4307	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.5	30.8	0.0	5.8	27.4	0.0	1.7	3.2	10.6	10.8	2.3	2.1
Adj Reference Time (s)	8.0	34.8	0.0	9.8	31.4	0.0	8.0	8.0	14.6	14.8	8.0	8.0
Permitted Option												
Adj Saturation A (vph)	101	1446		101	1436		101	1600		101	1600	
Reference Time A (s)	52.1	30.8		87.6	27.4		26.1	3.2		162.2	2.3	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.7	3.2		18.8	2.3	
Reference Time (s)		52.1			87.6			9.7			18.8	
Adj Reference Time (s)		56.1			91.6			13.7			22.8	
Split Option												
Ref Time Combined (s)	3.5	30.8		5.8	27.4		1.7	3.2		10.8	2.3	
Ref Time Seperate (s)	3.5	29.7		5.8	25.3		1.7	3.2		10.8	2.3	
Reference Time (s)	30.8	30.8		27.4	27.4		3.2	3.2		10.8	10.8	
Adj Reference Time (s)	34.8	34.8		31.4	31.4		8.0	8.0		14.8	14.8	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	44.6		22.8									
Permitted Option (s)	91.6		22.8									
Split Option (s)	66.2		22.8									
Minimum (s)	44.6		22.8		67.4							
Right Turns	NBR	SBR										
Adj Reference Time (s)	14.6	8.0										
Cross Thru Ref Time (s)	34.8	31.4										
Oncoming Left Ref Time (s)	34.8	8.0										
Combined (s)	64.2	47.4										

Intersection Summary

Intersection Capacity Utilization 56.2% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

AM 2016+Project
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	956	945	311	163	123
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	956	1256	0	286	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.91	0.85
Saturated Flow (vph)	0	4358	4197	0	4412	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	26.3	36.1	0.0		0.0
Adj Reference Time (s)	0.0	30.3	40.1	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1399		147	
Reference Time A (s)	0.0	26.3	36.1		116.9	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		26.3	36.1			
Adj Reference Time (s)		30.3	40.1			
Split Option						
Ref Time Combined (s)	0.0	26.3	36.1		8.1	
Ref Time Seperate (s)	0.0	26.3	27.2		4.7	
Reference Time (s)	26.3	26.3	36.1		8.1	
Adj Reference Time (s)	30.3	30.3	40.1		14.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	40.1		NA			
Permitted Option (s)	40.1		Err			
Split Option (s)	70.4		14.6			
Minimum (s)	40.1		14.6	54.7		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	45.5%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↗↘↗			↗↘↗	↗	↘	↗	↘	↘	↗	↗
Volume (vph)	197	765	152	0	780	152	326	424	280	177	1	166
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	197	917	0	0	780	152	326	424	280	0	178	166
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4250	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.1	26.0	0.0	0.0	21.5	14.1			25.3			15.3
Adj Reference Time (s)	9.1	33.9	0.0	0.0	29.0	33.3			29.3			19.3
Permitted Option												
Adj Saturation A (vph)	154	1417		0	1453		101	1600		0	203	
Reference Time A (s)	76.9	26.0		0.0	21.5		386.1	31.8		0.0	105.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		33.7	31.8		NA	NA	
Reference Time (s)		76.9			21.5			33.7			105.0	
Adj Reference Time (s)		80.9			29.0			37.7			109.0	
Split Option												
Ref Time Combined (s)	5.1	26.0		0.0	21.5		25.7	31.8		0.0	7.0	
Ref Time Seperate (s)	5.1	21.7		0.0	21.5		25.7	31.8		7.0	0.1	
Reference Time (s)	26.0	26.0		21.5	21.5		31.8	31.8		7.0	7.0	
Adj Reference Time (s)	33.9	33.9		29.0	29.0		35.8	35.8		33.3	33.3	
Summary												
Protected Option (s)	38.1		NA									
Permitted Option (s)	80.9		109.0									
Split Option (s)	62.9		69.1									
Minimum (s)	38.1		69.1		107.2							
Right Turns												
Adj Reference Time (s)	33.3	29.3	19.3									
Cross Thru Ref Time (s)	35.8	33.9	29.0									
Oncoming Left Ref Time (s)	39.1	33.3	35.8									
Combined (s)	78.2	96.5	84.1									
Intersection Summary												
Intersection Capacity Utilization	89.4%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	62	0	46	0	0	0	15	338	0	0	145	20
Future Vol, veh/h	62	0	46	0	0	0	15	338	0	0	145	20
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	-	0	-	-
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	67	0	50	0	0	0	16	367	0	0	158	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	578	578	178	578	589	377	184	0	0	372	0	0
Stage 1	173	173	-	405	405	-	-	-	-	-	-	-
Stage 2	405	405	-	173	184	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	427	427	865	427	421	670	1391	-	-	1186	-	-
Stage 1	829	756	-	622	598	-	-	-	-	-	-	-
Stage 2	622	598	-	829	747	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	420	419	858	395	413	664	1385	-	-	1181	-	-
Mov Cap-2 Maneuver	420	419	-	395	413	-	-	-	-	-	-	-
Stage 1	816	753	-	612	589	-	-	-	-	-	-	-
Stage 2	612	589	-	777	744	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	0	0.3	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1385	-	-	420	858	-	-	1181	-	-
HCM Lane V/C Ratio	0.012	-	-	0.16	0.058	-	-	-	-	-
HCM Control Delay (s)	7.6	-	-	15.2	9.5	0	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.2	-	-	0	-	-

Intersection				
Intersection Delay, s/veh	4.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	101	38	84	110
Demand Flow Rate, veh/h	103	39	85	112
Vehicles Circulating, veh/h	107	131	68	26
Vehicles Exiting, veh/h	31	22	142	144
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.5	4.1	4.2	4.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	103	39	85	112
Cap Entry Lane, veh/h	1015	991	1056	1101
Entry HV Adj Factor	0.981	0.974	0.985	0.986
Flow Entry, veh/h	101	38	84	110
Cap Entry, veh/h	996	966	1040	1086
V/C Ratio	0.101	0.039	0.081	0.102
Control Delay, s/veh	4.5	4.1	4.2	4.2
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection				
Intersection Delay, s/veh	4.4			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	75	108	151	0
Demand Flow Rate, veh/h	76	110	154	0
Vehicles Circulating, veh/h	74	29	59	139
Vehicles Exiting, veh/h	65	184	91	0
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	0
Ped Cap Adj	0.999	0.999	0.999	1.000
Approach Delay, s/veh	4.1	4.2	4.8	0.0
Approach LOS	A	A	A	-
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LTR
Assumed Moves	TR	LT	LR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	76	110	154	0
Cap Entry Lane, veh/h	1049	1098	1065	983
Entry HV Adj Factor	0.985	0.984	0.981	1.000
Flow Entry, veh/h	75	108	151	0
Cap Entry, veh/h	1033	1080	1044	983
V/C Ratio	0.072	0.100	0.145	0.000
Control Delay, s/veh	4.1	4.2	4.8	3.7
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	0

Intersection

Int Delay, s/veh 62

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	202	0	193	1	0	12	124	475	0	5	397	119
Future Vol, veh/h	202	0	193	1	0	12	124	475	0	5	397	119
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	240	-	-	-	216	-	-	236	-	352
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	220	0	210	1	0	13	135	516	0	5	432	129

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1244	1238	226	1023	1238	526	437	0	0	521	0	0
Stage 1	447	447	-	791	791	-	-	-	-	-	-	-
Stage 2	797	791	-	232	447	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.22	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 140	175	778	202	175	551	1119	-	-	1045	-	-
Stage 1	561	573	-	382	400	-	-	-	-	-	-	-
Stage 2	379	400	-	751	573	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 122	152	772	132	152	546	1114	-	-	1041	-	-
Mov Cap-2 Maneuver	~ 122	152	-	132	152	-	-	-	-	-	-	-
Stage 1	491	568	-	334	350	-	-	-	-	-	-	-
Stage 2	324	350	-	542	568	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	236.6	13.5	1.8	0.1
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn	WBLn	SBL	SBT	SBR
Capacity (veh/h)	1114	-	-	122	772	440	1041	-	-
HCM Lane V/C Ratio	0.121	-	-	1.80	0.272	0.032	0.005	-	-
HCM Control Delay (s)	8.7	-	-	\$ 451.7	11.4	13.5	8.5	-	-
HCM Lane LOS	A	-	-	F	B	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	17	1.1	0.1	0	-	-

Notes

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

Intersection												
Intersection Delay, s/veh	11.8											
Intersection LOS	B											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	7	32	41	0	75	36	66	0	18	189	81
Future Vol, veh/h	0	7	32	41	0	75	36	66	0	18	189	81
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	8	35	45	0	82	39	72	0	20	205	88
Number of Lanes	0	1	1	1	0	1	1	0	0	1	1	0
Approach	EB				WB				NB			
Opposing Approach	WB				EB				SB			
Opposing Lanes	2				3				2			
Conflicting Approach Left	SB				NB				EB			
Conflicting Lanes Left	2				2				3			
Conflicting Approach Right	NB				SB				WB			
Conflicting Lanes Right	2				2				2			
HCM Control Delay	9.8				10.7				13.7			
HCM LOS	A				B				B			
Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2			
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%			
Vol Thru, %	0%	70%	0%	100%	0%	0%	35%	0%	98%			
Vol Right, %	0%	30%	0%	0%	100%	0%	65%	0%	2%			
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop			
Traffic Vol by Lane	18	270	7	32	41	75	102	98	125			
LT Vol	18	0	7	0	0	75	0	98	0			
Through Vol	0	189	0	32	0	0	36	0	122			
RT Vol	0	81	0	0	41	0	66	0	3			
Lane Flow Rate	20	293	8	35	45	82	111	107	136			
Geometry Grp	8	8	8	8	8	8	8	8	8			
Degree of Util (X)	0.036	0.48	0.016	0.066	0.076	0.16	0.188	0.2	0.235			
Departure Headway (Hd)	6.605	5.89	7.358	6.849	6.138	7.081	6.112	6.754	6.233			
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Cap	541	610	485	521	581	505	585	530	575			
Service Time	4.353	3.638	5.122	4.613	3.901	4.838	3.869	4.505	3.984			
HCM Lane V/C Ratio	0.037	0.48	0.016	0.067	0.077	0.162	0.19	0.202	0.237			
HCM Control Delay	9.6	14	10.2	10.1	9.4	11.2	10.3	11.2	10.9			
HCM Lane LOS	A	B	B	B	A	B	B	B	B			
HCM 95th-tile Q	0.1	2.6	0	0.2	0.2	0.6	0.7	0.7	0.9			

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	98	122	3
Future Vol, veh/h	0	98	122	3
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	107	133	3
Number of Lanes	0	1	1	0

Approach SB

Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	11
HCM LOS	B

Lane

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	259	12	33	147	0	30	0	77	0	0	0
Future Vol, veh/h	0	259	12	33	147	0	30	0	77	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	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	282	13	36	160	0	33	0	84	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	165	0	0	300	0	0	530	530	298	530	537	170
Stage 1	-	-	-	-	-	-	293	293	-	237	237	-
Stage 2	-	-	-	-	-	-	237	237	-	293	300	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1413	-	-	1261	-	-	460	455	741	460	450	874
Stage 1	-	-	-	-	-	-	715	670	-	766	709	-
Stage 2	-	-	-	-	-	-	766	709	-	715	666	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1407	-	-	1256	-	-	445	437	735	395	432	867
Mov Cap-2 Maneuver	-	-	-	-	-	-	445	437	-	395	432	-
Stage 1	-	-	-	-	-	-	712	667	-	763	684	-
Stage 2	-	-	-	-	-	-	739	684	-	631	663	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.5	11.4	0
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	445	735	1407	-	-	1256	-	-	-
HCM Lane V/C Ratio	0.073	0.114	-	-	-0.029	-	-	-	-
HCM Control Delay (s)	13.7	10.5	0	-	-	8	0	-	0
HCM Lane LOS	B	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0.4	0	-	-	0.1	-	-	-

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	592	13	8	339	0	13	0	24	0	0	0
Future Vol, veh/h	0	592	13	8	339	0	13	0	24	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	180	-	0	-	-	90	-	-	0	-	-	-
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	643	14	9	368	0	14	0	26	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	368	0	0	643	0	0	1029	1029	322	708	1029	368
Stage 1	-	-	-	-	-	-	643	643	-	386	386	-
Stage 2	-	-	-	-	-	-	386	386	-	322	643	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.218	-	-	2.22	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1191	-	-	938	-	-	200	233	674	335	233	677
Stage 1	-	-	-	-	-	-	429	468	-	636	609	-
Stage 2	-	-	-	-	-	-	636	609	-	665	468	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1191	-	-	938	-	-	198	230	674	319	230	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	198	230	-	319	230	-
Stage 1	-	-	-	-	-	-	429	468	-	636	602	-
Stage 2	-	-	-	-	-	-	628	602	-	639	468	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	15.5	0
HCM LOS			C	A

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	198	674	1191	-	-	938	-	-	-
HCM Lane V/C Ratio	0.071	0.039	-	-	-0.009	-	-	-	-
HCM Control Delay (s)	24.6	10.6	0	-	-	8.9	0	-	0
HCM Lane LOS	C	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0.1	0	-	-	0	-	-	-

Intersection Capacity Utilization
19: 60th St W & Ave L

AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗↘	↑	↗	↗↘	↑	↗	↗	↗	↗	↗	↗	↗	
Volume (vph)	136	511	51	93	301	153	36	308	108	241	359	56	
Pedestrians			5			5			5			5	
Ped Button		Yes			Yes			Yes			Yes		
Pedestrian Timing (s)		27.6			16.0			39.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	136	511	51	93	301	153	36	416	0	241	415	0	
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	0.98	0.85	
Saturated Flow (vph)	4612	1600	1360	4612	1600	1360	1520	1538	0	1520	1568	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.5	38.3	5.1	2.4	22.6	14.1	2.8	32.6	0.0	19.0	31.9	0.0	
Adj Reference Time (s)	8.0	42.3	12.6	8.0	26.6	18.1	8.0	37.7	0.0	23.0	35.9	0.0	
Permitted Option													
Adj Saturation A (vph)	154	1600		154	1600		101	1538		101	1568		
Reference Time A (s)	53.1	38.3		36.3	22.6		42.6	32.6		285.4	31.9		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		53.1			36.3			42.6			285.4		
Adj Reference Time (s)		57.1			40.3			46.6			289.4		
Split Option													
Ref Time Combined (s)	3.5	38.3		2.4	22.6		2.8	32.6		19.0	31.9		
Ref Time Seperate (s)	3.5	38.3		2.4	22.6		2.8	24.2		19.0	27.6		
Reference Time (s)	38.3	38.3		22.6	22.6		32.6	32.6		31.9	31.9		
Adj Reference Time (s)	42.3	42.3		26.6	26.6		37.7	37.7		35.9	35.9		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	50.3		60.7										
Permitted Option (s)	57.1		289.4										
Split Option (s)	68.9		73.6										
Minimum (s)	50.3		60.7		111.1								
Right Turns													
	EBR		WBR										
Adj Reference Time (s)	12.6		18.1										
Cross Thru Ref Time (s)	35.9		37.7										
Oncoming Left Ref Time (s)	8.0		8.0										
Combined (s)	56.4		63.8										
Intersection Summary													
Intersection Capacity Utilization	92.5%		ICU Level of Service				F						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection

Int Delay, s/veh 3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	839	16	78	486	10	136
Future Vol, veh/h	839	16	78	486	10	136
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	912	17	85	528	11	148

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	917
Stage 1	-	-	917
Stage 2	-	-	698
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	744
Stage 1	-	-	390
Stage 2	-	-	494
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	741
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	388
Stage 2	-	-	412

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	33.9
HCM LOS			D

Minor Lane/Major MvmNBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	278	-	-	741
HCM Lane V/C Ratio	0.571	-	-	0.114
HCM Control Delay (s)	33.9	-	-	10.5
HCM Lane LOS	D	-	-	B A
HCM 95th %tile Q(veh)	3.3	-	-	0.4

Intersection Capacity Utilization
21: 50th St W & Ave L

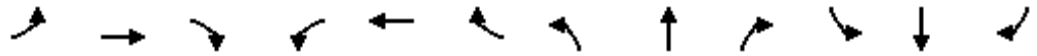
AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗		
Volume (vph)	83	877	38	77	464	29	38	245	125	56	147	57	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	83	915	0	77	493	0	38	245	125	56	204	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	1590	0	1520	1586	0	1520	1600	1360	1520	1533	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	6.6	69.1	0.0	6.1	37.3	0.0	3.0	18.4	11.7	4.4	16.1	0.0	
Adj Reference Time (s)	10.6	73.1	0.0	10.1	41.3	0.0	8.0	22.4	16.7	8.4	20.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1590		101	1586		101	1600		101	1533		
Reference Time A (s)	98.3	69.1		91.2	37.3		45.0	18.4		66.3	16.1		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		98.3			91.2			45.0			66.3		
Adj Reference Time (s)		102.3			95.2			49.0			70.3		
Split Option													
Ref Time Combined (s)	6.6	69.1		6.1	37.3		3.0	18.4		4.4	16.1		
Ref Time Seperate (s)	6.6	66.2		6.1	35.1		3.0	18.4		4.4	11.7		
Reference Time (s)	69.1	69.1		37.3	37.3		18.4	18.4		16.1	16.1		
Adj Reference Time (s)	73.1	73.1		41.3	41.3		22.4	22.4		20.5	20.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	83.2		30.8										
Permitted Option (s)	102.3		70.3										
Split Option (s)	114.4		42.9										
Minimum (s)	83.2		30.8		114.0								
Right Turns													
	NBR												
Adj Reference Time (s)	16.7												
Cross Thru Ref Time (s)	73.1												
Oncoming Left Ref Time (s)	73.4												
Combined (s)	98.2												
Intersection Summary													
Intersection Capacity Utilization	95.0%		ICU Level of Service						F				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L

AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↑	↗	↖	↗	
Volume (vph)	36	1042	8	50	546	54	14	48	76	96	33	20
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.6			16.0			20.4			22.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	36	1042	8	50	600	0	14	48	76	96	53	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.94	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1578	0	1520	1600	1360	1520	1509	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.8	78.2	1.3	3.9	45.7	0.0	1.1	3.6	7.3	7.6	4.5	0.0
Adj Reference Time (s)	8.0	82.2	29.6	8.0	49.7	0.0	8.0	10.5	13.4	11.6	11.2	0.0
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1578		101	1600		101	1509	
Reference Time A (s)	42.6	78.2		59.2	45.7		16.6	3.6		113.7	4.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1509	
Reference Time B (s)	NA	NA		NA	NA		9.1	3.6		15.6	4.5	
Reference Time (s)		78.2			59.2			9.1			15.6	
Adj Reference Time (s)		82.2			63.2			14.8			20.6	
Split Option												
Ref Time Combined (s)	2.8	78.2		3.9	45.7		1.1	3.6		7.6	4.5	
Ref Time Seperate (s)	2.8	78.2		3.9	41.6		1.1	3.6		7.6	2.9	
Reference Time (s)	78.2	78.2		45.7	45.7		3.6	3.6		7.6	7.6	
Adj Reference Time (s)	82.2	82.2		49.7	49.7		10.5	10.5		13.8	13.8	
Summary												
Protected Option (s)	90.2		22.1									
Permitted Option (s)	82.2		20.6									
Split Option (s)	131.8		24.3									
Minimum (s)	82.2		20.6		102.7							
Right Turns												
Adj Reference Time (s)	29.6		13.4									
Cross Thru Ref Time (s)	11.2		82.2									
Oncoming Left Ref Time (s)	8.0		11.6									
Combined (s)	48.8		107.1									
Intersection Summary												
Intersection Capacity Utilization	89.2%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
23: 40th St W & Ave L

AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↕	↗	↖	↕	↗	↖	↗	↖
Volume (vph)	90	1028	7	22	560	81	20	115	71	165	34	61
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		31.0			33.3			35.6			31.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	90	1035	0	22	560	81	20	115	71	165	34	61
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1598	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	7.1	77.7	0.0	1.7	22.1	7.8	1.6	8.6	6.9	13.0	2.5	6.0
Adj Reference Time (s)	11.1	81.7	0.0	8.0	37.3	37.3	8.0	16.8	15.3	17.0	12.2	14.0
Permitted Option												
Adj Saturation A (vph)	101	1598		101	1523		101	1600		101	1600	
Reference Time A (s)	106.6	77.7		26.1	22.1		23.7	8.6		195.4	2.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.6	8.6		21.0	2.5	
Reference Time (s)		106.6			26.1			9.6			21.0	
Adj Reference Time (s)		110.6			37.3			17.6			26.6	
Split Option												
Ref Time Combined (s)	7.1	77.7		1.7	22.1		1.6	8.6		13.0	2.5	
Ref Time Seperate (s)	7.1	77.2		1.7	22.1		1.6	8.6		13.0	2.5	
Reference Time (s)	77.7	77.7		22.1	22.1		8.6	8.6		13.0	13.0	
Adj Reference Time (s)	81.7	81.7		37.3	37.3		16.8	16.8		19.9	19.9	
Summary												
Protected Option (s)	89.7		33.8									
Permitted Option (s)	110.6		26.6									
Split Option (s)	119.0		36.6									
Minimum (s)	89.7		26.6		116.4							
Right Turns												
Adj Reference Time (s)	37.3	15.3	14.0									
Cross Thru Ref Time (s)	16.8	81.7	37.3									
Oncoming Left Ref Time (s)	11.1	17.0	8.0									
Combined (s)	65.2	114.0	59.3									

Intersection Summary

Intersection Capacity Utilization 97.0% ICU Level of Service F
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
24: 35th St W & Ave L

























AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗	↕		↖	↕		↗	↕		↖	↕	↗	
Volume (vph)	57	1178	36	22	588	13	22	50	58	15	18	50	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		16.0			23.9			25.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	57	1214	0	22	601	0	22	108	0	15	18	50	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3033	0	1520	3037	0	1520	1471	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	4.5	48.1	0.0	1.7	23.8	0.0	1.7	9.2	0.0	1.2	1.4	5.1	
Adj Reference Time (s)	8.5	52.1	0.0	8.0	27.9	0.0	8.0	15.7	0.0	8.0	8.0	9.1	
Permitted Option													
Adj Saturation A (vph)	101	1516		101	1518		101	1471		101	1600		
Reference Time A (s)	67.5	48.1		26.1	23.8		26.1	9.2		17.8	1.4		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1471		0	1600		
Reference Time B (s)	NA	NA		NA	NA		9.7	9.2		9.2	1.4		
Reference Time (s)		67.5			26.1			9.7			9.2		
Adj Reference Time (s)		71.5			30.1			16.2			13.2		
Split Option													
Ref Time Combined (s)	4.5	48.1		1.7	23.8		1.7	9.2		1.2	1.4		
Ref Time Seperate (s)	4.5	46.6		1.7	23.3		1.7	4.4		1.2	1.4		
Reference Time (s)	48.1	48.1		23.8	23.8		9.2	9.2		1.4	1.4		
Adj Reference Time (s)	52.1	52.1		27.9	27.9		15.7	15.7		8.0	8.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	60.1		23.7										
Permitted Option (s)	71.5		16.2										
Split Option (s)	80.0		23.7										
Minimum (s)	60.1		16.2		76.2								
Right Turns													
	SBR												
Adj Reference Time (s)	9.1												
Cross Thru Ref Time (s)	27.9												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	45.0												
Intersection Summary													
Intersection Capacity Utilization	63.5%		ICU Level of Service						B				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
25: 30th St W & Ave L

AM 2016+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1046	113	142	479	59	81	325	217	153	286	91
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	119	1046	113	142	479	59	81	325	217	153	286	91
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	9.4	41.2	10.6	11.2	18.9	5.8	6.4	12.8	19.8	12.1	11.3	8.7
Adj Reference Time (s)	13.4	45.2	39.0	15.2	37.0	37.0	10.4	20.3	26.3	16.1	18.8	16.6
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1523		101	1523	
Reference Time A (s)	140.9	41.2		168.2	18.9		95.9	12.8		181.2	11.3	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		140.9			168.2			95.9			181.2	
Adj Reference Time (s)		144.9			172.2			99.9			185.2	
Split Option												
Ref Time Combined (s)	9.4	41.2		11.2	18.9		6.4	12.8		12.1	11.3	
Ref Time Seperate (s)	9.4	41.2		11.2	18.9		6.4	12.8		12.1	11.3	
Reference Time (s)	41.2	41.2		18.9	18.9		12.8	12.8		12.1	12.1	
Adj Reference Time (s)	45.2	45.2		37.0	37.0		20.3	20.3		19.5	19.5	
Summary												
Protected Option (s)	60.4		36.4									
Permitted Option (s)	172.2		185.2									
Split Option (s)	82.2		39.8									
Minimum (s)	60.4		36.4		96.8							
Right Turns												
Adj Reference Time (s)	39.0	37.0	26.3	16.6								
Cross Thru Ref Time (s)	18.8	20.3	45.2	37.0								
Oncoming Left Ref Time (s)	15.2	13.4	16.1	10.4								
Combined (s)	73.0	70.7	87.5	64.0								
Intersection Summary												
Intersection Capacity Utilization	80.7%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L

AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕		↘	↑	↗
Volume (vph)	64	1375	4	3	637	19	5	1	2	63	2	59
Pedestrians	5		5	5		5	5		5	5		5
Ped Button	No				No		Yes				Yes	
Pedestrian Timing (s)	25.3				22.4		16.0				30.7	
Free Right			No				No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	64	1375	4	3	637	19	0	8	0	63	2	59
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1492	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00				1.00		0.15				0.15	
Protected Option Allowed	Yes				Yes		No				No	
Reference Time (s)	5.1	54.2	1.0	0.2	25.1	2.3			0.0			5.8
Adj Reference Time (s)	9.1	58.2	31.0	8.0	29.1	26.4			0.0			13.7
Permitted Option												
Adj Saturation A (vph)	101	1523			101	1523	0	141			1051	1600
Reference Time A (s)	75.8	54.2			3.6	25.1	0.0	7.0			7.2	0.1
Adj Saturation B (vph)	NA	NA			NA	NA	0	0			0	1600
Reference Time B (s)	NA	NA			NA	NA	8.4	8.8			13.0	0.1
Reference Time (s)	75.8				25.1		7.0				7.2	
Adj Reference Time (s)	79.8				29.1		11.0				14.8	
Split Option												
Ref Time Combined (s)	5.1	54.2			0.2	25.1	0.0	0.8			5.0	0.1
Ref Time Seperate (s)	5.1	54.2			0.2	25.1	0.4	0.2			5.0	0.1
Reference Time (s)	54.2	54.2			25.1	25.1	0.8	0.8			5.0	5.0
Adj Reference Time (s)	58.2	58.2			29.1	29.1	8.0	8.0			12.9	12.9
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	66.2		NA									
Permitted Option (s)	79.8		14.8									
Split Option (s)	87.3		20.9									
Minimum (s)	66.2		14.8		81.0							
Right Turns												
	EBR		WBR		SBR							
Adj Reference Time (s)	31.0		26.4		13.7							
Cross Thru Ref Time (s)	12.9		8.0		29.1							
Oncoming Left Ref Time (s)	8.0		9.1		8.0							
Combined (s)	51.9		43.5		50.8							
Intersection Summary												
Intersection Capacity Utilization	67.5%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
27: 20th St W & Ave L

AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑	↗
Volume (vph)	126	1251	70	21	529	49	37	203	52	108	105	66
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	126	1251	70	21	529	49	37	255	0	108	105	66
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2953	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	9.9	49.3	6.8	1.7	14.6	5.0	2.9	10.5	0.0	8.5	7.9	6.5
Adj Reference Time (s)	13.9	53.3	34.1	8.0	40.7	40.7	8.0	17.4	0.0	12.5	15.7	14.5
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1477		101	1600	
Reference Time A (s)	149.2	49.3		24.9	14.6		43.8	10.5		127.9	7.9	
Adj Saturation B (vph)	NA	NA		NA	NA		0	2953		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		10.9	10.5		NA	NA	
Reference Time (s)		149.2			24.9			10.9			127.9	
Adj Reference Time (s)		153.2			40.7			17.7			131.9	
Split Option												
Ref Time Combined (s)	9.9	49.3		1.7	14.6		2.9	10.5		8.5	7.9	
Ref Time Seperate (s)	9.9	49.3		1.7	14.6		2.9	8.4		8.5	7.9	
Reference Time (s)	49.3	49.3		14.6	14.6		10.5	10.5		8.5	8.5	
Adj Reference Time (s)	53.3	53.3		40.7	40.7		17.4	17.4		16.3	16.3	
Summary												
Protected Option (s)	61.3		29.9									
Permitted Option (s)	153.2		131.9									
Split Option (s)	94.0		33.7									
Minimum (s)	61.3		29.9		91.2							
Right Turns												
Adj Reference Time (s)	34.1	40.7	14.5									
Cross Thru Ref Time (s)	15.7	17.4	40.7									
Oncoming Left Ref Time (s)	8.0	13.9	8.0									
Combined (s)	57.8	72.0	63.2									
Intersection Summary												
Intersection Capacity Utilization	76.0%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
28: 15th St W & Ave L

AM 2016+Project
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑	↗		↕		↗	↑	↗
Volume (vph)	120	1386	3	4	600	249	1	1	9	114	1	32
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	120	1389	0	4	600	249	0	11	0	114	1	32
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.87	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4357	0	1520	4358	1360	0	1397	0	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00		0.00			0.00			0.00			
Protected Option Allowed	Yes		Yes			No			No			
Reference Time (s)	9.5	38.3	0.0	0.3	16.5	22.0			0.0			2.8
Adj Reference Time (s)	13.5	42.3	0.0	8.0	20.5	26.0			0.0			8.0
Permitted Option												
Adj Saturation A (vph)	101	1452		101	1453		0	598		240	1600	
Reference Time A (s)	142.1	38.3		4.7	16.5		0.0	2.2		57.1	0.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.1	8.9		17.0	0.1	
Reference Time (s)		142.1			16.5			2.2			17.0	
Adj Reference Time (s)		146.1			20.5			8.0			21.0	
Split Option												
Ref Time Combined (s)	9.5	38.3		0.3	16.5		0.0	0.9		9.0	0.1	
Ref Time Seperate (s)	9.5	38.2		0.3	16.5		0.1	0.1		9.0	0.1	
Reference Time (s)	38.3	38.3		16.5	16.5		0.9	0.9		9.0	9.0	
Adj Reference Time (s)	42.3	42.3		20.5	20.5		8.0	8.0		13.0	13.0	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	50.3		NA									
Permitted Option (s)	146.1		21.0									
Split Option (s)	62.8		21.0									
Minimum (s)	50.3		21.0		71.3							
Right Turns	WBR		SBR									
Adj Reference Time (s)	26.0		8.0									
Cross Thru Ref Time (s)	8.0		20.5									
Oncoming Left Ref Time (s)	38.5		8.0									
Combined (s)	47.4		36.5									

Intersection Summary

Intersection Capacity Utilization 59.4% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

AM 2016+Project
5/2/2017



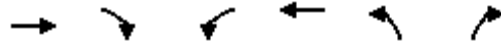
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	897	775	0	290	82
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	897	775	0	372	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4511	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	24.7	21.3	0.0		0.0
Adj Reference Time (s)	0.0	28.7	25.3	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		150	
Reference Time A (s)	0.0	24.7	21.3		148.6	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		24.7	21.3			
Adj Reference Time (s)		28.7	25.3			
Split Option						
Ref Time Combined (s)	0.0	24.7	21.3		10.0	
Ref Time Seperate (s)	0.0	24.7	21.3		7.9	
Reference Time (s)	24.7	24.7	21.3		10.0	
Adj Reference Time (s)	28.7	28.7	25.3		15.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	28.7		NA			
Permitted Option (s)	28.7		Err			
Split Option (s)	54.0		15.6			
Minimum (s)	28.7		15.6	44.3		

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary			
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2016+Project
5/2/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	1092	0	0	887	430	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	1092	0	0	887	430	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	1520	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	30.1	0.6	0.0	18.3		0.0
Adj Reference Time (s)	34.1	9.7	0.0	22.3		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	101	
Reference Time A (s)	30.1		0.0	18.3	509.2	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	30.1			18.3		
Adj Reference Time (s)	34.1			22.3		
Split Option						
Ref Time Combined (s)	30.1		0.0	18.3	33.9	
Ref Time Seperate (s)	30.1		0.0	18.3	33.9	
Reference Time (s)	30.1		18.3	18.3	33.9	
Adj Reference Time (s)	34.1		22.3	22.3	37.9	
Summary						
	EB	WB		NB		Combined
Protected Option (s)	34.1			NA		
Permitted Option (s)	34.1			Err		
Split Option (s)	56.4			37.9		
Minimum (s)	34.1			37.9		72.0
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	60.0%		ICU Level of Service		B	
Reference Times and Phasing Options do not represent an optimized timing plan.						

AM Existing+Project – with Mitigation

Intersection Capacity Utilization
15: 60th St W & Ave K-8

























AM 2016+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↗		↗	↕↗	↗
Volume (vph)	202	0	193	1	0	12	124	475	0	5	397	119
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	202	193	0	13	0	124	475	0	5	397	119
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.86	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	1360	0	1373	0	1520	3046	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.6	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			17.7			0.0	9.8	18.7	0.0	0.4	15.6	11.1
Adj Reference Time (s)			22.2			0.0	14.3	23.2	0.0	8.5	22.5	22.5
Permitted Option												
Adj Saturation A (vph)	0	218		0	647		101	1523		101	1523	
Reference Time A (s)	0.0	111.1		0.0	3.0		146.8	18.7		5.9	15.6	
Adj Saturation B (vph)	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	23.9	23.9		8.1	9.7		NA	NA		NA	NA	
Reference Time (s)		23.9			3.0			146.8			15.6	
Adj Reference Time (s)		28.4			10.6			151.3			22.5	
Split Option												
Ref Time Combined (s)	0.0	15.9		0.0	1.7		9.8	18.7		0.4	15.6	
Ref Time Seperate (s)	15.9	0.0		0.1	0.6		9.8	18.7		0.4	15.6	
Reference Time (s)	15.9	15.9		1.7	1.7		18.7	18.7		15.6	15.6	
Adj Reference Time (s)	20.8	20.8		10.6	10.6		23.2	23.2		22.5	22.5	
Summary												
Protected Option (s)	NA		36.8									
Permitted Option (s)	28.4		151.3									
Split Option (s)	31.4		45.7									
Minimum (s)	28.4		36.8		65.2							
Right Turns												
Adj Reference Time (s)	22.2		22.5									
Cross Thru Ref Time (s)	22.5		10.6									
Oncoming Left Ref Time (s)	10.6		14.3									
Combined (s)	55.4		47.4									
Intersection Summary												
Intersection Capacity Utilization	54.4%		ICU Level of Service		A							
Reference Times and Phasing Options do not represent an optimized timing plan.												

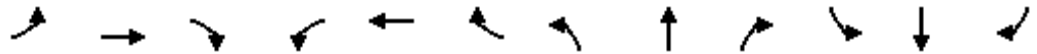
Intersection Capacity Utilization
19: 60th St W & Ave L

AM 2016+Project with Mitigation
5/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	136	511	51	93	301	153	36	308	108	241	359	56	
Pedestrians			5			5			5			5	
Ped Button		Yes			Yes			Yes			Yes		
Pedestrian Timing (s)		27.6			16.0			39.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	136	511	51	93	301	153	36	308	108	241	415	0	
Lane Utilization Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98	0.85	
Saturated Flow (vph)	4612	1600	1360	4612	1600	1360	1520	1600	1360	2952	1568	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.5	38.3	5.1	2.4	22.6	14.1	2.8	23.1	10.2	9.8	31.9	0.0	
Adj Reference Time (s)	8.0	42.3	12.6	8.0	26.6	18.1	8.0	29.6	20.7	13.8	35.9	0.0	
Permitted Option													
Adj Saturation A (vph)	154	1600		154	1600		101	1600		98	1568		
Reference Time A (s)	53.1	38.3		36.3	22.6		42.6	23.1		147.0	31.9		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		53.1			36.3			42.6			147.0		
Adj Reference Time (s)		57.1			40.3			46.6			151.0		
Split Option													
Ref Time Combined (s)	3.5	38.3		2.4	22.6		2.8	23.1		9.8	31.9		
Ref Time Seperate (s)	3.5	38.3		2.4	22.6		2.8	23.1		9.8	27.6		
Reference Time (s)	38.3	38.3		22.6	22.6		23.1	23.1		31.9	31.9		
Adj Reference Time (s)	42.3	42.3		26.6	26.6		29.6	29.6		35.9	35.9		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	50.3		43.9										
Permitted Option (s)	57.1		151.0										
Split Option (s)	68.9		65.5										
Minimum (s)	50.3		43.9		94.2								
Right Turns													
	EBR		WBR		NBR								
Adj Reference Time (s)	12.6		18.1		20.7								
Cross Thru Ref Time (s)	35.9		29.6		42.3								
Oncoming Left Ref Time (s)	8.0		8.0		13.8								
Combined (s)	56.4		55.8		76.8								
Intersection Summary													
Intersection Capacity Utilization	78.5%		ICU Level of Service						D				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
21: 50th St W & Ave L

AM 2016+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	83	877	38	77	464	29	38	245	125	56	147	57	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	83	915	0	77	493	0	38	245	125	56	204	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	3027	0	1520	3020	0	1520	1600	1360	1520	1533	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	6.6	36.3	0.0	6.1	19.6	0.0	3.0	18.4	11.7	4.4	16.1	0.0	
Adj Reference Time (s)	10.6	40.3	0.0	10.1	23.9	0.0	8.0	22.4	16.7	8.4	20.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1514		101	1510		101	1600		101	1533		
Reference Time A (s)	98.3	36.3		91.2	19.6		45.0	18.4		66.3	16.1		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		98.3			91.2			45.0			66.3		
Adj Reference Time (s)		102.3			95.2			49.0			70.3		
Split Option													
Ref Time Combined (s)	6.6	36.3		6.1	19.6		3.0	18.4		4.4	16.1		
Ref Time Seperate (s)	6.6	34.8		6.1	18.5		3.0	18.4		4.4	11.7		
Reference Time (s)	36.3	36.3		19.6	19.6		18.4	18.4		16.1	16.1		
Adj Reference Time (s)	40.3	40.3		23.9	23.9		22.4	22.4		20.5	20.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	50.4		30.8										
Permitted Option (s)	102.3		70.3										
Split Option (s)	64.2		42.9										
Minimum (s)	50.4		30.8		81.2								
Right Turns													
	NBR												
Adj Reference Time (s)	16.7												
Cross Thru Ref Time (s)	40.3												
Oncoming Left Ref Time (s)	3.4												
Combined (s)	65.4												
Intersection Summary													
Intersection Capacity Utilization	67.6%				ICU Level of Service				C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L

AM 2016+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘	↑	↗	↘	↗	
Volume (vph)	36	1042	8	50	546	54	14	48	76	96	33	20
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.6			16.0			20.4			22.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	36	1042	8	50	600	0	14	48	76	96	53	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.94	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3005	0	1520	1600	1360	1520	1509	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	2.8	41.0	1.3	3.9	24.0	0.0	1.1	3.6	7.3	7.6	4.5	0.0
Adj Reference Time (s)	8.0	45.0	29.6	8.0	28.0	0.0	8.0	10.5	13.4	11.6	11.2	0.0
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1503		101	1600		101	1509	
Reference Time A (s)	42.6	41.0		59.2	24.0		16.6	3.6		113.7	4.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1509	
Reference Time B (s)	NA	NA		NA	NA		9.1	3.6		15.6	4.5	
Reference Time (s)		42.6			59.2			9.1			15.6	
Adj Reference Time (s)		46.6			63.2			14.8			20.6	
Split Option												
Ref Time Combined (s)	2.8	41.0		3.9	24.0		1.1	3.6		7.6	4.5	
Ref Time Seperate (s)	2.8	41.0		3.9	21.9		1.1	3.6		7.6	2.9	
Reference Time (s)	41.0	41.0		24.0	24.0		3.6	3.6		7.6	7.6	
Adj Reference Time (s)	45.0	45.0		28.0	28.0		10.5	10.5		13.8	13.8	
Summary												
Protected Option (s)	53.0		22.1									
Permitted Option (s)	63.2		20.6									
Split Option (s)	73.1		24.3									
Minimum (s)	53.0		20.6		73.6							
Right Turns												
Adj Reference Time (s)	29.6		13.4									
Cross Thru Ref Time (s)	11.2		45.0									
Oncoming Left Ref Time (s)	8.0		11.6									
Combined (s)	48.8		70.0									
Intersection Summary												
Intersection Capacity Utilization	61.4%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
23: 40th St W & Ave L

AM 2016+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	90	1028	7	22	560	81	20	115	71	165	34	61
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		31.0			33.3			35.6			31.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	90	1035	0	22	560	81	20	115	71	165	34	61
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3043	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	7.1	40.8	0.0	1.7	22.1	7.8	1.6	8.6	6.9	13.0	2.5	6.0
Adj Reference Time (s)	11.1	44.8	0.0	8.0	37.3	37.3	8.0	16.8	15.3	17.0	12.2	14.0
Permitted Option												
Adj Saturation A (vph)	101	1522		101	1523		101	1600		101	1600	
Reference Time A (s)	106.6	40.8		26.1	22.1		23.7	8.6		195.4	2.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.6	8.6		21.0	2.5	
Reference Time (s)		106.6			26.1			9.6			21.0	
Adj Reference Time (s)		110.6			37.3			17.6			26.6	
Split Option												
Ref Time Combined (s)	7.1	40.8		1.7	22.1		1.6	8.6		13.0	2.5	
Ref Time Seperate (s)	7.1	40.5		1.7	22.1		1.6	8.6		13.0	2.5	
Reference Time (s)	40.8	40.8		22.1	22.1		8.6	8.6		13.0	13.0	
Adj Reference Time (s)	44.8	44.8		37.3	37.3		16.8	16.8		19.9	19.9	
Summary												
Protected Option (s)	52.8		33.8									
Permitted Option (s)	110.6		26.6									
Split Option (s)	82.1		36.6									
Minimum (s)	52.8		26.6		79.5							
Right Turns												
Adj Reference Time (s)	WBR	NBR	SBR									
Cross Thru Ref Time (s)	16.8	44.8	37.3									
Oncoming Left Ref Time (s)	11.1	17.0	8.0									
Combined (s)	65.2	77.2	59.3									
Intersection Summary												
Intersection Capacity Utilization	66.2%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
24: 35th St W & Ave L































AM 2016+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗	↕		↖	↕		↗	↕		↖	↕	↗	
Volume (vph)	57	1178	36	22	588	13	22	50	58	15	18	50	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		16.0			23.9			25.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	57	1214	0	22	601	0	22	108	0	15	18	50	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3033	0	1520	3037	0	1520	1471	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	4.5	48.1	0.0	1.7	23.8	0.0	1.7	9.2	0.0	1.2	1.4	5.1	
Adj Reference Time (s)	8.5	52.1	0.0	8.0	27.9	0.0	8.0	15.7	0.0	8.0	8.0	9.1	
Permitted Option													
Adj Saturation A (vph)	101	1516		101	1518		101	1471		101	1600		
Reference Time A (s)	67.5	48.1		26.1	23.8		26.1	9.2		17.8	1.4		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1471		0	1600		
Reference Time B (s)	NA	NA		NA	NA		9.7	9.2		9.2	1.4		
Reference Time (s)		67.5			26.1			9.7			9.2		
Adj Reference Time (s)		71.5			30.1			16.2			13.2		
Split Option													
Ref Time Combined (s)	4.5	48.1		1.7	23.8		1.7	9.2		1.2	1.4		
Ref Time Seperate (s)	4.5	46.6		1.7	23.3		1.7	4.4		1.2	1.4		
Reference Time (s)	48.1	48.1		23.8	23.8		9.2	9.2		1.4	1.4		
Adj Reference Time (s)	52.1	52.1		27.9	27.9		15.7	15.7		8.0	8.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	60.1		23.7										
Permitted Option (s)	71.5		16.2										
Split Option (s)	80.0		23.7										
Minimum (s)	60.1		16.2		76.2								
Right Turns													
	SBR												
Adj Reference Time (s)	9.1												
Cross Thru Ref Time (s)	27.9												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	45.0												
Intersection Summary													
Intersection Capacity Utilization	63.5%		ICU Level of Service						B				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
25: 30th St W & Ave L

AM 2016+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	119	1046	113	142	479	59	81	325	217	153	286	91
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	119	1046	113	142	479	59	81	325	217	153	286	91
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	9.4	28.8	10.6	11.2	13.2	5.8	6.4	12.8	19.8	12.1	11.3	8.7
Adj Reference Time (s)	13.4	39.0	39.0	15.2	37.0	37.0	10.4	20.3	26.3	16.1	18.8	16.6
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1523		101	1523	
Reference Time A (s)	140.9	28.8		168.2	13.2		95.9	12.8		181.2	11.3	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		140.9			168.2			95.9			181.2	
Adj Reference Time (s)		144.9			172.2			99.9			185.2	
Split Option												
Ref Time Combined (s)	9.4	28.8		11.2	13.2		6.4	12.8		12.1	11.3	
Ref Time Seperate (s)	9.4	28.8		11.2	13.2		6.4	12.8		12.1	11.3	
Reference Time (s)	28.8	28.8		13.2	13.2		12.8	12.8		12.1	12.1	
Adj Reference Time (s)	39.0	39.0		37.0	37.0		20.3	20.3		19.5	19.5	
Summary												
Protected Option (s)	54.2		36.4									
Permitted Option (s)	172.2		185.2									
Split Option (s)	76.0		39.8									
Minimum (s)	54.2		36.4		90.6							
Right Turns												
Adj Reference Time (s)	39.0	37.0	26.3	16.6								
Cross Thru Ref Time (s)	18.8	20.3	39.0	37.0								
Oncoming Left Ref Time (s)	15.2	13.4	16.1	10.4								
Combined (s)	73.0	70.7	81.3	64.0								
Intersection Summary												
Intersection Capacity Utilization	75.5%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

AM 2021

Intersection

Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	2	62	12	0	42	64	1	0	23	167	75
Future Vol, veh/h	0	2	62	12	0	42	64	1	0	23	167	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	67	13	0	46	70	1	0	25	182	82
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.4	8.8	9.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	3%	39%	2%
Vol Thru, %	63%	82%	60%	98%
Vol Right, %	28%	16%	1%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	265	76	107	46
LT Vol	23	2	42	1
Through Vol	167	62	64	45
RT Vol	75	12	1	0
Lane Flow Rate	288	83	116	50
Geometry Grp	1	1	1	1
Degree of Util (X)	0.346	0.109	0.158	0.066
Departure Headway (Hd)	4.33	4.761	4.876	4.747
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	830	752	735	754
Service Time	2.356	2.799	2.912	2.784
HCM Lane V/C Ratio	0.347	0.11	0.158	0.066
HCM Control Delay	9.6	8.4	8.8	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.6	0.4	0.6	0.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	1	45	0
Future Vol, veh/h	0	1	45	0
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	1	49	0
Number of Lanes	0	0	1	0





























Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.1
HCM LOS	A

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

AM 2021
5/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 		 				 			 		
Volume (vph)	36	176	44	51	81	96	25	434	120	82	305	21	
Pedestrians			5			5			5			5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		30.7			28.7			27.3			27.3		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	36	176	44	51	81	96	25	554	0	82	326	0	
Lane Utilization Factor	0.97	0.95	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	0.99	0.85	
Saturated Flow (vph)	4612	3046	1360	4612	1600	1360	1520	2947	0	1520	3017	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.9	6.9	4.5	1.3	6.1	9.1	2.0	22.7	0.0	6.5	13.0	0.0	
Adj Reference Time (s)	8.0	34.7	34.7	8.0	32.7	32.7	8.0	27.4	0.0	10.5	19.2	0.0	
Permitted Option													
Adj Saturation A (vph)	154	1523		154	1600		101	1474		101	1508		
Reference Time A (s)	14.0	6.9		19.9	6.1		29.6	22.7		97.1	13.0		
Adj Saturation B (vph)	0	3046		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	8.9	6.9		NA	NA		NA	NA		NA	NA		
Reference Time (s)		8.9			19.9			29.6			97.1		
Adj Reference Time (s)		34.7			32.7			33.6			101.1		
Split Option													
Ref Time Combined (s)	0.9	6.9		1.3	6.1		2.0	22.7		6.5	13.0		
Ref Time Seperate (s)	0.9	6.9		1.3	6.1		2.0	17.8		6.5	12.2		
Reference Time (s)	6.9	6.9		6.1	6.1		22.7	22.7		13.0	13.0		
Adj Reference Time (s)	34.7	34.7		32.7	32.7		27.4	27.4		19.2	19.2		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	42.7		37.9										
Permitted Option (s)	34.7		101.1										
Split Option (s)	67.4		46.6										
Minimum (s)	34.7		37.9		72.6								
Right Turns													
	EBR		WBR										
Adj Reference Time (s)	34.7		32.7										
Cross Thru Ref Time (s)	19.2		27.4										
Oncoming Left Ref Time (s)	8.0		8.0										
Combined (s)	61.9		68.1										
Intersection Summary													
Intersection Capacity Utilization	60.5%		ICU Level of Service				B						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection												
Intersection Delay, s/veh	33											
Intersection LOS	D											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	22	390	26	0	35	156	25	0	39	236	131
Future Vol, veh/h	0	22	390	26	0	35	156	25	0	39	236	131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	24	424	28	0	38	170	27	0	42	257	142
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB			WB				NB				
Opposing Approach	WB			EB				SB				
Opposing Lanes	1			1				1				
Conflicting Approach Left	SB			NB				EB				
Conflicting Lanes Left	1			1				1				
Conflicting Approach Right	NB			SB				WB				
Conflicting Lanes Right	1			1				1				
HCM Control Delay	44.7			17.5				35.5				
HCM LOS	E			C				E				
Lane	NBLn1		EBLn1		WBLn1		SBLn1					
Vol Left, %	10%		5%		16%		11%					
Vol Thru, %	58%		89%		72%		75%					
Vol Right, %	32%		6%		12%		14%					
Sign Control	Stop		Stop		Stop		Stop					
Traffic Vol by Lane	406		438		216		160					
LT Vol	39		22		35		18					
Through Vol	236		390		156		120					
RT Vol	131		26		25		22					
Lane Flow Rate	441		476		235		174					
Geometry Grp	1		1		1		1					
Degree of Util (X)	0.834		0.9		0.487		0.375					
Departure Headway (Hd)	6.806		6.809		7.466		7.753					
Convergence, Y/N	Yes		Yes		Yes		Yes					
Cap	530		533		481		463					
Service Time	4.868		4.871		5.545		5.838					
HCM Lane V/C Ratio	0.832		0.893		0.489		0.376					
HCM Control Delay	35.5		44.7		17.5		15.5					
HCM Lane LOS	E		E		C		C					
HCM 95th-tile Q	8.5		10.4		2.6		1.7					

Intersection

Intersection Delay, s/veh
 Intersection LOS
























Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	18	120	22
Future Vol, veh/h	0	18	120	22
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	20	130	24
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	15.5
HCM LOS	C

Lane

Intersection Capacity Utilization
4: 45th St W & Ave K

AM 2021
5/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	17	548	13	15	197	157	11	112	72	163	91	24	
Pedestrians			5			5						5	
Ped Button		No			No						Yes		
Pedestrian Timing (s)		17.8			21.8						25.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	17	548	13	15	197	157	11	184	0	163	91	24	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1506	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	1.3	41.1	1.8	1.2	14.8	14.5	0.9	14.7	0.0	12.9	6.8	2.8	
Adj Reference Time (s)	8.0	45.1	21.8	8.0	25.8	25.8	8.0	18.7	0.0	16.9	13.7	11.3	
Permitted Option													
Adj Saturation A (vph)	101	1600		101	1600		101	1506		101	1600		
Reference Time A (s)	20.1	41.1		17.8	14.8		13.0	14.7		193.0	6.8		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1506		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		8.9	14.7		NA	NA		
Reference Time (s)		41.1			17.8			14.7			193.0		
Adj Reference Time (s)		45.1			25.8			18.7			197.0		
Split Option													
Ref Time Combined (s)	1.3	41.1		1.2	14.8		0.9	14.7		12.9	6.8		
Ref Time Seperate (s)	1.3	41.1		1.2	14.8		0.9	8.9		12.9	6.8		
Reference Time (s)	41.1	41.1		14.8	14.8		14.7	14.7		12.9	12.9		
Adj Reference Time (s)	45.1	45.1		25.8	25.8		18.7	18.7		18.8	18.8		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	53.1		35.5										
Permitted Option (s)	45.1		197.0										
Split Option (s)	70.9		37.5										
Minimum (s)	45.1		35.5		80.6								
Right Turns													
	EBR		WBR		SBR								
Adj Reference Time (s)	21.8		25.8		11.3								
Cross Thru Ref Time (s)	13.7		18.7		25.8								
Oncoming Left Ref Time (s)	8.0		8.0		8.0								
Combined (s)	43.5		52.5		45.1								
Intersection Summary													
Intersection Capacity Utilization	67.2%				ICU Level of Service				C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
5: 40th St W & Ave K

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷	
Volume (vph)	31	719	75	47	286	23	95	210	195	53	167	19	
Pedestrians			5			5			5			5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		21.9			23.6			27.9			17.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	31	794	0	47	286	23	95	210	195	53	186	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98	0.85	
Saturated Flow (vph)	1520	3003	0	1520	1600	1360	1520	3046	1360	1520	1575	0	
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	2.4	31.8	0.0	3.7	21.4	2.7	7.5	8.3	17.8	4.2	14.2	0.0	
Adj Reference Time (s)	8.0	35.8	0.0	8.0	27.6	27.6	11.5	15.3	23.4	8.2	18.7	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1502		101	1600		101	1523		101	1575		
Reference Time A (s)	36.7	31.8		55.7	21.4		112.5	8.3		62.8	14.2		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		36.7			55.7			112.5			62.8		
Adj Reference Time (s)		40.7			59.7			116.5			66.8		
Split Option													
Ref Time Combined (s)	2.4	31.8		3.7	21.4		7.5	8.3		4.2	14.2		
Ref Time Seperate (s)	2.4	28.8		3.7	21.4		7.5	8.3		4.2	12.8		
Reference Time (s)	31.8	31.8		21.4	21.4		8.3	8.3		14.2	14.2		
Adj Reference Time (s)	35.8	35.8		27.6	27.6		15.3	15.3		18.7	18.7		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	43.8		30.2										
Permitted Option (s)	59.7		116.5										
Split Option (s)	63.4		34.0										
Minimum (s)	43.8		30.2		74.0								
Right Turns													
	WBR		NBR										
Adj Reference Time (s)	27.6		23.4										
Cross Thru Ref Time (s)	15.3		35.8										
Oncoming Left Ref Time (s)	8.0		8.2										
Combined (s)	50.9		67.4										
Intersection Summary													
Intersection Capacity Utilization	61.7%		ICU Level of Service				B						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
6: 30th St W & Ave K

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↕↕↔		↔↔	↕↕↔		↔↔	↕↕	↔	↔↔	↕↕	↔	
Volume (vph)	174	800	160	55	540	294	293	636	139	158	346	176	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		28.7			26.1			32.1			30.1		
Free Right			No			No			No			No	
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	174	960	0	55	834	0	293	636	139	158	346	176	
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00	
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	4612	4249	0	4612	4128	0	4612	3046	1360	4612	3046	1360	
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	4.5	27.2	0.0	1.4	24.5	0.0	7.6	25.1	12.9	4.1	13.6	16.2	
Adj Reference Time (s)	8.5	32.7	0.0	8.0	30.1	0.0	11.6	30.1	19.9	8.1	20.2	22.3	
Permitted Option													
Adj Saturation A (vph)	154	1416		154	1376		154	1523		154	1523		
Reference Time A (s)	67.9	27.2		21.5	24.5		114.3	25.1		61.7	13.6		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		67.9			24.5			114.3			61.7		
Adj Reference Time (s)		71.9			30.1			118.3			65.7		
Split Option													
Ref Time Combined (s)	4.5	27.2		1.4	24.5		7.6	25.1		4.1	13.6		
Ref Time Seperate (s)	4.5	22.7		1.4	15.9		7.6	25.1		4.1	13.6		
Reference Time (s)	27.2	27.2		24.5	24.5		25.1	25.1		13.6	13.6		
Adj Reference Time (s)	32.7	32.7		30.1	30.1		30.1	30.1		20.2	20.2		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	40.7		38.2										
Permitted Option (s)	71.9		118.3										
Split Option (s)	62.8		50.3										
Minimum (s)	40.7		38.2		78.9								
Right Turns													
	NBR		SBR										
Adj Reference Time (s)	19.9		22.3										
Cross Thru Ref Time (s)	32.7		30.1										
Oncoming Left Ref Time (s)	8.1		11.6										
Combined (s)	60.7		64.0										
Intersection Summary													
Intersection Capacity Utilization	65.8%		ICU Level of Service				C						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
7: 25th St W & Ave K

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	72	1052	20	17	852	65	18	157	78	138	136	35
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		24.4			26.7			25.3			27.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	72	1072	0	17	852	65	18	157	78	138	136	35
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3038	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.7	42.4	0.0	1.3	33.6	6.4	1.4	11.8	7.5	10.9	10.2	3.7
Adj Reference Time (s)	9.7	46.4	0.0	8.0	37.6	30.7	8.0	17.9	14.3	14.9	16.9	11.6
Permitted Option												
Adj Saturation A (vph)	101	1519		101	1523		101	1600		101	1600	
Reference Time A (s)	85.3	42.4		20.1	33.6		21.3	11.8		163.4	10.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		85.3			33.6			21.3			163.4	
Adj Reference Time (s)		89.3			37.6			25.9			167.4	
Split Option												
Ref Time Combined (s)	5.7	42.4		1.3	33.6		1.4	11.8		10.9	10.2	
Ref Time Seperate (s)	5.7	41.6		1.3	33.6		1.4	11.8		10.9	10.2	
Reference Time (s)	42.4	42.4		33.6	33.6		11.8	11.8		10.9	10.9	
Adj Reference Time (s)	46.4	46.4		37.6	37.6		17.9	17.9		17.5	17.5	
Summary												
Protected Option (s)	54.4		32.7									
Permitted Option (s)	89.3		167.4									
Split Option (s)	83.9		35.3									
Minimum (s)	54.4		32.7		87.1							
Right Turns												
Adj Reference Time (s)	30.7	14.3	11.6									
Cross Thru Ref Time (s)	17.9	46.4	37.6									
Oncoming Left Ref Time (s)	9.7	14.9	8.0									
Combined (s)	58.2	75.5	57.2									
Intersection Summary												
Intersection Capacity Utilization	72.6%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
8: 20th St W & Ave K

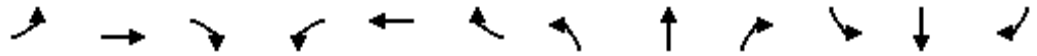
AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷↷↷	↷	↶	↷↷↷		↶↷	↷		↶↷	↷↷↷		
Volume (vph)	168	986	75	67	795	68	51	269	85	106	204	79	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		30.4			31.0			29.9			33.3		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	168	986	75	67	863	0	51	354	0	106	283	0	
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.96	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	4358	1360	1520	4307	0	4612	2937	0	4612	4176	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	13.3	27.1	7.3	5.3	24.1	0.0	1.3	14.6	0.0	2.8	8.3	0.0	
Adj Reference Time (s)	17.3	34.4	34.4	9.3	35.0	0.0	8.0	21.0	0.0	8.0	16.1	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1453		101	1436		154	1468		154	1392		
Reference Time A (s)	198.9	27.1		79.3	24.1		19.9	14.6		41.4	8.3		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		198.9			79.3			19.9			41.4		
Adj Reference Time (s)		202.9			83.3			25.4			45.4		
Split Option													
Ref Time Combined (s)	13.3	27.1		5.3	24.1		1.3	14.6		2.8	8.3		
Ref Time Seperate (s)	13.3	27.1		5.3	22.2		1.3	11.1		2.8	6.0		
Reference Time (s)	27.1	27.1		24.1	24.1		14.6	14.6		8.3	8.3		
Adj Reference Time (s)	34.4	34.4		35.0	35.0		21.0	21.0		16.1	16.1		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	52.3		29.0										
Permitted Option (s)	202.9		45.4										
Split Option (s)	69.4		37.1										
Minimum (s)	52.3		29.0		81.2								
Right Turns													
	EBR												
Adj Reference Time (s)	34.4												
Cross Thru Ref Time (s)	16.1												
Oncoming Left Ref Time (s)	9.3												
Combined (s)	59.8												
Intersection Summary													
Intersection Capacity Utilization	67.7%				ICU Level of Service				C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
9: 17th St W & Ave K

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷↷↷		↶	↷↷↷		↶	↷	↷	↶	↷	↷
Volume (vph)	49	1091	41	82	948	85	24	47	132	151	33	26
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	49	1132	0	82	1033	0	24	47	132	151	33	26
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4335	0	1520	4305	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.9	31.3	0.0	6.5	28.8	0.0	1.9	3.5	11.6	11.9	2.5	2.3
Adj Reference Time (s)	8.0	35.3	0.0	10.5	32.8	0.0	8.0	8.0	15.6	15.9	8.0	8.0
Permitted Option												
Adj Saturation A (vph)	101	1445		101	1435		101	1600		101	1600	
Reference Time A (s)	58.0	31.3		97.1	28.8		28.4	3.5		178.8	2.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.9	3.5		19.9	2.5	
Reference Time (s)		58.0			97.1			9.9			19.9	
Adj Reference Time (s)		62.0			101.1			13.9			23.9	
Split Option												
Ref Time Combined (s)	3.9	31.3		6.5	28.8		1.9	3.5		11.9	2.5	
Ref Time Seperate (s)	3.9	30.2		6.5	26.4		1.9	3.5		11.9	2.5	
Reference Time (s)	31.3	31.3		28.8	28.8		3.5	3.5		11.9	11.9	
Adj Reference Time (s)	35.3	35.3		32.8	32.8		8.0	8.0		15.9	15.9	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	45.8		23.9									
Permitted Option (s)	101.1		23.9									
Split Option (s)	68.1		23.9									
Minimum (s)	45.8		23.9		69.7							
Right Turns	NBR	SBR										
Adj Reference Time (s)	15.6	8.0										
Cross Thru Ref Time (s)	35.3	32.8										
Oncoming Left Ref Time (s)	15.9	8.0										
Combined (s)	66.9	48.8										

Intersection Summary

Intersection Capacity Utilization 58.1% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

AM 2021
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	959	1031	343	180	95
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	959	1374	0	275	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4195	0	4453	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	26.4	39.5	0.0		0.0
Adj Reference Time (s)	0.0	30.4	43.5	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1398		148	
Reference Time A (s)	0.0	26.4	39.5		111.4	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		26.4	39.5			
Adj Reference Time (s)		30.4	43.5			
Split Option						
Ref Time Combined (s)	0.0	26.4	39.5		7.6	
Ref Time Seperate (s)	0.0	26.4	29.7		5.1	
Reference Time (s)	26.4	26.4	39.5		7.6	
Adj Reference Time (s)	30.4	30.4	43.5		14.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	43.5		NA			
Permitted Option (s)	43.5		Err			
Split Option (s)	73.9		14.2			
Minimum (s)	43.5		14.2	57.7		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	48.1%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↗↘↔			↗↘↔	↗	↘	↕	↗	↘	↗↘	↗
Volume (vph)	218	824	93	0	849	168	360	468	309	195	1	183
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	218	917	0	0	849	168	360	468	309	0	196	183
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4292	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.7	25.7	0.0	0.0	23.4	15.5			27.9			16.8
Adj Reference Time (s)	9.7	33.9	0.0	0.0	29.0	33.3			31.9			20.8
Permitted Option												
Adj Saturation A (vph)	154	1431		0	1453		101	1600		0	203	
Reference Time A (s)	85.1	25.7		0.0	23.4		426.3	35.1		0.0	115.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		36.4	35.1		NA	NA	
Reference Time (s)		85.1			23.4			36.4			115.6	
Adj Reference Time (s)		89.1			29.0			40.4			119.6	
Split Option												
Ref Time Combined (s)	5.7	25.7		0.0	23.4		28.4	35.1		0.0	7.7	
Ref Time Seperate (s)	5.7	23.1		0.0	23.4		28.4	35.1		7.7	0.1	
Reference Time (s)	25.7	25.7		23.4	23.4		35.1	35.1		7.7	7.7	
Adj Reference Time (s)	33.9	33.9		29.0	29.0		39.1	39.1		33.3	33.3	
Summary												
Protected Option (s)	38.7		NA									
Permitted Option (s)	89.1		119.6									
Split Option (s)	62.9		72.4									
Minimum (s)	38.7		72.4		111.1							
Right Turns												
Adj Reference Time (s)	33.3	31.9	20.8									
Cross Thru Ref Time (s)	39.1	33.9	29.0									
Oncoming Left Ref Time (s)	39.7	33.3	39.1									
Combined (s)	82.1	99.1	88.9									
Intersection Summary												
Intersection Capacity Utilization	92.6%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	0	0	0	0	247	0	0	98	0
Future Vol, veh/h	0	0	0	0	0	0	0	247	0	0	98	0
Conflicting Peds, #/hr	5	0	5	0	0	0	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	-	0	-	-
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	0	0	0	0	268	0	0	107	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	380	380	117	380	380	273	112	0	0	268	0	0
Stage 1	112	112	-	268	268	-	-	-	-	-	-	-
Stage 2	268	268	-	112	112	-	-	-	-	-	-	-
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	578	552	935	578	552	766	1478	-	-	1296	-	-
Stage 1	893	803	-	738	687	-	-	-	-	-	-	-
Stage 2	738	687	-	893	803	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	573	550	927	576	550	763	1472	-	-	1291	-	-
Mov Cap-2 Maneuver	573	550	-	576	550	-	-	-	-	-	-	-
Stage 1	889	800	-	738	687	-	-	-	-	-	-	-
Stage 2	735	687	-	889	800	-	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1472	-	-	-	-	-	-	1291	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	0	0	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	0	-	-

Intersection				
Intersection Delay, s/veh	4.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	249	105
Demand Flow Rate, veh/h	0	0	254	107
Vehicles Circulating, veh/h	107	254	0	0
Vehicles Exiting, veh/h	0	0	107	254
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	5
Ped Cap Adj	0.999	0.999	0.999	0.999
Approach Delay, s/veh	0.0	0.0	5.3	4.1
Approach LOS	-	-	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	0	0	254	107
Cap Entry Lane, veh/h	1015	876	1130	1130
Entry HV Adj Factor	1.000	1.000	0.980	0.980
Flow Entry, veh/h	0	0	249	105
Cap Entry, veh/h	1015	876	1107	1107
V/C Ratio	0.000	0.000	0.225	0.095
Control Delay, s/veh	3.5	4.1	5.3	4.1
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	0

Intersection				
Intersection Delay, s/veh	0.0			
Intersection LOS	-			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	0	0	0	0
Vehicles Exiting, veh/h	0	0	0	0
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	0
Ped Cap Adj	0.999	0.999	0.999	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LTR
Assumed Moves	TR	LT	LR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	0	0	0	0
Cap Entry Lane, veh/h	1130	1130	1130	1130
Entry HV Adj Factor	1.000	1.000	1.000	1.000
Flow Entry, veh/h	0	0	0	0
Cap Entry, veh/h	1129	1129	1129	1130
V/C Ratio	0.000	0.000	0.000	0.000
Control Delay, s/veh	3.2	3.2	3.2	3.2
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection Capacity Utilization
15: 60th St W & Ave K-8

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↔		↖	↕↔		↖	↕↕	↗
Volume (vph)	28	0	46	1	0	13	38	494	0	6	421	15
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	28	46	0	14	0	38	494	0	6	421	15
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.86	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	1360	0	1372	0	1520	3046	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.6	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			4.7			0.0	3.0	19.5	0.0	0.5	16.6	2.0
Adj Reference Time (s)			11.2			0.0	8.5	24.0	0.0	8.5	22.5	22.5
Permitted Option												
Adj Saturation A (vph)	0	210		0	673		101	1523		101	1523	
Reference Time A (s)	0.0	16.0		0.0	3.1		45.0	19.5		7.1	16.6	
Adj Saturation B (vph)	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	10.2	10.2		8.1	9.8		NA	NA		NA	NA	
Reference Time (s)		10.2			3.1			45.0			16.6	
Adj Reference Time (s)		15.9			10.6			49.5			22.5	
Split Option												
Ref Time Combined (s)	0.0	2.2		0.0	1.8		3.0	19.5		0.5	16.6	
Ref Time Seperate (s)	2.2	0.0		0.1	0.6		3.0	19.5		0.5	16.6	
Reference Time (s)	2.2	2.2		1.8	1.8		19.5	19.5		16.6	16.6	
Adj Reference Time (s)	10.6	10.6		10.6	10.6		24.0	24.0		22.5	22.5	
Summary												
Protected Option (s)	NA		32.5									
Permitted Option (s)	15.9		49.5									
Split Option (s)	21.3		46.5									
Minimum (s)	15.9		32.5		48.4							
Right Turns												
Adj Reference Time (s)	11.2		22.5									
Cross Thru Ref Time (s)	22.5		10.6									
Oncoming Left Ref Time (s)	10.6		8.5									
Combined (s)	44.4		41.6									
Intersection Summary												
Intersection Capacity Utilization	40.3%		ICU Level of Service		A							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
16: 70th St W & Ave L

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	35	45	44	40	40	20	181	66	26	66	3
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	8	35	45	44	80	0	20	247	0	26	69	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.93	0.85	0.95	0.96	0.85	0.95	0.99	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1480	0	1520	1536	0	1520	1590	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.2	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.6	2.6	4.6	3.5	6.8	0.0	1.6	19.5	0.0	2.1	5.2	0.0
Adj Reference Time (s)	8.5	10.6	11.2	8.5	13.0	0.0	8.5	24.0	0.0	8.5	22.5	0.0
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1480		101	1536		101	1590	
Reference Time A (s)	9.5	2.6		52.1	6.8		23.7	19.5		30.8	5.2	
Adj Saturation B (vph)	0	1600		0	1480		0	1536		NA	NA	
Reference Time B (s)	8.6	2.6		11.5	6.8		9.6	19.5		NA	NA	
Reference Time (s)		8.6			11.5			19.5			30.8	
Adj Reference Time (s)		14.6			17.0			24.0			35.3	
Split Option												
Ref Time Combined (s)	0.6	2.6		3.5	6.8		1.6	19.5		2.1	5.2	
Ref Time Seperate (s)	0.6	2.6		3.5	3.6		1.6	14.3		2.1	5.0	
Reference Time (s)	2.6	2.6		6.8	6.8		19.5	19.5		5.2	5.2	
Adj Reference Time (s)	10.6	10.6		13.0	13.0		24.0	24.0		22.5	22.5	
Summary												
Protected Option (s)	21.5		32.5									
Permitted Option (s)	17.0		35.3									
Split Option (s)	23.7		46.5									
Minimum (s)	17.0		32.5		49.4							
Right Turns												
Adj Reference Time (s)	11.2											
Cross Thru Ref Time (s)	22.5											
Oncoming Left Ref Time (s)	3.5											
Combined (s)	42.2											
Intersection Summary												
Intersection Capacity Utilization	41.2%		ICU Level of Service				A					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	116	13	36	76	0	33	0	85	0	0	0
Future Vol, veh/h	0	116	13	36	76	0	33	0	85	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	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	126	14	39	83	0	36	0	92	0	0	0

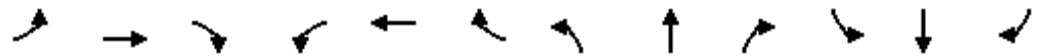
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	88	0	0	145	0	0	304	304	143	304	311	93
Stage 1	-	-	-	-	-	-	138	138	-	166	166	-
Stage 2	-	-	-	-	-	-	166	166	-	138	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1508	-	-	1437	-	-	648	609	905	648	604	964
Stage 1	-	-	-	-	-	-	865	782	-	836	761	-
Stage 2	-	-	-	-	-	-	836	761	-	865	777	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1502	-	-	1431	-	-	628	586	897	564	582	956
Mov Cap-2 Maneuver	-	-	-	-	-	-	628	586	-	564	582	-
Stage 1	-	-	-	-	-	-	861	779	-	833	736	-
Stage 2	-	-	-	-	-	-	808	736	-	773	774	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.4	9.9	0
HCM LOS			A	A

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	628	897	1502	-	-	1431	-	-	-
HCM Lane V/C Ratio	0.057	0.103	-	-	-0.027	-	-	-	-
HCM Control Delay (s)	11.1	9.5	0	-	-	7.6	0	-	0
HCM Lane LOS	B	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0.3	0	-	-	0.1	-	-	-

Intersection Capacity Utilization
18: QHHS Dwy/Walmart Dwy & Ave L

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗		↘	↗		↘	↗		↕	
Volume (vph)	0	246	14	9	146	0	14	0	26	0	0	0
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	246	14	0	155	0	0	14	26	0	0	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	0	1595	1360	0	1520	1360	0	1600	0
Ped Intf Time (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
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00		
Protected Option Allowed	No			No			No			No		
Reference Time (s)	1.2			0.0			2.3			0.0		
Adj Reference Time (s)	8.5			8.5			8.5			0.0		
Permitted Option												
Adj Saturation A (vph)	101	1523		0	867		0	861		0	1600	
Reference Time A (s)	0.0	9.7		0.0	21.5		0.0	2.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.1	9.1		0.0	0.0	
Reference Time (s)	9.7			21.5			2.0			0.0		
Adj Reference Time (s)	14.2			26.0			8.5			8.5		
Split Option												
Ref Time Combined (s)	0.0	9.7		0.0	11.7		0.0	1.1		0.0	0.0	
Ref Time Seperate (s)	0.0	9.7		0.7	10.9		1.1	0.0		0.0	0.0	
Reference Time (s)	9.7	9.7		11.7	11.7		1.1	1.1		0.0	0.0	
Adj Reference Time (s)	14.2	14.2		16.2	16.2		8.5	8.5		0.0	0.0	
Summary												
Protected Option (s)	NA		NA									
Permitted Option (s)	26.0		8.5									
Split Option (s)	30.3		8.5									
Minimum (s)	26.0		8.5		34.5							
Right Turns												
Adj Reference Time (s)	8.5	8.5	8.5									
Cross Thru Ref Time (s)	0.0	0.0	14.2									
Oncoming Left Ref Time (s)	16.2	0.0	0.0									
Combined (s)	24.7	0.0	22.7									
Intersection Summary												
Intersection Capacity Utilization	28.7%		ICU Level of Service						A			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
19: 60th St W & Ave L

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↘	↘	↑↑	↘	↘	↑	↘	↘↘	↑↑	↘
Volume (vph)	119	219	25	103	139	98	22	311	119	148	348	44
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	2500	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	5.7
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	119	219	25	103	139	98	22	311	119	148	348	44
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1600	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	9.4	8.6	2.8	8.1	5.5	9.3	1.7	23.3	11.1	3.9	13.7	4.5
Adj Reference Time (s)	13.4	31.6	31.6	12.1	9.5	13.3	8.0	29.8	21.5	8.0	17.7	10.2
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1600		154	1523	
Reference Time A (s)	140.9	8.6		122.0	5.5		26.1	23.3		57.8	13.7	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		140.9			122.0			26.1			57.8	
Adj Reference Time (s)		144.9			126.0			32.1			61.8	
Split Option												
Ref Time Combined (s)	9.4	8.6		8.1	5.5		1.7	23.3		3.9	13.7	
Ref Time Seperate (s)	9.4	8.6		8.1	5.5		1.7	23.3		3.9	13.7	
Reference Time (s)	9.4	9.4		8.1	8.1		23.3	23.3		13.7	13.7	
Adj Reference Time (s)	31.6	31.6		12.1	12.1		29.8	29.8		17.7	17.7	
Summary												
Protected Option (s)	43.7		37.8									
Permitted Option (s)	144.9		61.8									
Split Option (s)	43.7		47.5									
Minimum (s)	43.7		37.8		81.6							
Right Turns												
Adj Reference Time (s)	31.6	13.3	21.5	10.2								
Cross Thru Ref Time (s)	17.7	29.8	31.6	9.5								
Oncoming Left Ref Time (s)	21.1	13.4	8.0	8.0								
Combined (s)	61.4	56.5	61.1	27.7								
Intersection Summary												
Intersection Capacity Utilization	68.0%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	463	18	86	273	11	150
Future Vol, veh/h	463	18	86	273	11	150
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	503	20	93	297	12	163

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	508	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1057	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1053	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	14.6
HCM LOS			B

Minor Lane/Major Mvm	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	241	556	-	-	1053	-
HCM Lane V/C Ratio	0.05	0.293	-	-	0.089	-
HCM Control Delay (s)	20.7	14.1	-	-	8.8	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	1.2	-	-	0.3	-

Intersection Capacity Utilization
21: 50th St W & Ave L

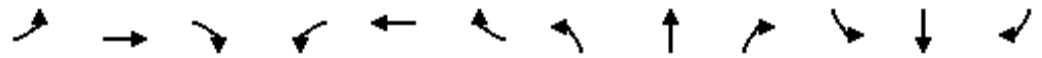
AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗	↕		↗	↕		↗	↕	↗	↗	↕	↕	
Volume (vph)	71	547	21	85	273	32	30	270	138	62	162	51	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	71	568	0	85	305	0	30	270	138	62	213	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	3030	0	1520	2998	0	1520	1600	1360	1520	1543	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.6	22.5	0.0	6.7	12.3	0.0	2.4	20.3	12.8	4.9	16.7	0.0	
Adj Reference Time (s)	9.6	26.5	0.0	10.7	23.9	0.0	8.0	24.3	17.6	8.9	21.0	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1515		101	1499		101	1600		101	1543		
Reference Time A (s)	84.1	22.5		100.7	12.3		35.5	20.3		73.4	16.7		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		84.1			100.7			35.5			73.4		
Adj Reference Time (s)		88.1			104.7			39.5			77.4		
Split Option													
Ref Time Combined (s)	5.6	22.5		6.7	12.3		2.4	20.3		4.9	16.7		
Ref Time Seperate (s)	5.6	21.7		6.7	11.0		2.4	20.3		4.9	12.8		
Reference Time (s)	22.5	22.5		12.3	12.3		20.3	20.3		16.7	16.7		
Adj Reference Time (s)	26.5	26.5		23.9	23.9		24.3	24.3		21.0	21.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	37.2		33.1										
Permitted Option (s)	104.7		77.4										
Split Option (s)	50.4		45.2										
Minimum (s)	37.2		33.1		70.4								
Right Turns													
	NBR												
Adj Reference Time (s)	17.6												
Cross Thru Ref Time (s)	26.5												
Oncoming Left Ref Time (s)	26.9												
Combined (s)	53.0												
Intersection Summary													
Intersection Capacity Utilization	58.6%		ICU Level of Service						B				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷	↷	↶	↷		↶	↷	↷	↶	↷	↷	
Volume (vph)	30	739	9	55	369	60	15	53	84	106	36	17	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		25.6			16.0			20.4			22.1		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	30	739	9	55	429	0	15	53	84	106	53	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.98	0.85	0.95	1.00	0.85	0.95	0.95	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	2982	0	1520	1600	1360	1520	1523	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	2.4	29.1	1.4	4.3	17.4	0.0	1.2	4.0	8.1	8.4	4.4	0.0	
Adj Reference Time (s)	8.0	33.1	29.6	8.3	21.4	0.0	8.0	10.5	14.0	12.4	11.1	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1491		101	1600		101	1523		
Reference Time A (s)	35.5	29.1		65.1	17.4		17.8	4.0		125.5	4.4		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1523		
Reference Time B (s)	NA	NA		NA	NA		9.2	4.0		16.4	4.4		
Reference Time (s)		35.5			65.1			9.2			16.4		
Adj Reference Time (s)		39.5			69.1			14.9			21.2		
Split Option													
Ref Time Combined (s)	2.4	29.1		4.3	17.4		1.2	4.0		8.4	4.4		
Ref Time Seperate (s)	2.4	29.1		4.3	14.9		1.2	4.0		8.4	3.0		
Reference Time (s)	29.1	29.1		17.4	17.4		4.0	4.0		8.4	8.4		
Adj Reference Time (s)	33.1	33.1		21.4	21.4		10.5	10.5		14.5	14.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	41.5		22.9										
Permitted Option (s)	69.1		21.2										
Split Option (s)	54.5		25.0										
Minimum (s)	41.5		21.2		62.7								
Right Turns													
	EBR		NBR										
Adj Reference Time (s)	29.6		14.0										
Cross Thru Ref Time (s)	11.1		33.1										
Oncoming Left Ref Time (s)	3.3		12.4										
Combined (s)	49.0		59.4										
Intersection Summary													
Intersection Capacity Utilization	52.3%		ICU Level of Service				A						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
23: 40th St W & Ave L

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	78	744	8	24	396	89	22	127	78	182	38	55
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		31.0			33.3			35.6			31.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	78	752	0	24	396	89	22	127	78	182	38	55
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3042	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.2	29.7	0.0	1.9	15.6	8.5	1.7	9.5	7.5	14.4	2.9	5.5
Adj Reference Time (s)	10.2	35.0	0.0	8.0	37.3	37.3	8.0	17.5	15.8	18.4	12.2	13.5
Permitted Option												
Adj Saturation A (vph)	101	1521		101	1523		101	1600		101	1600	
Reference Time A (s)	92.4	29.7		28.4	15.6		26.1	9.5		215.5	2.9	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		9.7	9.5		NA	NA	
Reference Time (s)		92.4			28.4			9.7			215.5	
Adj Reference Time (s)		96.4			37.3			17.7			219.5	
Split Option												
Ref Time Combined (s)	6.2	29.7		1.9	15.6		1.7	9.5		14.4	2.9	
Ref Time Seperate (s)	6.2	29.4		1.9	15.6		1.7	9.5		14.4	2.9	
Reference Time (s)	29.7	29.7		15.6	15.6		9.5	9.5		14.4	14.4	
Adj Reference Time (s)	35.0	35.0		37.3	37.3		17.5	17.5		21.0	21.0	
Summary												
Protected Option (s)	47.5		35.9									
Permitted Option (s)	96.4		219.5									
Split Option (s)	72.3		38.5									
Minimum (s)	47.5		35.9		83.4							
Right Turns												
Adj Reference Time (s)	37.3	15.8	13.5									
Cross Thru Ref Time (s)	17.5	35.0	37.3									
Oncoming Left Ref Time (s)	17.5	18.4	8.0									
Combined (s)	65.0	69.2	58.8									
Intersection Summary												
Intersection Capacity Utilization	69.5%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
24: 35th St W & Ave L

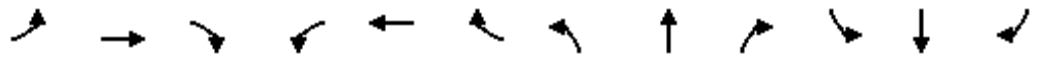
AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	63	910	40	24	427	14	24	55	64	17	20	55	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		16.0			23.9			25.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	63	950	0	24	441	0	24	119	0	17	20	55	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3027	0	1520	3032	0	1520	1471	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.0	37.7	0.0	1.9	17.5	0.0	1.9	10.1	0.0	1.3	1.5	5.5	
Adj Reference Time (s)	9.0	41.7	0.0	8.0	27.9	0.0	8.0	16.4	0.0	8.0	8.0	9.5	
Permitted Option													
Adj Saturation A (vph)	101	1514		101	1516		101	1471		101	1600		
Reference Time A (s)	74.6	37.7		28.4	17.5		28.4	10.1		20.1	1.5		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1471		0	1600		
Reference Time B (s)	NA	NA		NA	NA		9.9	10.1		9.3	1.5		
Reference Time (s)		74.6			28.4			10.1			9.3		
Adj Reference Time (s)		78.6			32.4			16.4			13.3		
Split Option													
Ref Time Combined (s)	5.0	37.7		1.9	17.5		1.9	10.1		1.3	1.5		
Ref Time Seperate (s)	5.0	36.1		1.9	16.9		1.9	4.8		1.3	1.5		
Reference Time (s)	37.7	37.7		17.5	17.5		10.1	10.1		1.5	1.5		
Adj Reference Time (s)	41.7	41.7		27.9	27.9		16.4	16.4		8.0	8.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	49.7		24.4										
Permitted Option (s)	78.6		16.4										
Split Option (s)	69.6		24.4										
Minimum (s)	49.7		16.4		66.1								
Right Turns													
	SBR												
Adj Reference Time (s)	9.5												
Cross Thru Ref Time (s)	27.9												
Oncoming Left Ref Time (s)	3.0												
Combined (s)	45.4												
Intersection Summary													
Intersection Capacity Utilization	55.1%		ICU Level of Service						B				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
25: 30th St W & Ave L

AM 2021
5/2/2017



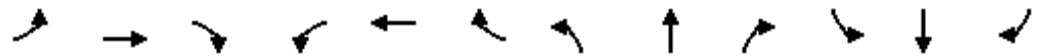
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Volume (vph)	100	826	94	157	342	65	72	359	240	169	316	83
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	100	826	94	157	342	65	72	359	240	169	316	83
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	7.9	22.7	8.9	12.4	9.4	6.4	5.7	14.1	21.8	13.3	12.4	8.0
Adj Reference Time (s)	11.9	39.0	39.0	16.4	37.0	37.0	9.7	21.5	28.0	17.3	19.8	16.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1523		101	1523	
Reference Time A (s)	118.4	22.7		185.9	9.4		85.3	14.1		200.1	12.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		118.4			185.9			85.3			200.1	
Adj Reference Time (s)		122.4			189.9			89.3			204.1	
Split Option												
Ref Time Combined (s)	7.9	22.7		12.4	9.4		5.7	14.1		13.3	12.4	
Ref Time Seperate (s)	7.9	22.7		12.4	9.4		5.7	14.1		13.3	12.4	
Reference Time (s)	22.7	22.7		12.4	12.4		14.1	14.1		13.3	13.3	
Adj Reference Time (s)	39.0	39.0		37.0	37.0		21.5	21.5		20.5	20.5	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	55.4		38.8									
Permitted Option (s)	189.9		204.1									
Split Option (s)	76.0		42.0									
Minimum (s)	55.4		38.8		94.2							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	39.0		37.0		28.0		16.0					
Cross Thru Ref Time (s)	19.8		21.5		39.0		37.0					
Oncoming Left Ref Time (s)	11.9		17.3		9.7							
Combined (s)	75.2		70.4		84.3		62.7					

Intersection Summary

Intersection Capacity Utilization 78.5% ICU Level of Service D
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
26: 25th St W & Ave L

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕		↘	↑	↗
Volume (vph)	50	1210	4	3	529	21	6	1	2	70	2	53
Pedestrians	5		5	5		5	5		5	5		5
Ped Button	No				No		Yes				Yes	
Pedestrian Timing (s)	25.3				22.4		16.0				30.7	
Free Right			No				No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	50	1210	4	3	529	21	0	9	0	70	2	53
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1495	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00				1.00		0.15				0.15	
Protected Option Allowed	Yes				Yes		No				No	
Reference Time (s)	3.9	47.7	1.0	0.2	20.8	2.5			0.0			5.3
Adj Reference Time (s)	8.0	51.7	31.0	8.0	26.4	26.4			0.0			13.2
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		0	134		1115	1600	
Reference Time A (s)	59.2	47.7		3.6	20.8		0.0	8.2		7.5	0.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.5	8.9		13.5	0.1	
Reference Time (s)		59.2			20.8			8.2			7.5	
Adj Reference Time (s)		63.2			26.4			12.2			15.1	
Split Option												
Ref Time Combined (s)	3.9	47.7		0.2	20.8		0.0	0.9		5.5	0.1	
Ref Time Seperate (s)	3.9	47.7		0.2	20.8		0.5	0.2		5.5	0.1	
Reference Time (s)	47.7	47.7		20.8	20.8		0.9	0.9		5.5	5.5	
Adj Reference Time (s)	51.7	51.7		26.4	26.4		8.0	8.0		13.4	13.4	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	59.7		NA									
Permitted Option (s)	63.2		15.1									
Split Option (s)	78.1		21.4									
Minimum (s)	59.7		15.1		74.8							
Right Turns												
	EBR		WBR		SBR							
Adj Reference Time (s)	31.0		26.4		13.2							
Cross Thru Ref Time (s)	13.4		8.0		26.4							
Oncoming Left Ref Time (s)	8.0		8.0		8.0							
Combined (s)	52.4		42.4		47.6							

Intersection Summary

Intersection Capacity Utilization 62.3% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
27: 20th St W & Ave L

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷	↷	↶	↷	↷	↶	↷	↷	↶	↷	↷	
Volume (vph)	118	1115	56	23	434	54	29	224	57	119	116	61	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		28.4			36.7			29.3			33.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	118	1115	56	23	434	54	29	281	0	119	116	61	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2954	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	9.3	43.9	5.6	1.8	11.9	5.4	2.3	11.5	0.0	9.4	8.7	6.0	
Adj Reference Time (s)	13.3	47.9	34.1	8.0	40.7	40.7	8.0	18.3	0.0	13.4	16.4	14.2	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1453		101	1477		101	1600		
Reference Time A (s)	139.7	43.9		27.2	11.9		34.3	11.5		140.9	8.7		
Adj Saturation B (vph)	NA	NA		NA	NA		0	2954		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		10.3	11.5		NA	NA		
Reference Time (s)		139.7			27.2			11.5			140.9		
Adj Reference Time (s)		143.7			40.7			18.3			144.9		
Split Option													
Ref Time Combined (s)	9.3	43.9		1.8	11.9		2.3	11.5		9.4	8.7		
Ref Time Seperate (s)	9.3	43.9		1.8	11.9		2.3	9.2		9.4	8.7		
Reference Time (s)	43.9	43.9		11.9	11.9		11.5	11.5		9.4	9.4		
Adj Reference Time (s)	47.9	47.9		40.7	40.7		18.3	18.3		17.0	17.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	55.9		31.7										
Permitted Option (s)	143.7		144.9										
Split Option (s)	88.6		35.3										
Minimum (s)	55.9		31.7		87.6								
Right Turns													
	EBR		WBR		SBR								
Adj Reference Time (s)	34.1		40.7		14.2								
Cross Thru Ref Time (s)	16.4		18.3		40.7								
Oncoming Left Ref Time (s)	8.0		13.3		8.0								
Combined (s)	58.5		72.3		62.9								
Intersection Summary													
Intersection Capacity Utilization	73.0%		ICU Level of Service						C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
28: 15th St W & Ave L

AM 2021
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑	↗		↕		↗	↑	↗
Volume (vph)	112	1285	3	4	523	275	1	1	10	126	1	24
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	112	1288	0	4	523	275	0	12	0	126	1	24
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.87	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4357	0	1520	4358	1360	0	1394	0	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00		
Protected Option Allowed	Yes			Yes			No			No		
Reference Time (s)	8.8	35.5	0.0	0.3	14.4	24.3			0.0			2.1
Adj Reference Time (s)	12.8	39.5	0.0	8.0	18.4	28.3			0.0			8.0
Permitted Option												
Adj Saturation A (vph)	101	1452		101	1453		0	628		228	1600	
Reference Time A (s)	132.6	35.5		4.7	14.4		0.0	2.3		66.3	0.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.1	9.0		17.9	0.1	
Reference Time (s)		132.6			14.4			2.3			17.9	
Adj Reference Time (s)		136.6			18.4			8.0			21.9	
Split Option												
Ref Time Combined (s)	8.8	35.5		0.3	14.4		0.0	1.0		9.9	0.1	
Ref Time Seperate (s)	8.8	35.4		0.3	14.4		0.1	0.1		9.9	0.1	
Reference Time (s)	35.5	35.5		14.4	14.4		1.0	1.0		9.9	9.9	
Adj Reference Time (s)	39.5	39.5		18.4	18.4		8.0	8.0		13.9	13.9	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	47.5		NA									
Permitted Option (s)	136.6		21.9									
Split Option (s)	57.9		21.9									
Minimum (s)	47.5		21.9		69.4							
Right Turns												
	WBR		SBR									
Adj Reference Time (s)	28.3		8.0									
Cross Thru Ref Time (s)	8.0		18.4									
Oncoming Left Ref Time (s)	28.3		8.0									
Combined (s)	49.1		34.4									
Intersection Summary												
Intersection Capacity Utilization	57.9%		ICU Level of Service				B					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

AM 2021
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	950	728	0	320	79
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	950	728	0	399	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4522	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	26.2	20.0	0.0		0.0
Adj Reference Time (s)	0.0	30.2	24.0	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		151	
Reference Time A (s)	0.0	26.2	20.0		159.0	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		26.2	20.0			
Adj Reference Time (s)		30.2	24.0			
Split Option						
Ref Time Combined (s)	0.0	26.2	20.0		10.7	
Ref Time Seperate (s)	0.0	26.2	20.0		8.6	
Reference Time (s)	26.2	26.2	20.0		10.7	
Adj Reference Time (s)	30.2	30.2	24.0		16.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	30.2		NA			
Permitted Option (s)	30.2		Err			
Split Option (s)	54.2		16.2			
Minimum (s)	30.2		16.2	46.4		

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	1185	0	0	967	0	359	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	1185	0	0	967	0	359	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	32.6	0.6	0.0	20.0	0.0	28.3	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	36.6	9.7	0.0	24.0	0.0	32.3	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	32.6		0.0	20.0		425.1	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		36.3	0.0		0.0	0.0	
Reference Time (s)		32.6			20.0			36.3			0.0	
Adj Reference Time (s)		36.6			24.0			40.3			9.8	
Split Option												
Ref Time Combined (s)	0.0	32.6		0.0	20.0		28.3	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	32.6		0.0	20.0		28.3	0.0		0.0	0.0	
Reference Time (s)	32.6	32.6		20.0	20.0		28.3	28.3		0.0	0.0	
Adj Reference Time (s)	36.6	36.6		24.0	24.0		32.3	32.3		9.8	9.8	
Summary												
Protected Option (s)	36.6		32.3									
Permitted Option (s)	36.6		40.3									
Split Option (s)	60.6		42.2									
Minimum (s)	36.6		32.3		69.0							
Right Turns												
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	57.5%		ICU Level of Service		B							
Reference Times and Phasing Options do not represent an optimized timing plan.												

AM 2021+Related Projects

Intersection

Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	2	62	12	0	42	85	8	0	23	174	75
Future Vol, veh/h	0	2	62	12	0	42	85	8	0	23	174	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	67	13	0	46	92	9	0	25	189	82
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.5	9.1	10
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	3%	31%	6%
Vol Thru, %	64%	82%	63%	94%
Vol Right, %	28%	16%	6%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	272	76	135	51
LT Vol	23	2	42	3
Through Vol	174	62	85	48
RT Vol	75	12	8	0
Lane Flow Rate	296	83	147	55
Geometry Grp	1	1	1	1
Degree of Util (X)	0.363	0.111	0.199	0.075
Departure Headway (Hd)	4.417	4.843	4.872	4.849
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	813	737	734	736
Service Time	2.451	2.893	2.917	2.898
HCM Lane V/C Ratio	0.364	0.113	0.2	0.075
HCM Control Delay	10	8.5	9.1	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.7	0.4	0.7	0.2

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	3	48	0
Future Vol, veh/h	0	3	48	0
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	3	52	0
Number of Lanes	0	0	1	0





























Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.3
HCM LOS	A

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

AM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 				 			 	
Volume (vph)	53	329	70	91	150	109	37	478	195	126	358	30
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		30.7			28.7			27.3			27.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	53	329	70	91	150	109	37	673	0	126	388	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.96	0.85	0.95	0.99	0.85
Saturated Flow (vph)	4612	3046	1360	4612	1600	1360	1520	2914	0	1520	3011	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	1.4	13.0	6.8	2.4	11.3	10.3	2.9	27.9	0.0	9.9	15.5	0.0
Adj Reference Time (s)	8.0	34.7	34.7	8.0	32.7	32.7	8.0	31.9	0.0	13.9	21.3	0.0
Permitted Option												
Adj Saturation A (vph)	154	1523		154	1600		101	1457		101	1506	
Reference Time A (s)	20.7	13.0		35.5	11.3		43.8	27.9		149.2	15.5	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		20.7			35.5			43.8			149.2	
Adj Reference Time (s)		34.7			39.5			47.8			153.2	
Split Option												
Ref Time Combined (s)	1.4	13.0		2.4	11.3		2.9	27.9		9.9	15.5	
Ref Time Seperate (s)	1.4	13.0		2.4	11.3		2.9	19.9		9.9	14.3	
Reference Time (s)	13.0	13.0		11.3	11.3		27.9	27.9		15.5	15.5	
Adj Reference Time (s)	34.7	34.7		32.7	32.7		31.9	31.9		21.3	21.3	
Summary												
Protected Option (s)	42.7		45.8									
Permitted Option (s)	39.5		153.2									
Split Option (s)	67.4		53.2									
Minimum (s)	39.5		45.8		85.4							
Right Turns												
Adj Reference Time (s)	34.7		32.7									
Cross Thru Ref Time (s)	21.3		31.9									
Oncoming Left Ref Time (s)	8.0		8.0									
Combined (s)	64.0		72.6									
Intersection Summary												
Intersection Capacity Utilization	71.1%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection												
Intersection Delay, s/veh	66											
Intersection LOS	F											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	108	846	33	0	35	321	25	0	41	236	131
Future Vol, veh/h	0	108	846	33	0	35	321	25	0	41	236	131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	117	920	36	0	38	349	27	0	45	257	142
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB			WB			NB					
Opposing Approach	WB			EB			SB					
Opposing Lanes	1			1			1					
Conflicting Approach Left	SB			NB			EB					
Conflicting Lanes Left	1			1			1					
Conflicting Approach Right	NB			SB			WB					
Conflicting Lanes Right	1			1			1					
HCM Control Delay	73.4			64.5			69.9					
HCM LOS	F			F			F					
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	10%	11%	9%	9%								
Vol Thru, %	58%	86%	84%	63%								
Vol Right, %	32%	3%	7%	28%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	408	987	381	191								
LT Vol	41	108	35	18								
Through Vol	236	846	321	120								
RT Vol	131	33	25	53								
Lane Flow Rate	443	1073	414	208								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.992	1	0.965	0.539								
Departure Headway (Hd)	8.197	8.466	8.387	9.35								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	448	440	435	386								
Service Time	6.197	6.511	6.408	7.381								
HCM Lane V/C Ratio	0.989	2.439	0.952	0.539								
HCM Control Delay	69.9	73.4	64.5	22.8								
HCM Lane LOS	F	F	F	C								
HCM 95th-tile Q	12.6	12.6	11.5	3.1								

Intersection

Intersection Delay, s/veh
 Intersection LOS
























Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	18	120	53
Future Vol, veh/h	0	18	120	53
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	20	130	58
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	22.8
HCM LOS	C

Lane
























Intersection Capacity Utilization
4: 45th St W & Ave K

AM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	970	13	15	350	157	11	112	72	163	91	36
Pedestrians			5			5						5
Ped Button		No			No						Yes	
Pedestrian Timing (s)		17.8			21.8						25.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	51	970	13	15	350	157	11	184	0	163	91	36
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1506	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.0	72.8	1.8	1.2	26.3	14.5	0.9	14.7	0.0	12.9	6.8	3.8
Adj Reference Time (s)	8.0	76.8	21.8	8.0	30.3	25.8	8.0	18.7	0.0	16.9	13.7	11.3
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		101	1506		101	1600	
Reference Time A (s)	60.4	72.8		17.8	26.3		13.0	14.7		193.0	6.8	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1506		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		8.9	14.7		NA	NA	
Reference Time (s)		72.8			26.3			14.7			193.0	
Adj Reference Time (s)		76.8			30.3			18.7			197.0	
Split Option												
Ref Time Combined (s)	4.0	72.8		1.2	26.3		0.9	14.7		12.9	6.8	
Ref Time Seperate (s)	4.0	72.8		1.2	26.3		0.9	8.9		12.9	6.8	
Reference Time (s)	72.8	72.8		26.3	26.3		14.7	14.7		12.9	12.9	
Adj Reference Time (s)	76.8	76.8		30.3	30.3		18.7	18.7		18.8	18.8	
Summary												
Protected Option (s)	84.8		35.5									
Permitted Option (s)	76.8		197.0									
Split Option (s)	107.0		37.5									
Minimum (s)	76.8		35.5		112.3							
Right Turns												
Adj Reference Time (s)	21.8	25.8	11.3									
Cross Thru Ref Time (s)	13.7	18.7	30.3									
Oncoming Left Ref Time (s)	8.0	8.0	8.0									
Combined (s)	43.5	52.5	49.6									
Intersection Summary												
Intersection Capacity Utilization	93.6%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

































Intersection Capacity Utilization
5: 40th St W & Ave K

AM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	1100	82	47	425	23	97	210	195	53	167	31
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		21.9			23.6			27.9			17.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	65	1182	0	47	425	23	97	210	195	53	198	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98	0.85
Saturated Flow (vph)	1520	3015	0	1520	1600	1360	1520	3046	1360	1520	1562	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.1	47.1	0.0	3.7	31.9	2.7	7.7	8.3	17.8	4.2	15.3	0.0
Adj Reference Time (s)	9.1	51.1	0.0	8.0	35.9	27.6	11.7	15.3	23.4	8.2	19.7	0.0
Permitted Option												
Adj Saturation A (vph)	101	1507		101	1600		101	1523		101	1562	
Reference Time A (s)	77.0	47.1		55.7	31.9		114.9	8.3		62.8	15.3	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		77.0			55.7			114.9			62.8	
Adj Reference Time (s)		81.0			59.7			118.9			66.8	
Split Option												
Ref Time Combined (s)	5.1	47.1		3.7	31.9		7.7	8.3		4.2	15.3	
Ref Time Seperate (s)	5.1	43.8		3.7	31.9		7.7	8.3		4.2	12.9	
Reference Time (s)	47.1	47.1		31.9	31.9		8.3	8.3		15.3	15.3	
Adj Reference Time (s)	51.1	51.1		35.9	35.9		15.3	15.3		19.7	19.7	
Summary												
Protected Option (s)	59.1		31.3									
Permitted Option (s)	81.0		118.9									
Split Option (s)	87.0		34.9									
Minimum (s)	59.1		31.3		90.4							
Right Turns												
Adj Reference Time (s)	27.6		23.4									
Cross Thru Ref Time (s)	15.3		51.1									
Oncoming Left Ref Time (s)	9.1		8.2									
Combined (s)	52.0		82.7									
Intersection Summary												
Intersection Capacity Utilization	75.3%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												
























Intersection Capacity Utilization
6: 30th St W & Ave K

AM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Volume (vph)	231	1064	170	55	636	294	296	659	139	158	346	197
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.7			26.1			32.1			30.1	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	231	1234	0	55	930	0	296	659	139	158	346	197
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	4268	0	4612	4152	0	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.0	34.8	0.0	1.4	27.1	0.0	7.7	26.0	12.9	4.1	13.6	18.0
Adj Reference Time (s)	10.0	38.8	0.0	8.0	31.1	0.0	11.7	30.9	19.9	8.1	20.2	23.9
Permitted Option												
Adj Saturation A (vph)	154	1423		154	1384		154	1523		154	1523	
Reference Time A (s)	90.2	34.8		21.5	27.1		115.5	26.0		61.7	13.6	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		90.2			27.1			115.5			61.7	
Adj Reference Time (s)		94.2			31.1			119.5			65.7	
Split Option												
Ref Time Combined (s)	6.0	34.8		1.4	27.1		7.7	26.0		4.1	13.6	
Ref Time Seperate (s)	6.0	30.0		1.4	18.6		7.7	26.0		4.1	13.6	
Reference Time (s)	34.8	34.8		27.1	27.1		26.0	26.0		13.6	13.6	
Adj Reference Time (s)	38.8	38.8		31.1	31.1		30.9	30.9		20.2	20.2	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	46.8		39.0									
Permitted Option (s)	94.2		119.5									
Split Option (s)	69.9		51.1									
Minimum (s)	46.8		39.0		85.8							
Right Turns												
	NBR		SBR									
Adj Reference Time (s)	19.9		23.9									
Cross Thru Ref Time (s)	38.8		31.1									
Oncoming Left Ref Time (s)	11.7		11.7									
Combined (s)	66.7		66.7									
Intersection Summary												
Intersection Capacity Utilization	71.5%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
7: 25th St W & Ave K

AM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	106	1282	20	17	936	65	18	157	78	138	136	47
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		24.4			26.7			25.3			27.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	106	1302	0	17	936	65	18	157	78	138	136	47
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3039	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	8.4	51.4	0.0	1.3	36.9	6.4	1.4	11.8	7.5	10.9	10.2	4.8
Adj Reference Time (s)	12.4	55.4	0.0	8.0	40.9	30.7	8.0	17.9	14.3	14.9	16.9	12.3
Permitted Option												
Adj Saturation A (vph)	101	1520		101	1523		101	1600		101	1600	
Reference Time A (s)	125.5	51.4		20.1	36.9		21.3	11.8		163.4	10.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		125.5			36.9			21.3			163.4	
Adj Reference Time (s)		129.5			40.9			25.9			167.4	
Split Option												
Ref Time Combined (s)	8.4	51.4		1.3	36.9		1.4	11.8		10.9	10.2	
Ref Time Seperate (s)	8.4	50.6		1.3	36.9		1.4	11.8		10.9	10.2	
Reference Time (s)	51.4	51.4		36.9	36.9		11.8	11.8		10.9	10.9	
Adj Reference Time (s)	55.4	55.4		40.9	40.9		17.9	17.9		17.5	17.5	
Summary												
Protected Option (s)	63.4		32.7									
Permitted Option (s)	129.5		167.4									
Split Option (s)	96.3		35.3									
Minimum (s)	63.4		32.7		96.2							
Right Turns												
Adj Reference Time (s)	30.7	14.3	12.3									
Cross Thru Ref Time (s)	17.9	55.4	40.9									
Oncoming Left Ref Time (s)	17.9	14.9	8.0									
Combined (s)	60.9	84.6	61.2									
Intersection Summary												
Intersection Capacity Utilization	80.1%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
8: 20th St W & Ave K

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘↗	↑↗		↘↗	↑↑↑		
Volume (vph)	202	1148	109	67	855	68	63	269	85	106	204	91	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		30.4			31.0			29.9			33.3		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	202	1148	109	67	923	0	63	354	0	106	295	0	
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.96	0.85	0.95	0.95	0.85	
Saturated Flow (vph)	1520	4358	1360	1520	4310	0	4612	2937	0	4612	4157	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	15.9	31.6	10.3	5.3	25.7	0.0	1.6	14.6	0.0	2.8	8.7	0.0	
Adj Reference Time (s)	19.9	35.6	34.4	9.3	35.0	0.0	8.0	21.0	0.0	8.0	16.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1453		101	1437		154	1468		154	1386		
Reference Time A (s)	239.2	31.6		79.3	25.7		24.6	14.6		41.4	8.7		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		239.2			79.3			24.6			41.4		
Adj Reference Time (s)		243.2			83.3			29.4			45.4		
Split Option													
Ref Time Combined (s)	15.9	31.6		5.3	25.7		1.6	14.6		2.8	8.7		
Ref Time Seperate (s)	15.9	31.6		5.3	23.9		1.6	11.1		2.8	6.1		
Reference Time (s)	31.6	31.6		25.7	25.7		14.6	14.6		8.7	8.7		
Adj Reference Time (s)	35.6	35.6		35.0	35.0		21.0	21.0		16.5	16.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	54.9		29.0										
Permitted Option (s)	243.2		45.4										
Split Option (s)	70.6		37.5										
Minimum (s)	54.9		29.0		83.9								
Right Turns													
	EBR												
Adj Reference Time (s)	34.4												
Cross Thru Ref Time (s)	16.5												
Oncoming Left Ref Time (s)	9.3												
Combined (s)	60.2												
Intersection Summary													
Intersection Capacity Utilization	69.9%		ICU Level of Service						C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
9: 17th St W & Ave K

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷↷↷		↶	↷↷↷		↶	↷	↷	↶	↷	↷
Volume (vph)	49	1253	41	82	1008	85	24	47	132	151	33	26
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	49	1294	0	82	1093	0	24	47	132	151	33	26
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4338	0	1520	4308	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.9	35.8	0.0	6.5	30.4	0.0	1.9	3.5	11.6	11.9	2.5	2.3
Adj Reference Time (s)	8.0	39.8	0.0	10.5	34.4	0.0	8.0	8.0	15.6	15.9	8.0	8.0
Permitted Option												
Adj Saturation A (vph)	101	1446		101	1436		101	1600		101	1600	
Reference Time A (s)	58.0	35.8		97.1	30.4		28.4	3.5		178.8	2.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.9	3.5		19.9	2.5	
Reference Time (s)		58.0			97.1			9.9			19.9	
Adj Reference Time (s)		62.0			101.1			13.9			23.9	
Split Option												
Ref Time Combined (s)	3.9	35.8		6.5	30.4		1.9	3.5		11.9	2.5	
Ref Time Seperate (s)	3.9	34.7		6.5	28.1		1.9	3.5		11.9	2.5	
Reference Time (s)	35.8	35.8		30.4	30.4		3.5	3.5		11.9	11.9	
Adj Reference Time (s)	39.8	39.8		34.4	34.4		8.0	8.0		15.9	15.9	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	50.3		23.9									
Permitted Option (s)	101.1		23.9									
Split Option (s)	74.2		23.9									
Minimum (s)	50.3		23.9		74.2							
Right Turns	NBR	SBR										
Adj Reference Time (s)	15.6	8.0										
Cross Thru Ref Time (s)	39.8	34.4										
Oncoming Left Ref Time (s)	35.9	8.0										
Combined (s)	71.4	50.4										

Intersection Summary

Intersection Capacity Utilization 61.8% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1121	1046	343	180	140
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1121	1389	0	320	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.91	0.85
Saturated Flow (vph)	0	4358	4197	0	4409	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	30.9	39.9	0.0		0.0
Adj Reference Time (s)	0.0	34.9	43.9	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1399		147	
Reference Time A (s)	0.0	30.9	39.9		130.9	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		30.9	39.9			
Adj Reference Time (s)		34.9	43.9			
Split Option						
Ref Time Combined (s)	0.0	30.9	39.9		9.0	
Ref Time Seperate (s)	0.0	30.9	30.1		5.2	
Reference Time (s)	30.9	30.9	39.9		9.0	
Adj Reference Time (s)	34.9	34.9	43.9		15.4	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	43.9		NA			
Permitted Option (s)	43.9		Err			
Split Option (s)	78.7		15.4			
Minimum (s)	43.9		15.4	59.2		

Right Turns

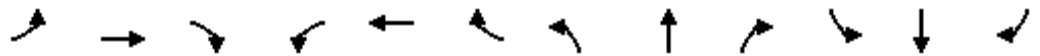
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary

Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↗↘↔			↗↘↔	↗	↘	↕	↗	↘	↗↘	↗
Volume (vph)	218	865	214	0	864	168	360	468	309	195	1	183
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	218	1079	0	0	864	168	360	468	309	0	196	183
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4229	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.7	30.7	0.0	0.0	23.8	15.5			27.9			16.8
Adj Reference Time (s)	9.7	34.7	0.0	0.0	29.0	33.3			31.9			20.8
Permitted Option												
Adj Saturation A (vph)	154	1410		0	1453		101	1600		0	203	
Reference Time A (s)	85.1	30.7		0.0	23.8		426.3	35.1		0.0	115.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		36.4	35.1		NA	NA	
Reference Time (s)		85.1			23.8			36.4			115.6	
Adj Reference Time (s)		89.1			29.0			40.4			119.6	
Split Option												
Ref Time Combined (s)	5.7	30.7		0.0	23.8		28.4	35.1		0.0	7.7	
Ref Time Seperate (s)	5.7	24.7		0.0	23.8		28.4	35.1		7.7	0.1	
Reference Time (s)	30.7	30.7		23.8	23.8		35.1	35.1		7.7	7.7	
Adj Reference Time (s)	34.7	34.7		29.0	29.0		39.1	39.1		33.3	33.3	
Summary												
Protected Option (s)	38.7		NA									
Permitted Option (s)	89.1		119.6									
Split Option (s)	63.7		72.4									
Minimum (s)	38.7		72.4		111.1							
Right Turns												
Adj Reference Time (s)	33.3	31.9	20.8									
Cross Thru Ref Time (s)	39.1	34.7	29.0									
Oncoming Left Ref Time (s)	39.7	33.3	39.1									
Combined (s)	82.1	100.0	88.9									

Intersection Summary

Intersection Capacity Utilization 92.6% ICU Level of Service F
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection

Int Delay, s/veh 7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	7	0	7	0	0	2	3	0	0
Future Vol, veh/h	0	0	0	7	0	7	0	0	2	3	0	0
Conflicting Peds, #/hr	5	0	5	0	0	0	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	-	0	-	-
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	8	0	8	0	0	2	3	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	13	14	10	13	13	6	5	0	0	2	0	0
Stage 1	12	12	-	1	1	-	-	-	-	-	-	-
Stage 2	1	2	-	12	12	-	-	-	-	-	-	-
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	1004	880	1071	1004	881	1077	1616	-	-	1620	-	-
Stage 1	1009	886	-	1022	895	-	-	-	-	-	-	-
Stage 2	1022	894	-	1009	886	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	987	875	1062	998	876	1073	1609	-	-	1613	-	-
Mov Cap-2 Maneuver	987	875	-	998	876	-	-	-	-	-	-	-
Stage 1	1005	881	-	1022	895	-	-	-	-	-	-	-
Stage 2	1011	894	-	1003	881	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.5	0	7.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1609	-	-	-	-	998	1073	1613	-	-
HCM Lane V/C Ratio	-	-	-	-	-0.008	0.007	0.002	-	-	-
HCM Control Delay (s)	0	-	-	0	0	8.6	8.4	7.2	-	-
HCM Lane LOS	A	-	-	A	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0	-	-

Intersection				
Intersection Delay, s/veh	3.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	11	5	8
Demand Flow Rate, veh/h	0	11	5	8
Vehicles Circulating, veh/h	19	2	0	11
Vehicles Exiting, veh/h	0	3	19	2
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	5
Ped Cap Adj	0.999	0.999	0.999	0.999
Approach Delay, s/veh	0.0	3.3	3.2	3.3
Approach LOS	-	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	0	11	5	8
Cap Entry Lane, veh/h	1109	1128	1130	1118
Entry HV Adj Factor	1.000	1.000	0.992	0.980
Flow Entry, veh/h	0	11	5	8
Cap Entry, veh/h	1108	1127	1120	1095
V/C Ratio	0.000	0.010	0.004	0.007
Control Delay, s/veh	3.2	3.3	3.2	3.3
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection				
Intersection Delay, s/veh	4.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	3	51	0	163
Demand Flow Rate, veh/h	3	52	0	166
Vehicles Circulating, veh/h	155	3	158	0
Vehicles Exiting, veh/h	11	155	0	55
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	0
Ped Cap Adj	0.999	0.999	0.999	1.000
Approach Delay, s/veh	3.7	3.6	0.0	4.5
Approach LOS	A	A	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	3	52	0	166
Cap Entry Lane, veh/h	968	1127	965	1130
Entry HV Adj Factor	1.000	0.981	1.000	0.982
Flow Entry, veh/h	3	51	0	163
Cap Entry, veh/h	967	1104	964	1110
V/C Ratio	0.003	0.046	0.000	0.147
Control Delay, s/veh	3.7	3.6	3.7	4.5
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	1

Intersection Capacity Utilization
15: 60th St W & Ave K-8

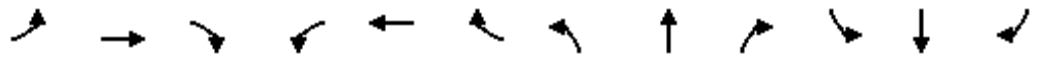
AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↔		↖	↕↔		↖	↕↕	↗
Volume (vph)	28	0	186	20	0	33	85	584	6	13	543	15
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	28	186	0	53	0	85	590	0	13	543	15
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.89	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1520	1360	0	1423	0	1520	3042	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.4	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			17.1			0.0	6.7	23.3	0.0	1.0	21.4	2.0
Adj Reference Time (s)			21.7			0.0	11.2	27.8	0.0	8.5	25.9	22.5
Permitted Option												
Adj Saturation A (vph)	0	675		0	207		101	1521		101	1523	
Reference Time A (s)	0.0	5.0		0.0	31.1		100.7	23.3		15.4	21.4	
Adj Saturation B (vph)	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	10.2	10.2		9.6	12.9		NA	NA		NA	NA	
Reference Time (s)		5.0			12.9			100.7			21.4	
Adj Reference Time (s)		11.5			18.2			105.2			25.9	
Split Option												
Ref Time Combined (s)	0.0	2.2		0.0	4.9		6.7	23.3		1.0	21.4	
Ref Time Seperate (s)	2.2	0.0		1.6	0.4		6.7	23.0		1.0	21.4	
Reference Time (s)	2.2	2.2		4.9	4.9		23.3	23.3		21.4	21.4	
Adj Reference Time (s)	10.6	10.6		11.4	11.4		27.8	27.8		25.9	25.9	
Summary												
Protected Option (s)	NA		37.1									
Permitted Option (s)	18.2		105.2									
Split Option (s)	22.0		53.7									
Minimum (s)	18.2		37.1		55.3							
Right Turns												
Adj Reference Time (s)	21.7		22.5									
Cross Thru Ref Time (s)	25.9		11.4									
Oncoming Left Ref Time (s)	11.4		11.2									
Combined (s)	59.0		45.1									
Intersection Summary												
Intersection Capacity Utilization	49.1%		ICU Level of Service		A							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
16: 70th St W & Ave L

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	145	45	97	79	43	20	186	213	31	83	3
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	8	145	45	97	122	0	20	399	0	31	86	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.92	0.85	0.95	0.99	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1515	0	1520	1472	0	1520	1592	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.6	10.9	4.6	7.7	9.9	0.0	1.6	32.9	0.0	2.4	6.5	0.0
Adj Reference Time (s)	8.5	16.5	11.2	12.2	15.6	0.0	8.5	37.4	0.0	8.5	22.5	0.0
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1515		101	1472		101	1592	
Reference Time A (s)	9.5	10.9		114.9	9.9		23.7	32.9		36.7	6.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1472		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		9.6	32.9		NA	NA	
Reference Time (s)		10.9			114.9			32.9			36.7	
Adj Reference Time (s)		16.5			119.4			37.4			41.2	
Split Option												
Ref Time Combined (s)	0.6	10.9		7.7	9.9		1.6	32.9		2.4	6.5	
Ref Time Seperate (s)	0.6	10.9		7.7	6.5		1.6	15.5		2.4	6.3	
Reference Time (s)	10.9	10.9		9.9	9.9		32.9	32.9		6.5	6.5	
Adj Reference Time (s)	16.5	16.5		15.6	15.6		37.4	37.4		22.5	22.5	
Summary												
Protected Option (s)	28.6		45.9									
Permitted Option (s)	119.4		41.2									
Split Option (s)	32.1		59.9									
Minimum (s)	28.6		41.2		69.8							
Right Turns												
Adj Reference Time (s)	11.2											
Cross Thru Ref Time (s)	22.5											
Oncoming Left Ref Time (s)	22.2											
Combined (s)	45.8											
Intersection Summary												
Intersection Capacity Utilization	58.2%		ICU Level of Service				B					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection												
Int Delay, s/veh	2.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	378	13	36	173	0	33	0	85	0	0	0
Future Vol, veh/h	0	378	13	36	173	0	33	0	85	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	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	411	14	39	188	0	36	0	92	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	193	0	0	430	0	0	694	694	428	694	701	198
Stage 1	-	-	-	-	-	-	423	423	-	271	271	-
Stage 2	-	-	-	-	-	-	271	271	-	423	430	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1380	-	-	1129	-	-	357	366	627	357	363	843
Stage 1	-	-	-	-	-	-	609	588	-	735	685	-
Stage 2	-	-	-	-	-	-	735	685	-	609	583	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1374	-	-	1124	-	-	343	349	622	292	346	836
Mov Cap-2 Maneuver	-	-	-	-	-	-	343	349	-	292	346	-
Stage 1	-	-	-	-	-	-	606	586	-	732	656	-
Stage 2	-	-	-	-	-	-	703	656	-	516	581	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.4	13.2	0
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	343	622	1374	-	-	1124	-	-	-
HCM Lane V/C Ratio	0.105	0.149	-	-	-0.035	-	-	-	-
HCM Control Delay (s)	16.7	11.8	0	-	-	8.3	0	-	0
HCM Lane LOS	C	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0.5	0	-	-	0.1	-	-	-

Intersection Capacity Utilization
18: QHHS Dwy/Walmart Dwy & Ave L

























AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	489	14	9	231	75	14	0	26	17	0	12
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	19	489	14	0	240	75	0	14	26	0	29	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.91	0.85
Saturated Flow (vph)	1520	3046	1360	0	1597	1360	0	1520	1360	0	1457	0
Ped Intf Time (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
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00		
Protected Option Allowed	No			No			No			No		
Reference Time (s)	1.2			6.6			2.3			0.0		
Adj Reference Time (s)	8.5			11.1			8.5			0.0		
Permitted Option												
Adj Saturation A (vph)	101	1523		0	1039		0	992		0	145	
Reference Time A (s)	22.5	19.3		0.0	27.7		0.0	1.7		0.0	23.9	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		9.1	9.1		9.3	10.4	
Reference Time (s)	22.5			27.7			1.7			10.4		
Adj Reference Time (s)	27.0			32.2			8.5			14.9		
Split Option												
Ref Time Combined (s)	1.5	19.3		0.0	18.0		0.0	1.1		0.0	2.4	
Ref Time Seperate (s)	1.5	19.3		0.7	17.3		1.1	0.0		1.3	0.0	
Reference Time (s)	19.3	19.3		18.0	18.0		1.1	1.1		2.4	2.4	
Adj Reference Time (s)	23.8	23.8		22.5	22.5		8.5	8.5		8.5	8.5	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	NA		NA									
Permitted Option (s)	32.2		14.9									
Split Option (s)	46.3		17.0									
Minimum (s)	32.2		14.9		47.1							
Right Turns												
	EBR		WBR		NBR							
Adj Reference Time (s)	8.5		11.1		8.5							
Cross Thru Ref Time (s)	8.5		8.5		23.8							
Oncoming Left Ref Time (s)	23.8		23.8		8.5							
Combined (s)	39.5		43.4		40.8							
Intersection Summary												
Intersection Capacity Utilization	39.3%		ICU Level of Service						A			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
19: 60th St W & Ave L

AM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	421	66	137	236	166	80	349	204	351	409	50
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	2500	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	5.7
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	137	421	66	137	236	166	80	349	204	351	409	50
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1600	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.8	16.6	6.5	10.8	9.3	15.3	6.3	26.2	18.6	9.1	16.1	5.1
Adj Reference Time (s)	14.8	31.6	31.6	14.8	13.3	19.3	10.3	32.2	27.9	13.1	20.1	10.8
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1600		154	1523	
Reference Time A (s)	162.2	16.6		162.2	9.3		94.7	26.2		137.0	16.1	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		162.2			162.2			94.7			137.0	
Adj Reference Time (s)		166.2			166.2			98.7			141.0	
Split Option												
Ref Time Combined (s)	10.8	16.6		10.8	9.3		6.3	26.2		9.1	16.1	
Ref Time Seperate (s)	10.8	16.6		10.8	9.3		6.3	26.2		9.1	16.1	
Reference Time (s)	16.6	16.6		10.8	10.8		26.2	26.2		16.1	16.1	
Adj Reference Time (s)	31.6	31.6		14.8	14.8		32.2	32.2		20.1	20.1	
Summary												
Protected Option (s)	46.4		45.4									
Permitted Option (s)	166.2		141.0									
Split Option (s)	46.4		52.3									
Minimum (s)	46.4		45.4		91.8							
Right Turns												
Adj Reference Time (s)	31.6	19.3	27.9	10.8								
Cross Thru Ref Time (s)	20.1	32.2	31.6	13.3								
Oncoming Left Ref Time (s)	14.8	14.8	13.1	10.3								
Combined (s)	66.5	66.3	72.6	34.4								
Intersection Summary												
Intersection Capacity Utilization	76.5%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	866	21	86	450	16	150
Future Vol, veh/h	866	21	86	450	16	150
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	941	23	93	489	17	163

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	946	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	725	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	722	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	30.9
HCM LOS			D

Minor Lane/Major Mvm	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	92	312	-	-	722	-
HCM Lane V/C Ratio	0.189	0.523	-	-	0.129	-
HCM Control Delay (s)	53	28.5	-	-	10.7	0
HCM Lane LOS	F	D	-	-	B	A
HCM 95th %tile Q(veh)	0.7	2.8	-	-	0.4	-

Intersection Capacity Utilization
21: 50th St W & Ave L

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	89	1022	46	85	459	32	42	270	138	62	162	61	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	89	1068	0	85	491	0	42	270	138	62	223	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.96	0.85	
Saturated Flow (vph)	1520	3027	0	1520	3017	0	1520	1600	1360	1520	1534	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	7.0	42.4	0.0	6.7	19.6	0.0	3.3	20.3	12.8	4.9	17.6	0.0	
Adj Reference Time (s)	11.0	46.4	0.0	10.7	23.9	0.0	8.0	24.3	17.6	8.9	21.7	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1513		101	1508		101	1600		101	1534		
Reference Time A (s)	105.4	42.4		100.7	19.6		49.7	20.3		73.4	17.6		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		105.4			100.7			49.7			73.4		
Adj Reference Time (s)		109.4			104.7			53.7			77.4		
Split Option													
Ref Time Combined (s)	7.0	42.4		6.7	19.6		3.3	20.3		4.9	17.6		
Ref Time Seperate (s)	7.0	40.5		6.7	18.3		3.3	20.3		4.9	12.8		
Reference Time (s)	42.4	42.4		19.6	19.6		20.3	20.3		17.6	17.6		
Adj Reference Time (s)	46.4	46.4		23.9	23.9		24.3	24.3		21.7	21.7		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	57.1		33.1										
Permitted Option (s)	109.4		77.4										
Split Option (s)	70.3		46.0										
Minimum (s)	57.1		33.1		90.2								
Right Turns													
	NBR												
Adj Reference Time (s)	17.6												
Cross Thru Ref Time (s)	46.4												
Oncoming Left Ref Time (s)	3.9												
Combined (s)	72.9												
Intersection Summary													
Intersection Capacity Utilization	75.2%		ICU Level of Service				D						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L
























AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘	↑	↗	↘	↗		
Volume (vph)	39	1201	10	55	541	60	17	53	84	106	36	21	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		25.6			16.0			20.4			22.1		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	39	1201	10	55	601	0	17	53	84	106	57	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.94	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	3001	0	1520	1600	1360	1520	1512	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.1	47.3	1.5	4.3	24.1	0.0	1.3	4.0	8.1	8.4	4.8	0.0	
Adj Reference Time (s)	8.0	51.3	29.6	8.3	28.1	0.0	8.0	10.5	14.0	12.4	11.4	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1500		101	1600		101	1512		
Reference Time A (s)	46.2	47.3		65.1	24.1		20.1	4.0		125.5	4.8		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1512		
Reference Time B (s)	NA	NA		NA	NA		9.3	4.0		16.4	4.8		
Reference Time (s)		47.3			65.1			9.3			16.4		
Adj Reference Time (s)		51.3			69.1			15.0			21.2		
Split Option													
Ref Time Combined (s)	3.1	47.3		4.3	24.1		1.3	4.0		8.4	4.8		
Ref Time Seperate (s)	3.1	47.3		4.3	21.7		1.3	4.0		8.4	3.1		
Reference Time (s)	47.3	47.3		24.1	24.1		4.0	4.0		8.4	8.4		
Adj Reference Time (s)	51.3	51.3		28.1	28.1		10.5	10.5		14.5	14.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	59.7		22.9										
Permitted Option (s)	69.1		21.2										
Split Option (s)	79.4		25.0										
Minimum (s)	59.7		21.2		80.9								
Right Turns													
	EBR		NBR										
Adj Reference Time (s)	29.6		14.0										
Cross Thru Ref Time (s)	11.4		51.3										
Oncoming Left Ref Time (s)	11.3		12.4										
Combined (s)	49.4		77.6										
Intersection Summary													
Intersection Capacity Utilization	67.4%		ICU Level of Service				C						
Reference Times and Phasing Options do not represent an optimized timing plan.													

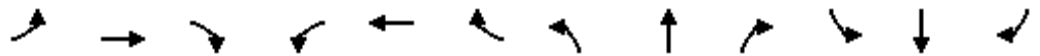
Intersection Capacity Utilization
23: 40th St W & Ave L

AM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	101	1180	9	24	551	89	24	127	78	182	38	64
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		31.0			33.3			35.6			31.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	101	1189	0	24	551	89	24	127	78	182	38	64
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3043	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	8.0	46.9	0.0	1.9	21.7	8.5	1.9	9.5	7.5	14.4	2.9	6.3
Adj Reference Time (s)	12.0	50.9	0.0	8.0	37.3	37.3	8.0	17.5	15.8	18.4	12.2	14.2
Permitted Option												
Adj Saturation A (vph)	101	1521		101	1523		101	1600		101	1600	
Reference Time A (s)	119.6	46.9		28.4	21.7		28.4	9.5		215.5	2.9	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		9.9	9.5		NA	NA	
Reference Time (s)		119.6			28.4			9.9			215.5	
Adj Reference Time (s)		123.6			37.3			17.8			219.5	
Split Option												
Ref Time Combined (s)	8.0	46.9		1.9	21.7		1.9	9.5		14.4	2.9	
Ref Time Seperate (s)	8.0	46.5		1.9	21.7		1.9	9.5		14.4	2.9	
Reference Time (s)	46.9	46.9		21.7	21.7		9.5	9.5		14.4	14.4	
Adj Reference Time (s)	50.9	50.9		37.3	37.3		17.5	17.5		21.0	21.0	
Summary												
Protected Option (s)	58.9		35.9									
Permitted Option (s)	123.6		219.5									
Split Option (s)	88.2		38.5									
Minimum (s)	58.9		35.9		94.8							
Right Turns												
Adj Reference Time (s)	37.3	15.8	14.2									
Cross Thru Ref Time (s)	17.5	50.9	37.3									
Oncoming Left Ref Time (s)	17.5	18.4	8.0									
Combined (s)	66.8	85.1	59.5									
Intersection Summary												
Intersection Capacity Utilization	79.0%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
24: 35th St W & Ave L































AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	1337	40	24	570	14	24	55	64	17	20	55
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			23.9			25.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	63	1377	0	24	584	0	24	119	0	17	20	55
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3033	0	1520	3035	0	1520	1471	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.0	54.5	0.0	1.9	23.1	0.0	1.9	10.1	0.0	1.3	1.5	5.5
Adj Reference Time (s)	9.0	58.5	0.0	8.0	27.9	0.0	8.0	16.4	0.0	8.0	8.0	9.5
Permitted Option												
Adj Saturation A (vph)	101	1517		101	1518		101	1471		101	1600	
Reference Time A (s)	74.6	54.5		28.4	23.1		28.4	10.1		20.1	1.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1471		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.9	10.1		9.3	1.5	
Reference Time (s)		74.6			28.4			10.1			9.3	
Adj Reference Time (s)		78.6			32.4			16.4			13.3	
Split Option												
Ref Time Combined (s)	5.0	54.5		1.9	23.1		1.9	10.1		1.3	1.5	
Ref Time Seperate (s)	5.0	52.9		1.9	22.5		1.9	4.8		1.3	1.5	
Reference Time (s)	54.5	54.5		23.1	23.1		10.1	10.1		1.5	1.5	
Adj Reference Time (s)	58.5	58.5		27.9	27.9		16.4	16.4		8.0	8.0	
Summary												
Protected Option (s)	66.5		24.4									
Permitted Option (s)	78.6		16.4									
Split Option (s)	86.4		24.4									
Minimum (s)	66.5		16.4		82.9							
Right Turns												
Adj Reference Time (s)	9.5											
Cross Thru Ref Time (s)	27.9											
Oncoming Left Ref Time (s)	3.0											
Combined (s)	45.4											
Intersection Summary												
Intersection Capacity Utilization	69.1%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
25: 30th St W & Ave L

AM 2021+Related Projects
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	130	1200	117	157	467	65	80	359	240	169	316	93
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	130	1200	117	157	467	65	80	359	240	169	316	93
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.3	33.0	11.0	12.4	12.9	6.4	6.3	14.1	21.8	13.3	12.4	8.8
Adj Reference Time (s)	14.3	39.0	39.0	16.4	37.0	37.0	10.3	21.5	28.0	17.3	19.8	16.7
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1523		101	1523	
Reference Time A (s)	153.9	33.0		185.9	12.9		94.7	14.1		200.1	12.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		153.9			185.9			94.7			200.1	
Adj Reference Time (s)		157.9			189.9			98.7			204.1	
Split Option												
Ref Time Combined (s)	10.3	33.0		12.4	12.9		6.3	14.1		13.3	12.4	
Ref Time Seperate (s)	10.3	33.0		12.4	12.9		6.3	14.1		13.3	12.4	
Reference Time (s)	33.0	33.0		12.9	12.9		14.1	14.1		13.3	13.3	
Adj Reference Time (s)	39.0	39.0		37.0	37.0		21.5	21.5		20.5	20.5	
Summary												
Protected Option (s)	55.4		38.8									
Permitted Option (s)	189.9		204.1									
Split Option (s)	76.0		42.0									
Minimum (s)	55.4		38.8		94.2							
Right Turns												
Adj Reference Time (s)	39.0	37.0	28.0	16.7								
Cross Thru Ref Time (s)	19.8	21.5	39.0	37.0								
Oncoming Left Ref Time (s)	16.4	14.3	17.3	10.3								
Combined (s)	75.2	72.7	84.3	64.0								
Intersection Summary												
Intersection Capacity Utilization	78.5%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷	↷	↶	↷	↷		↷		↶	↷	↷	
Volume (vph)	66	1568	4	3	649	21	6	1	2	70	2	58	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		25.3			22.4			16.0			30.7		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	66	1568	4	3	649	21	0	9	0	70	2	58	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1495	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			No			No		
Reference Time (s)	5.2	61.8	1.0	0.2	25.6	2.5			0.0			5.8	
Adj Reference Time (s)	9.2	65.8	31.0	8.0	29.6	26.4			0.0			13.6	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1523		0	134		1115	1600		
Reference Time A (s)	78.2	61.8		3.6	25.6		0.0	8.2		7.5	0.1		
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600		
Reference Time B (s)	NA	NA		NA	NA		8.5	8.9		13.5	0.1		
Reference Time (s)		78.2			25.6			8.2			7.5		
Adj Reference Time (s)		82.2			29.6			12.2			15.1		
Split Option													
Ref Time Combined (s)	5.2	61.8		0.2	25.6		0.0	0.9		5.5	0.1		
Ref Time Seperate (s)	5.2	61.8		0.2	25.6		0.5	0.2		5.5	0.1		
Reference Time (s)	61.8	61.8		25.6	25.6		0.9	0.9		5.5	5.5		
Adj Reference Time (s)	65.8	65.8		29.6	29.6		8.0	8.0		13.4	13.4		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	73.8		NA										
Permitted Option (s)	82.2		15.1										
Split Option (s)	95.3		21.4										
Minimum (s)	73.8		15.1		88.9								
Right Turns													
	EBR		WBR		SBR								
Adj Reference Time (s)	31.0		26.4		13.6								
Cross Thru Ref Time (s)	13.4		8.0		29.6								
Oncoming Left Ref Time (s)	9.0		9.2		8.0								
Combined (s)	52.4		43.6		51.2								
Intersection Summary													
Intersection Capacity Utilization	74.0%		ICU Level of Service						D				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
27: 20th St W & Ave L

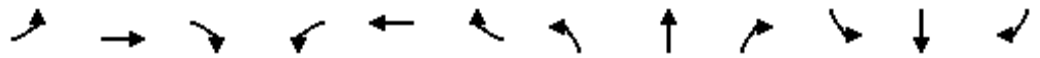
AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑	↗
Volume (vph)	133	1443	71	23	544	54	34	224	57	119	116	66
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	133	1443	71	23	544	54	34	281	0	119	116	66
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2954	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	10.5	56.8	6.9	1.8	15.0	5.4	2.7	11.5	0.0	9.4	8.7	6.5
Adj Reference Time (s)	14.5	60.8	34.1	8.0	40.7	40.7	8.0	18.3	0.0	13.4	16.4	14.5
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1477		101	1600	
Reference Time A (s)	157.5	56.8		27.2	15.0		40.3	11.5		140.9	8.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	2954		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		10.7	11.5		NA	NA	
Reference Time (s)		157.5			27.2			11.5			140.9	
Adj Reference Time (s)		161.5			40.7			18.3			144.9	
Split Option												
Ref Time Combined (s)	10.5	56.8		1.8	15.0		2.7	11.5		9.4	8.7	
Ref Time Seperate (s)	10.5	56.8		1.8	15.0		2.7	9.2		9.4	8.7	
Reference Time (s)	56.8	56.8		15.0	15.0		11.5	11.5		9.4	9.4	
Adj Reference Time (s)	60.8	60.8		40.7	40.7		18.3	18.3		17.0	17.0	
Summary												
Protected Option (s)	68.8		31.7									
Permitted Option (s)	161.5		144.9									
Split Option (s)	101.5		35.3									
Minimum (s)	68.8		31.7		100.5							
Right Turns												
Adj Reference Time (s)	34.1	40.7	14.5									
Cross Thru Ref Time (s)	16.4	18.3	40.7									
Oncoming Left Ref Time (s)	8.0	14.5	8.0									
Combined (s)	58.5	73.5	63.2									
Intersection Summary												
Intersection Capacity Utilization	83.8%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
28: 15th St W & Ave L

AM 2021+Related Projects
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗	↑↑↑		↗	↑↑↑	↗		↕		↗	↑	↗	
Volume (vph)	128	1597	3	4	628	275	1	1	10	126	1	29	
Pedestrians													
Ped Button													
Pedestrian Timing (s)													
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	128	1600	0	4	628	275	0	12	0	126	1	29	
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.87	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	4357	0	1520	4358	1360	0	1394	0	1520	1600	1360	
Ped Intf Time (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	
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00		
Protected Option Allowed		Yes			Yes			No			No		
Reference Time (s)	10.1	44.1	0.0	0.3	17.3	24.3			0.0			2.6	
Adj Reference Time (s)	14.1	48.1	0.0	8.0	21.3	28.3			0.0			8.0	
Permitted Option													
Adj Saturation A (vph)	101	1452		101	1453		0	628		228	1600		
Reference Time A (s)	151.6	44.1		4.7	17.3		0.0	2.3		66.3	0.1		
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600		
Reference Time B (s)	NA	NA		NA	NA		8.1	9.0		17.9	0.1		
Reference Time (s)		151.6			17.3			2.3			17.9		
Adj Reference Time (s)		155.6			21.3			8.0			21.9		
Split Option													
Ref Time Combined (s)	10.1	44.1		0.3	17.3		0.0	1.0		9.9	0.1		
Ref Time Seperate (s)	10.1	44.0		0.3	17.3		0.1	0.1		9.9	0.1		
Reference Time (s)	44.1	44.1		17.3	17.3		1.0	1.0		9.9	9.9		
Adj Reference Time (s)	48.1	48.1		21.3	21.3		8.0	8.0		13.9	13.9		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	56.1		NA										
Permitted Option (s)	155.6		21.9										
Split Option (s)	69.4		21.9										
Minimum (s)	56.1		21.9		78.0								
Right Turns													
	WBR		SBR										
Adj Reference Time (s)	28.3		8.0										
Cross Thru Ref Time (s)	8.0		21.3										
Oncoming Left Ref Time (s)	4.1		8.0										
Combined (s)	50.4		37.3										
Intersection Summary													
Intersection Capacity Utilization	65.0%		ICU Level of Service				C						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	988	828	0	320	84
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	988	828	0	404	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4517	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	27.2	22.8	0.0		0.0
Adj Reference Time (s)	0.0	31.2	26.8	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		151	
Reference Time A (s)	0.0	27.2	22.8		161.1	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		27.2	22.8			
Adj Reference Time (s)		31.2	26.8			
Split Option						
Ref Time Combined (s)	0.0	27.2	22.8		10.9	
Ref Time Seperate (s)	0.0	27.2	22.8		8.6	
Reference Time (s)	27.2	27.2	22.8		10.9	
Adj Reference Time (s)	31.2	31.2	26.8		16.3	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	31.2		NA			
Permitted Option (s)	31.2		Err			
Split Option (s)	58.0		16.3			
Minimum (s)	31.2		16.3	47.5		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	39.6%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	1207	0	0	974	0	452	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	1207	0	0	974	0	452	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	33.2	0.6	0.0	20.1	0.0	35.7	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	37.2	9.7	0.0	24.1	0.0	39.7	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	33.2		0.0	20.1		535.3	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		43.7	0.0		0.0	0.0	
Reference Time (s)		33.2			20.1			43.7			0.0	
Adj Reference Time (s)		37.2			24.1			47.7			9.8	
Split Option												
Ref Time Combined (s)	0.0	33.2		0.0	20.1		35.7	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	33.2		0.0	20.1		35.7	0.0		0.0	0.0	
Reference Time (s)	33.2	33.2		20.1	20.1		35.7	35.7		0.0	0.0	
Adj Reference Time (s)	37.2	37.2		24.1	24.1		39.7	39.7		9.8	9.8	
Summary												
Protected Option (s)	37.2		39.7									
Permitted Option (s)	37.2		47.7									
Split Option (s)	61.3		49.5									
Minimum (s)	37.2		39.7		76.9							
Right Turns												
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	64.1%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

AM 2021+Related Projects+Project

Intersection												
Intersection Delay, s/veh	12.9											
Intersection LOS	B											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	2	62	12	0	88	85	8	0	23	245	181
Future Vol, veh/h	0	2	62	12	0	88	85	8	0	23	245	181
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	67	13	0	96	92	9	0	25	266	197
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB			WB				NB				
Opposing Approach	WB			EB				SB				
Opposing Lanes	1			1				1				
Conflicting Approach Left	SB			NB				EB				
Conflicting Lanes Left	1			1				1				
Conflicting Approach Right	NB			SB				WB				
Conflicting Lanes Right	1			1				1				
HCM Control Delay	9.5			11				14.9				
HCM LOS	A			B				B				
Lane	NBLn1		EBLn1		WBLn1		SBLn1					
Vol Left, %	5%		3%		49%		4%					
Vol Thru, %	55%		82%		47%		96%					
Vol Right, %	40%		16%		4%		0%					
Sign Control	Stop		Stop		Stop		Stop					
Traffic Vol by Lane	449		76		181		81					
LT Vol	23		2		88		3					
Through Vol	245		62		85		78					
RT Vol	181		12		8		0					
Lane Flow Rate	488		83		197		88					
Geometry Grp	1		1		1		1					
Degree of Util (X)	0.619		0.129		0.305		0.132					
Departure Headway (Hd)	4.569		5.623		5.573		5.399					
Convergence, Y/N	Yes		Yes		Yes		Yes					
Cap	781		640		647		666					
Service Time	2.664		3.637		3.582		3.422					
HCM Lane V/C Ratio	0.625		0.13		0.304		0.132					
HCM Control Delay	14.9		9.5		11		9.2					
HCM Lane LOS	B		A		B		A					
HCM 95th-tile Q	4.4		0.4		1.3		0.5					

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	3	78	0
Future Vol, veh/h	0	3	78	0
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	3	85	0
Number of Lanes	0	0	1	0




























Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.2
HCM LOS	A

Lane

Intersection Capacity Utilization
2: 60th St W & Ave K

AM 2021+Related Projects+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 				 			 	
Volume (vph)	53	435	70	191	196	109	37	514	364	126	379	30
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		30.7			28.7			27.3			27.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	53	435	70	191	196	109	37	878	0	126	409	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	0.99	0.85
Saturated Flow (vph)	4612	3046	1360	4612	1600	1360	1520	2857	0	1520	3013	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	1.4	17.1	6.8	5.0	14.7	10.3	2.9	37.1	0.0	9.9	16.3	0.0
Adj Reference Time (s)	8.0	34.7	34.7	9.0	32.7	32.7	8.0	41.1	0.0	13.9	22.0	0.0
Permitted Option												
Adj Saturation A (vph)	154	1523		154	1600		101	1428		101	1506	
Reference Time A (s)	20.7	17.1		74.5	14.7		43.8	37.1		149.2	16.3	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		20.7			74.5			43.8			149.2	
Adj Reference Time (s)		34.7			78.5			47.8			153.2	
Split Option												
Ref Time Combined (s)	1.4	17.1		5.0	14.7		2.9	37.1		9.9	16.3	
Ref Time Seperate (s)	1.4	17.1		5.0	14.7		2.9	21.9		9.9	15.1	
Reference Time (s)	17.1	17.1		14.7	14.7		37.1	37.1		16.3	16.3	
Adj Reference Time (s)	34.7	34.7		32.7	32.7		41.1	41.1		22.0	22.0	
Summary												
Protected Option (s)	43.7		55.1									
Permitted Option (s)	78.5		153.2									
Split Option (s)	67.4		63.2									
Minimum (s)	43.7		55.1		98.8							
Right Turns												
Adj Reference Time (s)	34.7		32.7									
Cross Thru Ref Time (s)	22.0		41.1									
Oncoming Left Ref Time (s)	9.0		8.0									
Combined (s)	65.7		81.8									
Intersection Summary												
Intersection Capacity Utilization	82.3%		ICU Level of Service				E					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection												
Intersection Delay, s/veh	69.2											
Intersection LOS	F											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	137	1092	33	0	35	451	25	0	41	236	131
Future Vol, veh/h	0	137	1092	33	0	35	451	25	0	41	236	131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	149	1187	36	0	38	490	27	0	45	257	142
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB				WB				NB			
Opposing Approach	WB				EB				SB			
Opposing Lanes	1				1				1			
Conflicting Approach Left	SB				NB				EB			
Conflicting Lanes Left	1				1				1			
Conflicting Approach Right	NB				SB				WB			
Conflicting Lanes Right	1				1				1			
HCM Control Delay	73.6				73.5				72.8			
HCM LOS	F				F				F			
Lane	NBLn1		EBLn1		WBLn1		SBLn1					
Vol Left, %	10%		11%		7%		9%					
Vol Thru, %	58%		87%		88%		58%					
Vol Right, %	32%		3%		5%		33%					
Sign Control	Stop		Stop		Stop		Stop					
Traffic Vol by Lane	408		1262		511		207					
LT Vol	41		137		35		18					
Through Vol	236		1092		451		120					
RT Vol	131		33		25		69					
Lane Flow Rate	443		1372		555		225					
Geometry Grp	1		1		1		1					
Degree of Util (X)	1		1		1		0.586					
Departure Headway (Hd)	8.297		8.561		8.539		9.379					
Convergence, Y/N	Yes		Yes		Yes		Yes					
Cap	435		439		428		385					
Service Time	6.383		6.561		6.539		7.449					
HCM Lane V/C Ratio	1.018		3.125		1.297		0.584					
HCM Control Delay	72.8		73.6		73.5		25					
HCM Lane LOS	F		F		F		C					
HCM 95th-tile Q	12.7		12.6		12.6		3.6					

Intersection

Intersection Delay, s/veh
 Intersection LOS
























Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	18	120	69
Future Vol, veh/h	0	18	120	69
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	20	130	75
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	25
HCM LOS	C

Lane

Intersection Capacity Utilization
4: 45th St W & Ave K

AM 2021+Related Projects+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	1196	13	15	470	157	11	112	72	163	91	46
Pedestrians			5			5						5
Ped Button		No			No						Yes	
Pedestrian Timing (s)		17.8			21.8						25.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	71	1196	13	15	470	157	11	184	0	163	91	46
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	1600	1360	1520	1600	1360	1520	1506	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.6	89.7	1.8	1.2	35.3	14.5	0.9	14.7	0.0	12.9	6.8	4.7
Adj Reference Time (s)	9.6	93.7	21.8	8.0	39.3	25.8	8.0	18.7	0.0	16.9	13.7	11.9
Permitted Option												
Adj Saturation A (vph)	101	1600		101	1600		101	1506		101	1600	
Reference Time A (s)	84.1	89.7		17.8	35.3		13.0	14.7		193.0	6.8	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1506		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		8.9	14.7		NA	NA	
Reference Time (s)		89.7			35.3			14.7			193.0	
Adj Reference Time (s)		93.7			39.3			18.7			197.0	
Split Option												
Ref Time Combined (s)	5.6	89.7		1.2	35.3		0.9	14.7		12.9	6.8	
Ref Time Seperate (s)	5.6	89.7		1.2	35.3		0.9	8.9		12.9	6.8	
Reference Time (s)	89.7	89.7		35.3	35.3		14.7	14.7		12.9	12.9	
Adj Reference Time (s)	93.7	93.7		39.3	39.3		18.7	18.7		18.8	18.8	
Summary												
Protected Option (s)	101.7		35.5									
Permitted Option (s)	93.7		197.0									
Split Option (s)	132.9		37.5									
Minimum (s)	93.7		35.5		129.2							
Right Turns												
Adj Reference Time (s)	21.8	25.8	11.9									
Cross Thru Ref Time (s)	13.7	18.7	39.3									
Oncoming Left Ref Time (s)	9.6	9.6	8.0									
Combined (s)	43.5	54.1	59.2									
Intersection Summary												
Intersection Capacity Utilization	107.7%		ICU Level of Service		G							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
5: 40th St W & Ave K























AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷
Volume (vph)	85	1306	82	47	535	23	97	210	195	53	167	41
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		21.9			23.6			27.9			17.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	85	1388	0	47	535	23	97	210	195	53	208	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85
Saturated Flow (vph)	1520	3019	0	1520	1600	1360	1520	3046	1360	1520	1553	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.7	55.2	0.0	3.7	40.1	2.7	7.7	8.3	17.8	4.2	16.2	0.0
Adj Reference Time (s)	10.7	59.2	0.0	8.0	44.1	27.6	11.7	15.3	23.4	8.2	20.4	0.0
Permitted Option												
Adj Saturation A (vph)	101	1510		101	1600		101	1523		101	1553	
Reference Time A (s)	100.7	55.2		55.7	40.1		114.9	8.3		62.8	16.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		100.7			55.7			114.9			62.8	
Adj Reference Time (s)		104.7			59.7			118.9			66.8	
Split Option												
Ref Time Combined (s)	6.7	55.2		3.7	40.1		7.7	8.3		4.2	16.2	
Ref Time Seperate (s)	6.7	51.9		3.7	40.1		7.7	8.3		4.2	13.0	
Reference Time (s)	55.2	55.2		40.1	40.1		8.3	8.3		16.2	16.2	
Adj Reference Time (s)	59.2	59.2		44.1	44.1		15.3	15.3		20.4	20.4	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	67.2		32.1									
Permitted Option (s)	104.7		118.9									
Split Option (s)	103.3		35.7									
Minimum (s)	67.2		32.1		99.3							
Right Turns												
	WBR		NBR									
Adj Reference Time (s)	27.6		23.4									
Cross Thru Ref Time (s)	15.3		59.2									
Oncoming Left Ref Time (s)	10.7		8.2									
Combined (s)	53.6		90.8									
Intersection Summary												
Intersection Capacity Utilization	82.7%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

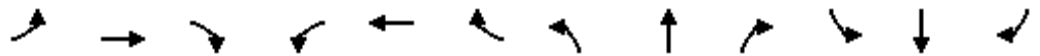
Intersection Capacity Utilization
6: 30th St W & Ave K

AM 2021+Related Projects+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	1211	170	55	714	294	296	687	139	158	346	213
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.7			26.1			32.1			30.1	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	261	1381	0	55	1008	0	296	687	139	158	346	213
Lane Utilization Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.96	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	4278	0	4612	4168	0	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	6.8	38.8	0.0	1.4	29.2	0.0	7.7	27.1	12.9	4.1	13.6	19.4
Adj Reference Time (s)	10.8	42.8	0.0	8.0	33.2	0.0	11.7	31.8	19.9	8.1	20.2	25.1
Permitted Option												
Adj Saturation A (vph)	154	1426		154	1389		154	1523		154	1523	
Reference Time A (s)	101.9	38.8		21.5	29.2		115.5	27.1		61.7	13.6	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		101.9			29.2			115.5			61.7	
Adj Reference Time (s)		105.9			33.2			119.5			65.7	
Split Option												
Ref Time Combined (s)	6.8	38.8		1.4	29.2		7.7	27.1		4.1	13.6	
Ref Time Seperate (s)	6.8	34.0		1.4	20.7		7.7	27.1		4.1	13.6	
Reference Time (s)	38.8	38.8		29.2	29.2		27.1	27.1		13.6	13.6	
Adj Reference Time (s)	42.8	42.8		33.2	33.2		31.8	31.8		20.2	20.2	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	50.8		39.9									
Permitted Option (s)	105.9		119.5									
Split Option (s)	76.0		52.0									
Minimum (s)	50.8		39.9		90.8							
Right Turns												
	NBR		SBR									
Adj Reference Time (s)	19.9		25.1									
Cross Thru Ref Time (s)	42.8		33.2									
Oncoming Left Ref Time (s)	11.7		11.7									
Combined (s)	70.8		70.0									
Intersection Summary												
Intersection Capacity Utilization	75.6%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
7: 25th St W & Ave K

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	1409	20	17	1004	65	18	157	78	138	136	57
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		24.4			26.7			25.3			27.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	126	1429	0	17	1004	65	18	157	78	138	136	57
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3040	0	1520	3046	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	9.9	56.4	0.0	1.3	39.5	6.4	1.4	11.8	7.5	10.9	10.2	5.7
Adj Reference Time (s)	13.9	60.4	0.0	8.0	43.5	30.7	8.0	17.9	14.3	14.9	16.9	13.0
Permitted Option												
Adj Saturation A (vph)	101	1520		101	1523		101	1600		101	1600	
Reference Time A (s)	149.2	56.4		20.1	39.5		21.3	11.8		163.4	10.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		149.2			39.5			21.3			163.4	
Adj Reference Time (s)		153.2			43.5			25.9			167.4	
Split Option												
Ref Time Combined (s)	9.9	56.4		1.3	39.5		1.4	11.8		10.9	10.2	
Ref Time Seperate (s)	9.9	55.6		1.3	39.5		1.4	11.8		10.9	10.2	
Reference Time (s)	56.4	56.4		39.5	39.5		11.8	11.8		10.9	10.9	
Adj Reference Time (s)	60.4	60.4		43.5	43.5		17.9	17.9		17.5	17.5	
Summary												
Protected Option (s)	68.4		32.7									
Permitted Option (s)	153.2		167.4									
Split Option (s)	104.0		35.3									
Minimum (s)	68.4		32.7		101.2							
Right Turns												
Adj Reference Time (s)	30.7	14.3	13.0									
Cross Thru Ref Time (s)	17.9	60.4	43.5									
Oncoming Left Ref Time (s)	17.9	14.9	8.0									
Combined (s)	62.5	89.6	64.6									
Intersection Summary												
Intersection Capacity Utilization	84.3%		ICU Level of Service				E					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
8: 20th St W & Ave K

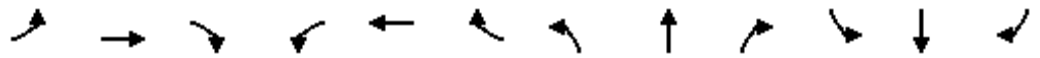
AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷↷↷	↷	↶	↷↷↷		↶↷	↷		↶↷	↷↷↷	
Volume (vph)	222	1235	129	67	903	68	73	269	85	106	204	101
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		30.4			31.0			29.9			33.3	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	222	1235	129	67	971	0	73	354	0	106	305	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.96	0.85	0.95	0.95	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4313	0	4612	2937	0	4612	4142	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	0.0	0.2	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	17.5	34.0	12.0	5.3	27.1	0.0	1.9	14.6	0.0	2.8	9.0	0.0
Adj Reference Time (s)	21.5	38.0	34.4	9.3	35.0	0.0	8.0	21.0	0.0	8.0	16.8	0.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1438		154	1468		154	1381	
Reference Time A (s)	262.9	34.0		79.3	27.1		28.5	14.6		41.4	9.0	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		262.9			79.3			28.5			41.4	
Adj Reference Time (s)		266.9			83.3			32.7			45.4	
Split Option												
Ref Time Combined (s)	17.5	34.0		5.3	27.1		1.9	14.6		2.8	9.0	
Ref Time Seperate (s)	17.5	34.0		5.3	25.2		1.9	11.1		2.8	6.1	
Reference Time (s)	34.0	34.0		27.1	27.1		14.6	14.6		9.0	9.0	
Adj Reference Time (s)	38.0	38.0		35.0	35.0		21.0	21.0		16.8	16.8	
Summary												
Protected Option (s)	56.5		29.0									
Permitted Option (s)	266.9		45.4									
Split Option (s)	73.0		37.7									
Minimum (s)	56.5		29.0		85.5							
Right Turns												
Adj Reference Time (s)	34.4											
Cross Thru Ref Time (s)	16.8											
Oncoming Left Ref Time (s)	9.3											
Combined (s)	60.5											
Intersection Summary												
Intersection Capacity Utilization	71.2%		ICU Level of Service				C					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
9: 17th St W & Ave K

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑	↗	↗	↑	↗
Volume (vph)	49	1340	41	82	1056	85	24	47	132	151	33	26
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	49	1381	0	82	1141	0	24	47	132	151	33	26
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4339	0	1520	4310	0	1520	1600	1360	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)	0.00		0.00			0.00			0.00			
Protected Option Allowed	Yes		Yes			Yes			Yes			
Reference Time (s)	3.9	38.2	0.0	6.5	31.8	0.0	1.9	3.5	11.6	11.9	2.5	2.3
Adj Reference Time (s)	8.0	42.2	0.0	10.5	35.8	0.0	8.0	8.0	15.6	15.9	8.0	8.0
Permitted Option												
Adj Saturation A (vph)	101	1446		101	1437		101	1600		101	1600	
Reference Time A (s)	58.0	38.2		97.1	31.8		28.4	3.5		178.8	2.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.9	3.5		19.9	2.5	
Reference Time (s)		58.0			97.1			9.9			19.9	
Adj Reference Time (s)		62.0			101.1			13.9			23.9	
Split Option												
Ref Time Combined (s)	3.9	38.2		6.5	31.8		1.9	3.5		11.9	2.5	
Ref Time Seperate (s)	3.9	37.1		6.5	29.4		1.9	3.5		11.9	2.5	
Reference Time (s)	38.2	38.2		31.8	31.8		3.5	3.5		11.9	11.9	
Adj Reference Time (s)	42.2	42.2		35.8	35.8		8.0	8.0		15.9	15.9	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	52.7		23.9									
Permitted Option (s)	101.1		23.9									
Split Option (s)	78.0		23.9									
Minimum (s)	52.7		23.9		76.6							
Right Turns	NBR		SBR									
Adj Reference Time (s)	15.6		8.0									
Cross Thru Ref Time (s)	42.2		35.8									
Oncoming Left Ref Time (s)	15.9		8.0									
Combined (s)	73.8		51.8									

Intersection Summary

Intersection Capacity Utilization 63.8% ICU Level of Service B
Reference Times and Phasing Options do not represent an optimized timing plan.

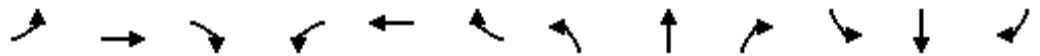
Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1208	1057	343	180	177
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1208	1400	0	357	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.90	0.85
Saturated Flow (vph)	0	4358	4198	0	4381	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	33.3	40.2	0.0		0.0
Adj Reference Time (s)	0.0	37.3	44.2	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1399		146	
Reference Time A (s)	0.0	33.3	40.2		147.0	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		33.3	40.2			
Adj Reference Time (s)		37.3	44.2			
Split Option						
Ref Time Combined (s)	0.0	33.3	40.2		10.1	
Ref Time Seperate (s)	0.0	33.3	30.4		5.2	
Reference Time (s)	33.3	33.3	40.2		10.1	
Adj Reference Time (s)	37.3	37.3	44.2		16.3	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	44.2		NA			
Permitted Option (s)	44.2		Err			
Split Option (s)	81.4		16.3			
Minimum (s)	44.2		16.3	60.5		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	50.4%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↗↘↘			↗↗↗	↗	↘	↗	↗	↘	↗	↗
Volume (vph)	218	884	282	0	875	168	360	468	309	195	1	183
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	218	1166	0	0	875	168	360	468	309	0	196	183
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.96	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4200	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.7	33.5	0.0	0.0	24.1	15.5			27.9			16.8
Adj Reference Time (s)	9.7	37.5	0.0	0.0	29.0	33.3			31.9			20.8
Permitted Option												
Adj Saturation A (vph)	154	1400		0	1453		101	1600		0	203	
Reference Time A (s)	85.1	33.5		0.0	24.1		426.3	35.1		0.0	115.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		36.4	35.1		NA	NA	
Reference Time (s)		85.1			24.1			36.4			115.6	
Adj Reference Time (s)		89.1			29.0			40.4			119.6	
Split Option												
Ref Time Combined (s)	5.7	33.5		0.0	24.1		28.4	35.1		0.0	7.7	
Ref Time Seperate (s)	5.7	25.4		0.0	24.1		28.4	35.1		7.7	0.1	
Reference Time (s)	33.5	33.5		24.1	24.1		35.1	35.1		7.7	7.7	
Adj Reference Time (s)	37.5	37.5		29.0	29.0		39.1	39.1		33.3	33.3	
Summary												
Protected Option (s)	38.7		NA									
Permitted Option (s)	89.1		119.6									
Split Option (s)	66.5		72.4									
Minimum (s)	38.7		72.4		111.1							
Right Turns												
Adj Reference Time (s)	33.3	31.9	20.8									
Cross Thru Ref Time (s)	39.1	37.5	29.0									
Oncoming Left Ref Time (s)	39.7	33.3	39.1									
Combined (s)	82.1	102.7	88.9									
Intersection Summary												
Intersection Capacity Utilization	92.6%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	62	0	46	7	0	7	15	115	2	3	56	20
Future Vol, veh/h	62	0	46	7	0	7	15	115	2	3	56	20
Conflicting Peds, #/hr	5	0	5	0	0	0	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	-	0	-	-
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	67	0	50	8	0	8	16	125	2	3	61	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	242	243	82	242	253	131	88	0	0	127	0	0
Stage 1	83	83	-	159	159	-	-	-	-	-	-	-
Stage 2	159	160	-	83	94	-	-	-	-	-	-	-
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	712	659	978	712	650	919	1508	-	-	1459	-	-
Stage 1	925	826	-	843	766	-	-	-	-	-	-	-
Stage 2	843	766	-	925	817	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	693	648	970	666	639	915	1502	-	-	1453	-	-
Mov Cap-2 Maneuver	693	648	-	666	639	-	-	-	-	-	-	-
Stage 1	911	821	-	834	758	-	-	-	-	-	-	-
Stage 2	824	758	-	872	812	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	9.8	0.8	0.3
HCM LOS	B	A		

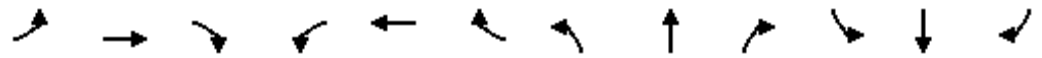
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	EBLn2	WBLn	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1502	-	-	693	970	666	915	1453	-	-
HCM Lane V/C Ratio	0.011	-	-	0.097	0.052	0.011	0.008	0.002	-	-
HCM Control Delay (s)	7.4	-	-	10.8	8.9	10.5	9	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	0	0	-	-

Intersection				
Intersection Delay, s/veh	4.4			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	101	49	90	118
Demand Flow Rate, veh/h	103	50	91	120
Vehicles Circulating, veh/h	126	133	68	37
Vehicles Exiting, veh/h	31	26	161	146
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	5
Ped Cap Adj	0.999	0.999	0.999	0.999
Approach Delay, s/veh	4.6	4.2	4.2	4.3
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	103	50	91	120
Cap Entry Lane, veh/h	996	989	1056	1089
Entry HV Adj Factor	0.981	0.980	0.986	0.986
Flow Entry, veh/h	101	49	90	118
Cap Entry, veh/h	976	969	1040	1073
V/C Ratio	0.103	0.051	0.086	0.110
Control Delay, s/veh	4.6	4.2	4.2	4.3
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection				
Intersection Delay, s/veh	5.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	78	159	151	163
Demand Flow Rate, veh/h	79	162	154	166
Vehicles Circulating, veh/h	229	32	217	139
Vehicles Exiting, veh/h	76	339	91	55
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	5	5	5	0
Ped Cap Adj	0.999	0.999	0.999	1.000
Approach Delay, s/veh	4.9	4.7	5.7	5.3
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	79	162	154	166
Cap Entry Lane, veh/h	899	1094	910	983
Entry HV Adj Factor	0.985	0.983	0.981	0.982
Flow Entry, veh/h	78	159	151	163
Cap Entry, veh/h	885	1075	891	966
V/C Ratio	0.088	0.148	0.169	0.169
Control Delay, s/veh	4.9	4.7	5.7	5.3
LOS	A	A	A	A
95th %tile Queue, veh	0	1	1	1

Intersection Capacity Utilization
15: 60th St W & Ave K-8

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕	↗		↔		↖	↕↔		↖	↕↕	↗	
Volume (vph)	205	0	337	20	0	33	175	612	6	13	559	120	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		Yes			Yes			No			No		
Pedestrian Timing (s)		18.0			18.0			18.0			18.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	0	205	337	0	53	0	175	618	0	13	559	120	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.89	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	0	1520	1360	0	1423	0	1520	3042	0	1520	3046	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.4	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00		
Protected Option Allowed		No			No			Yes			Yes		
Reference Time (s)			30.4			0.0	13.8	24.4	0.0	1.0	22.0	11.2	
Adj Reference Time (s)			34.9			0.0	18.3	28.9	0.0	8.5	26.5	22.5	
Permitted Option													
Adj Saturation A (vph)	0	675		0	207		101	1521		101	1523		
Reference Time A (s)	0.0	36.4		0.0	31.1		207.2	24.4		15.4	22.0		
Adj Saturation B (vph)	0	0		0	0		NA	NA		NA	NA		
Reference Time B (s)	24.2	24.2		9.6	12.9		NA	NA		NA	NA		
Reference Time (s)		24.2			12.9			207.2			22.0		
Adj Reference Time (s)		28.7			18.2			211.7			26.5		
Split Option													
Ref Time Combined (s)	0.0	16.2		0.0	4.9		13.8	24.4		1.0	22.0		
Ref Time Seperate (s)	16.2	0.0		1.6	0.4		13.8	24.1		1.0	22.0		
Reference Time (s)	16.2	16.2		4.9	4.9		24.4	24.4		22.0	22.0		
Adj Reference Time (s)	21.0	21.0		11.4	11.4		28.9	28.9		26.5	26.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	NA		44.8										
Permitted Option (s)	28.7		211.7										
Split Option (s)	32.3		55.4										
Minimum (s)	28.7		44.8		73.5								
Right Turns													
	EBR		SBR										
Adj Reference Time (s)	34.9		22.5										
Cross Thru Ref Time (s)	26.5		11.4										
Oncoming Left Ref Time (s)	11.4		18.3										
Combined (s)	72.8		52.2										
Intersection Summary													
Intersection Capacity Utilization	61.3%		ICU Level of Service				B						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
16: 70th St W & Ave L

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	8	145	45	132	79	73	20	211	234	105	145	3	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		Yes			Yes			No			No		
Pedestrian Timing (s)		18.0			18.0			18.0			18.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	8	145	45	132	152	0	20	445	0	105	148	0	
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.93	0.85	0.95	0.92	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	1600	1360	1520	1485	0	1520	1474	0	1520	1595	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	0.6	10.9	4.6	10.4	12.6	0.0	1.6	36.6	0.0	8.3	11.1	0.0	
Adj Reference Time (s)	8.5	16.5	11.2	14.9	17.9	0.0	8.5	41.1	0.0	12.8	22.5	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1600		101	1485		101	1474		101	1595		
Reference Time A (s)	9.5	10.9		156.3	12.6		23.7	36.6		124.3	11.1		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		10.9			156.3			36.6			124.3		
Adj Reference Time (s)		16.5			160.8			41.1			128.8		
Split Option													
Ref Time Combined (s)	0.6	10.9		10.4	12.6		1.6	36.6		8.3	11.1		
Ref Time Seperate (s)	0.6	10.9		10.4	6.7		1.6	17.5		8.3	10.9		
Reference Time (s)	10.9	10.9		12.6	12.6		36.6	36.6		11.1	11.1		
Adj Reference Time (s)	16.5	16.5		17.9	17.9		41.1	41.1		22.5	22.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	31.4		53.9										
Permitted Option (s)	160.8		128.8										
Split Option (s)	34.4		63.6										
Minimum (s)	31.4		53.9		85.3								
Right Turns													
	EBR												
Adj Reference Time (s)	11.2												
Cross Thru Ref Time (s)	22.5												
Oncoming Left Ref Time (s)	41.9												
Combined (s)	48.6												
Intersection Summary													
Intersection Capacity Utilization	71.0%		ICU Level of Service						C				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection

Int Delay, s/veh 8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	532	13	36	251	69	33	0	85	115	0	0
Future Vol, veh/h	0	532	13	36	251	69	33	0	85	115	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	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	578	14	39	273	75	36	0	92	125	0	0

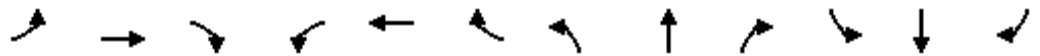
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	597	0	0	984	1021	595	984	991	320
Stage 1	-	-	-	-	-	-	590	590	-	394	394	-
Stage 2	-	-	-	-	-	-	394	431	-	590	597	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1206	-	-	980	-	-	228	236	504	228	246	721
Stage 1	-	-	-	-	-	-	494	495	-	631	605	-
Stage 2	-	-	-	-	-	-	631	583	-	494	491	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1201	-	-	976	-	-	217	222	500	177	232	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	217	222	-	177	232	-
Stage 1	-	-	-	-	-	-	492	493	-	628	572	-
Stage 2	-	-	-	-	-	-	597	552	-	401	489	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	16.9	63.3
HCM LOS			C	F

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	217	500	1201	-	-	976	-	-	177
HCM Lane V/C Ratio	0.165	0.185	-	-	-	0.04	-	-	0.706
HCM Control Delay (s)	24.8	13.8	0	-	-	8.8	0	-	63.3
HCM Lane LOS	C	B	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	0.6	0.7	0	-	-	0.1	-	-	4.3

Intersection Capacity Utilization
18: QHHS Dwy/Walmart Dwy & Ave L





























AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	858	14	9	438	75	14	0	26	17	0	12
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	19	858	14	0	447	75	0	14	26	0	29	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.91	0.85
Saturated Flow (vph)	1520	3046	1360	0	1598	1360	0	1520	1360	0	1457	0
Ped Intf Time (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
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00		
Protected Option Allowed	No			No			No			No		
Reference Time (s)	1.2			6.6			2.3			0.0		
Adj Reference Time (s)	8.5			11.1			8.5			0.0		
Permitted Option												
Adj Saturation A (vph)	101	1523		0	1244		0	992		0	145	
Reference Time A (s)	22.5	33.8		0.0	43.1		0.0	1.7		0.0	23.9	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		9.1	9.1		9.3	10.4	
Reference Time (s)	33.8			43.1			1.7			10.4		
Adj Reference Time (s)	38.3			47.6			8.5			14.9		
Split Option												
Ref Time Combined (s)	1.5	33.8		0.0	33.6		0.0	1.1		0.0	2.4	
Ref Time Seperate (s)	1.5	33.8		0.7	32.9		1.1	0.0		1.3	0.0	
Reference Time (s)	33.8	33.8		33.6	33.6		1.1	1.1		2.4	2.4	
Adj Reference Time (s)	38.3	38.3		38.1	38.1		8.5	8.5		8.5	8.5	
Summary												
Protected Option (s)	NA		NA									
Permitted Option (s)	47.6		14.9									
Split Option (s)	76.4		17.0									
Minimum (s)	47.6		14.9		62.5							
Right Turns												
Adj Reference Time (s)	8.5	11.1	8.5									
Cross Thru Ref Time (s)	8.5	8.5	38.3									
Oncoming Left Ref Time (s)	38.1	38.3	8.5									
Combined (s)	55.1	57.9	55.3									
Intersection Summary												
Intersection Capacity Utilization	52.1%		ICU Level of Service						A			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
19: 60th St W & Ave L

AM 2021+Related Projects+Project
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 					 	 	
Volume (vph)	165	734	94	137	411	230	96	375	204	458	453	66
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	2500	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	5.7
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	165	734	94	137	411	230	96	375	204	458	453	66
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1600	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	13.0	28.9	8.9	10.8	16.2	20.9	7.6	28.1	18.6	11.9	17.8	6.5
Adj Reference Time (s)	17.0	32.9	31.6	14.8	20.2	24.9	11.6	33.9	27.9	15.9	21.8	12.2
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1600		154	1523	
Reference Time A (s)	195.4	28.9		162.2	16.2		113.7	28.1		178.7	17.8	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		195.4			162.2			113.7			178.7	
Adj Reference Time (s)		199.4			166.2			117.7			182.7	
Split Option												
Ref Time Combined (s)	13.0	28.9		10.8	16.2		7.6	28.1		11.9	17.8	
Ref Time Seperate (s)	13.0	28.9		10.8	16.2		7.6	28.1		11.9	17.8	
Reference Time (s)	28.9	28.9		16.2	16.2		28.1	28.1		17.8	17.8	
Adj Reference Time (s)	32.9	32.9		20.2	20.2		33.9	33.9		21.8	21.8	
Summary												
Protected Option (s)	47.7		49.8									
Permitted Option (s)	199.4		182.7									
Split Option (s)	53.1		55.7									
Minimum (s)	47.7		49.8		97.5							
Right Turns												
Adj Reference Time (s)	31.6	24.9	27.9	12.2								
Cross Thru Ref Time (s)	21.8	33.9	32.9	20.2								
Oncoming Left Ref Time (s)	17.8	17.0	15.9	11.6								
Combined (s)	68.3	75.9	76.7	43.9								
Intersection Summary												
Intersection Capacity Utilization	81.3%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection

Int Delay, s/veh 10.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	1286	21	86	689	16	150
Future Vol, veh/h	1286	21	86	689	16	150
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	- None		- None		-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1398	23	93	749	17	163

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1403
Stage 1	-	-	1403
Stage 2	-	-	936
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	487
Stage 1	-	-	227
Stage 2	-	-	382
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	485
Mov Cap-2 Maneuver	-	-	27
Stage 1	-	-	226
Stage 2	-	-	256

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	129.9
HCM LOS			F

Minor Lane/Major Mvm	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	27	169	-	-	485	-
HCM Lane V/C Ratio	0.644	0.965	-	-	0.193	-
HCM Control Delay (s)	270.5	114.9	-	-	14.2	0
HCM Lane LOS	F	F	-	-	B	A
HCM 95th %tile Q(veh)	2	7.5	-	-	0.7	-

Intersection Capacity Utilization
21: 50th St W & Ave L

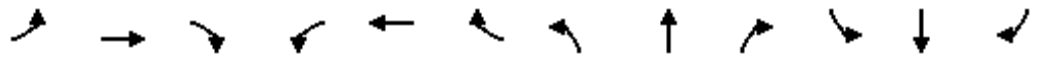
AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷		↶	↷	↷	↶	↷	↷	
Volume (vph)	108	1404	65	85	676	32	53	270	138	62	162	72	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		20.1			19.9			18.1			18.4		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	108	1469	0	85	708	0	53	270	138	62	234	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.95	0.85	
Saturated Flow (vph)	1520	3026	0	1520	3026	0	1520	1600	1360	1520	1526	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.2	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	8.5	58.3	0.0	6.7	28.1	0.0	4.2	20.3	12.8	4.9	18.6	0.0	
Adj Reference Time (s)	12.5	62.3	0.0	10.7	32.1	0.0	8.2	24.3	17.6	8.9	22.6	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1513		101	1513		101	1600		101	1526		
Reference Time A (s)	127.9	58.3		100.7	28.1		62.8	20.3		73.4	18.6		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		127.9			100.7			62.8			73.4		
Adj Reference Time (s)		131.9			104.7			66.8			77.4		
Split Option													
Ref Time Combined (s)	8.5	58.3		6.7	28.1		4.2	20.3		4.9	18.6		
Ref Time Seperate (s)	8.5	55.7		6.7	26.8		4.2	20.3		4.9	12.9		
Reference Time (s)	58.3	58.3		28.1	28.1		20.3	20.3		18.6	18.6		
Adj Reference Time (s)	62.3	62.3		32.1	32.1		24.3	24.3		22.6	22.6		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	73.0		33.1										
Permitted Option (s)	131.9		77.4										
Split Option (s)	94.4		46.8										
Minimum (s)	73.0		33.1		106.1								
Right Turns													
	NBR												
Adj Reference Time (s)	17.6												
Cross Thru Ref Time (s)	62.3												
Oncoming Left Ref Time (s)	38.9												
Combined (s)	88.8												
Intersection Summary													
Intersection Capacity Utilization	88.4%		ICU Level of Service						E				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
22: 45th St W & Ave L

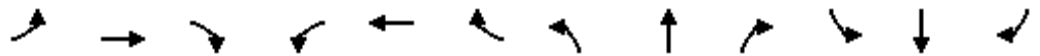
AM 2021+Related Projects+Project
6/14/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷	↷	↶	↷		↶	↷	↷	↶	↷	↷	
Volume (vph)	48	1574	10	55	753	60	17	53	84	106	36	26	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		25.6			16.0			20.4			22.1		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	48	1574	10	55	813	0	17	53	84	106	62	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.94	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	3013	0	1520	1600	1360	1520	1499	0	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	3.8	62.0	1.5	4.3	32.4	0.0	1.3	4.0	8.1	8.4	5.2	0.0	
Adj Reference Time (s)	8.0	66.0	29.6	8.3	36.4	0.0	8.0	10.5	14.0	12.4	11.8	0.0	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1506		101	1600		101	1499		
Reference Time A (s)	56.8	62.0		65.1	32.4		20.1	4.0		125.5	5.2		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1499		
Reference Time B (s)	NA	NA		NA	NA		9.3	4.0		16.4	5.2		
Reference Time (s)		62.0			65.1			9.3			16.4		
Adj Reference Time (s)		66.0			69.1			15.0			21.2		
Split Option													
Ref Time Combined (s)	3.8	62.0		4.3	32.4		1.3	4.0		8.4	5.2		
Ref Time Seperate (s)	3.8	62.0		4.3	30.0		1.3	4.0		8.4	3.2		
Reference Time (s)	62.0	62.0		32.4	32.4		4.0	4.0		8.4	8.4		
Adj Reference Time (s)	66.0	66.0		36.4	36.4		10.5	10.5		14.5	14.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	74.3		22.9										
Permitted Option (s)	69.1		21.2										
Split Option (s)	102.4		25.0										
Minimum (s)	69.1		21.2		90.4								
Right Turns													
	EBR		NBR										
Adj Reference Time (s)	29.6		14.0										
Cross Thru Ref Time (s)	11.8		66.0										
Oncoming Left Ref Time (s)	3.3		12.4										
Combined (s)	49.8		92.3										
Intersection Summary													
Intersection Capacity Utilization	76.9%		ICU Level of Service				D						
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
23: 40th St W & Ave L

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↶	↷		↶	↷	↷	↶	↷	↷	↶	↷	↷	
Volume (vph)	120	1534	9	24	752	89	24	127	78	182	38	75	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		31.0			33.3			35.6			31.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	120	1543	0	24	752	89	24	127	78	182	38	75	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3044	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	9.5	60.8	0.0	1.9	29.6	8.5	1.9	9.5	7.5	14.4	2.9	7.3	
Adj Reference Time (s)	13.5	64.8	0.0	8.0	37.3	37.3	8.0	17.5	15.8	18.4	12.2	15.0	
Permitted Option													
Adj Saturation A (vph)	101	1522		101	1523		101	1600		101	1600		
Reference Time A (s)	142.1	60.8		28.4	29.6		28.4	9.5		215.5	2.9		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		9.9	9.5		NA	NA		
Reference Time (s)		142.1			29.6			9.9			215.5		
Adj Reference Time (s)		146.1			37.3			17.8			219.5		
Split Option													
Ref Time Combined (s)	9.5	60.8		1.9	29.6		1.9	9.5		14.4	2.9		
Ref Time Seperate (s)	9.5	60.5		1.9	29.6		1.9	9.5		14.4	2.9		
Reference Time (s)	60.8	60.8		29.6	29.6		9.5	9.5		14.4	14.4		
Adj Reference Time (s)	64.8	64.8		37.3	37.3		17.5	17.5		21.0	21.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	72.8		35.9										
Permitted Option (s)	146.1		219.5										
Split Option (s)	102.1		38.5										
Minimum (s)	72.8		35.9		108.7								
Right Turns													
	WBR		NBR		SBR								
Adj Reference Time (s)	37.3		15.8		15.0								
Cross Thru Ref Time (s)	17.5		64.8		37.3								
Oncoming Left Ref Time (s)	37.5		18.4		8.0								
Combined (s)	68.3		99.0		60.3								
Intersection Summary													
Intersection Capacity Utilization	90.6%		ICU Level of Service						E				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
24: 35th St W & Ave L

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	↶
Volume (vph)	63	1691	40	24	771	14	24	55	64	17	20	55
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			23.9			25.6			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	63	1731	0	24	785	0	24	119	0	17	20	55
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3036	0	1520	3038	0	1520	1471	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.0	68.4	0.0	1.9	31.0	0.0	1.9	10.1	0.0	1.3	1.5	5.5
Adj Reference Time (s)	9.0	72.4	0.0	8.0	35.0	0.0	8.0	16.4	0.0	8.0	8.0	9.5
Permitted Option												
Adj Saturation A (vph)	101	1518		101	1519		101	1471		101	1600	
Reference Time A (s)	74.6	68.4		28.4	31.0		28.4	10.1		20.1	1.5	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1471		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.9	10.1		9.3	1.5	
Reference Time (s)		74.6			31.0			10.1			9.3	
Adj Reference Time (s)		78.6			35.0			16.4			13.3	
Split Option												
Ref Time Combined (s)	5.0	68.4		1.9	31.0		1.9	10.1		1.3	1.5	
Ref Time Seperate (s)	5.0	66.9		1.9	30.5		1.9	4.8		1.3	1.5	
Reference Time (s)	68.4	68.4		31.0	31.0		10.1	10.1		1.5	1.5	
Adj Reference Time (s)	72.4	72.4		35.0	35.0		16.4	16.4		8.0	8.0	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	80.4		24.4									
Permitted Option (s)	78.6		16.4									
Split Option (s)	107.5		24.4									
Minimum (s)	78.6		16.4		95.0							
Right Turns												
	SBR											
Adj Reference Time (s)	9.5											
Cross Thru Ref Time (s)	35.0											
Oncoming Left Ref Time (s)	3.0											
Combined (s)	52.5											
Intersection Summary												
Intersection Capacity Utilization	79.2%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
25: 30th St W & Ave L

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Volume (vph)	158	1498	145	157	636	65	96	359	240	169	316	109
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	158	1498	145	157	636	65	96	359	240	169	316	109
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	3046	1360	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	12.5	41.2	13.4	12.4	17.5	6.4	7.6	14.1	21.8	13.3	12.4	10.3
Adj Reference Time (s)	16.5	45.2	39.0	16.4	37.0	37.0	11.6	21.5	28.0	17.3	19.8	17.9
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1523		101	1523	
Reference Time A (s)	187.1	41.2		185.9	17.5		113.7	14.1		200.1	12.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		187.1			185.9			113.7			200.1	
Adj Reference Time (s)		191.1			189.9			117.7			204.1	
Split Option												
Ref Time Combined (s)	12.5	41.2		12.4	17.5		7.6	14.1		13.3	12.4	
Ref Time Seperate (s)	12.5	41.2		12.4	17.5		7.6	14.1		13.3	12.4	
Reference Time (s)	41.2	41.2		17.5	17.5		14.1	14.1		13.3	13.3	
Adj Reference Time (s)	45.2	45.2		37.0	37.0		21.5	21.5		20.5	20.5	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	61.6		38.8									
Permitted Option (s)	191.1		204.1									
Split Option (s)	82.2		42.0									
Minimum (s)	61.6		38.8		100.5							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	39.0		37.0		28.0		17.9					
Cross Thru Ref Time (s)	19.8		21.5		45.2		37.0					
Oncoming Left Ref Time (s)	16.4		16.5		17.3		11.6					
Combined (s)	75.2		75.0		90.6		66.5					
Intersection Summary												
Intersection Capacity Utilization	83.7%				ICU Level of Service				E			
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕		↘	↑	↗
Volume (vph)	85	1847	4	3	807	21	6	1	2	70	2	69
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.3			22.4			16.0			30.7	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	85	1847	4	3	807	21	0	9	0	70	2	69
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1495	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	6.7	72.8	1.0	0.2	31.8	2.5			0.0			6.7
Adj Reference Time (s)	10.7	76.8	31.0	8.0	35.8	26.4			0.0			14.4
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		0	134		1115	1600	
Reference Time A (s)	100.7	72.8		3.6	31.8		0.0	8.2		7.5	0.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.5	8.9		13.5	0.1	
Reference Time (s)		100.7			31.8			8.2			7.5	
Adj Reference Time (s)		104.7			35.8			12.2			15.1	
Split Option												
Ref Time Combined (s)	6.7	72.8		0.2	31.8		0.0	0.9		5.5	0.1	
Ref Time Seperate (s)	6.7	72.8		0.2	31.8		0.5	0.2		5.5	0.1	
Reference Time (s)	72.8	72.8		31.8	31.8		0.9	0.9		5.5	5.5	
Adj Reference Time (s)	76.8	76.8		35.8	35.8		8.0	8.0		13.4	13.4	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	84.8		NA									
Permitted Option (s)	104.7		15.1									
Split Option (s)	112.5		21.4									
Minimum (s)	84.8		15.1		99.8							
Right Turns												
	EBR		WBR		SBR							
Adj Reference Time (s)	31.0		26.4		14.4							
Cross Thru Ref Time (s)	13.4		8.0		35.8							
Oncoming Left Ref Time (s)	8.0		10.7		8.0							
Combined (s)	52.4		45.1		58.2							
Intersection Summary												
Intersection Capacity Utilization	83.2%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
27: 20th St W & Ave L

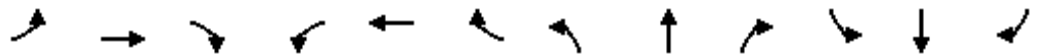
AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑	↗
Volume (vph)	152	1684	90	23	680	54	45	224	57	119	116	77
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	152	1684	90	23	680	54	45	281	0	119	116	77
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	2954	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	12.0	66.3	8.6	1.8	18.7	5.4	3.6	11.5	0.0	9.4	8.7	7.4
Adj Reference Time (s)	16.0	70.3	34.1	8.0	40.7	40.7	8.0	18.3	0.0	13.4	16.4	15.4
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1477		101	1600	
Reference Time A (s)	180.0	66.3		27.2	18.7		53.3	11.5		140.9	8.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	2954		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		11.6	11.5		NA	NA	
Reference Time (s)		180.0			27.2			11.6			140.9	
Adj Reference Time (s)		184.0			40.7			18.3			144.9	
Split Option												
Ref Time Combined (s)	12.0	66.3		1.8	18.7		3.6	11.5		9.4	8.7	
Ref Time Seperate (s)	12.0	66.3		1.8	18.7		3.6	9.2		9.4	8.7	
Reference Time (s)	66.3	66.3		18.7	18.7		11.5	11.5		9.4	9.4	
Adj Reference Time (s)	70.3	70.3		40.7	40.7		18.3	18.3		17.0	17.0	
Summary												
Protected Option (s)	78.3		31.7									
Permitted Option (s)	184.0		144.9									
Split Option (s)	111.0		35.3									
Minimum (s)	78.3		31.7		110.0							
Right Turns												
Adj Reference Time (s)	34.1	40.7	15.4									
Cross Thru Ref Time (s)	16.4	18.3	40.7									
Oncoming Left Ref Time (s)	8.0	16.0	8.0									
Combined (s)	58.5	75.0	64.1									
Intersection Summary												
Intersection Capacity Utilization	91.7%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
28: 15th St W & Ave L

AM 2021+Related Projects+Project
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑	↗		↕		↗	↑	↗
Volume (vph)	147	1819	3	4	754	275	1	1	10	126	1	39
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	147	1822	0	4	754	275	0	12	0	126	1	39
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.87	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4357	0	1520	4358	1360	0	1394	0	1520	1600	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	11.6	50.2	0.0	0.3	20.8	24.3			0.0			3.4
Adj Reference Time (s)	15.6	54.2	0.0	8.0	24.8	28.3			0.0			8.0
Permitted Option												
Adj Saturation A (vph)	101	1452		101	1453		0	628		228	1600	
Reference Time A (s)	174.1	50.2		4.7	20.8		0.0	2.3		66.3	0.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.1	9.0		17.9	0.1	
Reference Time (s)		174.1			20.8			2.3			17.9	
Adj Reference Time (s)		178.1			24.8			8.0			21.9	
Split Option												
Ref Time Combined (s)	11.6	50.2		0.3	20.8		0.0	1.0		9.9	0.1	
Ref Time Seperate (s)	11.6	50.1		0.3	20.8		0.1	0.1		9.9	0.1	
Reference Time (s)	50.2	50.2		20.8	20.8		1.0	1.0		9.9	9.9	
Adj Reference Time (s)	54.2	54.2		24.8	24.8		8.0	8.0		13.9	13.9	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	62.2		NA									
Permitted Option (s)	178.1		21.9									
Split Option (s)	78.9		21.9									
Minimum (s)	62.2		21.9		84.1							
Right Turns	WBR		SBR									
Adj Reference Time (s)	28.3		8.0									
Cross Thru Ref Time (s)	8.0		24.8									
Oncoming Left Ref Time (s)	5.6		8.0									
Combined (s)	51.9		40.8									

Intersection Summary

Intersection Capacity Utilization 70.1% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1025	944	0	320	94
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1025	944	0	414	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4508	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	28.2	26.0	0.0		0.0
Adj Reference Time (s)	0.0	32.2	30.0	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		150	
Reference Time A (s)	0.0	28.2	26.0		165.4	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		28.2	26.0			
Adj Reference Time (s)		32.2	30.0			
Split Option						
Ref Time Combined (s)	0.0	28.2	26.0		11.2	
Ref Time Seperate (s)	0.0	28.2	26.0		8.7	
Reference Time (s)	28.2	28.2	26.0		11.2	
Adj Reference Time (s)	32.2	32.2	30.0		16.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	32.2		NA			
Permitted Option (s)	32.2		Err			
Split Option (s)	62.2		16.6			
Minimum (s)	32.2		16.6	48.8		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	40.7%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2021+Related Projects+Project
5/2/2017































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	1226	0	0	985	0	557	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	1226	0	0	985	0	557	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	33.8	0.6	0.0	20.3	0.0	44.0	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	37.8	9.7	0.0	24.3	0.0	48.0	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	33.8		0.0	20.3		659.6	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		52.0	0.0		0.0	0.0	
Reference Time (s)		33.8			20.3			52.0			0.0	
Adj Reference Time (s)		37.8			24.3			56.0			9.8	
Split Option												
Ref Time Combined (s)	0.0	33.8		0.0	20.3		44.0	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	33.8		0.0	20.3		44.0	0.0		0.0	0.0	
Reference Time (s)	33.8	33.8		20.3	20.3		44.0	44.0		0.0	0.0	
Adj Reference Time (s)	37.8	37.8		24.3	24.3		48.0	48.0		9.8	9.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	37.8		48.0									
Permitted Option (s)	37.8		56.0									
Split Option (s)	62.1		57.8									
Minimum (s)	37.8		48.0		85.7							
Right Turns												
	EBR											
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	71.4%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

AM 2021+Related Projects+Project – with Mitigation
























Intersection Capacity Utilization
2: 60th St W & Ave K

AM 2021+Related Projects+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Volume (vph)	53	435	70	191	196	109	37	514	364	126	379	30
Pedestrians			5			5			5			5
Ped Button		Yes			Yes			Yes			Yes	
Pedestrian Timing (s)		30.7			28.7			27.3			27.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	53	435	70	191	196	109	37	878	0	126	409	0
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	0.99	0.85
Saturated Flow (vph)	4612	3046	1360	4612	3046	1360	1520	2857	0	1520	3013	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	1.4	17.1	6.8	5.0	7.7	10.3	2.9	37.1	0.0	9.9	16.3	0.0
Adj Reference Time (s)	8.0	23.2	14.5	9.0	14.9	17.1	8.0	41.1	0.0	13.9	22.0	0.0
Permitted Option												
Adj Saturation A (vph)	154	1523		154	1523		101	1428		101	1506	
Reference Time A (s)	20.7	17.1		74.5	7.7		43.8	37.1		149.2	16.3	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		20.7			74.5			43.8			149.2	
Adj Reference Time (s)		26.2			78.5			47.8			153.2	
Split Option												
Ref Time Combined (s)	1.4	17.1		5.0	7.7		2.9	37.1		9.9	16.3	
Ref Time Seperate (s)	1.4	17.1		5.0	7.7		2.9	21.9		9.9	15.1	
Reference Time (s)	17.1	17.1		7.7	7.7		37.1	37.1		16.3	16.3	
Adj Reference Time (s)	23.2	23.2		14.9	14.9		41.1	41.1		22.0	22.0	
Summary												
Protected Option (s)	32.2		55.1									
Permitted Option (s)	78.5		153.2									
Split Option (s)	38.2		63.2									
Minimum (s)	32.2		55.1		87.3							
Right Turns												
Adj Reference Time (s)	14.5		17.1									
Cross Thru Ref Time (s)	22.0		41.1									
Oncoming Left Ref Time (s)	9.0		8.0									
Combined (s)	45.5		66.2									
Intersection Summary												
Intersection Capacity Utilization	72.7%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												
























Intersection Capacity Utilization
4: 45th St W & Ave K

AM 2021+Related Projects+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	1196	13	15	470	157	11	112	72	163	91	46
Pedestrians			5			5						5
Ped Button		No			No						Yes	
Pedestrian Timing (s)		17.8			21.8						25.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.2	4.0	4.0	2.8	4.0	4.0	3.2	4.0	4.0	3.2	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	71	1196	13	15	470	157	11	184	0	163	91	46
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1506	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.00			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	5.6	47.1	1.8	1.2	18.5	14.5	0.9	14.7	0.0	12.9	6.8	4.7
Adj Reference Time (s)	9.6	51.1	21.8	8.0	25.8	25.8	8.0	18.7	0.0	16.9	13.7	11.9
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1523		101	1506		101	1600	
Reference Time A (s)	84.1	47.1		17.8	18.5		13.0	14.7		193.0	6.8	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1506		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		8.9	14.7		NA	NA	
Reference Time (s)		84.1			18.5			14.7			193.0	
Adj Reference Time (s)		88.1			25.8			18.7			197.0	
Split Option												
Ref Time Combined (s)	5.6	47.1		1.2	18.5		0.9	14.7		12.9	6.8	
Ref Time Seperate (s)	5.6	47.1		1.2	18.5		0.9	8.9		12.9	6.8	
Reference Time (s)	47.1	47.1		18.5	18.5		14.7	14.7		12.9	12.9	
Adj Reference Time (s)	51.1	51.1		25.8	25.8		18.7	18.7		18.8	18.8	
Summary												
Protected Option (s)	59.1		35.5									
Permitted Option (s)	88.1		197.0									
Split Option (s)	76.9		37.5									
Minimum (s)	59.1		35.5		94.6							
Right Turns												
Adj Reference Time (s)	21.8	25.8	11.9									
Cross Thru Ref Time (s)	13.7	18.7	25.8									
Oncoming Left Ref Time (s)	9.6	8.0										
Combined (s)	43.5	54.1	45.7									
Intersection Summary												
Intersection Capacity Utilization	78.9%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												




























Intersection Capacity Utilization
5: 40th St W & Ave K

AM 2021+Related Projects+Project with Mitigation
5/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	85	1306	82	47	535	23	97	210	195	53	167	41	
Pedestrians			5			5			5			5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		21.9			23.6			27.9			17.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.7	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	85	1388	0	47	535	23	97	210	195	53	167	41	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3019	0	1520	3046	1360	1520	3046	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	6.7	55.2	0.0	3.7	21.1	2.7	7.7	8.3	17.8	4.2	12.5	4.3	
Adj Reference Time (s)	10.7	59.2	0.0	8.0	27.6	27.6	11.7	15.3	23.4	8.2	17.3	12.0	
Permitted Option													
Adj Saturation A (vph)	101	1510		101	1523		101	1523		101	1600		
Reference Time A (s)	100.7	55.2		55.7	21.1		114.9	8.3		62.8	12.5		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		100.7			55.7			114.9			62.8		
Adj Reference Time (s)		104.7			59.7			118.9			66.8		
Split Option													
Ref Time Combined (s)	6.7	55.2		3.7	21.1		7.7	8.3		4.2	12.5		
Ref Time Seperate (s)	6.7	51.9		3.7	21.1		7.7	8.3		4.2	12.5		
Reference Time (s)	55.2	55.2		21.1	21.1		8.3	8.3		12.5	12.5		
Adj Reference Time (s)	59.2	59.2		27.6	27.6		15.3	15.3		17.3	17.3		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	67.2		29.0										
Permitted Option (s)	104.7		118.9										
Split Option (s)	86.8		32.6										
Minimum (s)	67.2		29.0		96.2								
Right Turns													
	WBR		NBR		SBR								
Adj Reference Time (s)	27.6		23.4		12.0								
Cross Thru Ref Time (s)	15.3		59.2		27.6								
Oncoming Left Ref Time (s)	10.7		8.2		11.7								
Combined (s)	53.6		90.8		51.3								
Intersection Summary													
Intersection Capacity Utilization	80.1%		ICU Level of Service						D				
Reference Times and Phasing Options do not represent an optimized timing plan.													

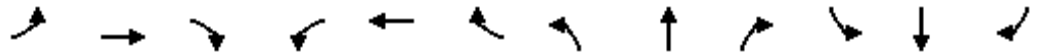
Intersection Capacity Utilization
7: 25th St W & Ave K

AM 2021+Related Projects+Project with Mitigation
5/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			 						 		
Volume (vph)	126	1409	20	17	1004	65	18	157	78	138	136	57	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		24.4			26.7			25.3			27.6		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (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 Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	126	1429	0	17	1004	65	18	157	78	138	136	57	
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	4349	0	1520	3046	1360	1520	1600	1360	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	9.9	39.4	0.0	1.3	39.5	6.4	1.4	11.8	7.5	10.9	10.2	5.7	
Adj Reference Time (s)	13.9	43.4	0.0	8.0	43.5	30.7	8.0	17.9	14.3	14.9	16.9	13.0	
Permitted Option													
Adj Saturation A (vph)	101	1450		101	1523		101	1600		101	1600		
Reference Time A (s)	149.2	39.4		20.1	39.5		21.3	11.8		163.4	10.2		
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA		
Reference Time (s)		149.2			39.5			21.3			163.4		
Adj Reference Time (s)		153.2			43.5			25.9			167.4		
Split Option													
Ref Time Combined (s)	9.9	39.4		1.3	39.5		1.4	11.8		10.9	10.2		
Ref Time Seperate (s)	9.9	38.9		1.3	39.5		1.4	11.8		10.9	10.2		
Reference Time (s)	39.4	39.4		39.5	39.5		11.8	11.8		10.9	10.9		
Adj Reference Time (s)	43.4	43.4		43.5	43.5		17.9	17.9		17.5	17.5		
Summary													
Protected Option (s)	57.5		32.7										
Permitted Option (s)	153.2		167.4										
Split Option (s)	87.0		35.3										
Minimum (s)	57.5		32.7		90.2								
Right Turns													
Adj Reference Time (s)	30.7	14.3	13.0										
Cross Thru Ref Time (s)	17.9	43.4	43.5										
Oncoming Left Ref Time (s)	13.9	14.9	8.0										
Combined (s)	62.5	72.6	64.6										
Intersection Summary													
Intersection Capacity Utilization	75.2%		ICU Level of Service					D					
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
17: 65th St W & Ave L

AM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↕↕	↗		↕	↗		↕↕	
Volume (vph)	0	532	13	36	251	69	33	0	85	115	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		Yes			Yes			No			No	
Pedestrian Timing (s)		18.0			18.0			18.0			18.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	532	13	36	251	69	0	33	85	0	115	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3046	1360	1520	3046	1360	0	1520	1360	0	1520	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		0.15			0.15			1.00			1.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			1.8			6.7			8.1			0.0
Adj Reference Time (s)			10.6			13.0			22.5			0.0
Permitted Option												
Adj Saturation A (vph)	0	1523		101	1523		0	1621		0	101	
Reference Time A (s)	0.0	21.0		42.6	9.9		0.0	2.4		0.0	136.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		10.6	10.6		17.1	17.1	
Reference Time (s)		21.0			42.6			2.4			17.1	
Adj Reference Time (s)		25.5			47.1			22.5			22.5	
Split Option												
Ref Time Combined (s)	0.0	21.0		2.8	9.9		0.0	2.6		0.0	9.1	
Ref Time Seperate (s)	0.0	21.0		2.8	9.9		2.6	0.0		9.1	0.0	
Reference Time (s)	21.0	21.0		9.9	9.9		2.6	2.6		9.1	9.1	
Adj Reference Time (s)	25.5	25.5		15.6	15.6		22.5	22.5		22.5	22.5	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	NA		NA									
Permitted Option (s)	47.1		22.5									
Split Option (s)	41.1		45.0									
Minimum (s)	41.1		22.5		63.6							
Right Turns												
	EBR		WBR		NBR							
Adj Reference Time (s)	10.6		13.0		22.5							
Cross Thru Ref Time (s)	22.5		22.5		25.5							
Oncoming Left Ref Time (s)	10.6		25.5		22.5							
Combined (s)	48.8		60.9		70.5							
Intersection Summary												
Intersection Capacity Utilization	58.7%		ICU Level of Service				B					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
18: QHHS Dwy/Walmart Dwy & Ave L































AM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↗	↗		↕		
Volume (vph)	19	858	14	9	438	75	14	0	26	17	0	12	
Pedestrians													
Ped Button													
Pedestrian Timing (s)													
Free Right	No			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	19	858	14	9	438	75	0	14	26	0	29	0	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.91	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	0	1520	1360	0	1457	0	
Ped Intf Time (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	
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00			
Protected Option Allowed	Yes			Yes			No			No			
Reference Time (s)	1.5	33.8	1.2	0.7	17.3	6.6			2.3			0.0	
Adj Reference Time (s)	8.5	38.3	8.5	8.5	21.8	11.1			8.5			0.0	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1523		0	992		0	145		
Reference Time A (s)	22.5	33.8		10.7	17.3		0.0	1.7		0.0	23.9		
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0		
Reference Time B (s)	NA	NA		NA	NA		9.1	9.1		9.3	10.4		
Reference Time (s)		33.8			17.3			1.7			10.4		
Adj Reference Time (s)		38.3			21.8			8.5			14.9		
Split Option													
Ref Time Combined (s)	1.5	33.8		0.7	17.3		0.0	1.1		0.0	2.4		
Ref Time Seperate (s)	1.5	33.8		0.7	17.3		1.1	0.0		1.3	0.0		
Reference Time (s)	33.8	33.8		17.3	17.3		1.1	1.1		2.4	2.4		
Adj Reference Time (s)	38.3	38.3		21.8	21.8		8.5	8.5		8.5	8.5		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	46.8		NA										
Permitted Option (s)	38.3		14.9										
Split Option (s)	60.1		17.0										
Minimum (s)	38.3		14.9		53.2								
Right Turns													
	EBR		WBR		NBR								
Adj Reference Time (s)	8.5		11.1		8.5								
Cross Thru Ref Time (s)	8.5		8.5		38.3								
Oncoming Left Ref Time (s)	8.5		8.5		8.5								
Combined (s)	25.5		28.1		55.3								
Intersection Summary													
Intersection Capacity Utilization	46.1%		ICU Level of Service						A				
Reference Times and Phasing Options do not represent an optimized timing plan.													

Intersection Capacity Utilization
19: 60th St W & Ave L

AM 2021+Related Projects+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 		
Volume (vph)	165	734	94	137	411	230	96	375	204	458	453	66
Pedestrians			5			5			5			5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		27.6			16.0			39.6			16.0	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	2500	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	5.7
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	165	734	94	137	411	230	96	375	204	458	453	66
Lane Utilization Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	4612	3046	1360	4612	3046	1360	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	4.3	28.9	8.9	3.6	16.2	20.9	2.5	14.8	18.6	11.9	17.8	6.5
Adj Reference Time (s)	8.3	32.9	31.6	8.0	20.2	24.9	8.0	22.6	27.9	15.9	21.8	12.2
Permitted Option												
Adj Saturation A (vph)	154	1523		154	1523		154	1523		154	1523	
Reference Time A (s)	64.4	28.9		53.5	16.2		37.5	14.8		178.7	17.8	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		64.4			53.5			37.5			178.7	
Adj Reference Time (s)		68.4			57.5			41.8			182.7	
Split Option												
Ref Time Combined (s)	4.3	28.9		3.6	16.2		2.5	14.8		11.9	17.8	
Ref Time Seperate (s)	4.3	28.9		3.6	16.2		2.5	14.8		11.9	17.8	
Reference Time (s)	28.9	28.9		16.2	16.2		14.8	14.8		17.8	17.8	
Adj Reference Time (s)	32.9	32.9		20.2	20.2		22.6	22.6		21.8	21.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	40.9		38.5									
Permitted Option (s)	68.4		182.7									
Split Option (s)	53.1		44.4									
Minimum (s)	40.9		38.5		79.4							
Right Turns												
	EBR	WBR	NBR	SBR								
Adj Reference Time (s)	31.6	24.9	27.9	12.2								
Cross Thru Ref Time (s)	21.8	22.6	32.9	20.2								
Oncoming Left Ref Time (s)	8.0	8.3	15.9	8.0								
Combined (s)	61.4	55.8	76.7	40.4								

Intersection Summary

Intersection Capacity Utilization 66.2% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.



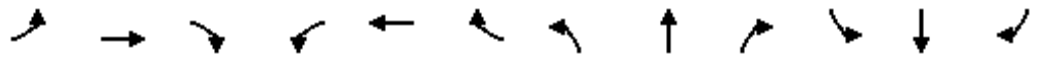
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	1286	21	86	689	16	150
Pedestrians		5	5		5	5
Ped Button	No				No	
Pedestrian Timing (s)	18.0				18.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	1286	21	86	689	16	150
Lane Utilization Factor	0.95	1.00	1.00	0.95	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	3046	1360	1520	3046	1520	1360
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	1.00	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	50.7	2.5	6.8	27.1		13.9
Adj Reference Time (s)	55.2	22.5	11.3	31.6		22.5
Permitted Option						
Adj Saturation A (vph)	1523		101	1523	101	
Reference Time A (s)	50.7		101.8	27.1	18.9	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	50.7			101.8		
Adj Reference Time (s)	55.2			106.3		
Split Option						
Ref Time Combined (s)	50.7		6.8	27.1	1.3	
Ref Time Seperate (s)	50.7		6.8	27.1	1.3	
Reference Time (s)	50.7		27.1	27.1	1.3	
Adj Reference Time (s)	55.2		31.6	31.6	22.5	
Summary						
	EB	WB	NB	Combined		
Protected Option (s)	66.4		NA			
Permitted Option (s)	106.3		Err			
Split Option (s)	86.8		22.5			
Minimum (s)	66.4		22.5	88.9		
Right Turns						
	EBR	NBR				
Adj Reference Time (s)	22.5	22.5				
Cross Thru Ref Time (s)	0.0	55.2				
Oncoming Left Ref Time (s)	1.3	0.0				
Combined (s)	33.8	77.7				

Intersection Summary

Intersection Capacity Utilization 74.1% ICU Level of Service D
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
21: 50th St W & Ave L




























AM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	108	1404	65	85	676	32	53	270	138	62	162	72
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		20.1			19.9			18.1			18.4	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.2	4.0	5.3	4.0	4.0	5.3	3.9	4.0	4.0	3.9	4.0	4.6
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	108	1404	65	85	676	32	53	270	138	62	162	72
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	8.5	38.7	6.4	6.7	18.6	3.5	4.2	20.3	12.8	4.9	12.2	7.0
Adj Reference Time (s)	12.5	42.7	25.4	10.7	23.9	25.2	8.2	24.3	17.6	8.9	17.1	13.3
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1600		101	1600	
Reference Time A (s)	127.9	38.7		100.7	18.6		62.8	20.3		73.4	12.2	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		127.9			100.7			62.8			73.4	
Adj Reference Time (s)		131.9			104.7			66.8			77.4	
Split Option												
Ref Time Combined (s)	8.5	38.7		6.7	18.6		4.2	20.3		4.9	12.2	
Ref Time Seperate (s)	8.5	38.7		6.7	18.6		4.2	20.3		4.9	12.2	
Reference Time (s)	38.7	38.7		18.6	18.6		20.3	20.3		12.2	12.2	
Adj Reference Time (s)	42.7	42.7		23.9	23.9		24.3	24.3		17.1	17.1	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	53.4		33.1									
Permitted Option (s)	131.9		77.4									
Split Option (s)	66.6		41.4									
Minimum (s)	53.4		33.1		86.5							
Right Turns												
	EBR		WBR		NBR		SBR					
Adj Reference Time (s)	25.4		25.2		17.6		13.3					
Cross Thru Ref Time (s)	17.1		24.3		42.7		23.9					
Oncoming Left Ref Time (s)	10.7		12.5		8.9		8.2					
Combined (s)	53.2		62.0		69.2		45.4					
Intersection Summary												
Intersection Capacity Utilization	72.1%				ICU Level of Service				C			
Reference Times and Phasing Options do not represent an optimized timing plan.												





























Intersection Capacity Utilization
22: 45th St W & Ave L

AM 2021+Related Projects+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  							
Volume (vph)	48	1574	10	55	753	60	17	53	84	106	36	26
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.6			16.0			20.4			22.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	3.2	4.0	4.0	3.2	4.0	5.3	3.6	4.0	4.0	3.2	4.0	5.3
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	48	1574	10	55	753	60	17	53	84	106	36	26
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	3046	1360	1520	4358	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	3.8	62.0	1.5	4.3	20.7	5.9	1.3	4.0	8.1	8.4	2.7	2.9
Adj Reference Time (s)	8.0	66.0	29.6	8.3	24.7	11.2	8.0	10.5	14.0	12.4	10.8	12.1
Permitted Option												
Adj Saturation A (vph)	101	1523		101	1453		101	1600		101	1600	
Reference Time A (s)	56.8	62.0		65.1	20.7		20.1	4.0		125.5	2.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		0	1600	
Reference Time B (s)	NA	NA		NA	NA		9.3	4.0		16.4	2.7	
Reference Time (s)		62.0			65.1			9.3			16.4	
Adj Reference Time (s)		66.0			69.1			15.0			21.2	
Split Option												
Ref Time Combined (s)	3.8	62.0		4.3	20.7		1.3	4.0		8.4	2.7	
Ref Time Seperate (s)	3.8	62.0		4.3	20.7		1.3	4.0		8.4	2.7	
Reference Time (s)	62.0	62.0		20.7	20.7		4.0	4.0		8.4	8.4	
Adj Reference Time (s)	66.0	66.0		24.7	24.7		10.5	10.5		14.5	14.5	
Summary												
Protected Option (s)	74.3		22.9									
Permitted Option (s)	69.1		21.2									
Split Option (s)	90.7		25.0									
Minimum (s)	69.1		21.2		90.4							
Right Turns												
Adj Reference Time (s)	29.6	11.2	14.0	12.1								
Cross Thru Ref Time (s)	10.8	10.5	66.0	24.7								
Oncoming Left Ref Time (s)	8.3	8.0	12.4	8.0								
Combined (s)	48.7	29.8	92.3	44.8								
Intersection Summary												
Intersection Capacity Utilization	76.9%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
23: 40th St W & Ave L

AM 2021+Related Projects+Project with Mitigation
5/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	120	1534	9	24	752	89	24	127	78	182	38	75
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		31.0			33.3			35.6			31.6	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	120	1534	9	24	752	89	24	127	78	182	38	75
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	1600	1360	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	9.5	42.2	1.4	1.9	20.7	8.5	1.9	9.5	7.5	14.4	2.9	7.3
Adj Reference Time (s)	13.5	46.2	36.3	8.0	37.3	37.3	8.0	17.5	15.8	18.4	12.2	15.0
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1600		101	1600	
Reference Time A (s)	142.1	42.2		28.4	20.7		28.4	9.5		215.5	2.9	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		9.9	9.5		NA	NA	
Reference Time (s)		142.1			28.4			9.9			215.5	
Adj Reference Time (s)		146.1			37.3			17.8			219.5	
Split Option												
Ref Time Combined (s)	9.5	42.2		1.9	20.7		1.9	9.5		14.4	2.9	
Ref Time Seperate (s)	9.5	42.2		1.9	20.7		1.9	9.5		14.4	2.9	
Reference Time (s)	42.2	42.2		20.7	20.7		9.5	9.5		14.4	14.4	
Adj Reference Time (s)	46.2	46.2		37.3	37.3		17.5	17.5		21.0	21.0	
Summary												
Protected Option (s)	54.2		35.9									
Permitted Option (s)	146.1		219.5									
Split Option (s)	83.5		38.5									
Minimum (s)	54.2		35.9		90.1							
Right Turns												
Adj Reference Time (s)	36.3	37.3	15.8	15.0								
Cross Thru Ref Time (s)	12.2	17.5	46.2	37.3								
Oncoming Left Ref Time (s)	13.0	13.5	18.4	8.0								
Combined (s)	56.5	68.3	80.4	60.3								
Intersection Summary												
Intersection Capacity Utilization	75.1%		ICU Level of Service		D							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
24: 35th St W & Ave L

AM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↗		↘	↑	↗	
Volume (vph)	63	1691	40	24	771	14	24	55	64	17	20	55	
Pedestrians	5		5	5		5	5		5	5		5	
Ped Button		No			No			Yes			Yes		
Pedestrian Timing (s)		16.0			23.9			25.6			16.0		
Free Right			No			No			No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Green (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	
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120	
Volume Combined (vph)	63	1691	40	24	771	14	24	119	0	17	20	55	
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	1.00	0.85	
Saturated Flow (vph)	1520	3046	1360	1520	3046	1360	1520	1471	0	1520	1600	1360	
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.6	
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15		
Protected Option Allowed		Yes			Yes			Yes			Yes		
Reference Time (s)	5.0	66.6	4.2	1.9	30.4	1.9	1.9	10.1	0.0	1.3	1.5	5.5	
Adj Reference Time (s)	9.0	70.6	9.9	8.0	34.4	29.6	8.0	16.4	0.0	8.0	8.0	9.5	
Permitted Option													
Adj Saturation A (vph)	101	1523		101	1523		101	1471		101	1600		
Reference Time A (s)	74.6	66.6		28.4	30.4		28.4	10.1		20.1	1.5		
Adj Saturation B (vph)	NA	NA		NA	NA		0	1471		0	1600		
Reference Time B (s)	NA	NA		NA	NA		9.9	10.1		9.3	1.5		
Reference Time (s)		74.6			30.4			10.1			9.3		
Adj Reference Time (s)		78.6			34.4			16.4			13.3		
Split Option													
Ref Time Combined (s)	5.0	66.6		1.9	30.4		1.9	10.1		1.3	1.5		
Ref Time Seperate (s)	5.0	66.6		1.9	30.4		1.9	4.8		1.3	1.5		
Reference Time (s)	66.6	66.6		30.4	30.4		10.1	10.1		1.5	1.5		
Adj Reference Time (s)	70.6	70.6		34.4	34.4		16.4	16.4		8.0	8.0		
Summary													
	EB WB		NB SB		Combined								
Protected Option (s)	78.6		24.4										
Permitted Option (s)	78.6		16.4										
Split Option (s)	105.0		24.4										
Minimum (s)	78.6		16.4		95.0								
Right Turns													
	EBR		WBR		SBR								
Adj Reference Time (s)	9.9		29.6		9.5								
Cross Thru Ref Time (s)	8.0		16.4		34.4								
Oncoming Left Ref Time (s)	8.0		9.0		8.0								
Combined (s)	25.9		55.0		51.9								

Intersection Summary

Intersection Capacity Utilization 79.2% ICU Level of Service D
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
25: 30th St W & Ave L

AM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘↗	↑↑	↗	↘↗	↑↑	↗
Volume (vph)	158	1498	145	157	636	65	96	359	240	169	316	109
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		35.0			33.0			35.9			34.1	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	2500	1600	1600	2500	1600	1600
Lost Time (s)	2.8	4.0	4.0	2.8	4.0	4.0	2.8	4.0	4.0	2.8	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	158	1498	145	157	636	65	96	359	240	169	316	109
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	4612	3046	1360	4612	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	12.5	41.2	13.4	12.4	17.5	6.4	2.5	14.1	21.8	4.4	12.4	10.3
Adj Reference Time (s)	16.5	45.2	39.0	16.4	37.0	37.0	8.0	21.5	28.0	8.4	19.8	17.9
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		154	1523		154	1523	
Reference Time A (s)	187.1	41.2		185.9	17.5		37.5	14.1		66.0	12.4	
Adj Saturation B (vph)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		187.1			185.9			37.5			66.0	
Adj Reference Time (s)		191.1			189.9			41.5			70.0	
Split Option												
Ref Time Combined (s)	12.5	41.2		12.4	17.5		2.5	14.1		4.4	12.4	
Ref Time Seperate (s)	12.5	41.2		12.4	17.5		2.5	14.1		4.4	12.4	
Reference Time (s)	41.2	41.2		17.5	17.5		14.1	14.1		12.4	12.4	
Adj Reference Time (s)	45.2	45.2		37.0	37.0		21.5	21.5		19.8	19.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	61.6		29.9									
Permitted Option (s)	191.1		70.0									
Split Option (s)	82.2		41.3									
Minimum (s)	61.6		29.9		91.5							
Right Turns												
	EBR	WBR	NBR	SBR								
Adj Reference Time (s)	39.0	37.0	28.0	17.9								
Cross Thru Ref Time (s)	19.8	21.5	45.2	37.0								
Oncoming Left Ref Time (s)	16.4	16.5	8.4	8.0								
Combined (s)	75.2	75.0	81.6	62.9								
Intersection Summary												
Intersection Capacity Utilization	76.3%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
26: 25th St W & Ave L

AM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱		↕		↰	↑	↱
Volume (vph)	85	1847	4	3	807	21	6	1	2	70	2	69
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		25.3			22.4			16.0			30.7	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	85	1847	4	3	807	21	0	9	0	70	2	69
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	0	1495	0	1520	1600	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	6.7	50.9	1.0	0.2	22.2	2.5			0.0			6.7
Adj Reference Time (s)	10.7	54.9	31.0	8.0	26.4	26.4			0.0			14.4
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		0	134		1115	1600	
Reference Time A (s)	100.7	50.9		3.6	22.2		0.0	8.2		7.5	0.1	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	1600	
Reference Time B (s)	NA	NA		NA	NA		8.5	8.9		13.5	0.1	
Reference Time (s)		100.7			22.2			8.2			7.5	
Adj Reference Time (s)		104.7			26.4			12.2			15.1	
Split Option												
Ref Time Combined (s)	6.7	50.9		0.2	22.2		0.0	0.9		5.5	0.1	
Ref Time Seperate (s)	6.7	50.9		0.2	22.2		0.5	0.2		5.5	0.1	
Reference Time (s)	50.9	50.9		22.2	22.2		0.9	0.9		5.5	5.5	
Adj Reference Time (s)	54.9	54.9		26.4	26.4		8.0	8.0		13.4	13.4	
Summary												
Protected Option (s)	62.9		NA									
Permitted Option (s)	104.7		15.1									
Split Option (s)	81.3		21.4									
Minimum (s)	62.9		15.1		77.9							
Right Turns												
Adj Reference Time (s)	31.0	26.4	14.4									
Cross Thru Ref Time (s)	13.4	8.0	26.4									
Oncoming Left Ref Time (s)	8.0	10.7	8.0									
Combined (s)	52.4	45.1	48.8									

Intersection Summary

Intersection Capacity Utilization 65.0% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
27: 20th St W & Ave L

AM 2021+Related Projects+Project with Mitigation
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑		↘	↑↑	↗
Volume (vph)	152	1684	90	23	680	54	45	224	57	119	116	77
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		28.4			36.7			29.3			33.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	152	1684	90	23	680	54	45	281	0	119	116	77
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1520	4358	1360	1520	4358	1360	1520	2954	0	1520	3046	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.1	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	12.0	46.4	8.6	1.8	18.7	5.4	3.6	11.5	0.0	9.4	4.6	7.4
Adj Reference Time (s)	16.0	50.4	34.1	8.0	40.7	40.7	8.0	18.3	0.0	13.4	12.9	15.4
Permitted Option												
Adj Saturation A (vph)	101	1453		101	1453		101	1477		101	1523	
Reference Time A (s)	180.0	46.4		27.2	18.7		53.3	11.5		140.9	4.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	2954		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		11.6	11.5		NA	NA	
Reference Time (s)		180.0			27.2			11.6			140.9	
Adj Reference Time (s)		184.0			40.7			18.3			144.9	
Split Option												
Ref Time Combined (s)	12.0	46.4		1.8	18.7		3.6	11.5		9.4	4.6	
Ref Time Seperate (s)	12.0	46.4		1.8	18.7		3.6	9.2		9.4	4.6	
Reference Time (s)	46.4	46.4		18.7	18.7		11.5	11.5		9.4	9.4	
Adj Reference Time (s)	50.4	50.4		40.7	40.7		18.3	18.3		17.0	17.0	
Summary												
Protected Option (s)	58.4		31.7									
Permitted Option (s)	184.0		144.9									
Split Option (s)	91.1		35.3									
Minimum (s)	58.4		31.7		90.0							
Right Turns												
Adj Reference Time (s)	34.1	40.7	15.4									
Cross Thru Ref Time (s)	12.9	18.3	40.7									
Oncoming Left Ref Time (s)	16.0	8.0										
Combined (s)	55.0	75.0	64.1									
Intersection Summary												
Intersection Capacity Utilization	75.0%		ICU Level of Service				D					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
28: 15th St W & Ave L

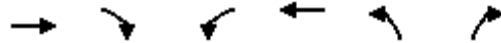
AM 2021+Related Projects+Project with Mitigation 1/2
6/15/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑	↗		↕		↗	↖	↗
Volume (vph)	147	1819	3	4	754	275	1	1	10	126	1	39
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	147	1822	0	4	754	275	0	12	0	0	127	39
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.87	0.85	0.95	0.95	0.85
Saturated Flow (vph)	1520	4357	0	1520	4358	1360	0	1394	0	0	3041	1360
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	11.6	50.2	0.0	0.3	20.8	24.3			0.0			3.4
Adj Reference Time (s)	15.6	54.2	0.0	8.0	24.8	28.3			0.0			8.0
Permitted Option												
Adj Saturation A (vph)	101	1452		101	1453		0	628		0	459	
Reference Time A (s)	174.1	50.2		4.7	20.8		0.0	2.3		0.0	33.2	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.1	9.0		13.0	13.0	
Reference Time (s)		174.1			20.8			2.3			13.0	
Adj Reference Time (s)		178.1			24.8			8.0			17.0	
Split Option												
Ref Time Combined (s)	11.6	50.2		0.3	20.8		0.0	1.0		0.0	5.0	
Ref Time Seperate (s)	11.6	50.1		0.3	20.8		0.1	0.1		5.0	0.1	
Reference Time (s)	50.2	50.2		20.8	20.8		1.0	1.0		5.0	5.0	
Adj Reference Time (s)	54.2	54.2		24.8	24.8		8.0	8.0		9.0	9.0	
Summary	EB WB		NB SB		Combined							
Protected Option (s)	62.2		NA									
Permitted Option (s)	178.1		17.0									
Split Option (s)	78.9		17.0									
Minimum (s)	62.2		17.0		79.2							
Right Turns	WBR		SBR									
Adj Reference Time (s)	28.3		8.0									
Cross Thru Ref Time (s)	8.0		24.8									
Oncoming Left Ref Time (s)	5.6		8.0									
Combined (s)	51.9		40.8									

Intersection Summary

Intersection Capacity Utilization 66.0% ICU Level of Service C
Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	1226	0	0	985	557	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	1226	0	0	985	557	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	0.97	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	4612	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	33.8	0.6	0.0	20.3		0.0
Adj Reference Time (s)	37.8	9.7	0.0	24.3		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	154	
Reference Time A (s)	33.8		0.0	20.3	217.4	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	33.8			20.3		
Adj Reference Time (s)	37.8			24.3		
Split Option						
Ref Time Combined (s)	33.8		0.0	20.3	14.5	
Ref Time Seperate (s)	33.8		0.0	20.3	14.5	
Reference Time (s)	33.8		20.3	20.3	14.5	
Adj Reference Time (s)	37.8		24.3	24.3	18.5	
Summary						
	EB	WB	NB	Combined		
Protected Option (s)	37.8		NA			
Permitted Option (s)	37.8		Err			
Split Option (s)	62.1		18.5			
Minimum (s)	37.8		18.5	56.2		
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	46.9%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Roundabouts

INTERSECTION SUMMARY

 Site: AM 50th St & W Ave K

AM Existing+Project with Mitigation
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	29.7 mph	29.7 mph
Travel Distance (Total)	1064.0 veh-mi/h	1276.8 pers-mi/h
Travel Time (Total)	35.9 veh-h/h	43.0 pers-h/h
Demand Flows (Total)	1682 veh/h	2018 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.776	
Practical Spare Capacity	9.6 %	
Effective Intersection Capacity	2168 veh/h	
Control Delay (Total)	7.66 veh-h/h	9.20 pers-h/h
Control Delay (Average)	16.4 sec	16.4 sec
Control Delay (Worst Lane)	31.0 sec	
Control Delay (Worst Movement)	31.0 sec	31.0 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	16.4 sec	
Idling Time (Average)	10.7 sec	
Intersection Level of Service (LOS)	LOS C	
95% Back of Queue - Vehicles (Worst Lane)	9.5 veh	
95% Back of Queue - Distance (Worst Lane)	241.4 ft	
Queue Storage Ratio (Worst Lane)	0.20	
Total Effective Stops	1195 veh/h	1434 pers/h
Effective Stop Rate	0.71 per veh	0.71 per pers
Proportion Queued	0.78	0.78
Performance Index	93.2	93.2
Cost (Total)	569.78 \$/h	569.78 \$/h
Fuel Consumption (Total)	43.9 gal/h	
Carbon Dioxide (Total)	392.1 kg/h	
Hydrocarbons (Total)	0.036 kg/h	
Carbon Monoxide (Total)	0.487 kg/h	
NOx (Total)	0.462 kg/h	

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	807,131 veh/y	968,557 pers/y
Delay	3,678 veh-h/y	4,414 pers-h/y
Effective Stops	573,738 veh/y	688,486 pers/y
Travel Distance	510,717 veh-mi/y	612,860 pers-mi/y
Travel Time	17,217 veh-h/y	20,660 pers-h/y
Cost	273,496 \$/y	273,496 \$/y
Fuel Consumption	21,048 gal/y	
Carbon Dioxide	188,187 kg/y	
Hydrocarbons	17 kg/y	
Carbon Monoxide	234 kg/y	
NOx	222 kg/y	

MOVEMENT SUMMARY

 Site: AM 50th St & W Ave K

AM Existing+Project with Mitigation
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: 50th Street											
3	L2	38	2.0	0.776	31.0	LOS D	9.5	241.4	1.00	1.24	25.0
8	T1	233	2.0	0.776	31.0	LOS D	9.5	241.4	1.00	1.24	25.0
18	R2	129	2.0	0.776	31.0	LOS D	9.5	241.4	1.00	1.24	24.4
Approach		400	2.0	0.776	31.0	LOS D	9.5	241.4	1.00	1.24	24.8
East: W Avenue K											
1	L2	35	2.0	0.430	9.8	LOS A	3.1	77.6	0.69	0.57	32.7
6	T1	295	2.0	0.430	9.8	LOS A	3.1	77.6	0.69	0.57	32.6
16	R2	25	2.0	0.430	9.8	LOS A	3.1	77.6	0.69	0.57	31.7
Approach		354	2.0	0.430	9.8	LOS A	3.1	77.6	0.69	0.57	32.5
North: 50th Street											
7	L2	39	2.0	0.245	7.1	LOS A	1.5	37.0	0.61	0.49	33.7
4	T1	118	2.0	0.245	7.1	LOS A	1.5	37.0	0.61	0.49	33.6
14	R2	39	2.0	0.245	7.1	LOS A	1.5	37.0	0.61	0.49	32.6
Approach		197	2.0	0.245	7.1	LOS A	1.5	37.0	0.61	0.49	33.4
West: W Avenue K											
5	L2	53	2.0	0.692	14.1	LOS B	7.7	194.4	0.74	0.55	30.8
2	T1	651	2.0	0.692	14.1	LOS B	7.7	194.4	0.74	0.55	30.7
12	R2	26	2.0	0.692	14.1	LOS B	7.7	194.4	0.74	0.55	29.9
Approach		730	2.0	0.692	14.1	LOS B	7.7	194.4	0.74	0.55	30.7
All Vehicles		1682	2.0	0.776	16.4	LOS C	9.5	241.4	0.78	0.71	29.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: RUETTIGERS & SCHULER CIVIL ENGINEERS | Processed: Wednesday, May 03, 2017 9:43:15 AM

Project: N:\551-03\Traffic\SIDRA\AM Existing+Proj wMit_50th ST & W Ave K.sip6

LANE SUMMARY

 **Site: AM 50th St & W Ave K**

AM Existing+Project with Mitigation
Roundabout

Lane Use and Performance													
	Demand Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %						Veh	Dist ft				
South: 50th Street													
Lane 1 ^d	400	2.0	516	0.776	100	31.0	LOS D	9.5	241.4	Full	1600	0.0	0.0
Approach	400	2.0		0.776		31.0	LOS D	9.5	241.4				
East: W Avenue K													
Lane 1 ^d	354	2.0	825	0.430	100	9.8	LOS A	3.1	77.6	Full	1600	0.0	0.0
Approach	354	2.0		0.430		9.8	LOS A	3.1	77.6				
North: 50th Street													
Lane 1 ^d	197	2.0	804	0.245	100	7.1	LOS A	1.5	37.0	Full	1600	0.0	0.0
Approach	197	2.0		0.245		7.1	LOS A	1.5	37.0				
West: W Avenue K													
Lane 1 ^d	730	2.0	1056	0.692	100	14.1	LOS B	7.7	194.4	Full	1600	0.0	0.0
Approach	730	2.0		0.692		14.1	LOS B	7.7	194.4				
Intersection	1682	2.0		0.776		16.4	LOS C	9.5	241.4				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

LANE FLOWS

 **Site: AM 50th St & W Ave K**

AM Existing+Project with Mitigation
Roundabout

Approach Lane Flows (veh/h)										
South: 50th Street										
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	
From S To Exit:	W	N	E							
Lane 1	38	233	129	400	2.0	516	0.776	100	NA	
Approach	38	233	129	400	2.0		0.776			
East: W Avenue K										
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	
From E To Exit:	S	W	N							
Lane 1	35	295	25	354	2.0	825	0.430	100	NA	
Approach	35	295	25	354	2.0		0.430			
North: 50th Street										
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	
From N To Exit:	E	S	W							
Lane 1	39	118	39	197	2.0	804	0.245	100	NA	
Approach	39	118	39	197	2.0		0.245			
West: W Avenue K										
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	
From W To Exit:	N	E	S							
Lane 1	53	651	26	730	2.0	1056	0.692	100	NA	
Approach	53	651	26	730	2.0		0.692			
Total										
Intersectio n	1682	2.0					0.776			

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

LEVEL OF SERVICE

 **Site: AM 50th St & W Ave K**

AM Existing+Project with Mitigation
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	D	A	A	B	C

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

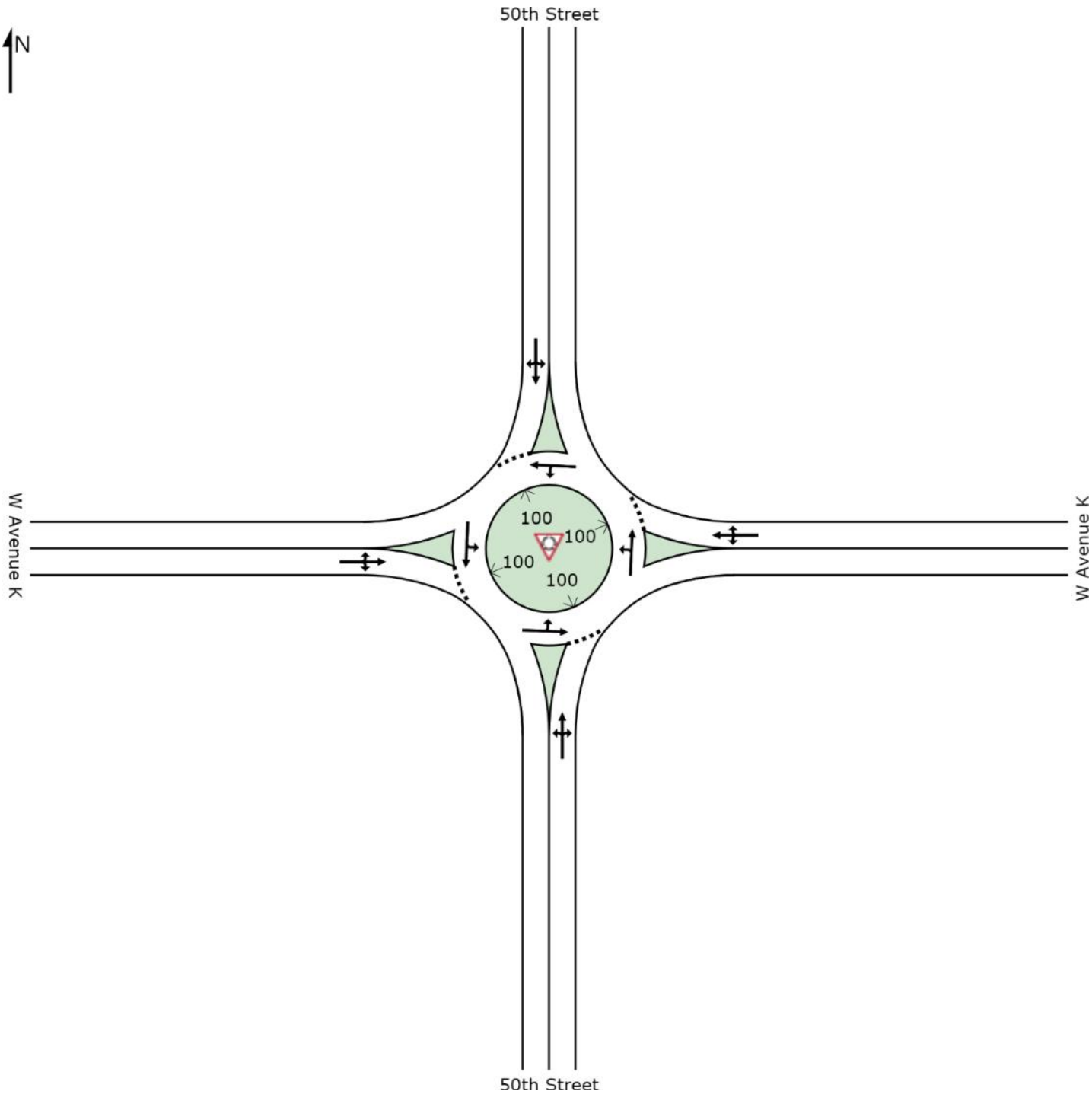
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

SITE LAYOUT

 **Site: AM 50th St & W Ave K**

AM Existing+Project with Mitigation
Roundabout



INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: AM 50th St & W Ave K

AM Existing+Project with Mitigation
Roundabout

Volume Display Method: Total and %

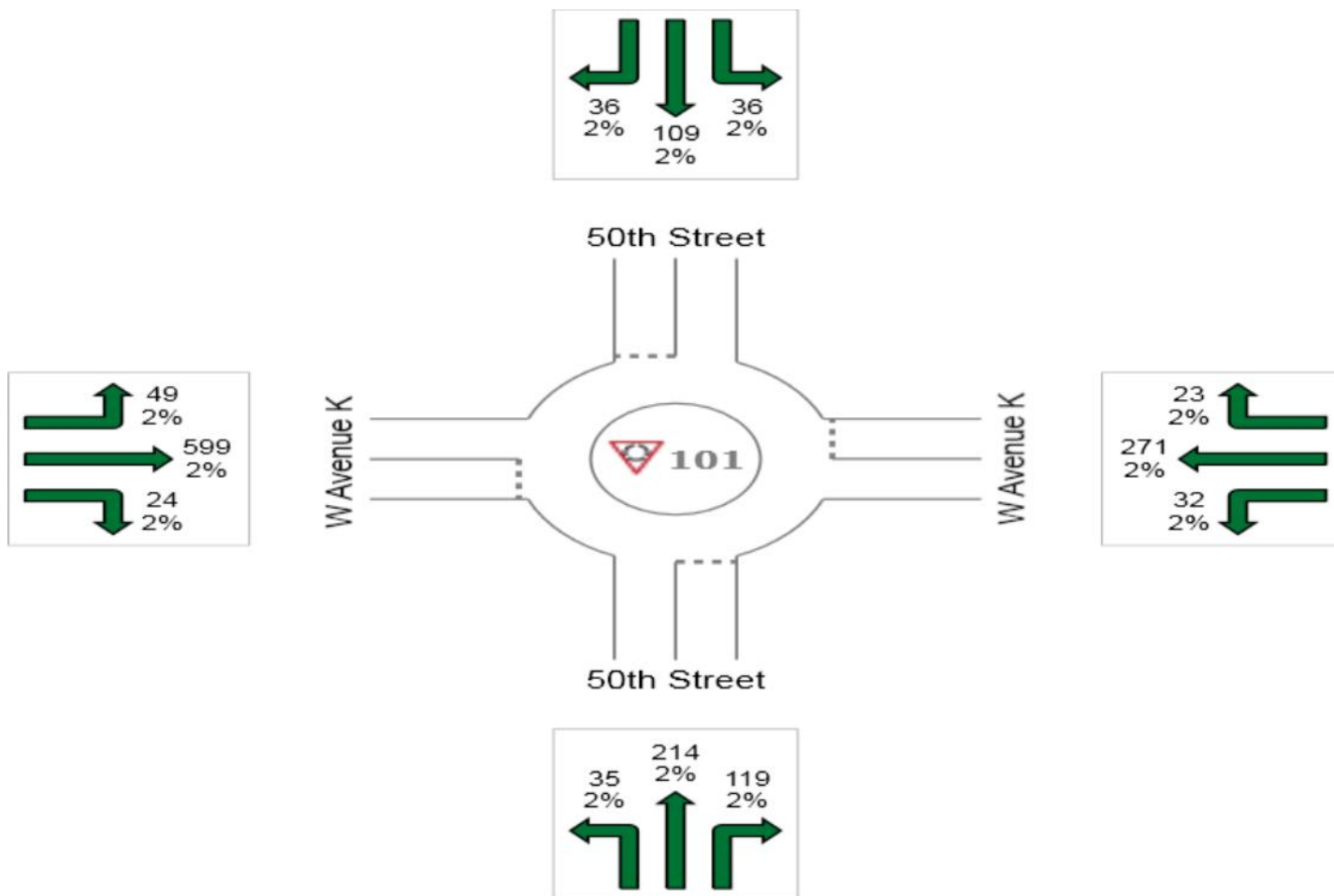
Volumes are shown for Movement Class(es): All Classes and Heavy Vehicles

Total Intersection Volumes (veh)

All Movement Classes: 1547

Light Vehicles (LV): 1516

Heavy Vehicles (HV): 31

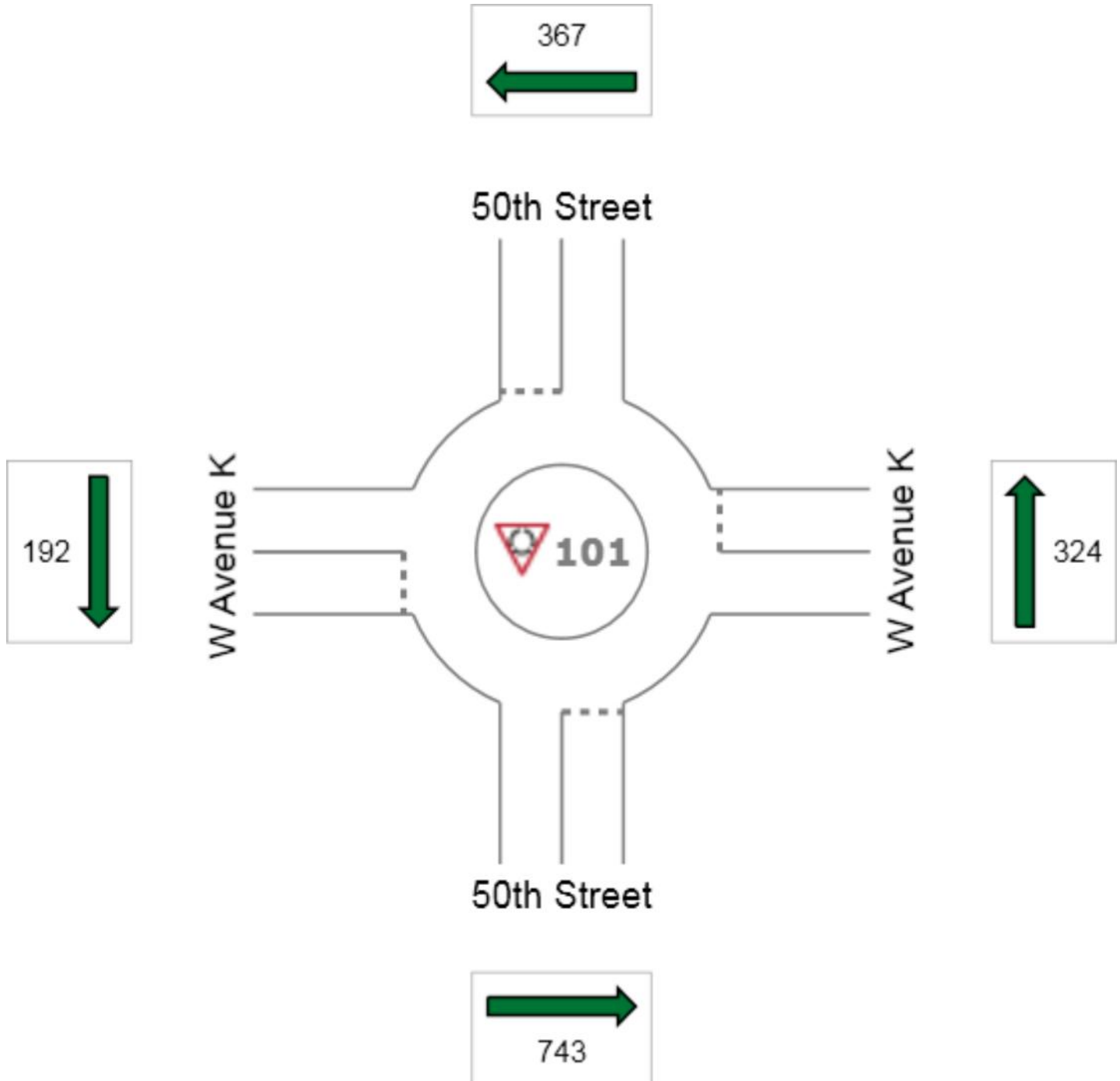


ROUNDBABOUT CIRCULATING FLOWS

Total Values for All Movement Classes Based on Site Arrival Flow Rates including Capacity Constraint Effects (veh/h)

 Site: AM 50th St & W Ave K

AM Existing+Project with Mitigation
Roundabout



DELAY (CONTROL)

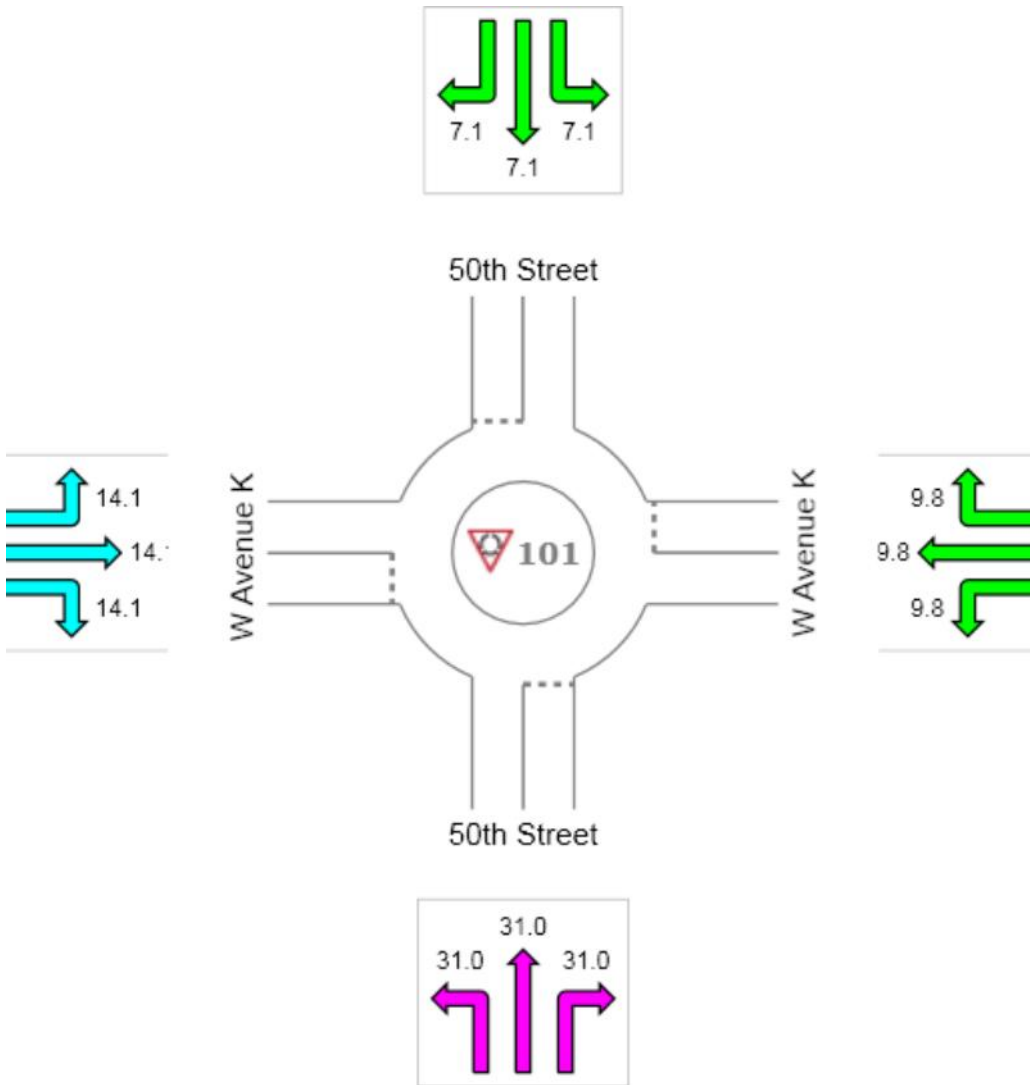
Average control delay per vehicle, or average pedestrian delay (seconds)

 Site: AM 50th St & W Ave K

AM Existing+Project with Mitigation
Roundabout

All Movement Classes

	South	East	North	West	Intersection
	31.0	9.8	7.1	14.1	16.4
LOS	D	A	A	B	C



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F Continuous

Level of Service Method: Delay & v/c (HCM 2010)

LOS F will result if $v/c > 1$ irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

INTERSECTION SUMMARY

 **Site: AM 50th St & W Ave K**

AM 2021+Related Projects+Project with Mitigation
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	31.6 mph	31.6 mph
Travel Distance (Total)	1643.3 veh-mi/h	1972.0 pers-mi/h
Travel Time (Total)	52.0 veh-h/h	62.4 pers-h/h
Demand Flows (Total)	2596 veh/h	3115 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.619	
Practical Spare Capacity	37.4 %	
Effective Intersection Capacity	4195 veh/h	
Control Delay (Total)	8.47 veh-h/h	10.16 pers-h/h
Control Delay (Average)	11.7 sec	11.7 sec
Control Delay (Worst Lane)	20.0 sec	
Control Delay (Worst Movement)	20.0 sec	20.0 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	11.7 sec	
Idling Time (Average)	7.8 sec	
Intersection Level of Service (LOS)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	5.0 veh	
95% Back of Queue - Distance (Worst Lane)	126.2 ft	
Queue Storage Ratio (Worst Lane)	0.29	
Total Effective Stops	1370 veh/h	1643 pers/h
Effective Stop Rate	0.53 per veh	0.53 per pers
Proportion Queued	0.63	0.63
Performance Index	82.6	82.6
Cost (Total)	818.41 \$/h	818.41 \$/h
Fuel Consumption (Total)	65.3 gal/h	
Carbon Dioxide (Total)	584.0 kg/h	
Hydrocarbons (Total)	0.052 kg/h	
Carbon Monoxide (Total)	0.734 kg/h	
NOx (Total)	0.687 kg/h	

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,245,913 veh/y	1,495,096 pers/y
Delay	4,064 veh-h/y	4,876 pers-h/y
Effective Stops	657,398 veh/y	788,877 pers/y
Travel Distance	788,781 veh-mi/y	946,537 pers-mi/y
Travel Time	24,968 veh-h/y	29,961 pers-h/y
Cost	392,837 \$/y	392,837 \$/y
Fuel Consumption	31,351 gal/y	
Carbon Dioxide	280,333 kg/y	
Hydrocarbons	25 kg/y	
Carbon Monoxide	352 kg/y	
NOx	330 kg/y	

MOVEMENT SUMMARY

 Site: AM 50th St & W Ave K

AM 2021+Related Projects+Project with Mitigation Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: 50th Street											
3	L2	45	2.0	0.594	20.0	LOS C	3.5	89.4	0.83	0.92	28.4
8	T1	257	2.0	0.594	20.0	LOS C	3.5	89.4	0.83	0.92	28.4
18	R2	142	2.0	0.389	17.9	LOS C	1.7	44.4	0.79	0.83	28.4
Approach		443	2.0	0.594	19.3	LOS C	3.5	89.4	0.82	0.89	28.4
East: W Avenue K											
1	L2	38	2.0	0.341	8.4	LOS A	1.9	49.5	0.63	0.55	33.2
6	T1	490	2.0	0.341	8.4	LOS A	1.9	49.5	0.63	0.55	33.3
16	R2	27	2.0	0.341	8.4	LOS A	1.9	49.5	0.63	0.55	32.5
Approach		555	2.0	0.341	8.4	LOS A	1.9	49.5	0.63	0.55	33.3
North: 50th Street											
7	L2	20	2.0	0.191	6.6	LOS A	0.8	20.9	0.56	0.51	34.1
4	T1	130	2.0	0.191	6.6	LOS A	0.8	20.9	0.56	0.51	34.0
14	R2	75	2.0	0.121	7.2	LOS A	0.5	12.1	0.56	0.51	32.9
Approach		225	2.0	0.191	6.8	LOS A	0.8	20.9	0.56	0.51	33.7
West: W Avenue K											
5	L2	149	2.0	0.619	11.5	LOS B	5.0	126.2	0.58	0.40	31.6
2	T1	1187	2.0	0.619	11.5	LOS B	5.0	126.2	0.58	0.40	31.8
12	R2	36	2.0	0.619	11.5	LOS B	5.0	126.2	0.58	0.40	31.1
Approach		1372	2.0	0.619	11.5	LOS B	5.0	126.2	0.58	0.40	31.8
All Vehicles		2596	2.0	0.619	11.7	LOS B	5.0	126.2	0.63	0.53	31.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE SUMMARY

 **Site: AM 50th St & W Ave K**

AM 2021+Related Projects+Project with Mitigation
Roundabout

Lane Use and Performance													
	Demand Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %						Veh	Dist ft				
South: 50th Street													
Lane 1 ^d	301	2.0	507	0.594	100	20.0	LOS C	3.5	89.4	Full	1600	0.0	0.0
Lane 2	142	2.0	366	0.389	65 ⁵	17.9	LOS C	1.7	44.4	Short	200	0.0	NA
Approach	443	2.0		0.594		19.3	LOS C	3.5	89.4				
East: W Avenue K													
Lane 1	278	2.0	814	0.341	100	8.4	LOS A	1.9	49.5	Full	1600	0.0	0.0
Lane 2 ^d	278	2.0	814	0.341	100	8.4	LOS A	1.9	49.5	Full	1600	0.0	0.0
Approach	555	2.0		0.341		8.4	LOS A	1.9	49.5				
North: 50th Street													
Lane 1 ^d	150	2.0	785	0.191	100	6.6	LOS A	0.8	20.9	Full	1600	0.0	0.0
Lane 2	75	2.0	622	0.121	63 ⁵	7.2	LOS A	0.5	12.1	Short	200	0.0	NA
Approach	225	2.0		0.191		6.8	LOS A	0.8	20.9				
West: W Avenue K													
Lane 1	686	2.0	1108	0.619	100	11.5	LOS B	5.0	126.2	Full	1600	0.0	0.0
Lane 2 ^d	686	2.0	1108	0.619	100	11.5	LOS B	5.0	126.2	Full	1600	0.0	0.0
Approach	1372	2.0		0.619		11.5	LOS B	5.0	126.2				
Intersection	2596	2.0		0.619		11.7	LOS B	5.0	126.2				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

LANE FLOWS

 Site: AM 50th St & W Ave K

AM 2021+Related Projects+Project with Mitigation
Roundabout

Approach Lane Flows (veh/h)																		
South: 50th Street																		
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.									
From S To Exit:	W	N	E			Cap. veh/h	v/c	%	%									
Lane 1	45	257	-	301	2.0	507	0.594	100	NA									
Lane 2	-	-	142	142	2.0	366	0.389	65 ⁵	0.0									
Approach	45	257	142	443	2.0		0.594											
East: W Avenue K																		
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.									
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%									
Lane 1	38	240	-	278	2.0	814	0.341	100	NA									
Lane 2	-	251	27	278	2.0	814	0.341	100	NA									
Approach	38	490	27	555	2.0		0.341											
North: 50th Street																		
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.									
From N To Exit:	E	S	W			Cap. veh/h	v/c	%	%									
Lane 1	20	130	-	150	2.0	785	0.191	100	NA									
Lane 2	-	-	75	75	2.0	622	0.121	63 ⁵	0.0									
Approach	20	130	75	225	2.0		0.191											
West: W Avenue K																		
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.									
From W To Exit:	N	E	S			Cap. veh/h	v/c	%	%									
Lane 1	149	537	-	686	2.0	1108	0.619	100	NA									
Lane 2	-	650	36	686	2.0	1108	0.619	100	NA									
Approach	149	1187	36	1372	2.0		0.619											
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Total</th> <th>%HV</th> <th>Deg. Satn (v/c)</th> </tr> </thead> <tbody> <tr> <td>Intersection</td> <td>2596</td> <td>2.0</td> <td>0.619</td> </tr> </tbody> </table>												Total	%HV	Deg. Satn (v/c)	Intersection	2596	2.0	0.619
	Total	%HV	Deg. Satn (v/c)															
Intersection	2596	2.0	0.619															

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

⁵ Lane under-utilisation found by the program

LEVEL OF SERVICE

 **Site: AM 50th St & W Ave K**

AM 2021+Related Projects+Project with Mitigation
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	C	A	A	B	B

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

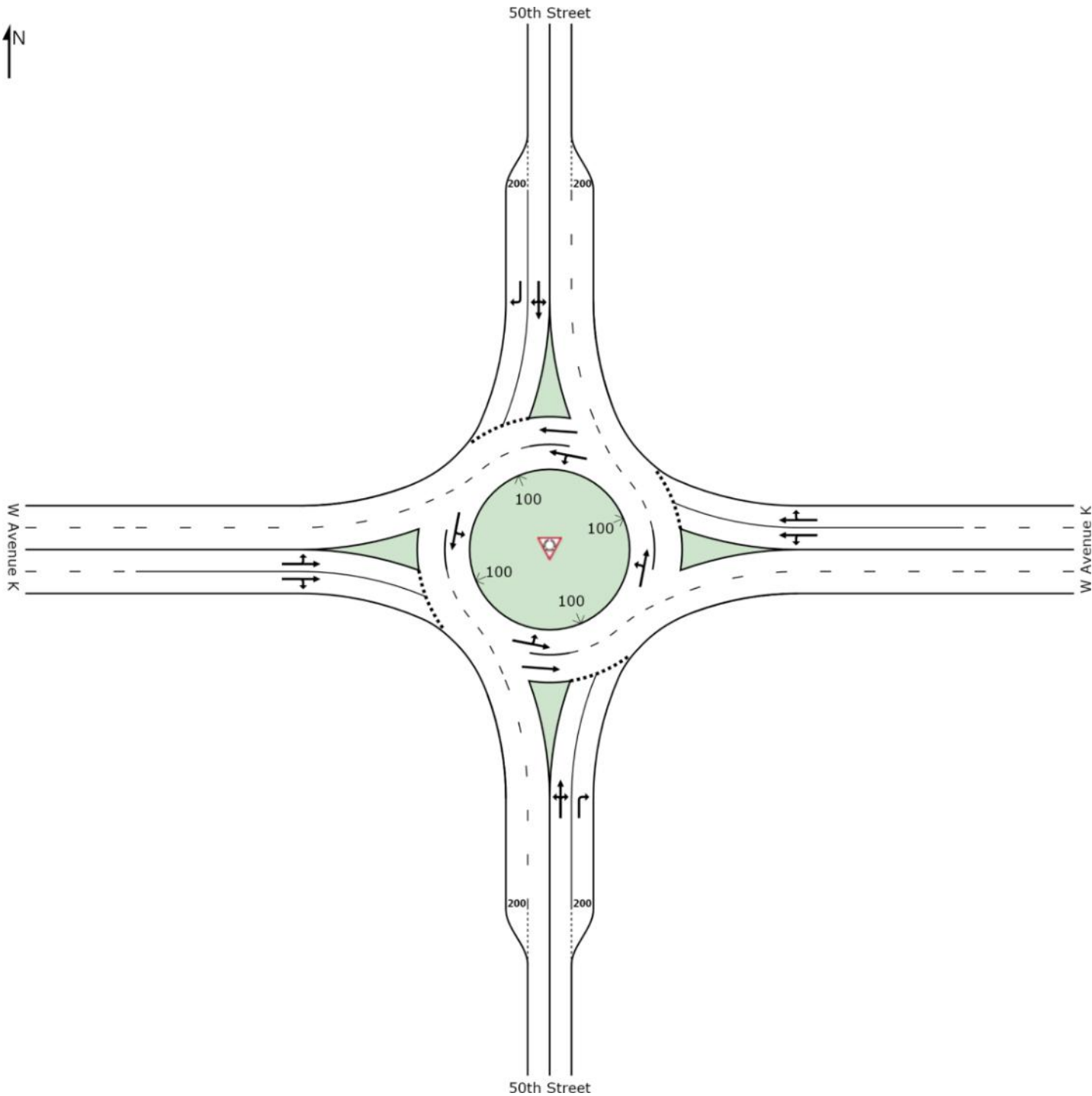
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

SITE LAYOUT

 Site: AM 50th St & W Ave K

AM 2021+Related Projects+Project with Mitigation
Roundabout



INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: AM 50th St & W Ave K

AM 2021+Related Projects+Project with Mitigation Roundabout

Volume Display Method: Total and %

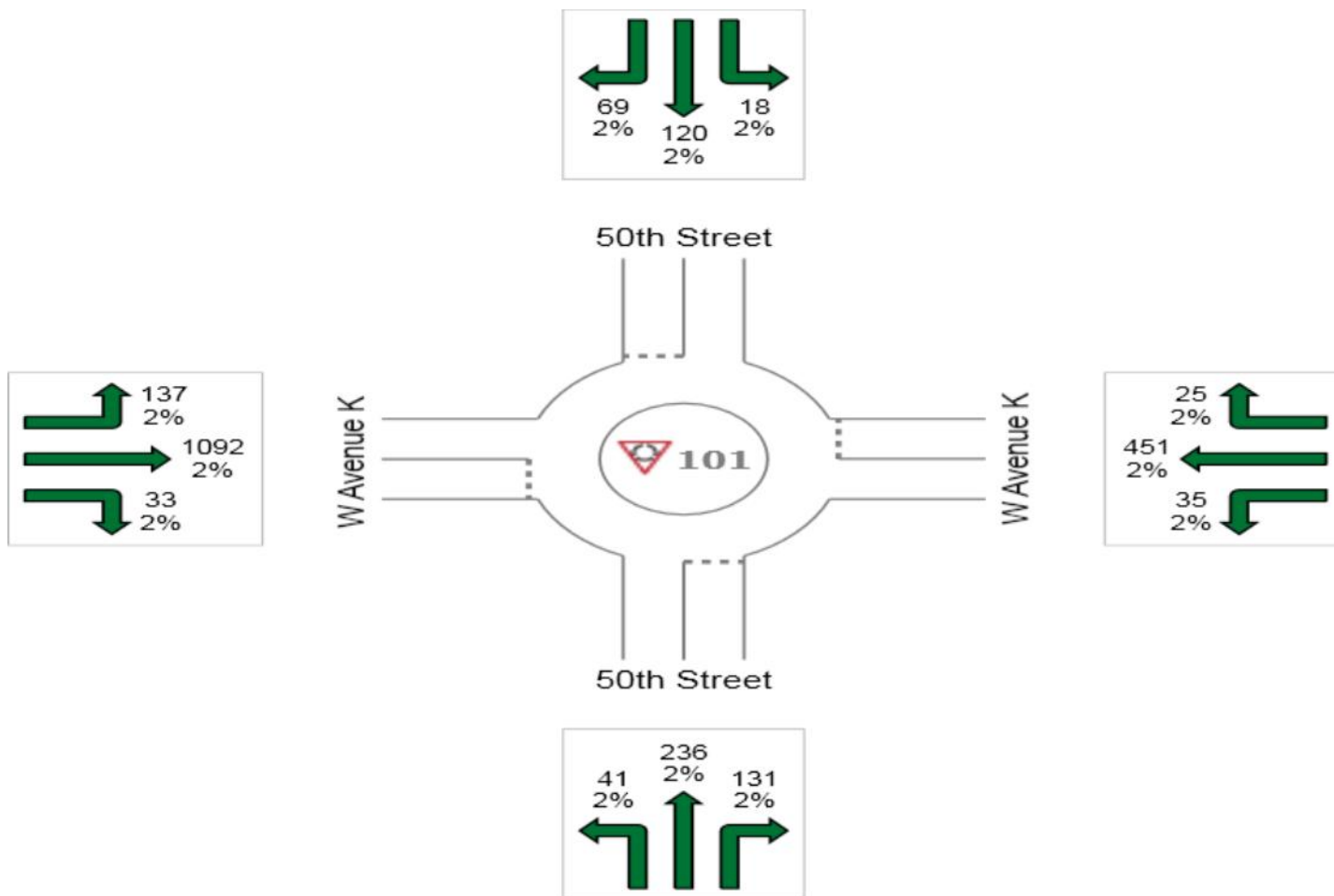
Volumes are shown for Movement Class(es): All Classes and Heavy Vehicles

Total Intersection Volumes (veh)

All Movement Classes: 2388

Light Vehicles (LV): 2340

Heavy Vehicles (HV): 48

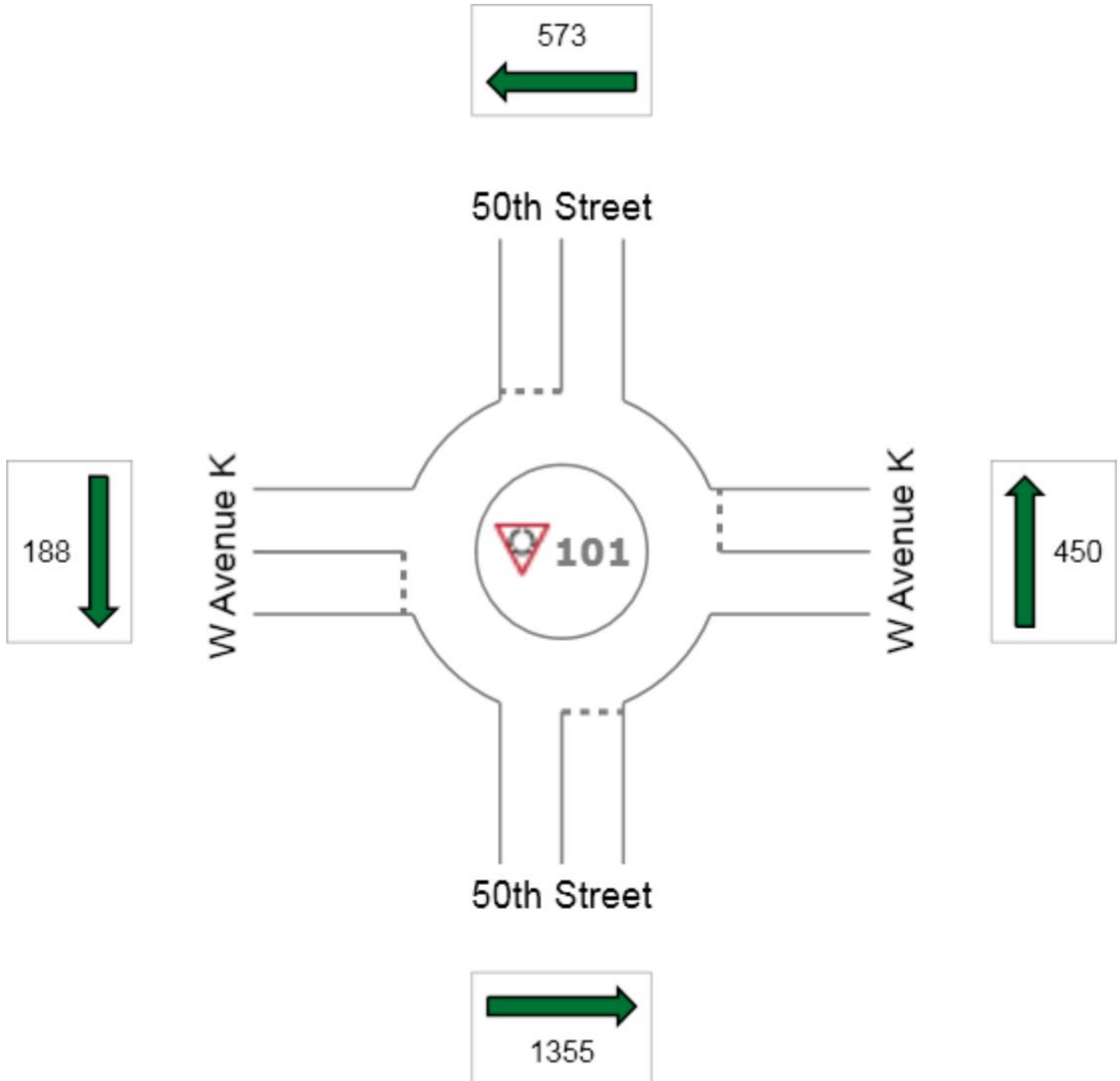


ROUNABOUT CIRCULATING FLOWS

Total Values for All Movement Classes Based on Site Arrival Flow Rates including Capacity Constraint Effects (veh/h)

 Site: AM 50th St & W Ave K

AM 2021+Related Projects+Project with Mitigation Roundabout



DELAY (CONTROL)

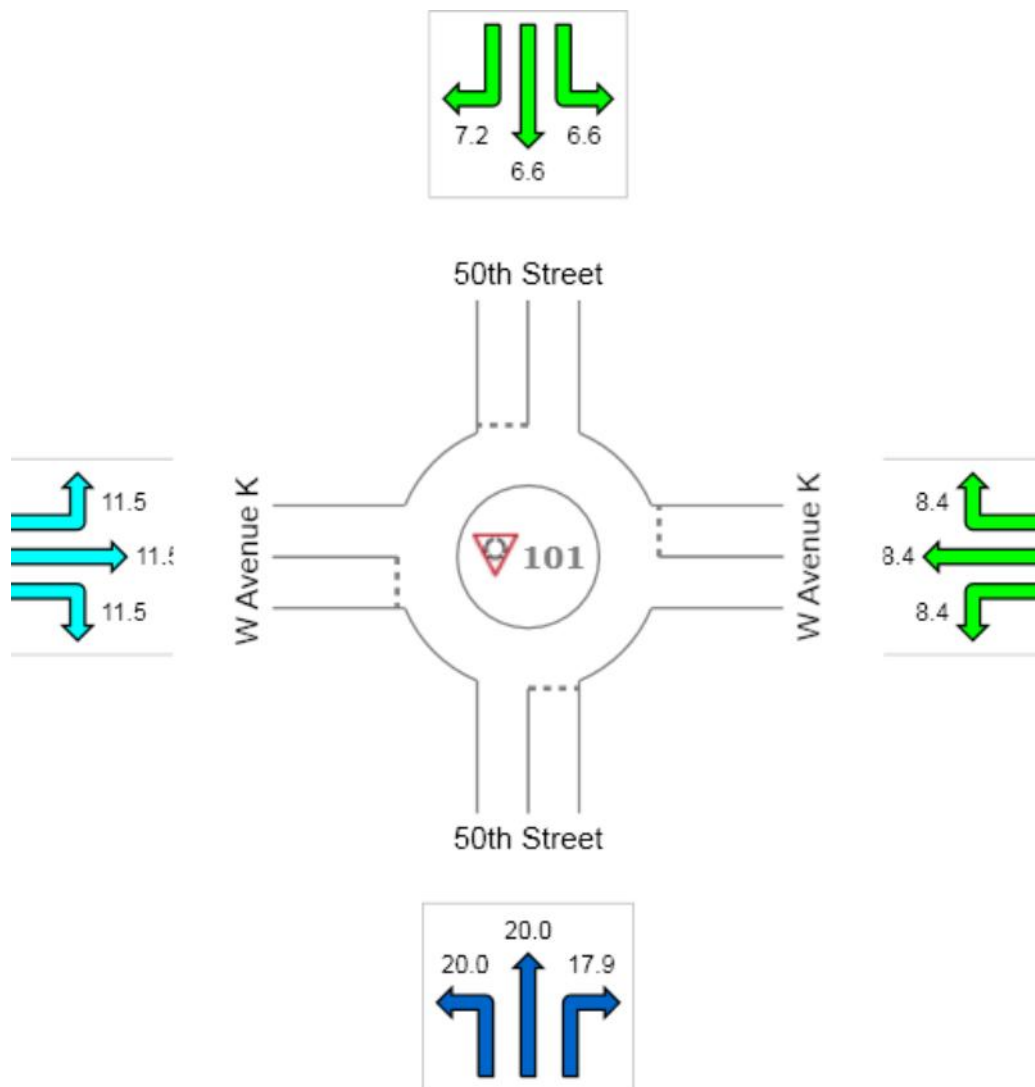
Average control delay per vehicle, or average pedestrian delay (seconds)

 Site: AM 50th St & W Ave K

AM 2021+Related Projects+Project with Mitigation Roundabout

All Movement Classes

	South	East	North	West	Intersection
	19.3	8.4	6.8	11.5	11.7
LOS	C	A	A	B	B



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F Continuous

Level of Service Method: Delay & v/c (HCM 2010)

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

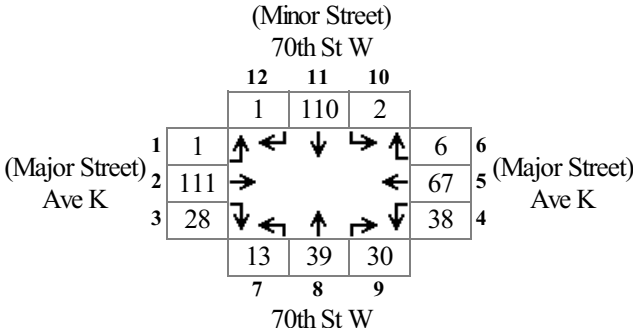
Roundabout Level of Service Method: Same as Sign Control

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

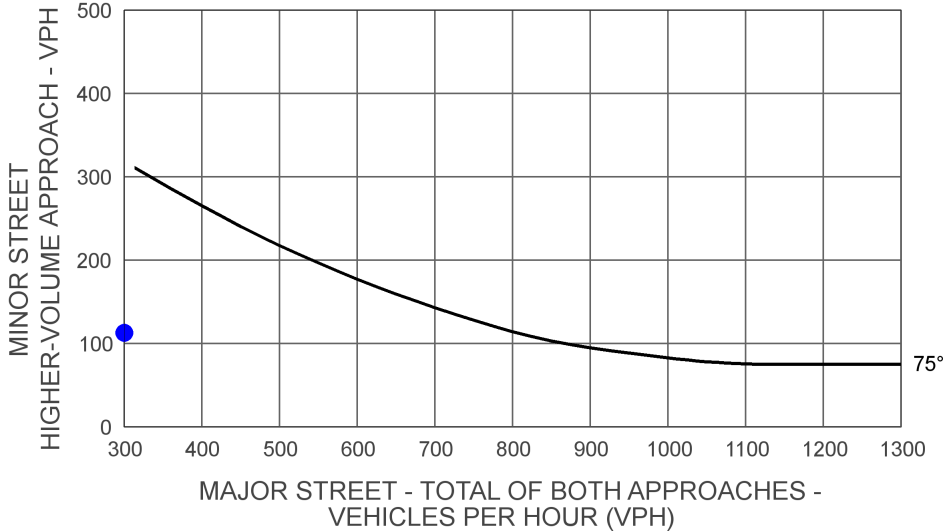
Signal Warrant Analysis

Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 1

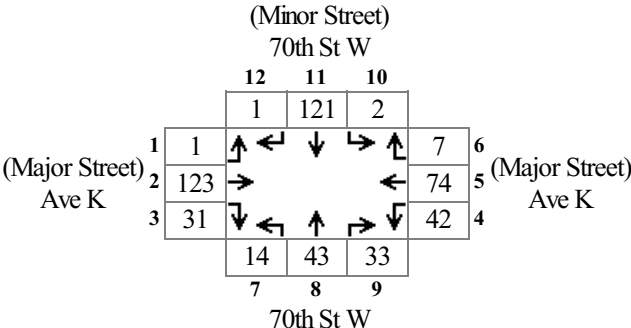


Major Total: 251
Minor High Volume: 113

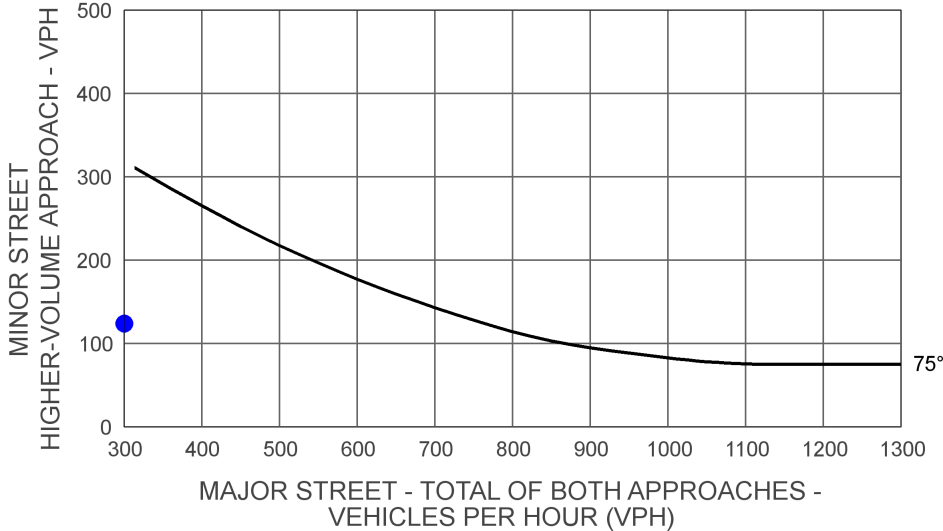


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 1

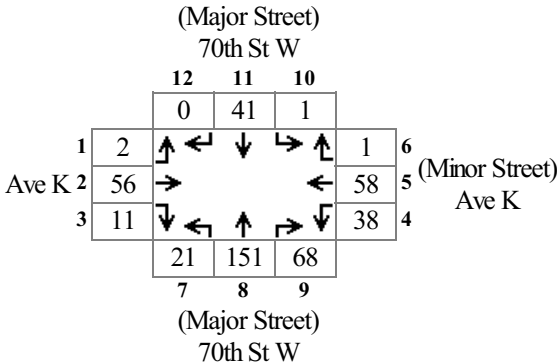


Major Total: 278
Minor High Volume: 124

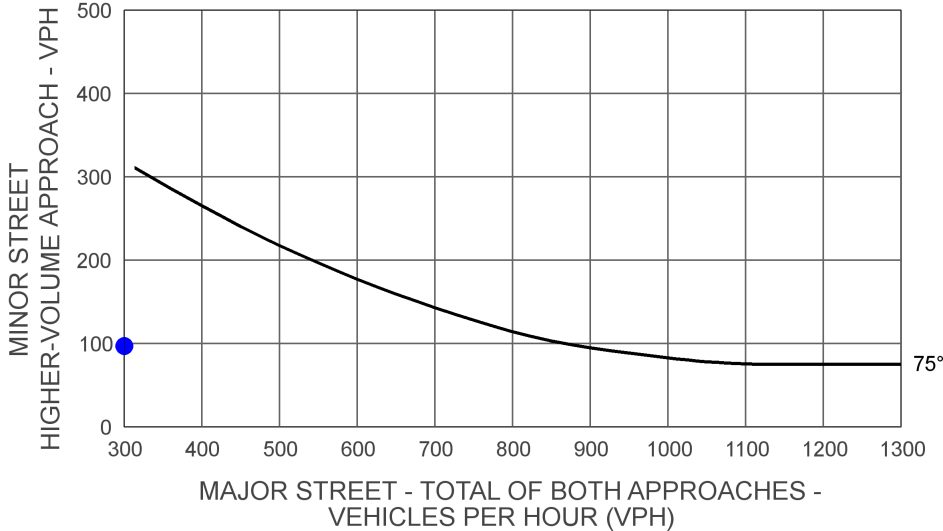


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 1

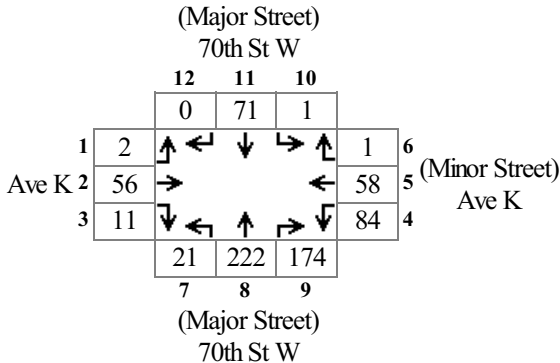


Major Total: 282
Minor High Volume: 97

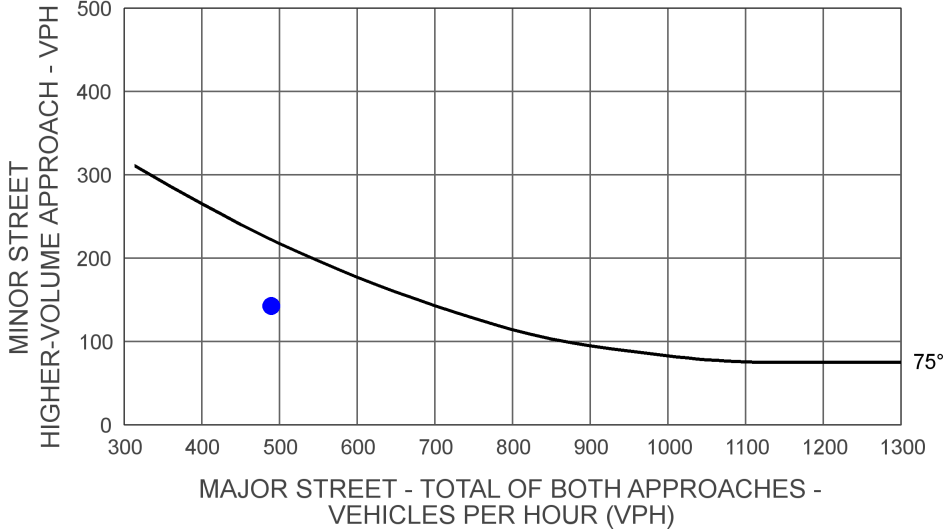


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 1

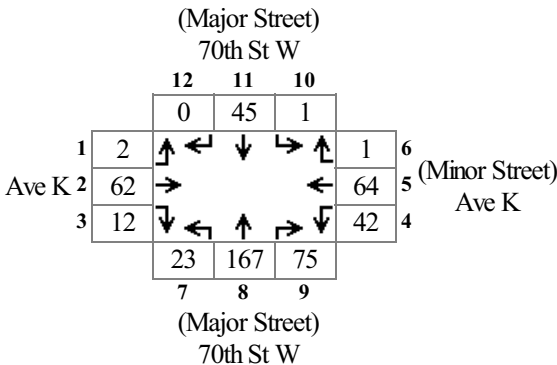


Major Total: 489
Minor High Volume: 143

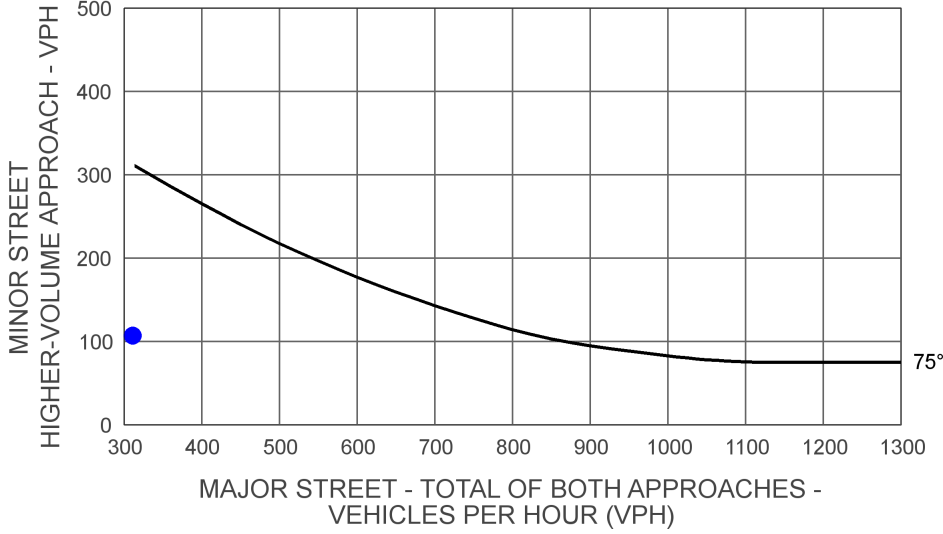


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 1

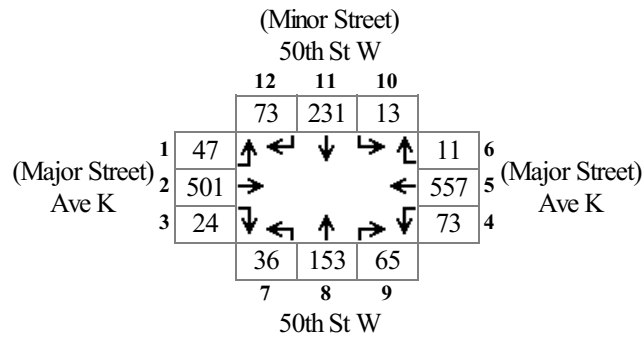


Major Total: 311
Minor High Volume: 107

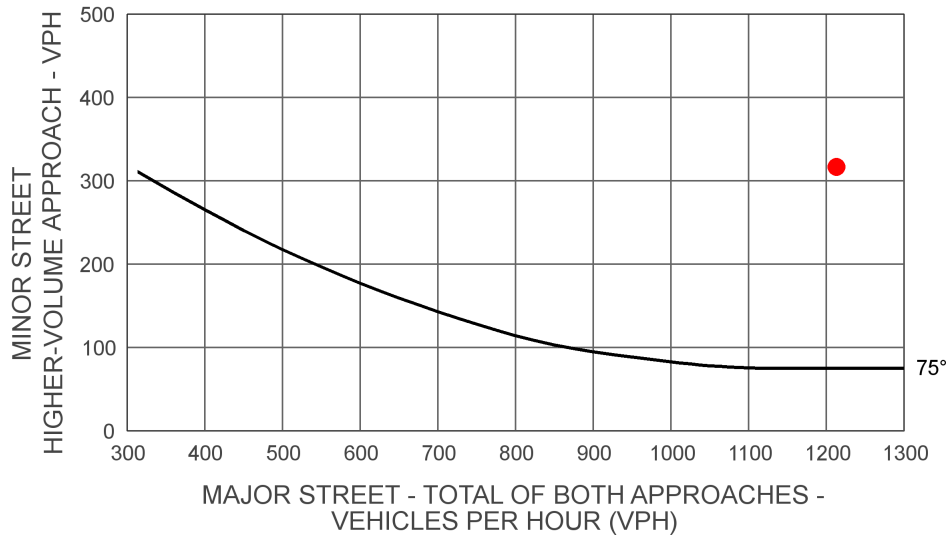


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Existing+Project
Intersection #: 3

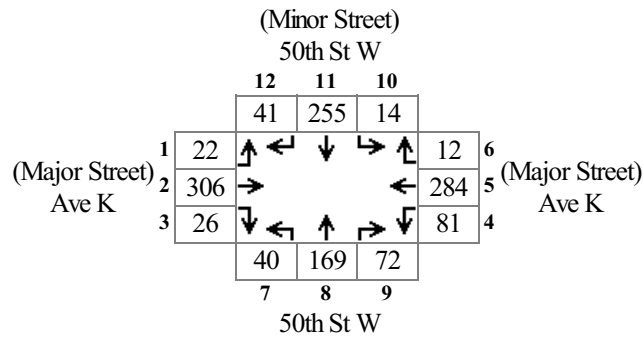


Major Total: 1213
Minor High Volume: 317

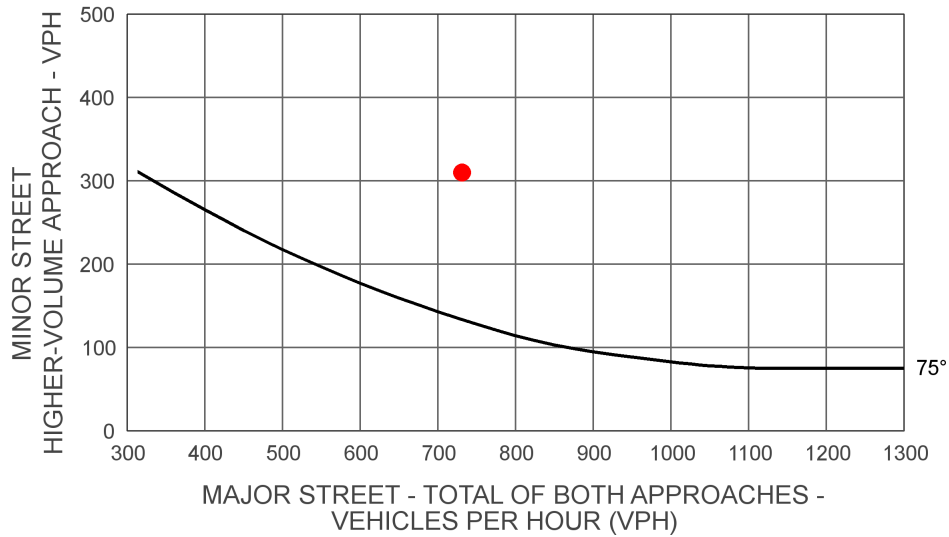


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 3

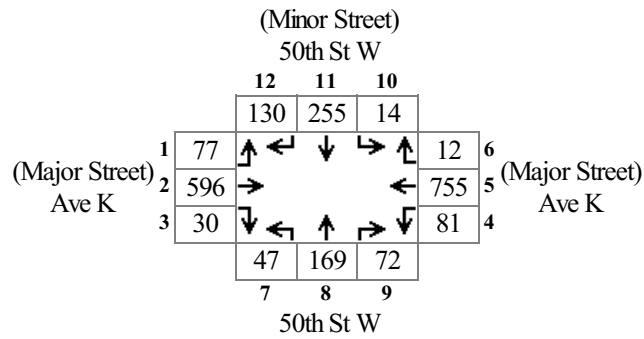


Major Total: 731
Minor High Volume: 310

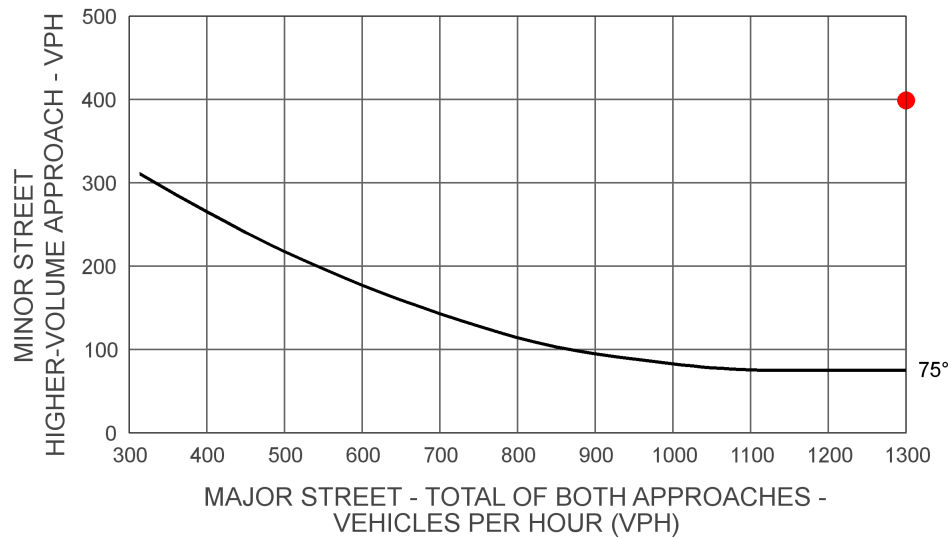


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future+Related Projects
Intersection #: 3

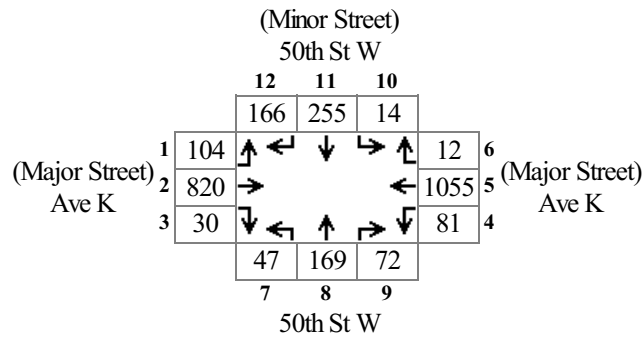


Major Total: 1551
Minor High Volume: 399

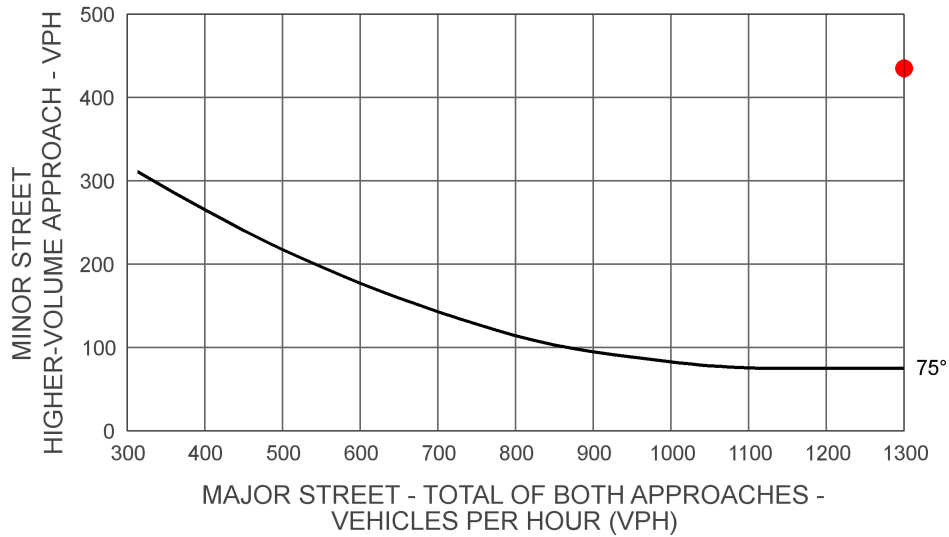


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future+Related Projects+Project
Intersection #: 3

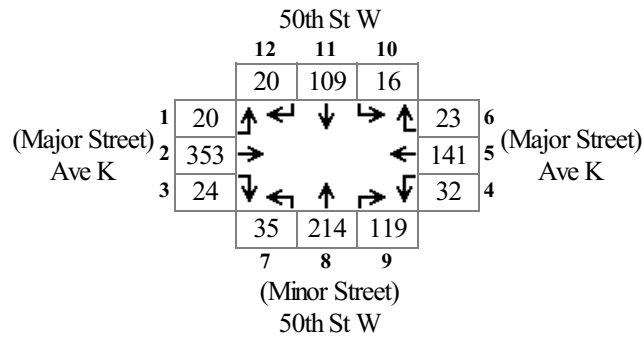


Major Total: 2102
Minor High Volume: 435

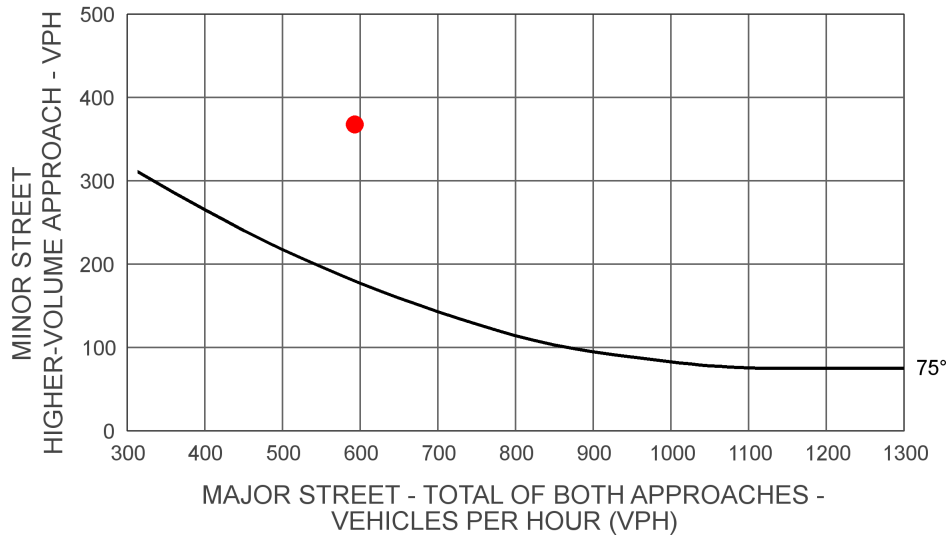


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Existing
Intersection #: 3

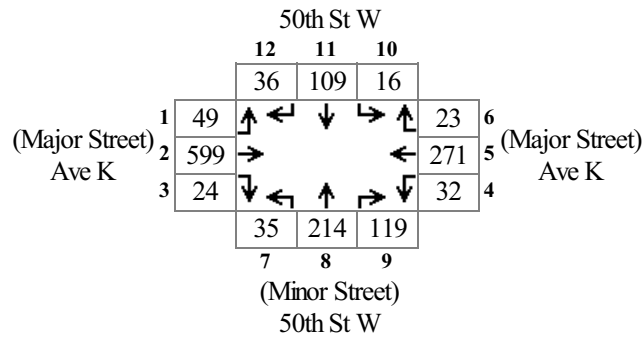


Major Total: 593
Minor High Volume: 368

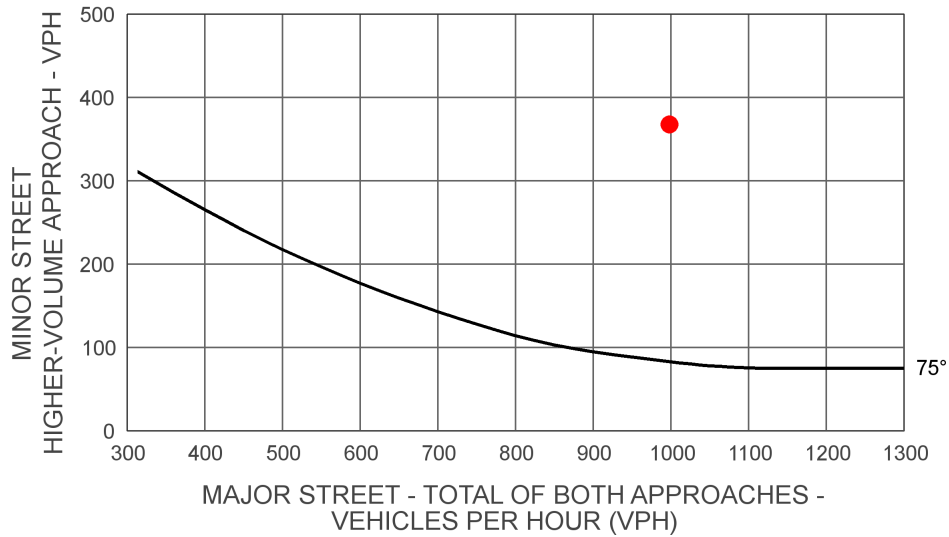


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Existing+Project
Intersection #: 3

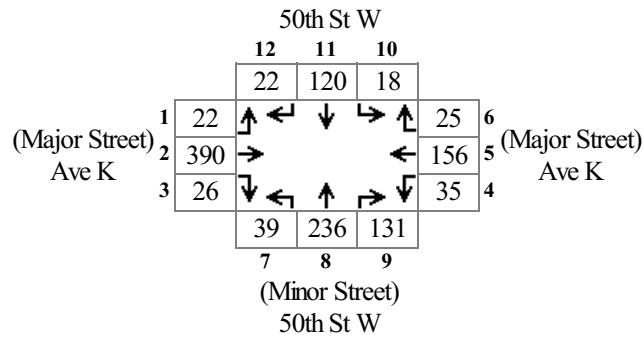


Major Total:998
Minor High Volume:368

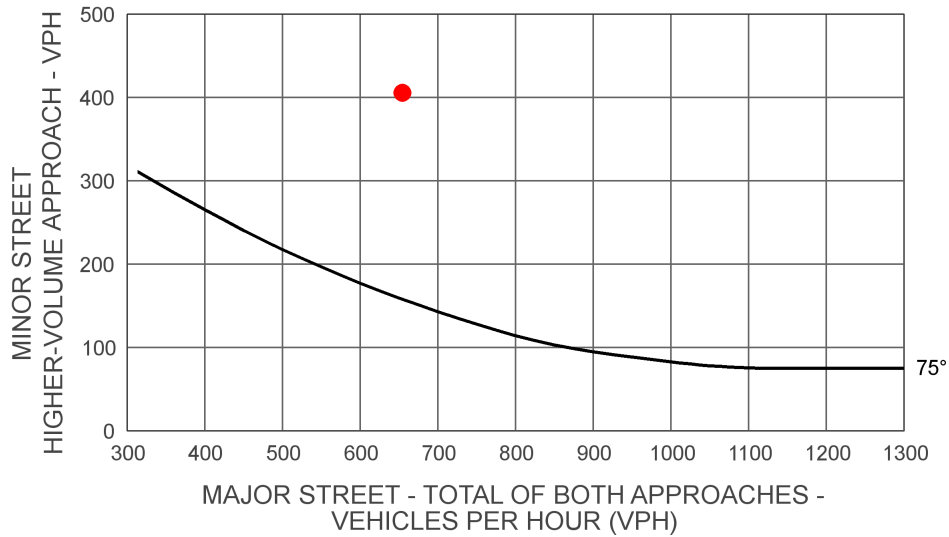


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 3

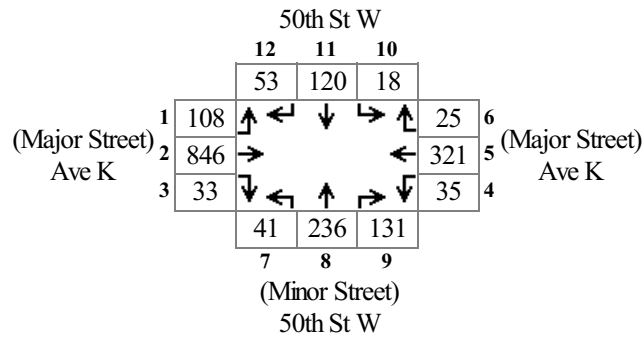


Major Total: 654
Minor High Volume: 406

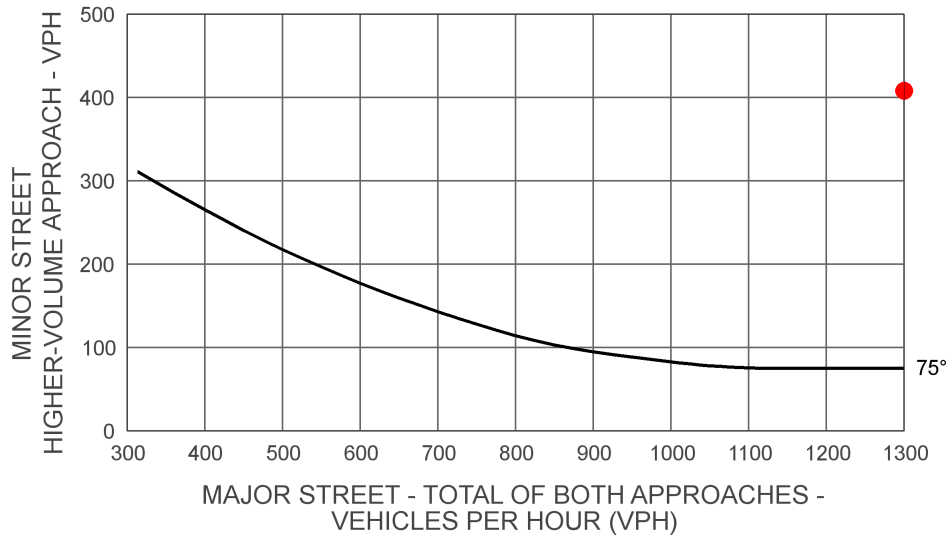


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Future+Related Projects
Intersection #: 3

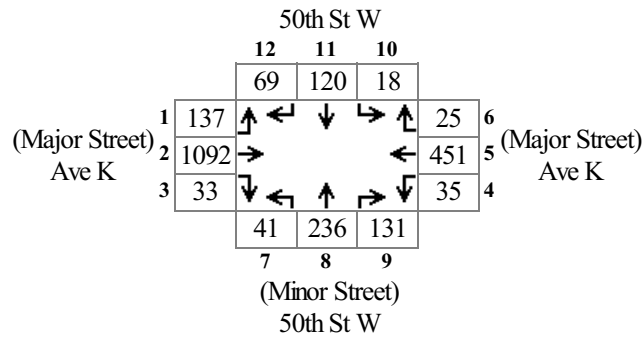


Major Total: 1368
Minor High Volume: 408

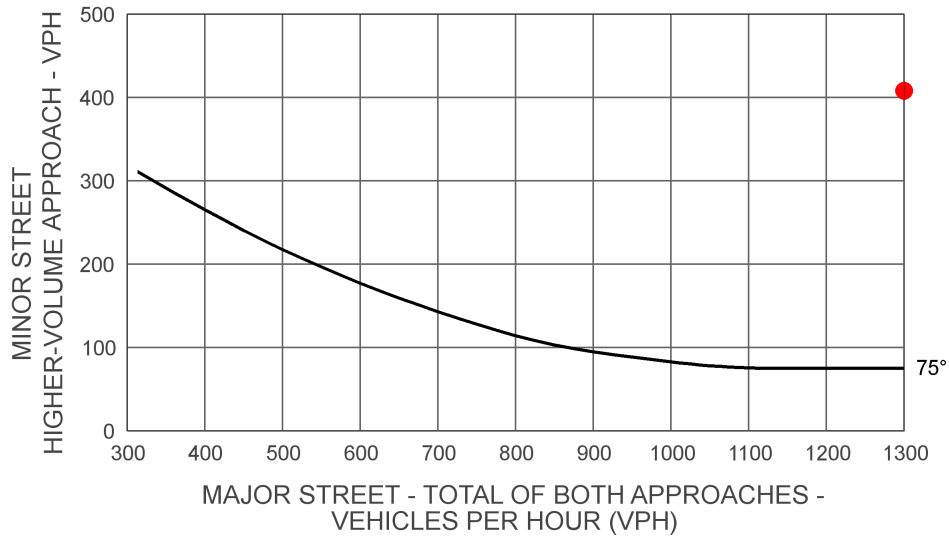


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Future+Related Projects+Project
Intersection #: 3

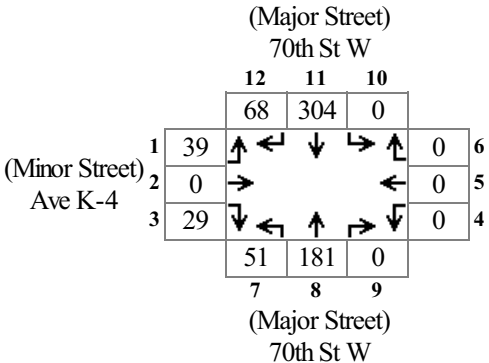


Major Total: 1773
Minor High Volume: 408

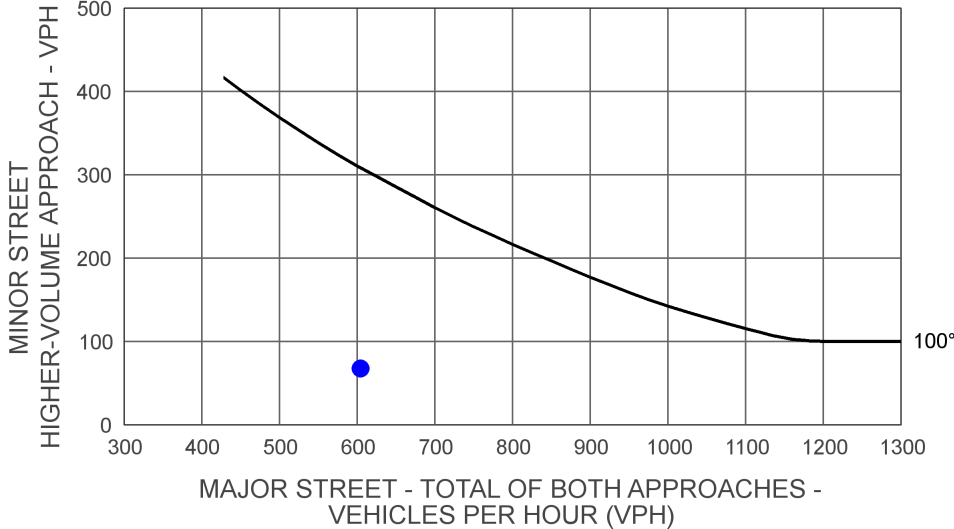


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 12

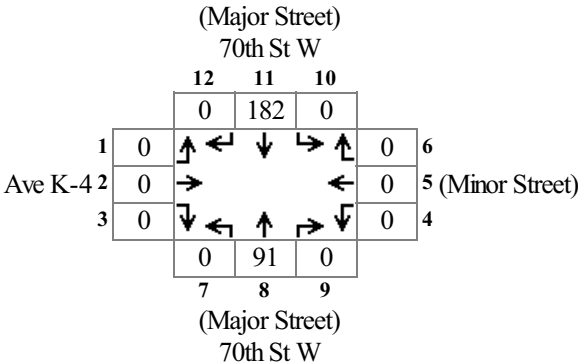


Major Total: 604
Minor High Volume: 68

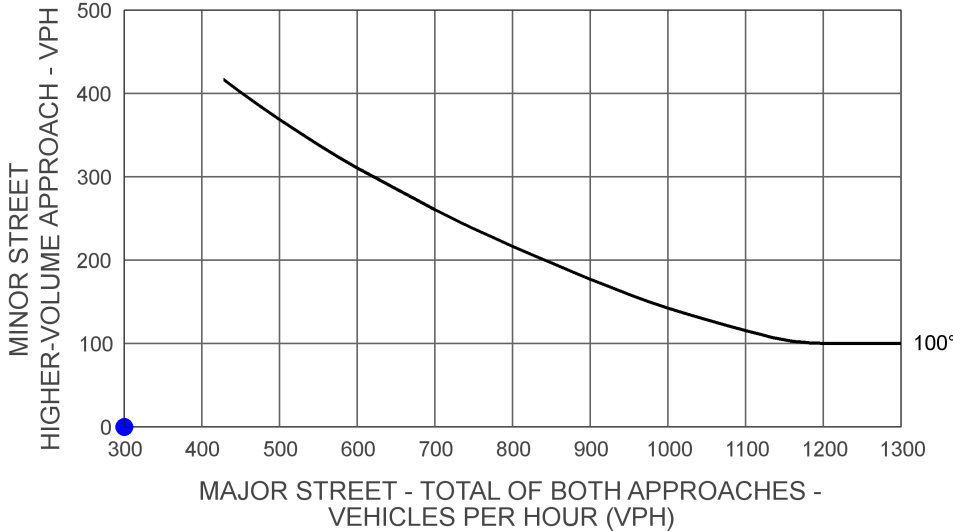


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 12

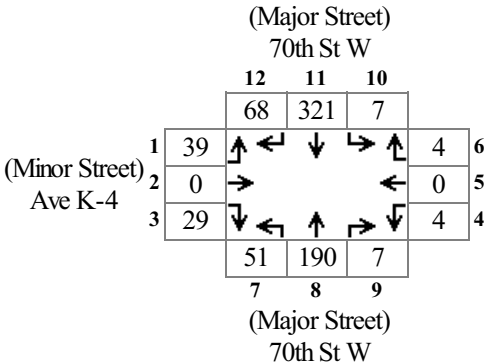


Major Total: 273
Minor High Volume: 0

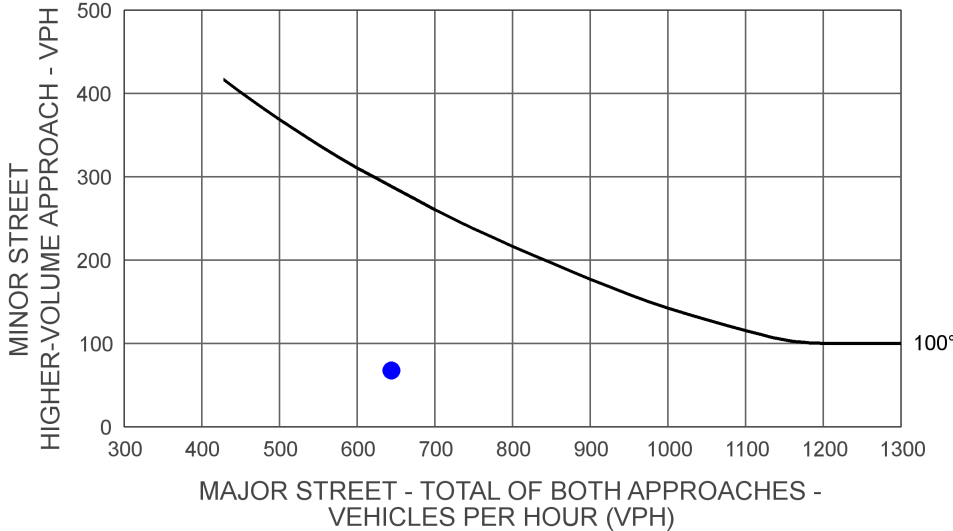


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Related Projects+Project
Intersection #: 12

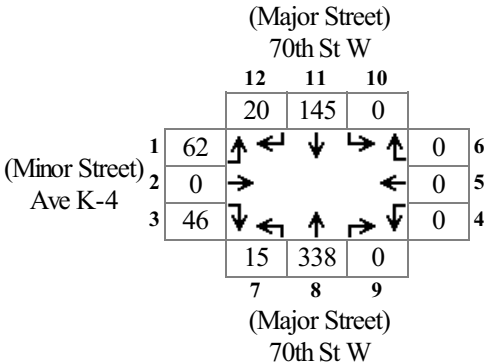


Major Total: 644
Minor High Volume: 68

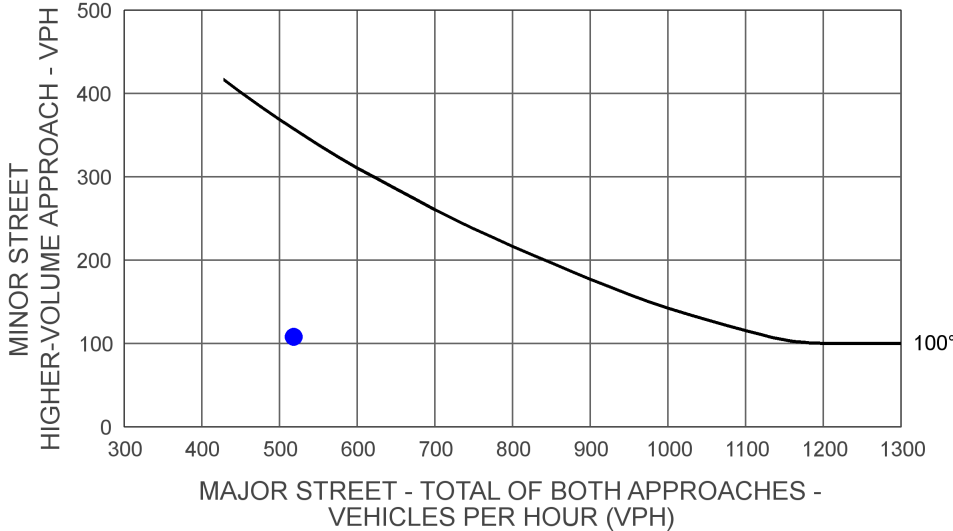


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 12

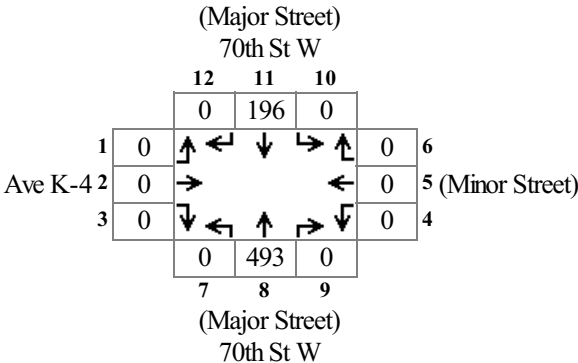


Major Total: 518
Minor High Volume: 108

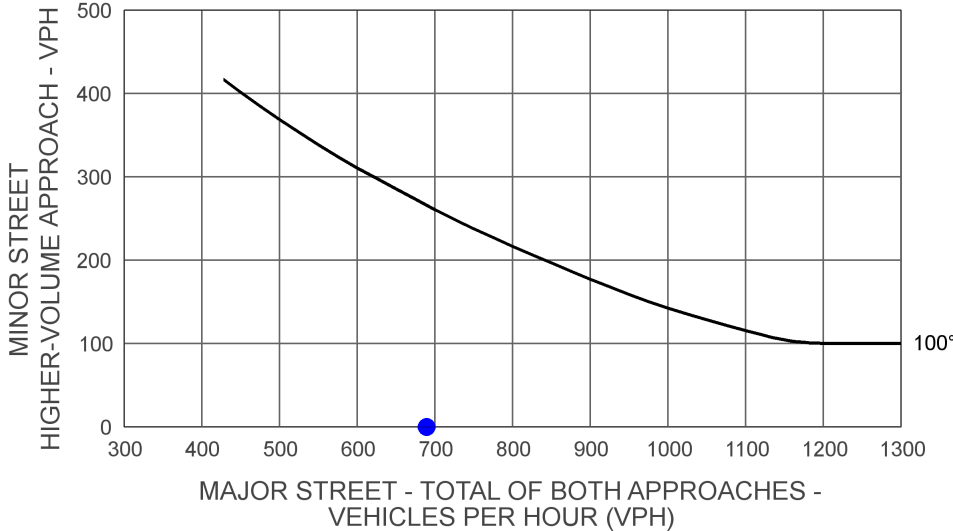


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 12

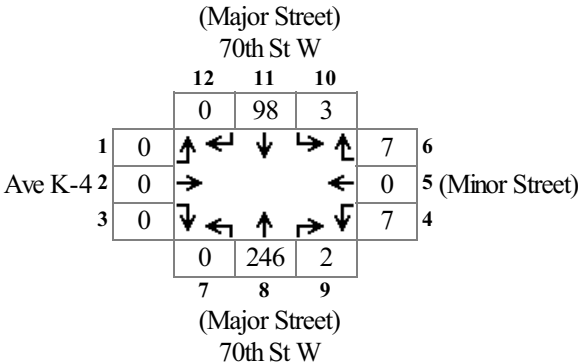


Major Total: 689
Minor High Volume: 0

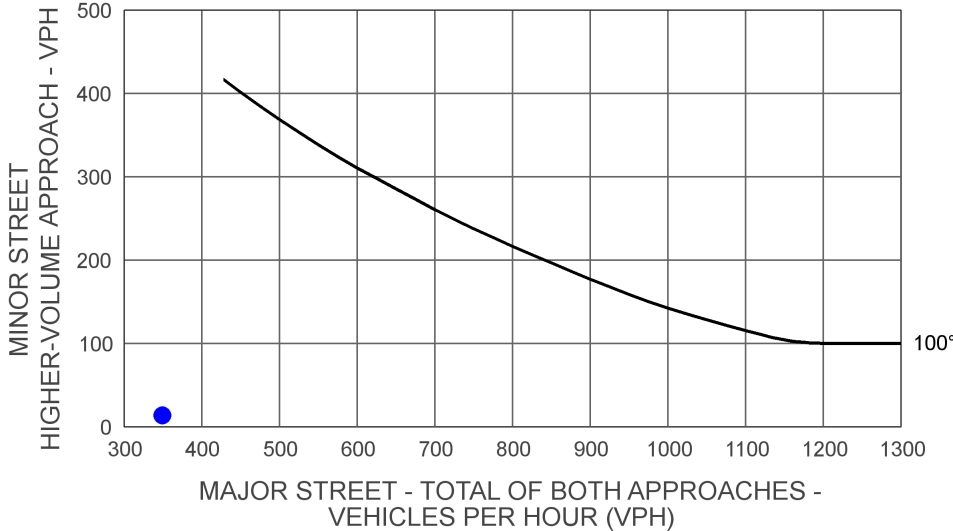


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Related Projects
Intersection #: 12

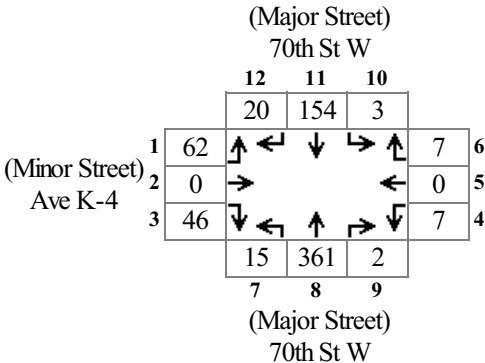


Major Total: 349
Minor High Volume: 14

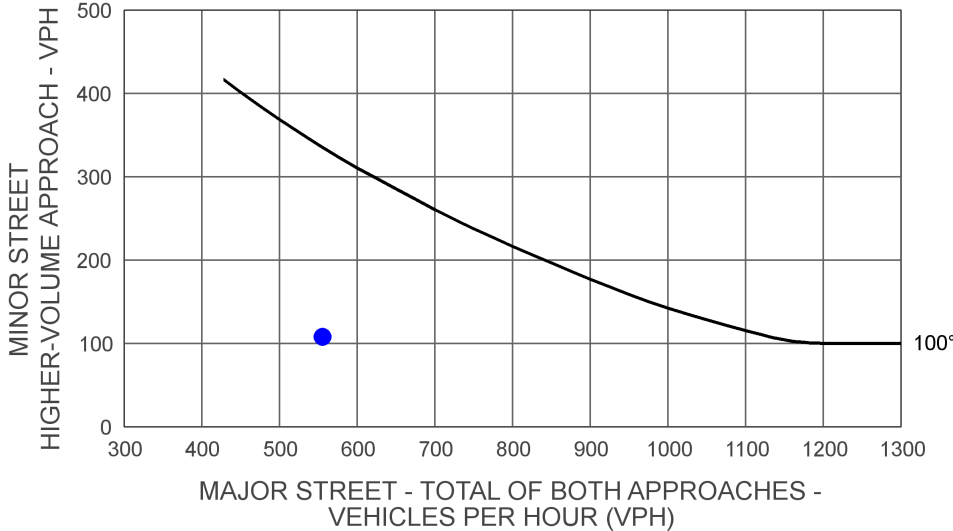


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Related Projects+Project
Intersection #: 12

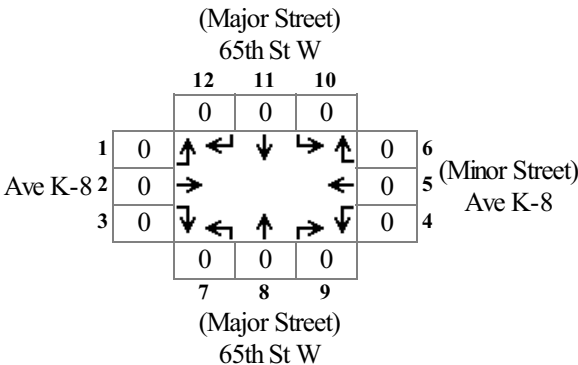


Major Total: 555
Minor High Volume: 108

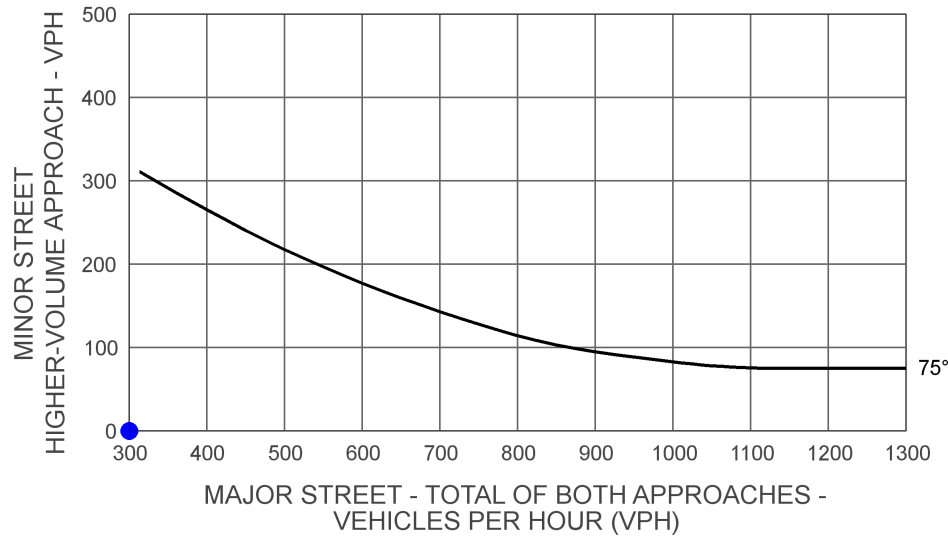


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 14

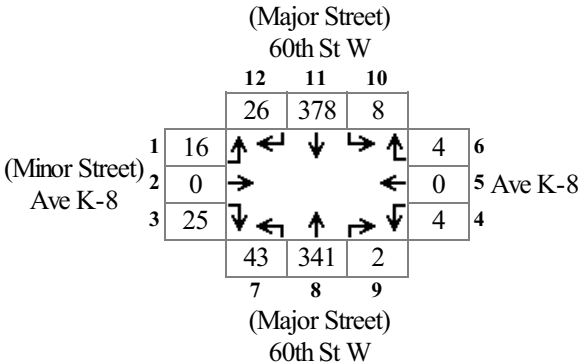


Major Total:0
Minor High Volume:0

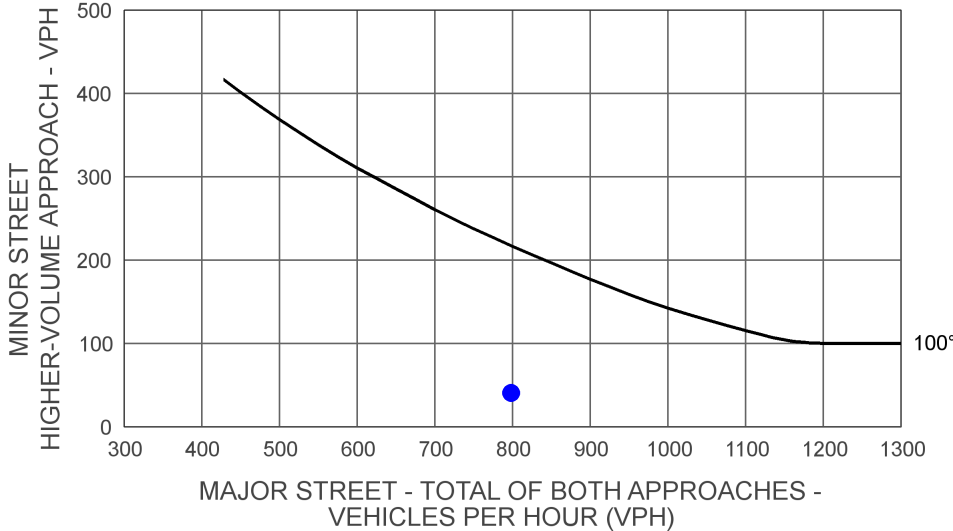


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 15

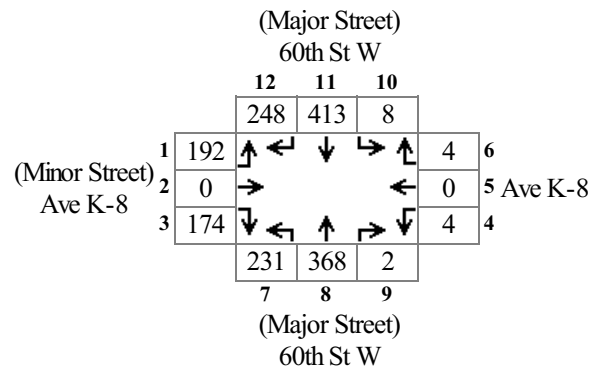


Major Total: 798
Minor High Volume: 41

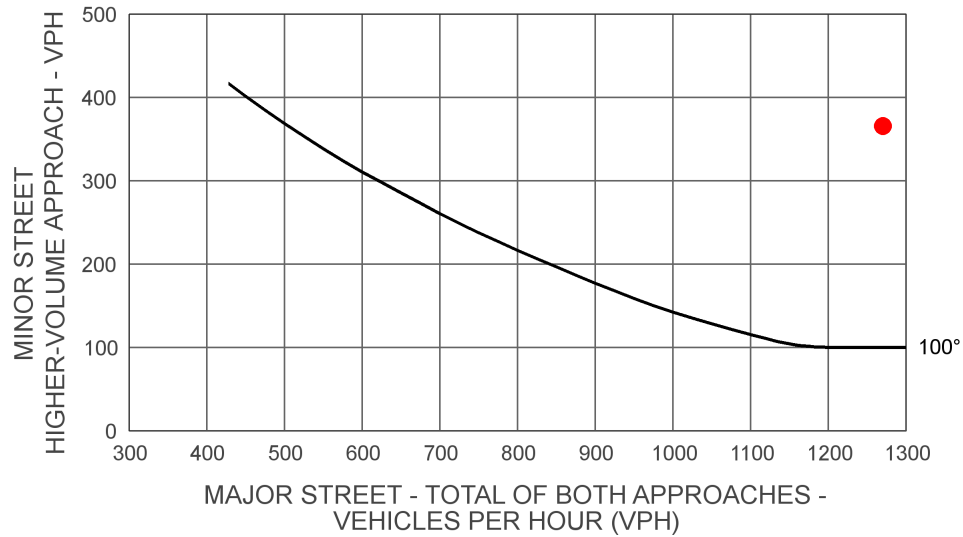


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Existing+Project
Intersection #: 15

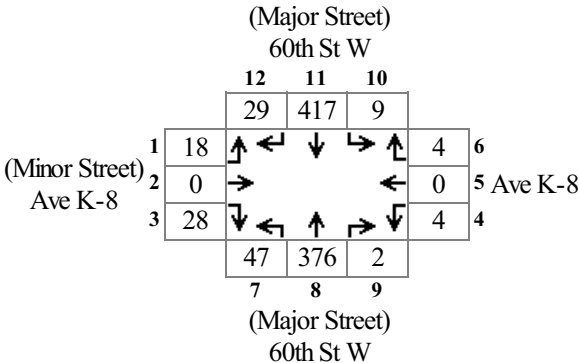


Major Total: 1270
Minor High Volume: 366

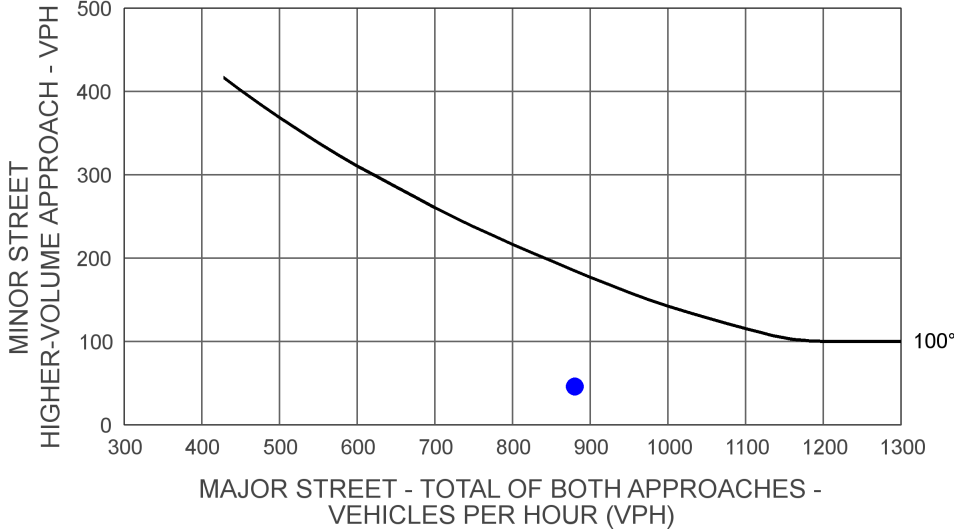


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 15

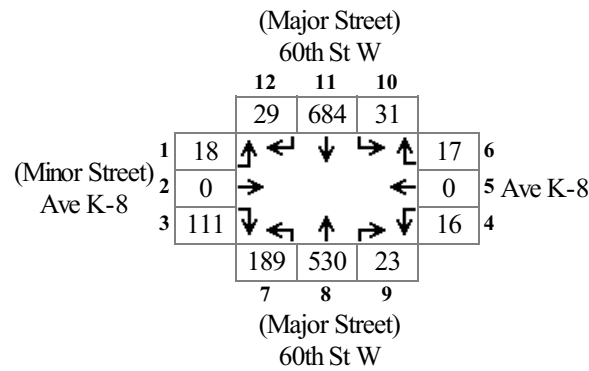


Major Total: 880
Minor High Volume: 46

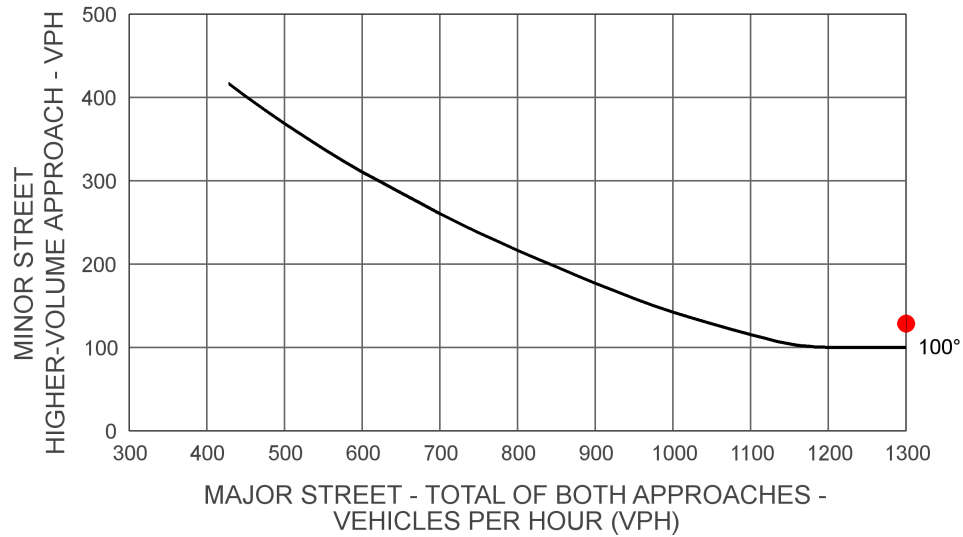


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future+Related Projects
Intersection #: 15

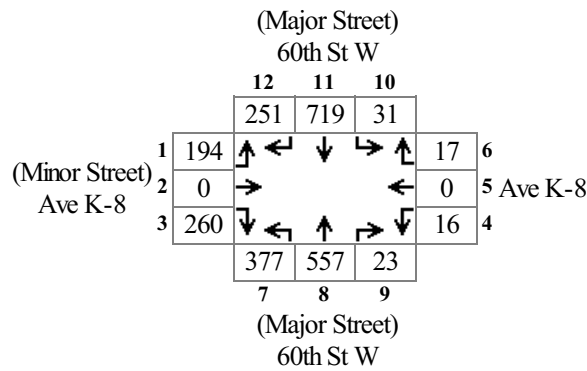


Major Total: 1486
Minor High Volume: 129

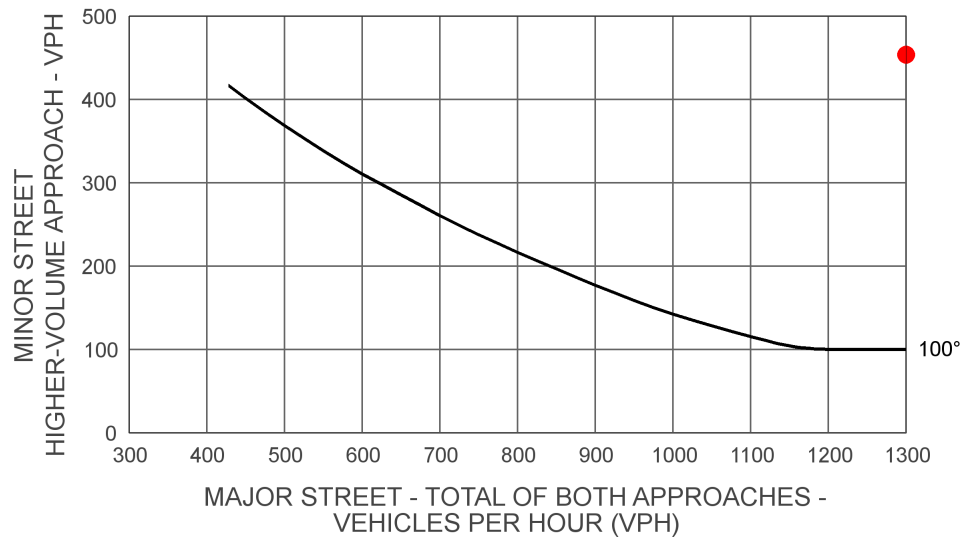


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future+Related Projects+Project
Intersection #: 15

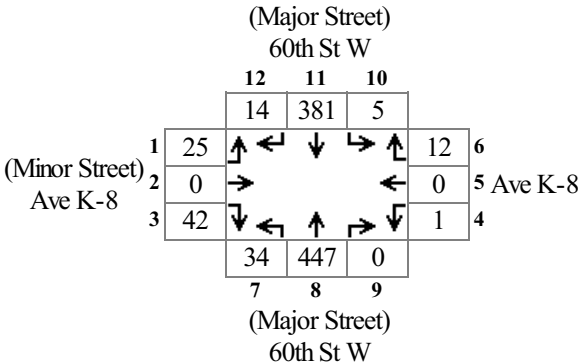


Major Total: 1958
Minor High Volume: 454

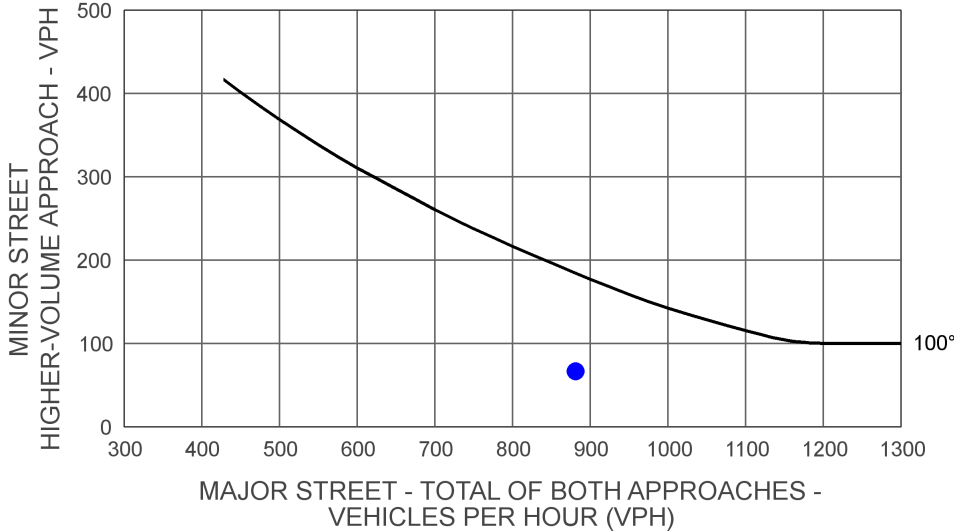


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 15

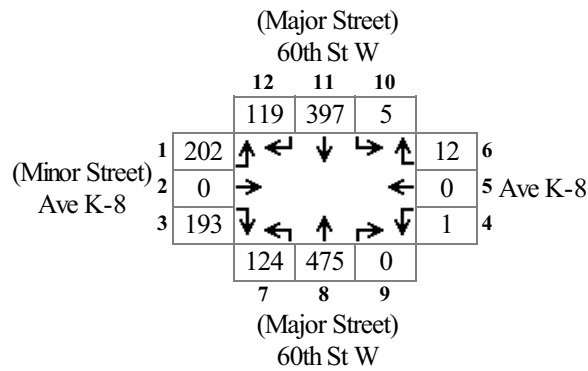


Major Total: 881
Minor High Volume: 67

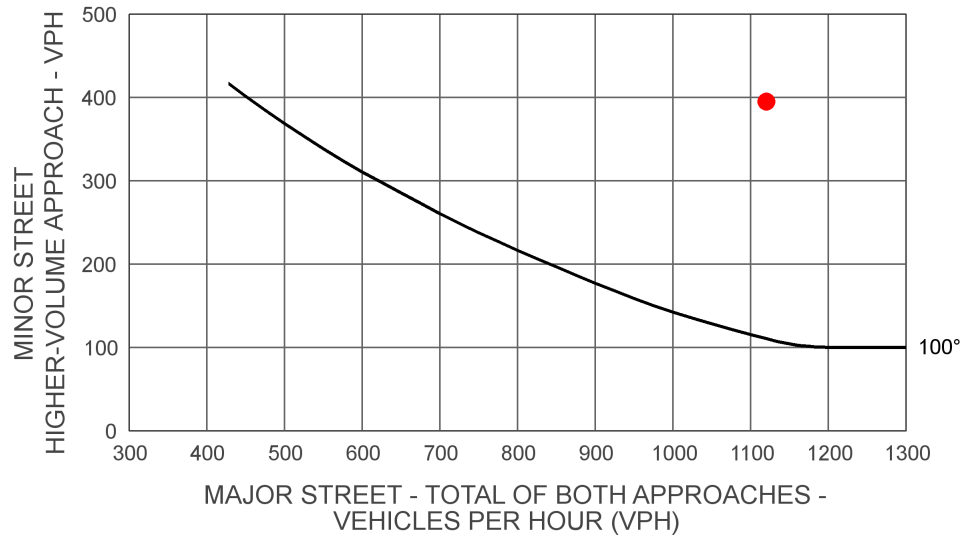


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Existing+Project
Intersection #: 15

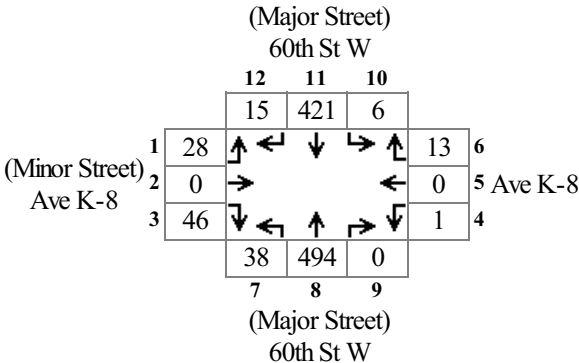


Major Total: 1120
Minor High Volume: 395

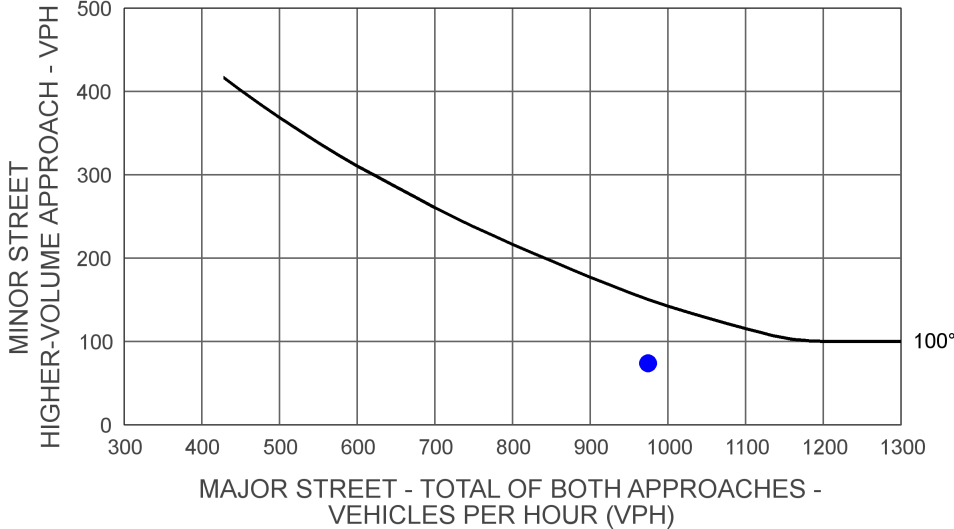


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 15

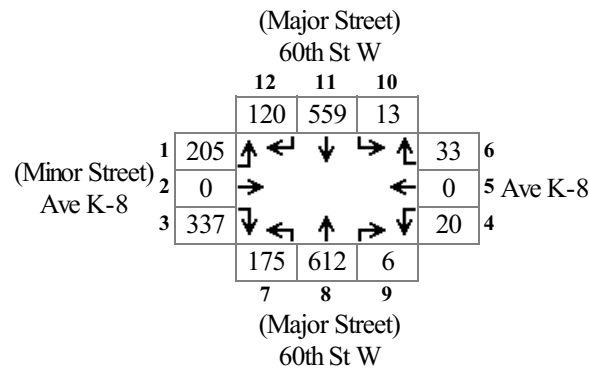


Major Total: 974
Minor High Volume: 74

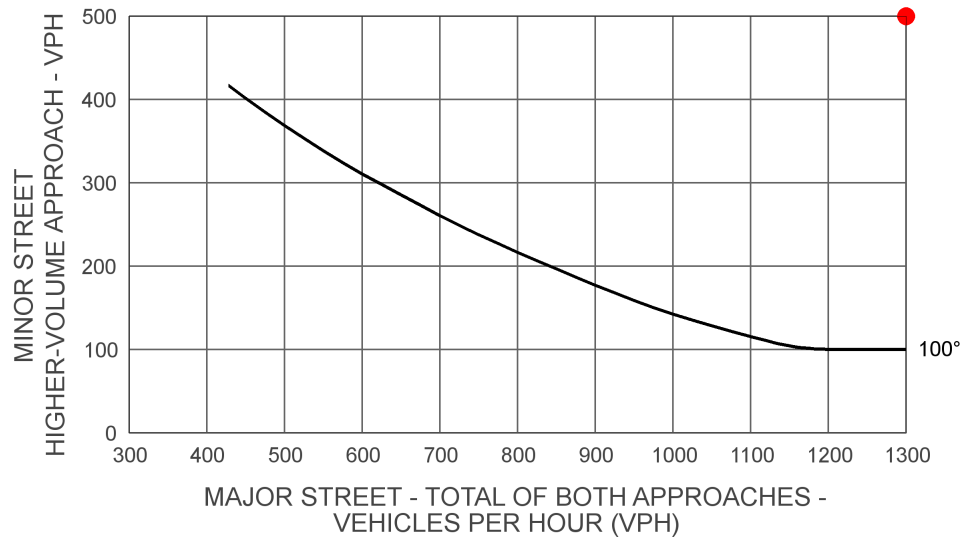


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Future+Related Projects+Project
Intersection #: 15

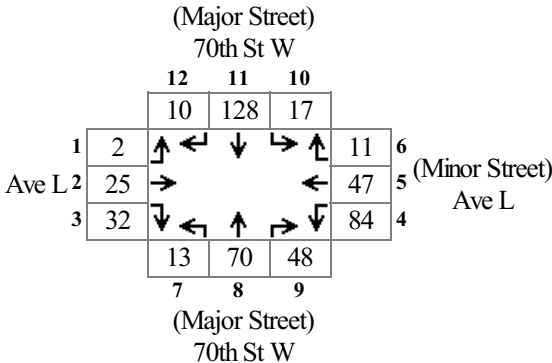


Major Total: 1485
Minor High Volume: 542

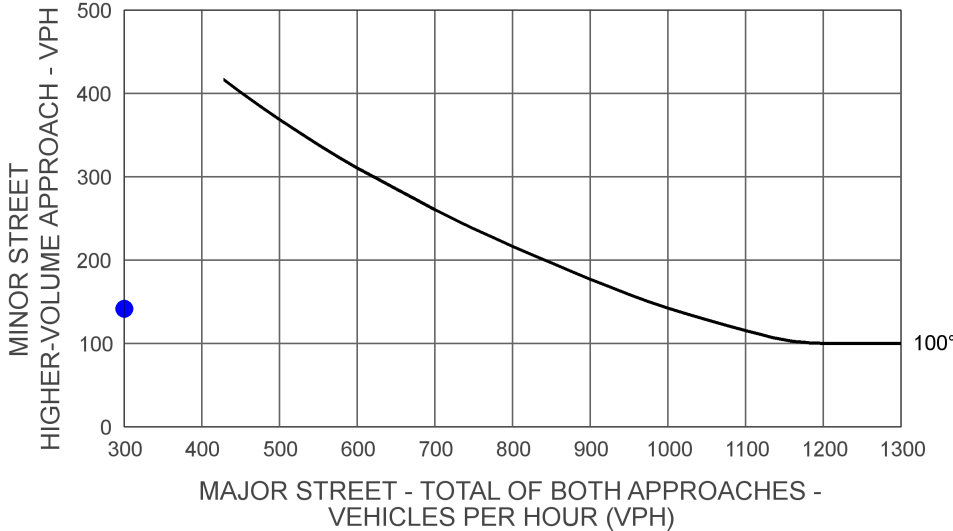


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 16

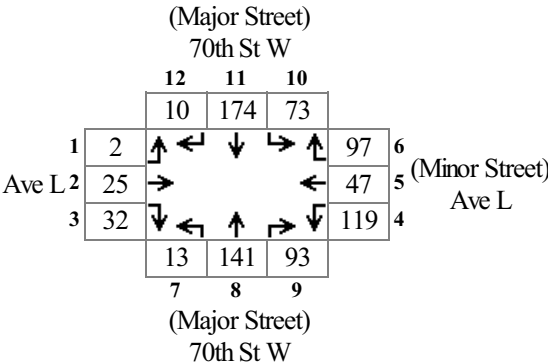


Major Total: 286
Minor High Volume: 142

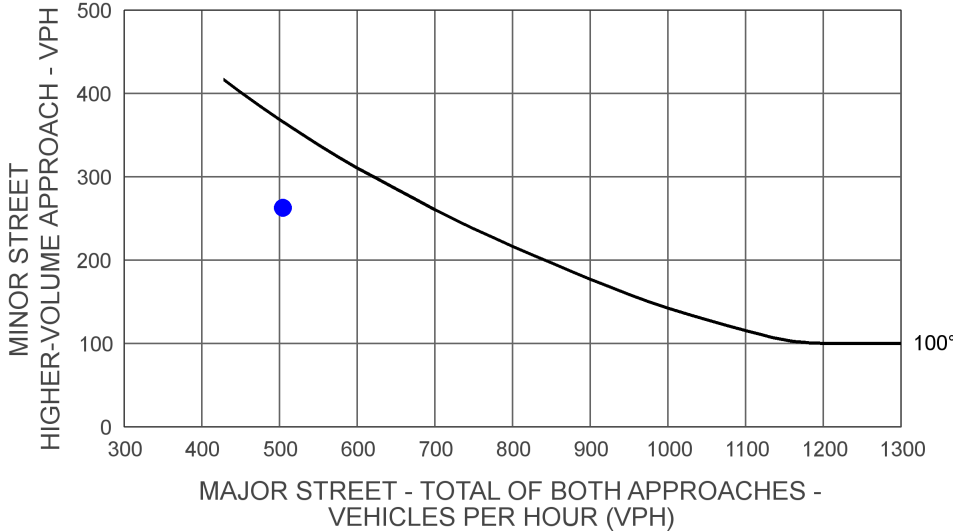


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 16

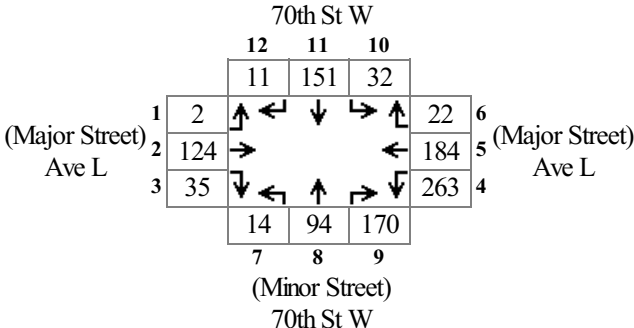


Major Total: 504
Minor High Volume: 263

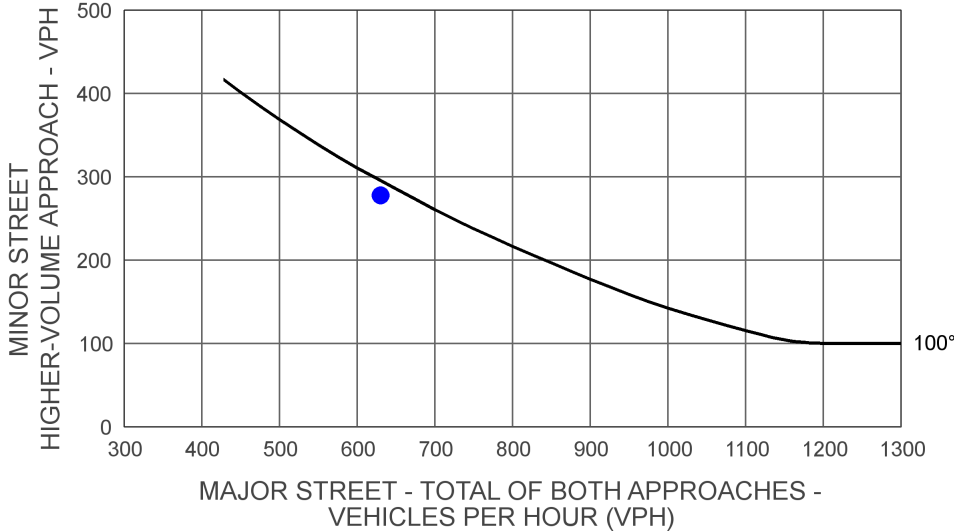


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Related Projects
Intersection #: 16

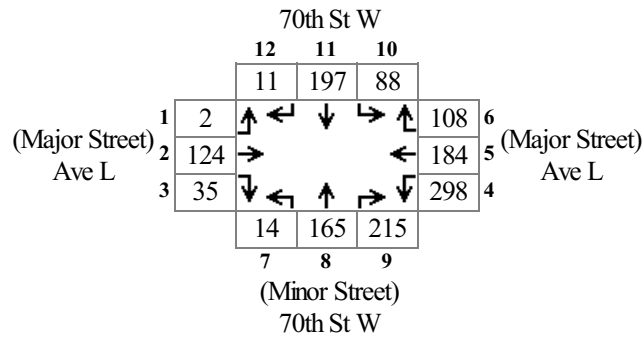


Major Total: 630
Minor High Volume: 278

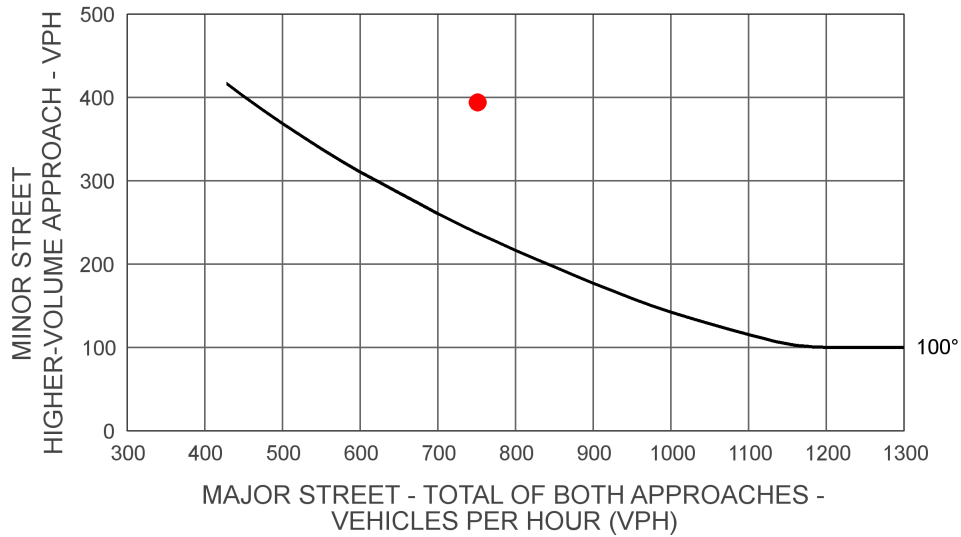


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future+Related Projects+Project
Intersection #: 16

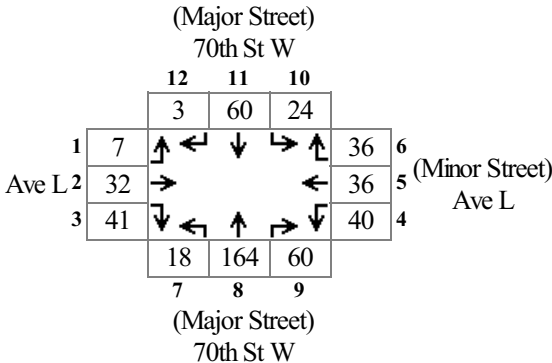


Major Total: 751
Minor High Volume: 394

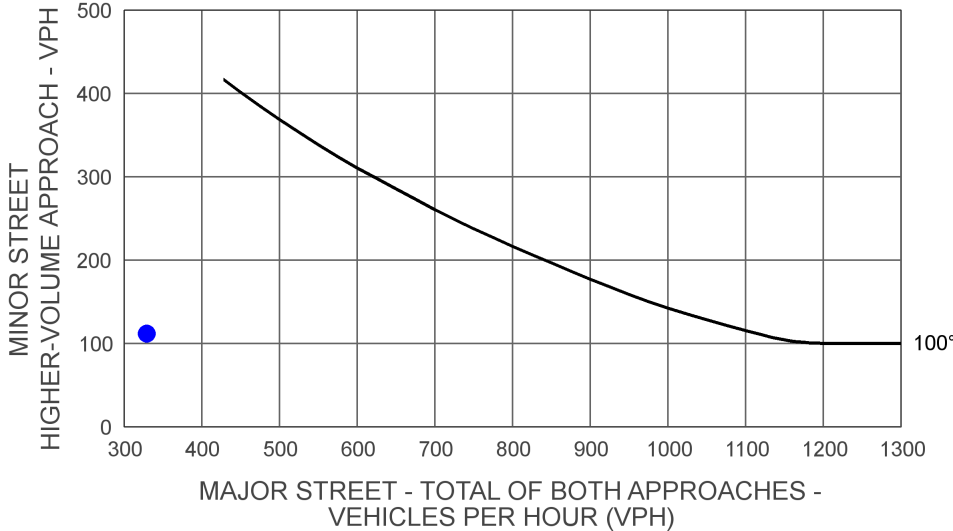


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 16

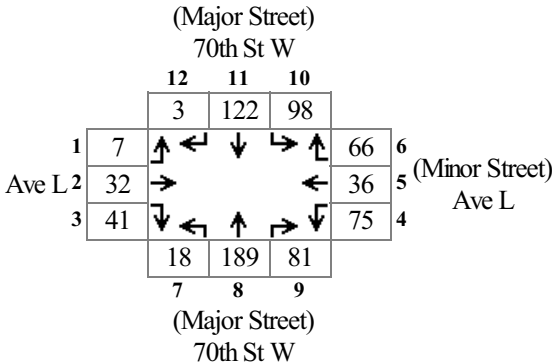


Major Total: 329
Minor High Volume: 112

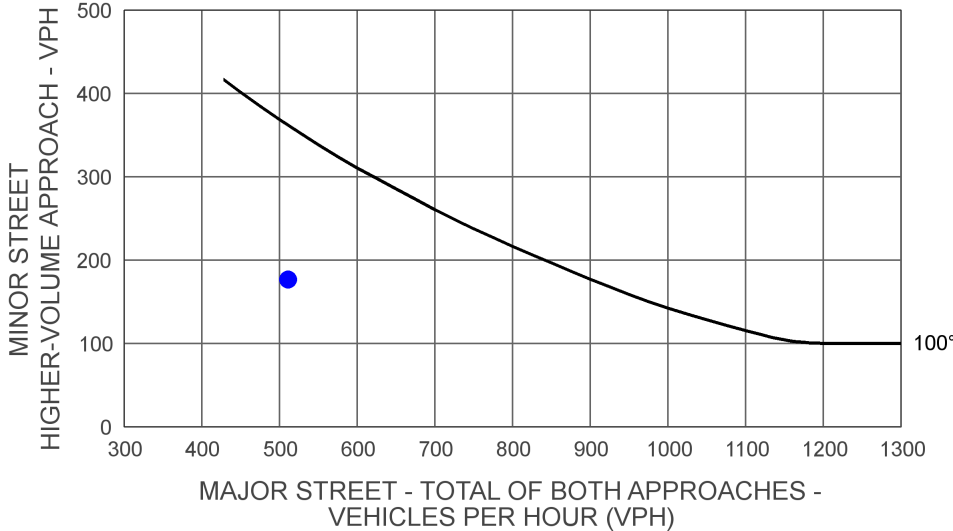


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 16

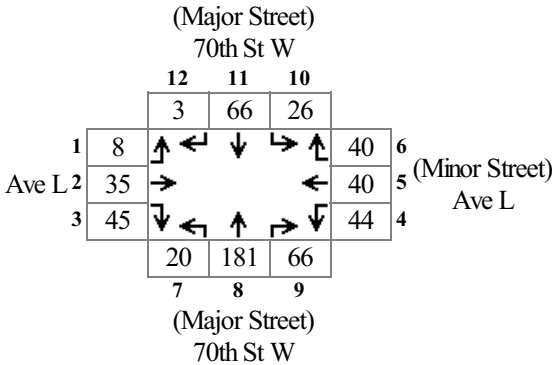


Major Total: 511
Minor High Volume: 177

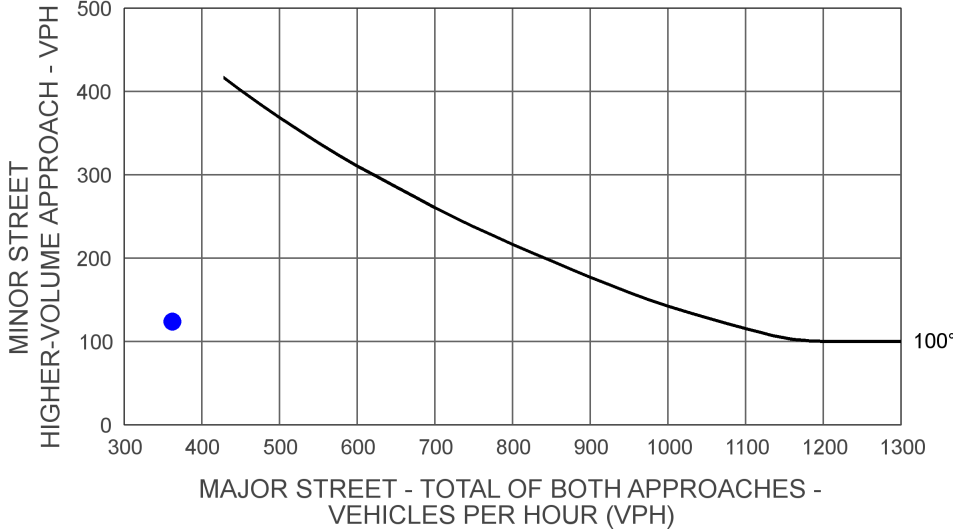


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 16

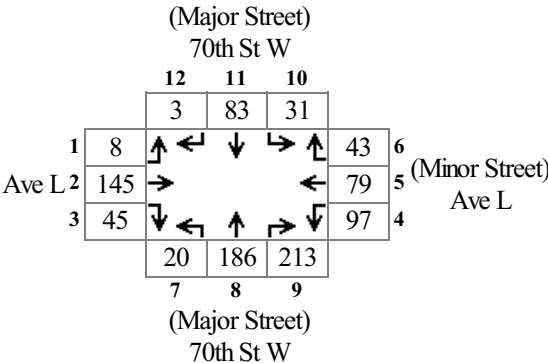


Major Total: 362
Minor High Volume: 124

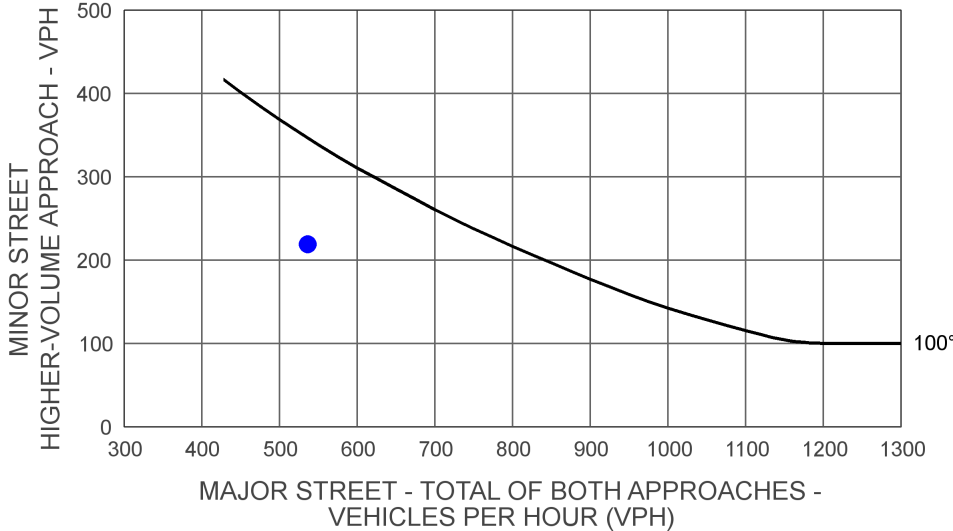


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Related Projects
Intersection #: 16

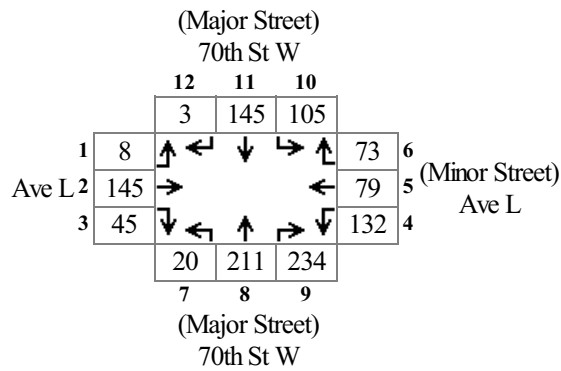


Major Total: 536
Minor High Volume: 219

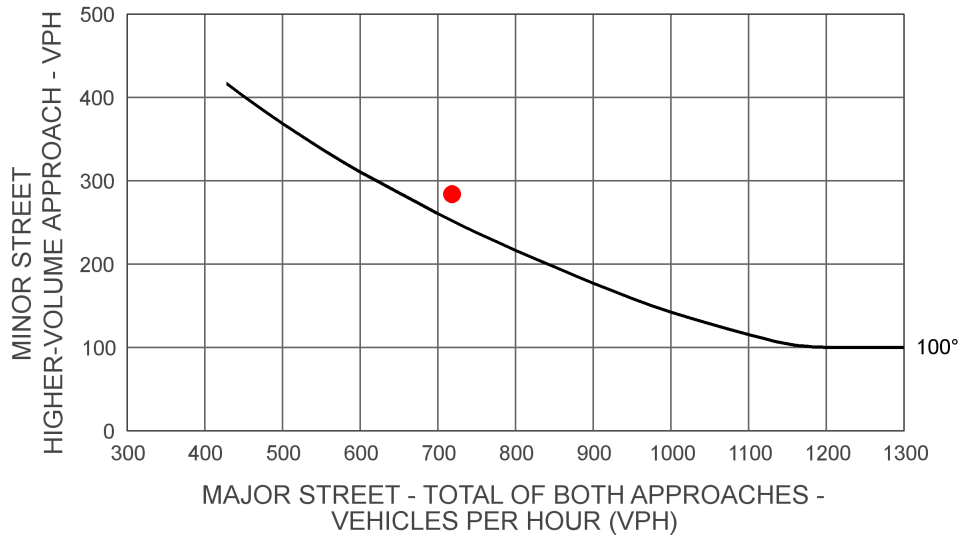


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Future+Related Projects+Project
Intersection #: 16

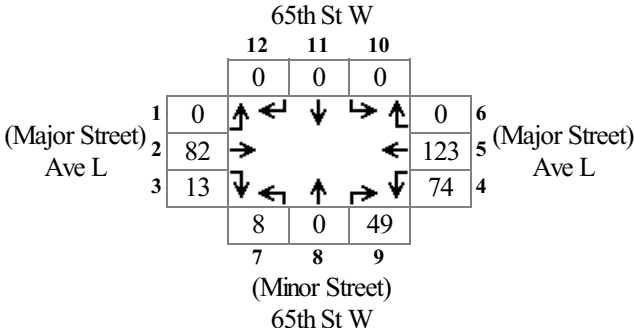


Major Total: 718
Minor High Volume: 284

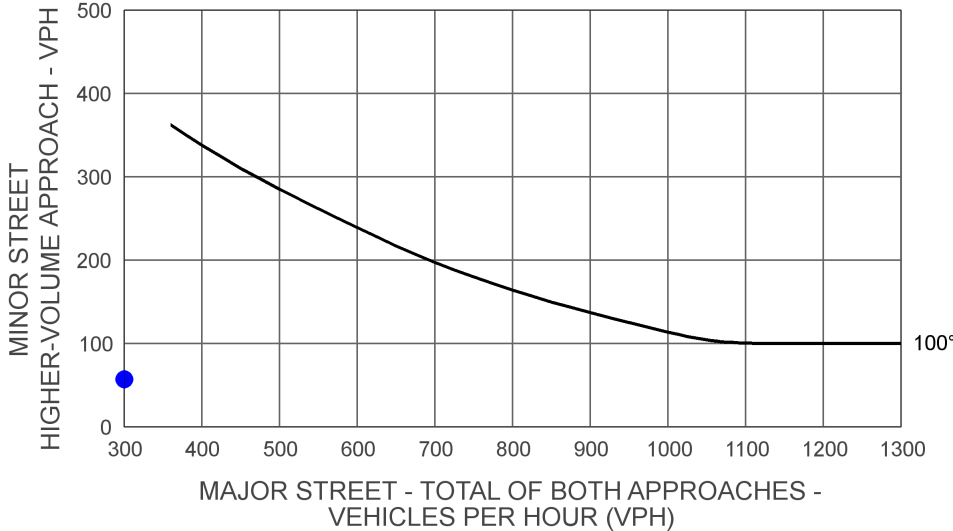


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 17

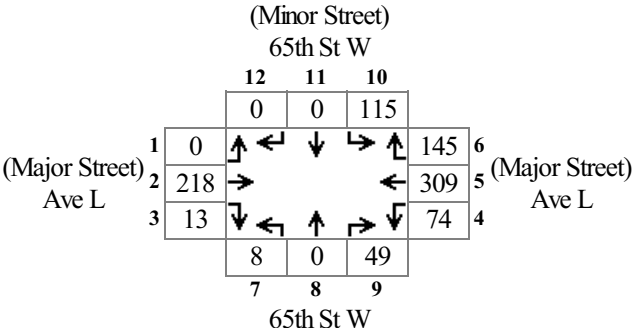


Major Total: 292
Minor High Volume: 57

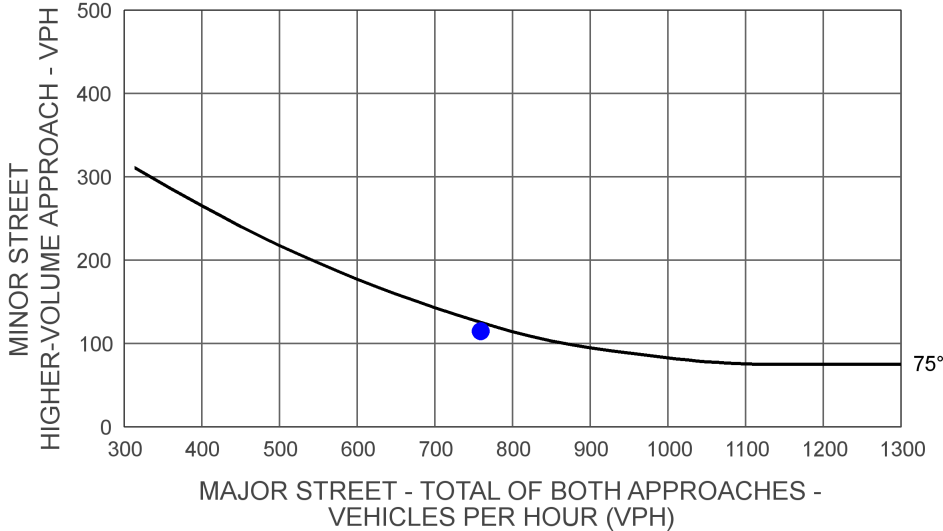


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 17

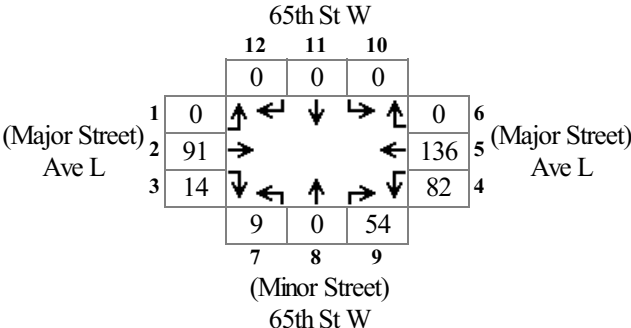


Major Total: 759
Minor High Volume: 115

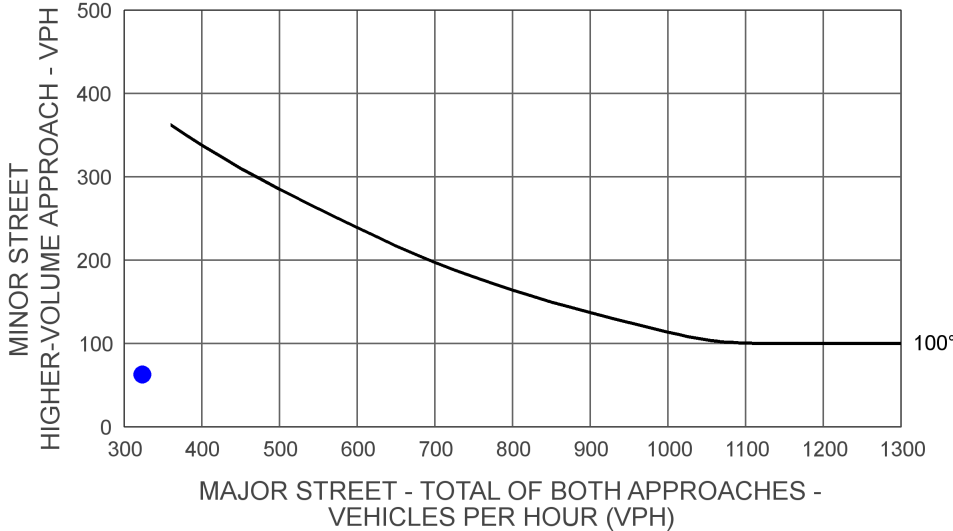


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 17

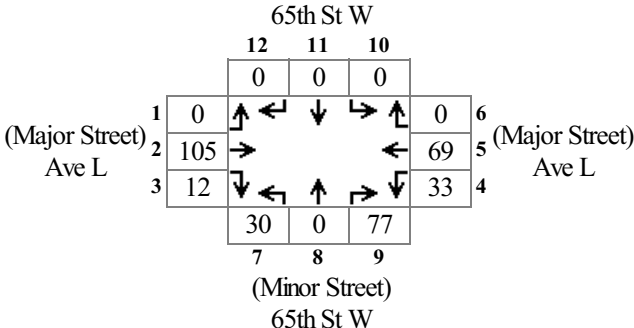


Major Total: 323
Minor High Volume: 63

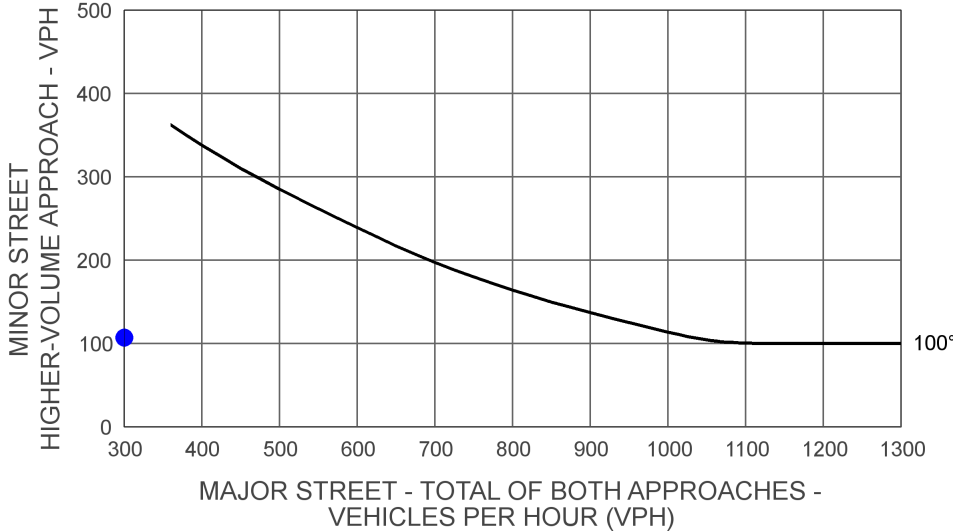


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 17

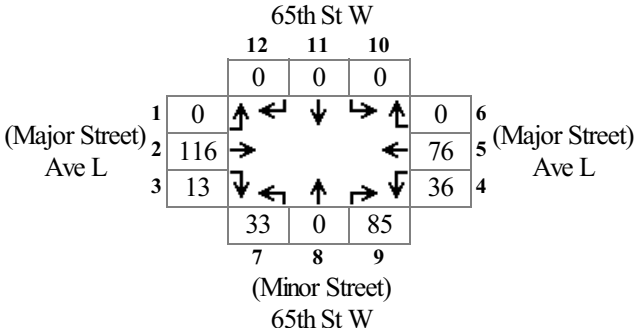


Major Total: 219
Minor High Volume: 107

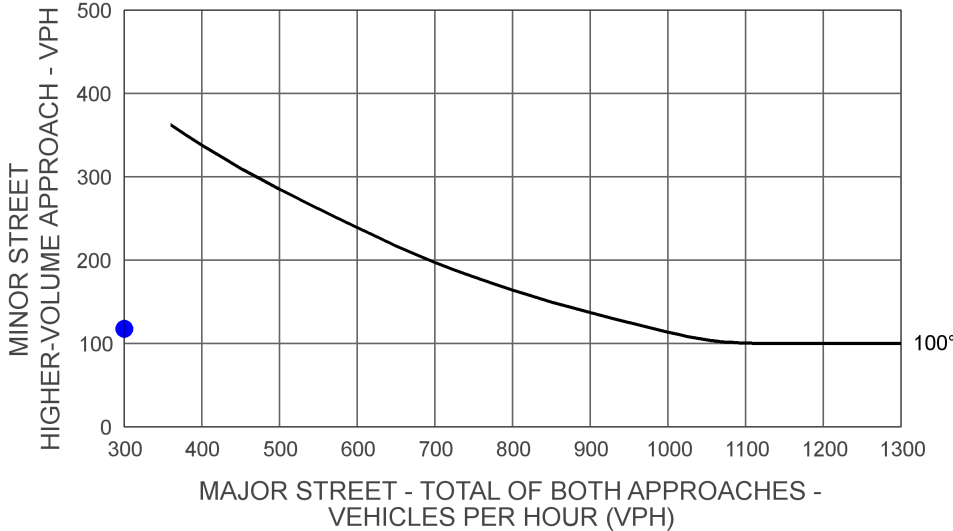


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 17

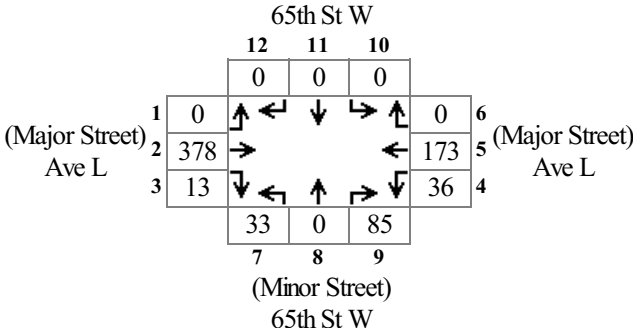


Major Total: 241
Minor High Volume: 118

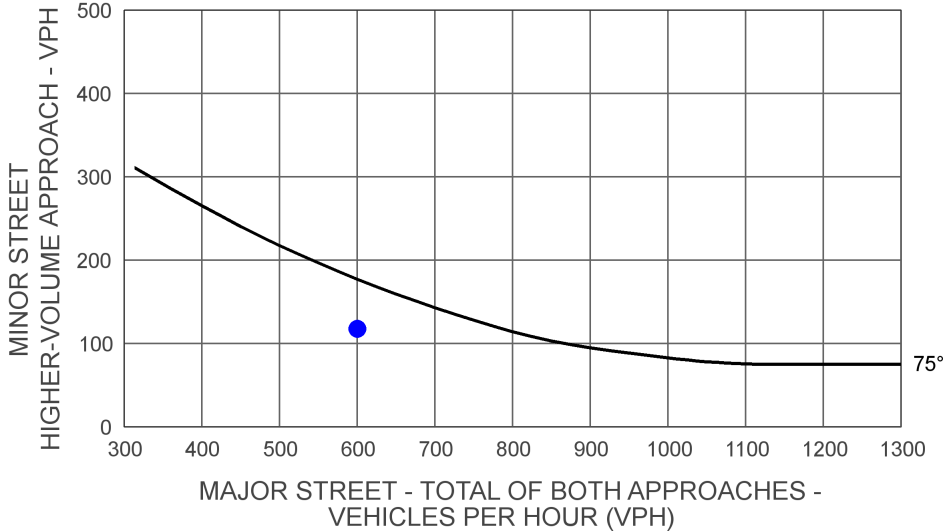


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Related Projects
Intersection #: 17

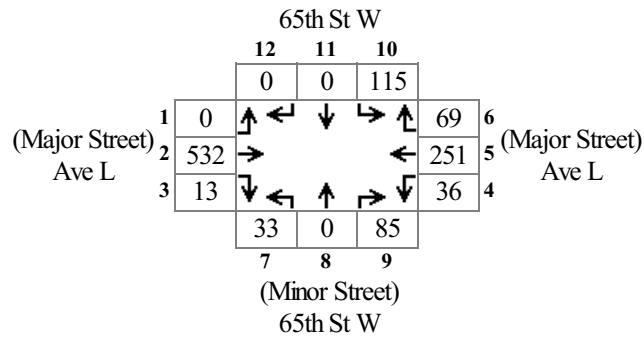


Major Total: 600
Minor High Volume: 118

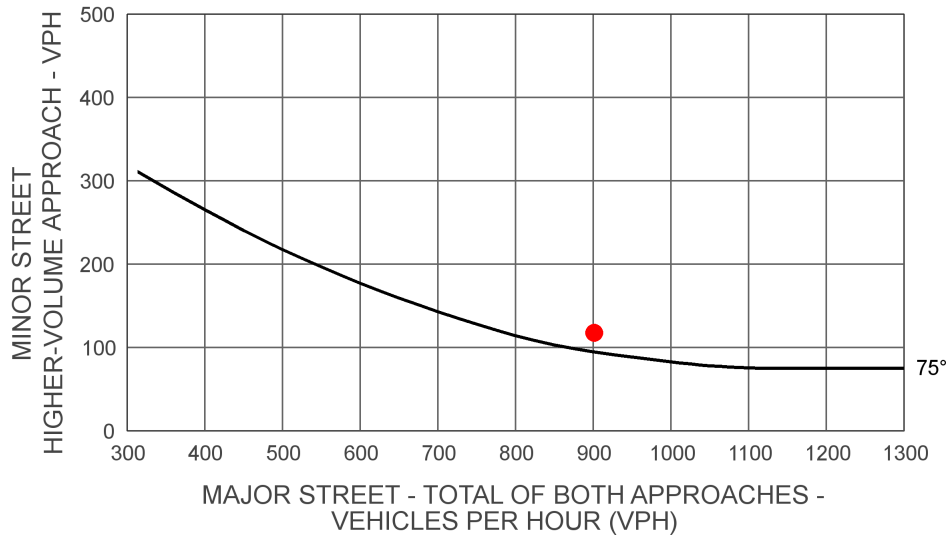


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Future+Related Projects+Project
Intersection #: 17

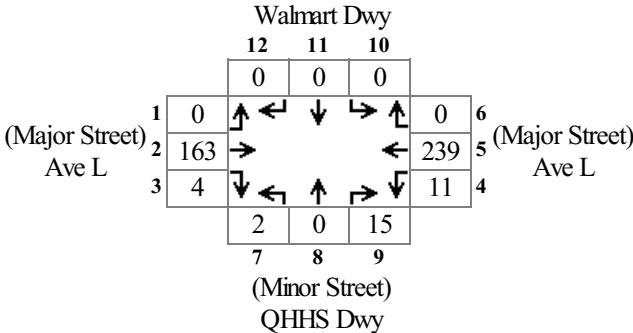


Major Total: 901
Minor High Volume: 118

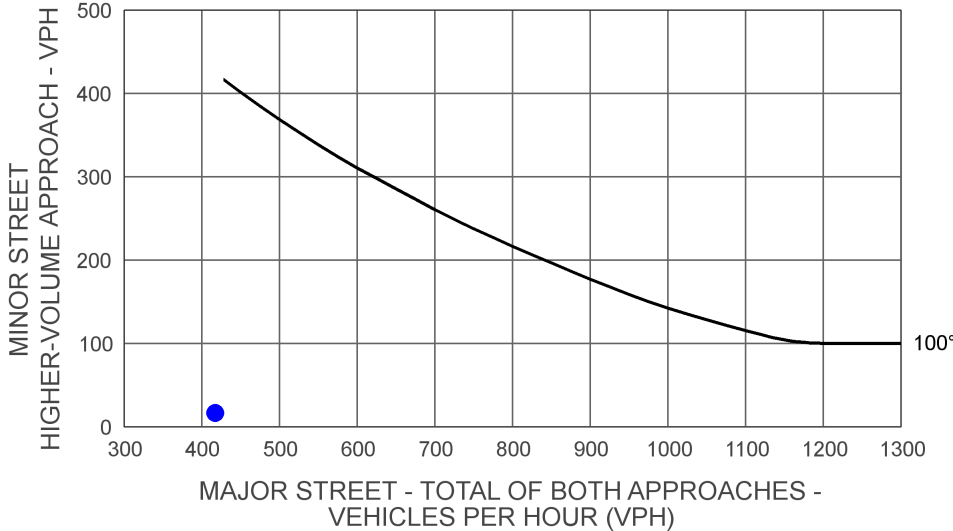


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 18

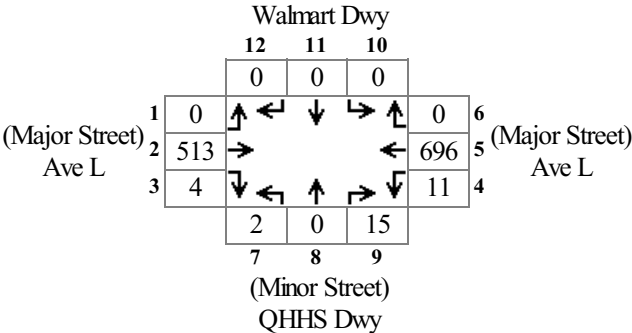


Major Total: 417
Minor High Volume: 17

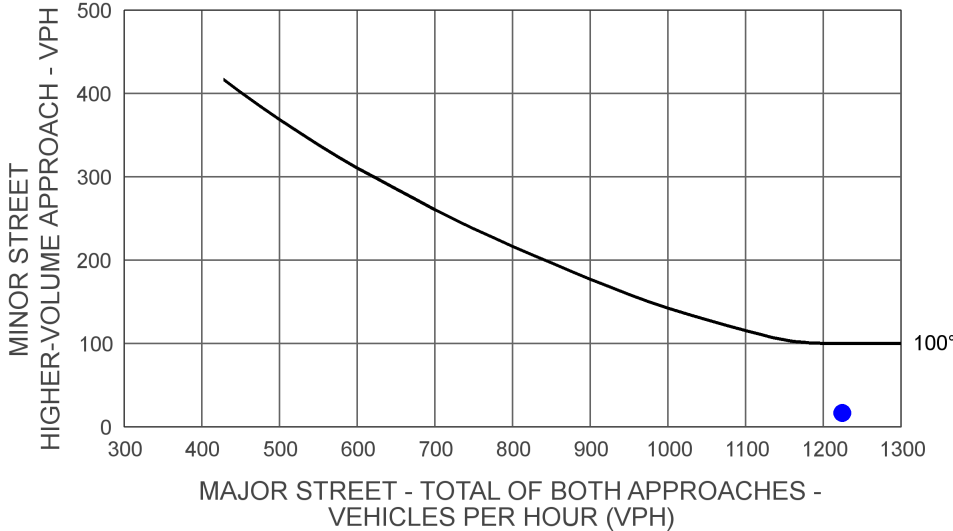


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 18

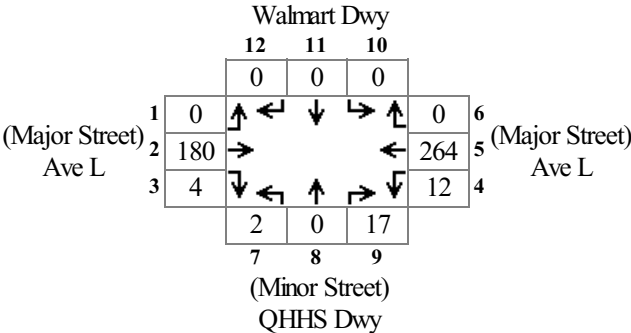


Major Total: 1224
Minor High Volume: 17

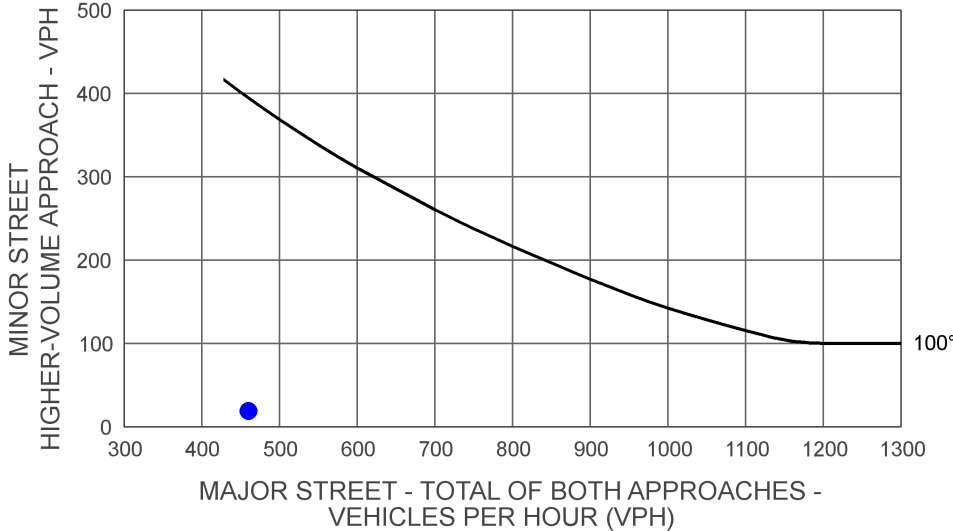


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 18

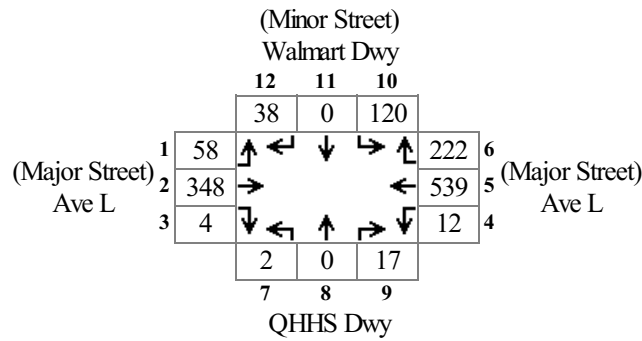


Major Total: 460
Minor High Volume: 19

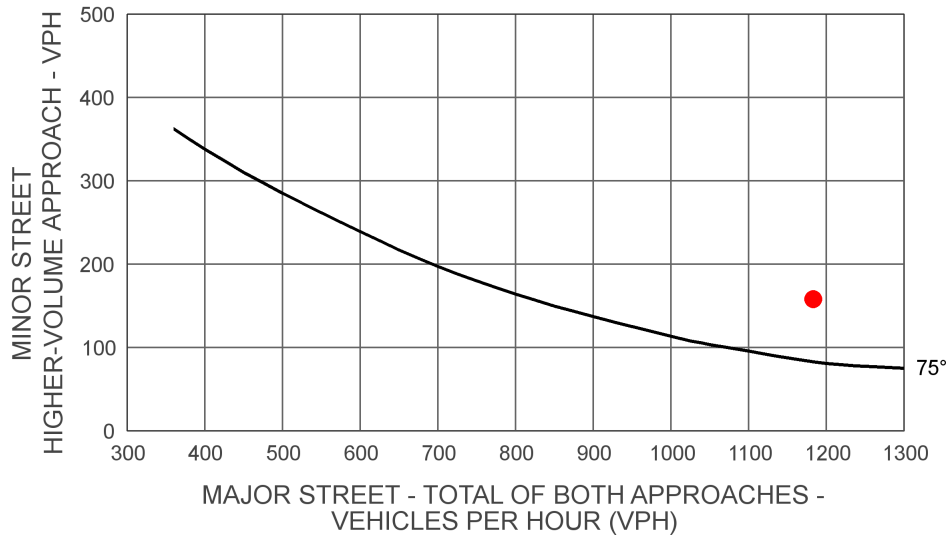


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future+Related Projects
Intersection #: 18

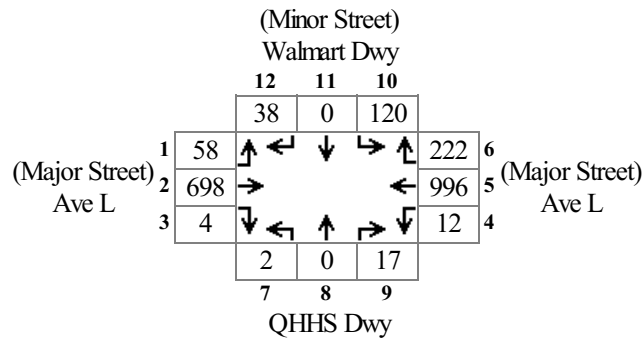


Major Total: 1183
Minor High Volume: 158

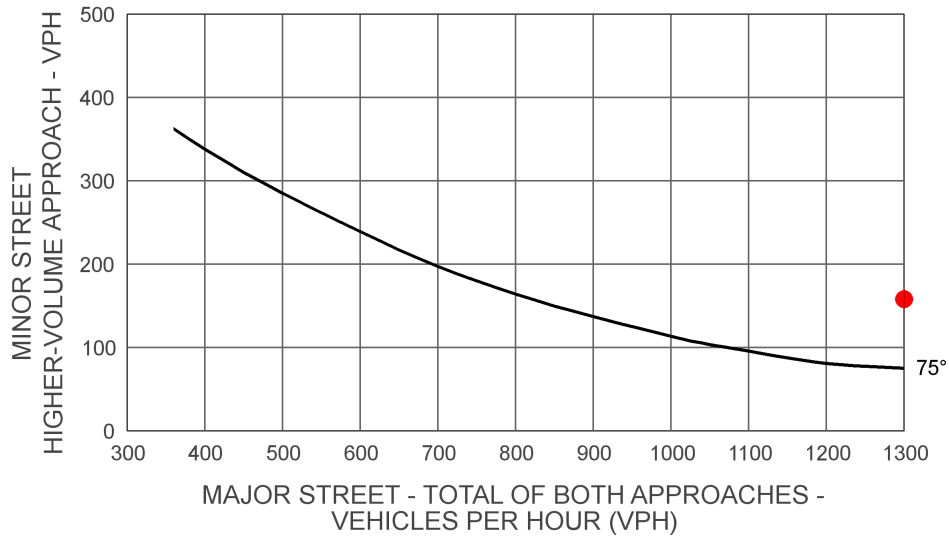


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future+Related Projects+Project
Intersection #: 18

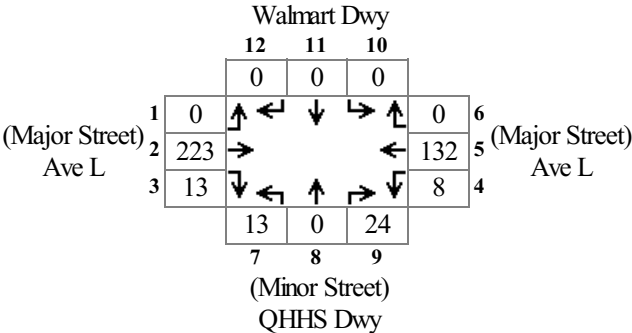


Major Total: 1990
Minor High Volume: 158

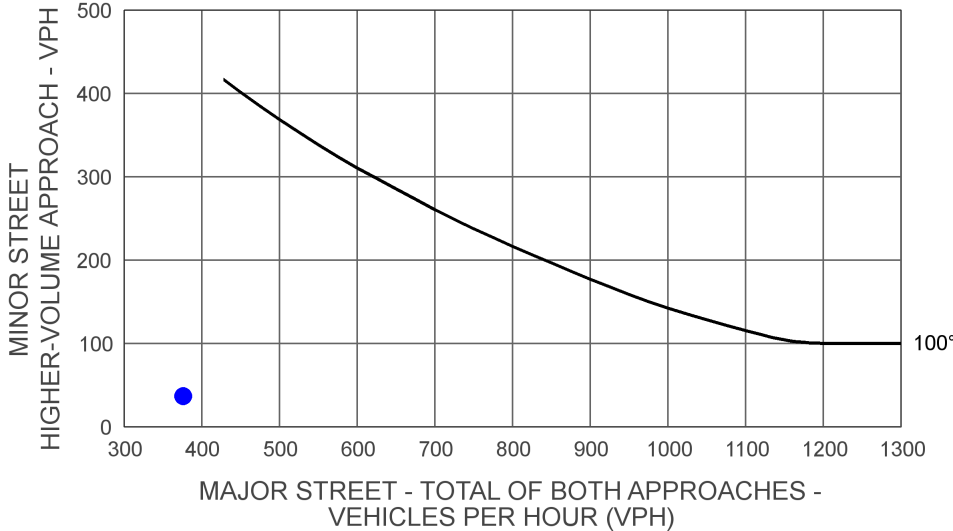


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 18

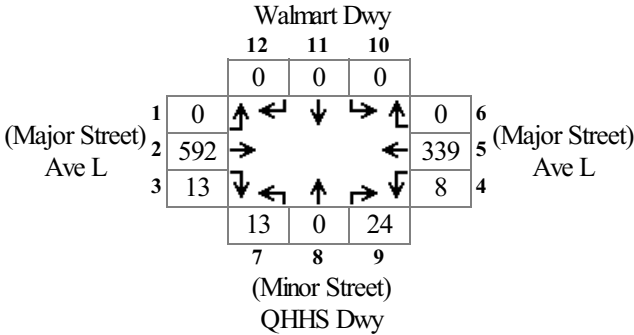


Major Total: 376
Minor High Volume: 37

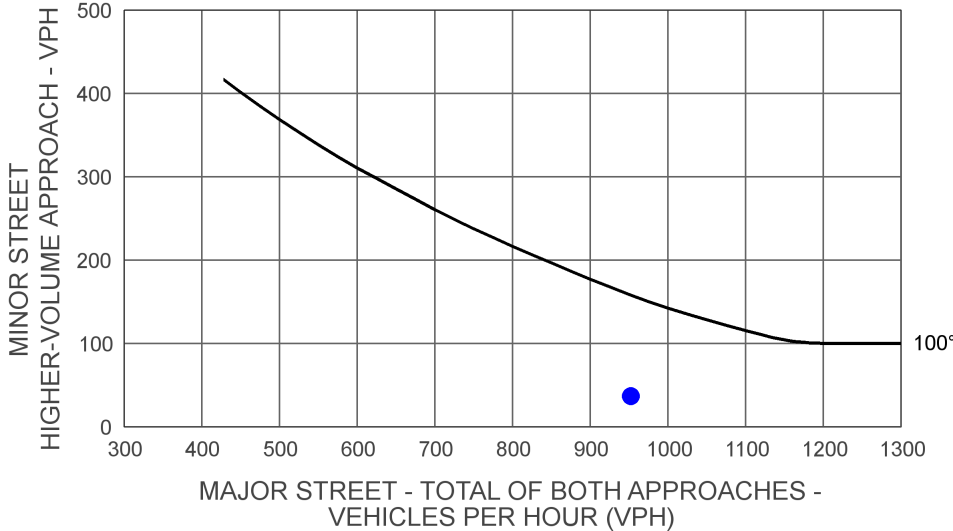


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 18

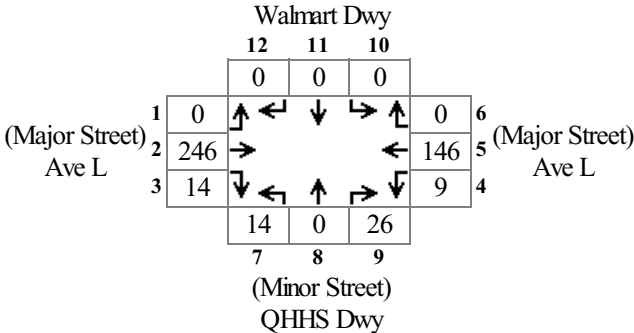


Major Total: 952
Minor High Volume: 37

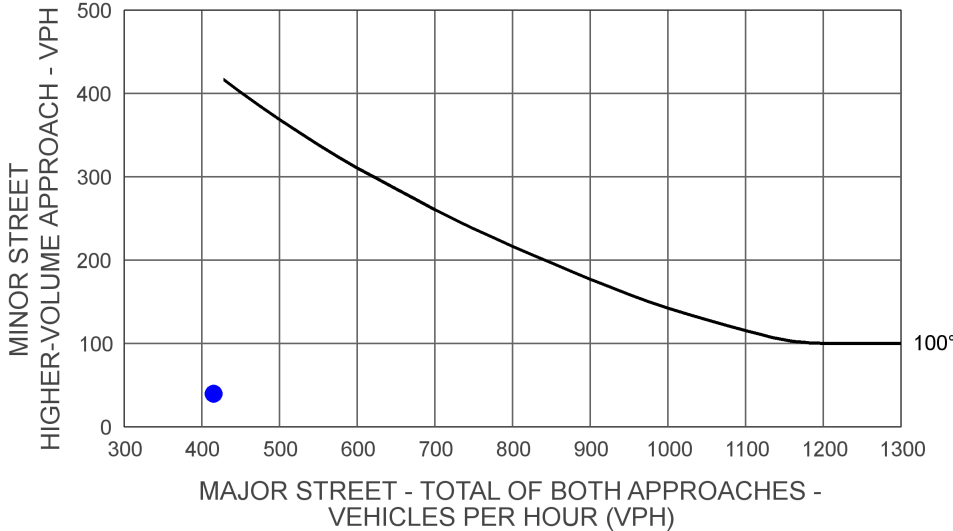


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 18

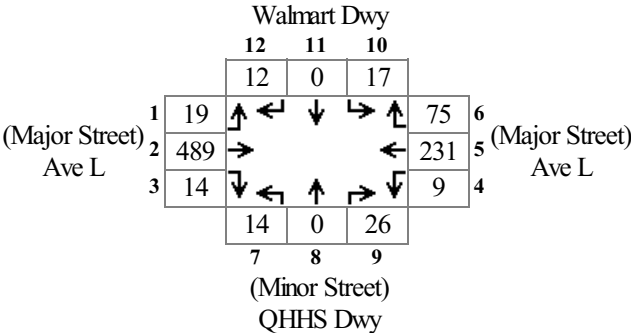


Major Total:415
Minor High Volume:40

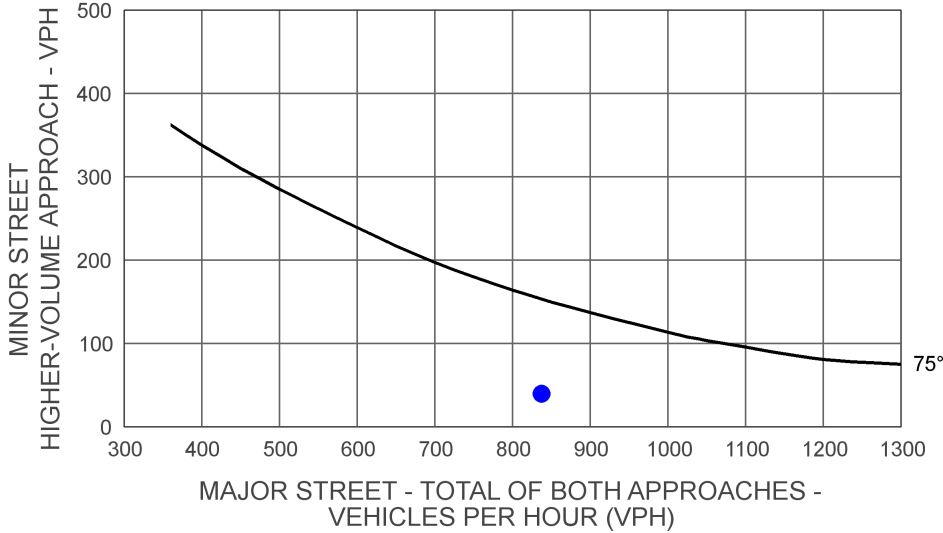


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Related Projects
Intersection #: 18

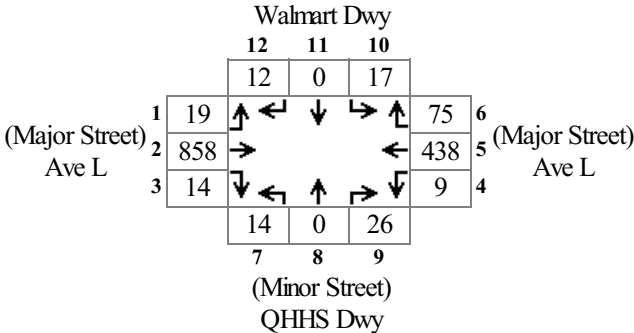


Major Total: 837
Minor High Volume: 40

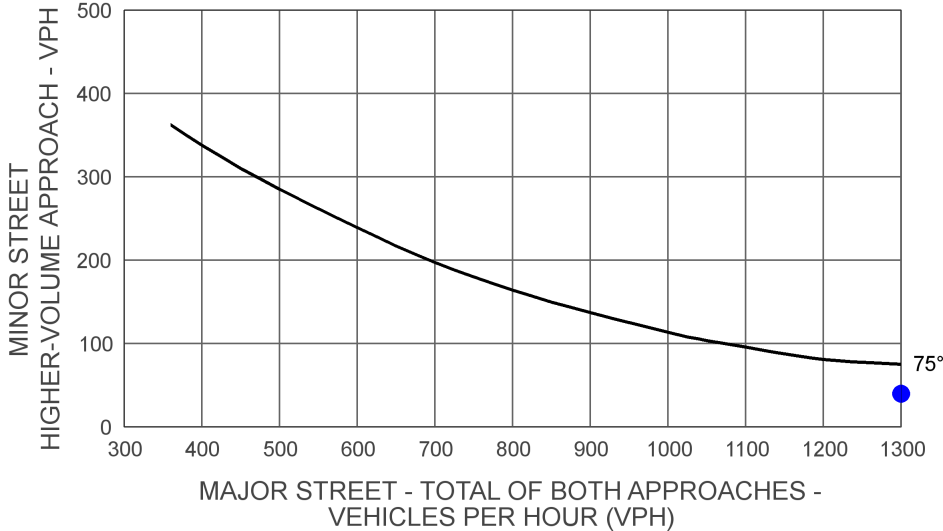


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Related Projects+Project
Intersection #: 18

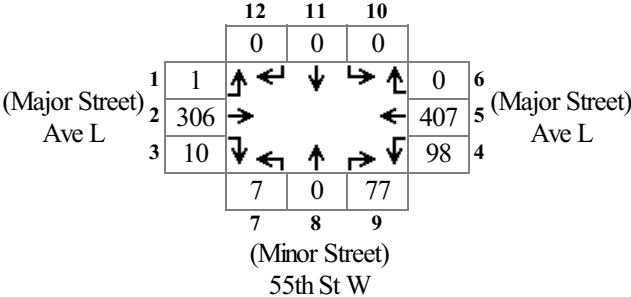


Major Total: 1413
Minor High Volume: 40

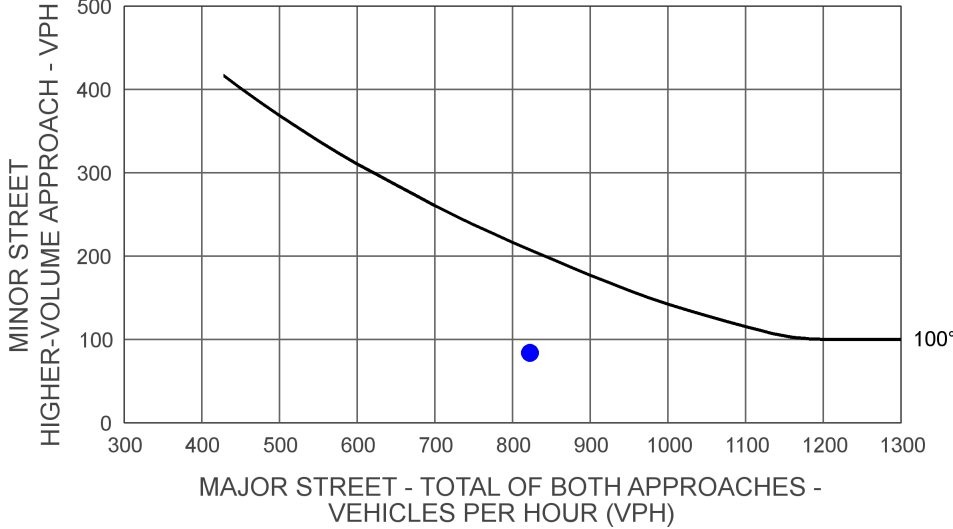


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 20

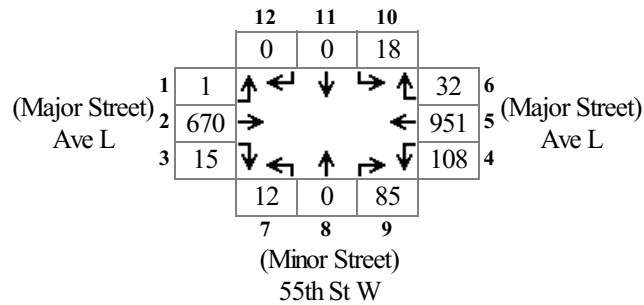


Major Total: 822
Minor High Volume: 84

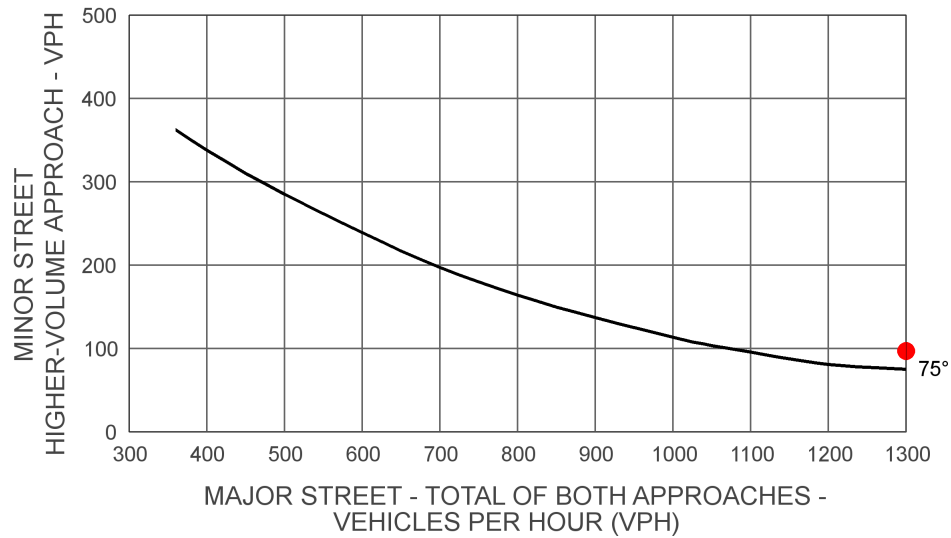


Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future+Related Projects
Intersection #: 20

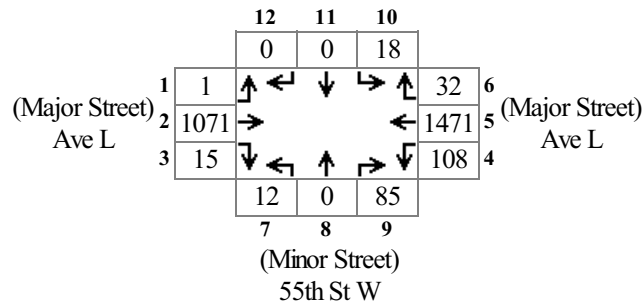


Major Total: 1777
Minor High Volume: 97



Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: PM Future+Related Projects+Project
Intersection #: 20

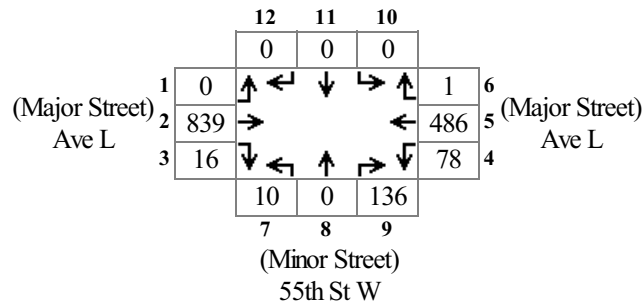


Major Total: 2698
Minor High Volume: 97



Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Existing+Project
Intersection #: 20

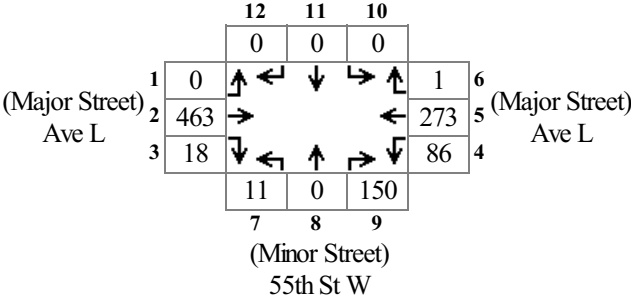


Major Total: 1420
Minor High Volume: 146

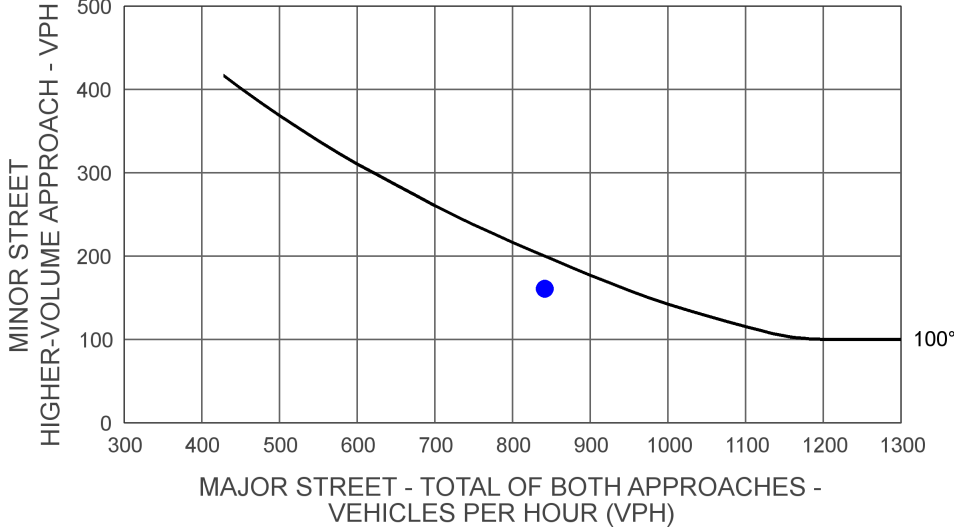


Rural Peak Hour Signal Warrant Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 20

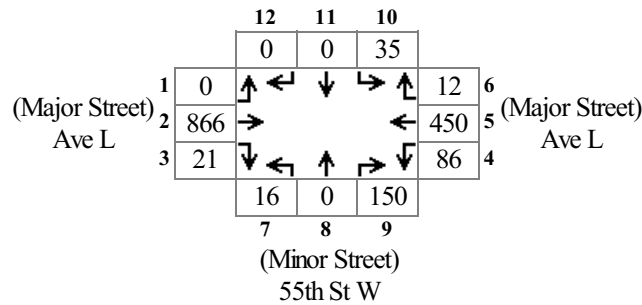


Major Total: 841
Minor High Volume: 161



Rural Peak Hour Signal Warrant Intersection Meets Signal Warrant

Scenario: AM Future+Related Projects
Intersection #: 20



Major Total: 1435
Minor High Volume: 166



CMP ICU Analysis

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

PM 2016
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	983	1230	465	219	229
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	983	1695	0	448	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.90	0.85
Saturated Flow (vph)	0	4358	4179	0	4373	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	27.1	48.8	0.0		0.0
Adj Reference Time (s)	0.0	31.1	52.8	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1393		146	
Reference Time A (s)	0.0	27.1	48.8		184.7	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		27.1	48.8			
Adj Reference Time (s)		31.1	52.8			
Split Option						
Ref Time Combined (s)	0.0	27.1	48.8		12.6	
Ref Time Seperate (s)	0.0	27.1	35.5		6.3	
Reference Time (s)	27.1	27.1	48.8		12.6	
Adj Reference Time (s)	31.1	31.1	52.8		18.4	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	52.8		NA			
Permitted Option (s)	52.8		Err			
Split Option (s)	83.9		18.4			
Minimum (s)	52.8		18.4	71.3		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	59.4%		ICU Level of Service		B	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

PM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↑↑↑			↑↑↑	↗	↘	↑	↗	↘	↗	↘
Volume (vph)	164	954	77	0	1051	223	336	298	377	383	5	446
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	164	1031	0	0	1051	223	336	298	377	0	388	446
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4310	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.3	28.8	0.0	0.0	28.9	20.3			33.9			40.0
Adj Reference Time (s)	8.3	33.9	0.0	0.0	32.9	33.3			37.9			44.0
Permitted Option												
Adj Saturation A (vph)	154	1437		0	1453		101	1600		0	204	
Reference Time A (s)	64.0	28.8		0.0	28.9		397.9	22.4		0.0	227.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		34.5	22.4		NA	NA	
Reference Time (s)		64.0			28.9			34.5			227.7	
Adj Reference Time (s)		68.0			32.9			38.5			231.7	
Split Option												
Ref Time Combined (s)	4.3	28.8		0.0	28.9		26.5	22.4		0.0	15.3	
Ref Time Seperate (s)	4.3	26.6		0.0	28.9		26.5	22.4		15.1	0.4	
Reference Time (s)	28.8	28.8		28.9	28.9		26.5	26.5		15.3	15.3	
Adj Reference Time (s)	33.9	33.9		32.9	32.9		30.5	30.5		33.3	33.3	
Summary												
Protected Option (s)	41.2		NA									
Permitted Option (s)	68.0		231.7									
Split Option (s)	66.8		63.8									
Minimum (s)	41.2		63.8		105.0							
Right Turns												
Adj Reference Time (s)	33.3	37.9	44.0									
Cross Thru Ref Time (s)	30.5	33.9	32.9									
Oncoming Left Ref Time (s)	33.3	33.3	30.5									
Combined (s)	72.1	105.1	107.5									
Intersection Summary												
Intersection Capacity Utilization	89.5%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

PM 2016
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	612	1357	0	267	126
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	612	1357	0	393	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4358	0	4465	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	16.9	37.4	0.0		0.0
Adj Reference Time (s)	0.0	20.9	41.4	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		149	
Reference Time A (s)	0.0	16.9	37.4		158.7	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		16.9	37.4			
Adj Reference Time (s)		20.9	41.4			
Split Option						
Ref Time Combined (s)	0.0	16.9	37.4		10.8	
Ref Time Seperate (s)	0.0	16.9	37.4		7.4	
Reference Time (s)	16.9	16.9	37.4		10.8	
Adj Reference Time (s)	20.9	20.9	41.4		16.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	41.4		NA			
Permitted Option (s)	41.4		Err			
Split Option (s)	62.2		16.2			
Minimum (s)	41.4		16.2	57.6		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	48.0%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2016
5/2/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	803	0	0	1365	516	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	803	0	0	1365	516	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	1520	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	22.1	0.6	0.0	28.2		0.0
Adj Reference Time (s)	26.1	9.7	0.0	32.2		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	101	
Reference Time A (s)	22.1		0.0	28.2	611.1	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	22.1			28.2		
Adj Reference Time (s)	26.1			32.2		
Split Option						
Ref Time Combined (s)	22.1		0.0	28.2	40.7	
Ref Time Seperate (s)	22.1		0.0	28.2	40.7	
Reference Time (s)	22.1		28.2	28.2	40.7	
Adj Reference Time (s)	26.1		32.2	32.2	44.7	
Summary						
	EB	WB	NB	Combined		
Protected Option (s)	32.2		NA			
Permitted Option (s)	32.2		Err			
Split Option (s)	58.3		44.7			
Minimum (s)	32.2		44.7	76.9		
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	64.1%		ICU Level of Service		C	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

PM 2016+Project
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1063	1254	465	219	313
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1063	1719	0	532	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.89	0.85
Saturated Flow (vph)	0	4358	4182	0	4335	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.4	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	29.3	49.5	0.0		0.0
Adj Reference Time (s)	0.0	33.3	53.5	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1394		145	
Reference Time A (s)	0.0	29.3	49.5		221.3	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		29.3	49.5			
Adj Reference Time (s)		33.3	53.5			
Split Option						
Ref Time Combined (s)	0.0	29.3	49.5		15.1	
Ref Time Seperate (s)	0.0	29.3	36.2		6.4	
Reference Time (s)	29.3	29.3	49.5		15.1	
Adj Reference Time (s)	33.3	33.3	53.5		20.5	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	53.5		NA			
Permitted Option (s)	53.5		Err			
Split Option (s)	86.8		20.5			
Minimum (s)	53.5		20.5	74.1		

Right Turns

Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary

Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

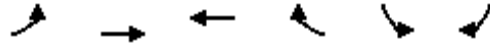
PM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↕↗↘			↕↗↘	↗	↘	↕	↗	↘	↕	↗
Volume (vph)	164	972	139	0	1075	223	336	298	377	383	5	446
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	164	1111	0	0	1075	223	336	298	377	0	388	446
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4277	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.3	31.3	0.0	0.0	29.6	20.3			33.9			40.0
Adj Reference Time (s)	8.3	35.3	0.0	0.0	33.6	33.3			37.9			44.0
Permitted Option												
Adj Saturation A (vph)	154	1426		0	1453		101	1600		0	204	
Reference Time A (s)	64.0	31.3		0.0	29.6		397.9	22.4		0.0	227.7	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		34.5	22.4		NA	NA	
Reference Time (s)		64.0			29.6			34.5			227.7	
Adj Reference Time (s)		68.0			33.6			38.5			231.7	
Split Option												
Ref Time Combined (s)	4.3	31.3		0.0	29.6		26.5	22.4		0.0	15.3	
Ref Time Seperate (s)	4.3	27.4		0.0	29.6		26.5	22.4		15.1	0.4	
Reference Time (s)	31.3	31.3		29.6	29.6		26.5	26.5		15.3	15.3	
Adj Reference Time (s)	35.3	35.3		33.6	33.6		30.5	30.5		33.3	33.3	
Summary												
Protected Option (s)	41.9		NA									
Permitted Option (s)	68.0		231.7									
Split Option (s)	68.9		63.8									
Minimum (s)	41.9		63.8		105.7							
Right Turns												
Adj Reference Time (s)	33.3	37.9	44.0									
Cross Thru Ref Time (s)	30.5	35.3	33.6									
Oncoming Left Ref Time (s)	33.3	33.3	30.5									
Combined (s)	72.1	106.5	108.1									
Intersection Summary												
Intersection Capacity Utilization	90.1%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

PM 2016+Project
5/2/2017



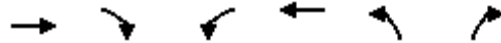
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	647	1611	0	267	149
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	647	1611	0	416	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4358	0	4447	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	17.8	44.4	0.0		0.0
Adj Reference Time (s)	0.0	21.8	48.4	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		148	
Reference Time A (s)	0.0	17.8	44.4		168.6	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		17.8	44.4			
Adj Reference Time (s)		21.8	48.4			
Split Option						
Ref Time Combined (s)	0.0	17.8	44.4		11.5	
Ref Time Seperate (s)	0.0	17.8	44.4		7.4	
Reference Time (s)	17.8	17.8	44.4		11.5	
Adj Reference Time (s)	21.8	21.8	48.4		16.8	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	48.4		NA			
Permitted Option (s)	48.4		Err			
Split Option (s)	70.2		16.8			
Minimum (s)	48.4		16.8	65.2		

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary			
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2016+Project
5/2/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	820	0	0	1388	747	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	820	0	0	1388	747	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	1520	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	22.6	0.6	0.0	28.7		0.0
Adj Reference Time (s)	26.6	9.7	0.0	32.7		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	101	
Reference Time A (s)	22.6		0.0	28.7	884.6	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	22.6			28.7		
Adj Reference Time (s)	26.6			32.7		
Split Option						
Ref Time Combined (s)	22.6		0.0	28.7	59.0	
Ref Time Seperate (s)	22.6		0.0	28.7	59.0	
Reference Time (s)	22.6		28.7	28.7	59.0	
Adj Reference Time (s)	26.6		32.7	32.7	63.0	
Summary						
	EB	WB	NB	Combined		
Protected Option (s)	32.7		NA			
Permitted Option (s)	32.7		Err			
Split Option (s)	59.2		63.0			
Minimum (s)	32.7		63.0	95.6		
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	79.7%		ICU Level of Service		D	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

PM 2021
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1085	1358	513	242	253
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1085	1871	0	495	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.90	0.85
Saturated Flow (vph)	0	4358	4179	0	4373	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	29.9	53.9	0.0		0.0
Adj Reference Time (s)	0.0	33.9	57.9	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1393		146	
Reference Time A (s)	0.0	29.9	53.9		204.1	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		29.9	53.9			
Adj Reference Time (s)		33.9	57.9			
Split Option						
Ref Time Combined (s)	0.0	29.9	53.9		13.9	
Ref Time Seperate (s)	0.0	29.9	39.2		7.0	
Reference Time (s)	29.9	29.9	53.9		13.9	
Adj Reference Time (s)	33.9	33.9	57.9		19.5	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	57.9		NA			
Permitted Option (s)	57.9		Err			
Split Option (s)	91.8		19.5			
Minimum (s)	57.9		19.5	77.4		

Right Turns

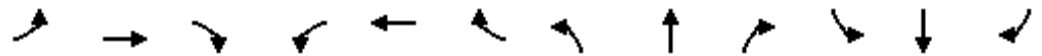
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary

Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

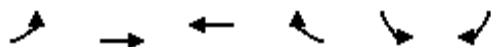
PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↕↗↘			↕↗↘	↗	↘	↕	↗	↘	↕	↗
Volume (vph)	181	1053	85	0	1160	246	371	329	416	423	6	492
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	181	1138	0	0	1160	246	371	329	416	0	429	492
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4310	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.7	31.7	0.0	0.0	31.9	22.3			37.3			44.1
Adj Reference Time (s)	8.7	35.7	0.0	0.0	35.9	33.3			41.3			48.1
Permitted Option												
Adj Saturation A (vph)	154	1437		0	1453		101	1600		0	205	
Reference Time A (s)	70.6	31.7		0.0	31.9		439.3	24.7		0.0	251.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		37.3	24.7		NA	NA	
Reference Time (s)		70.6			31.9			37.3			251.6	
Adj Reference Time (s)		74.6			35.9			41.3			255.6	
Split Option												
Ref Time Combined (s)	4.7	31.7		0.0	31.9		29.3	24.7		0.0	16.9	
Ref Time Seperate (s)	4.7	29.4		0.0	31.9		29.3	24.7		16.7	0.5	
Reference Time (s)	31.7	31.7		31.9	31.9		29.3	29.3		16.9	16.9	
Adj Reference Time (s)	35.7	35.7		35.9	35.9		33.3	33.3		33.3	33.3	
Summary												
Protected Option (s)	44.6		NA									
Permitted Option (s)	74.6		255.6									
Split Option (s)	71.7		66.6									
Minimum (s)	44.6		66.6		111.2							
Right Turns												
Adj Reference Time (s)	33.3	41.3	48.1									
Cross Thru Ref Time (s)	33.3	35.7	35.9									
Oncoming Left Ref Time (s)	33.3	33.3	33.3									
Combined (s)	75.3	110.4	117.3									
Intersection Summary												
Intersection Capacity Utilization	97.7%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

PM 2021
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	676	1498	0	295	139
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	676	1498	0	434	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4358	0	4465	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	18.6	41.2	0.0		0.0
Adj Reference Time (s)	0.0	22.6	45.2	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		149	
Reference Time A (s)	0.0	18.6	41.2		175.2	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		18.6	41.2			
Adj Reference Time (s)		22.6	45.2			
Split Option						
Ref Time Combined (s)	0.0	18.6	41.2		11.9	
Ref Time Seperate (s)	0.0	18.6	41.2		8.1	
Reference Time (s)	18.6	18.6	41.2		11.9	
Adj Reference Time (s)	22.6	22.6	45.2		17.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	45.2		NA			
Permitted Option (s)	45.2		Err			
Split Option (s)	67.9		17.2			
Minimum (s)	45.2		17.2	62.4		

Right Turns

Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary

Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑		↑					
Volume (vph)	0	887	0	0	1507	0	570	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	887	0	0	1507	0	570	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	24.4	0.6	0.0	31.1	0.0	45.0	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	28.4	9.7	0.0	35.1	0.0	49.0	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	24.4		0.0	31.1		675.0	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		53.0	0.0		0.0	0.0	
Reference Time (s)		24.4			31.1			53.0			0.0	
Adj Reference Time (s)		28.4			35.1			57.0			9.8	
Split Option												
Ref Time Combined (s)	0.0	24.4		0.0	31.1		45.0	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	24.4		0.0	31.1		45.0	0.0		0.0	0.0	
Reference Time (s)	24.4	24.4		31.1	31.1		45.0	45.0		0.0	0.0	
Adj Reference Time (s)	28.4	28.4		35.1	35.1		49.0	49.0		9.8	9.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	35.1		49.0									
Permitted Option (s)	35.1		57.0									
Split Option (s)	63.5		58.8									
Minimum (s)	35.1		49.0		84.1							
Right Turns												
	EBR											
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	70.1%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

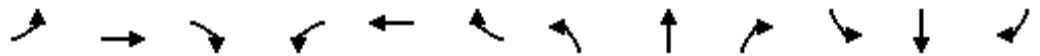
PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1189	1400	513	242	379
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1189	1913	0	621	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.89	0.85
Saturated Flow (vph)	0	4358	4183	0	4325	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.4	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	32.7	55.1	0.0		0.0
Adj Reference Time (s)	0.0	36.7	59.1	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1394		144	
Reference Time A (s)	0.0	32.7	55.1		258.9	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		32.7	55.1			
Adj Reference Time (s)		36.7	59.1			
Split Option						
Ref Time Combined (s)	0.0	32.7	55.1		17.6	
Ref Time Seperate (s)	0.0	32.7	40.3		7.1	
Reference Time (s)	32.7	32.7	55.1		17.6	
Adj Reference Time (s)	36.7	36.7	59.1		22.7	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	59.1		NA			
Permitted Option (s)	59.1		Err			
Split Option (s)	95.8		22.7			
Minimum (s)	59.1		22.7	81.7		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	68.1%		ICU Level of Service		C	
Reference Times and Phasing Options do not represent an optimized timing plan.						

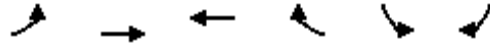
Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕↕			↕↕↕	↔	↔	↕	↔	↔	↕	↔
Volume (vph)	181	1079	163	0	1202	246	371	329	416	423	6	492
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	181	1242	0	0	1202	246	371	329	416	0	429	492
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4273	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.7	35.0	0.0	0.0	33.1	22.3			37.3			44.1
Adj Reference Time (s)	8.7	39.0	0.0	0.0	37.1	33.3			41.3			48.1
Permitted Option												
Adj Saturation A (vph)	154	1424		0	1453		101	1600		0	205	
Reference Time A (s)	70.6	35.0		0.0	33.1		439.3	24.7		0.0	251.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		37.3	24.7		NA	NA	
Reference Time (s)		70.6			33.1			37.3			251.6	
Adj Reference Time (s)		74.6			37.1			41.3			255.6	
Split Option												
Ref Time Combined (s)	4.7	35.0		0.0	33.1		29.3	24.7		0.0	16.9	
Ref Time Seperate (s)	4.7	30.4		0.0	33.1		29.3	24.7		16.7	0.5	
Reference Time (s)	35.0	35.0		33.1	33.1		29.3	29.3		16.9	16.9	
Adj Reference Time (s)	39.0	39.0		37.1	37.1		33.3	33.3		33.3	33.3	
Summary												
Protected Option (s)	45.8		NA									
Permitted Option (s)	74.6		255.6									
Split Option (s)	76.1		66.6									
Minimum (s)	45.8		66.6		112.4							
Right Turns												
Adj Reference Time (s)	33.3	41.3	48.1									
Cross Thru Ref Time (s)	33.3	39.0	37.1									
Oncoming Left Ref Time (s)	33.3	33.3	33.3									
Combined (s)	75.3	113.6	118.4									
Intersection Summary												
Intersection Capacity Utilization	98.7%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	699	1807	0	295	156
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	699	1807	0	451	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4358	0	4453	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	19.2	49.8	0.0		0.0
Adj Reference Time (s)	0.0	23.2	53.8	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		148	
Reference Time A (s)	0.0	19.2	49.8		182.5	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		19.2	49.8			
Adj Reference Time (s)		23.2	53.8			
Split Option						
Ref Time Combined (s)	0.0	19.2	49.8		12.4	
Ref Time Seperate (s)	0.0	19.2	49.8		8.2	
Reference Time (s)	19.2	19.2	49.8		12.4	
Adj Reference Time (s)	23.2	23.2	53.8		17.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	53.8		NA			
Permitted Option (s)	53.8		Err			
Split Option (s)	77.0		17.6			
Minimum (s)	53.8		17.6	71.4		

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	900	0	0	1531	0	855	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	900	0	0	1531	0	855	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	24.8	0.6	0.0	31.6	0.0	67.5	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	28.8	9.7	0.0	35.6	0.0	71.5	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	24.8		0.0	31.6		1012.5	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		75.5	0.0		0.0	0.0	
Reference Time (s)		24.8			31.6			75.5			0.0	
Adj Reference Time (s)		28.8			35.6			79.5			9.8	
Split Option												
Ref Time Combined (s)	0.0	24.8		0.0	31.6		67.5	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	24.8		0.0	31.6		67.5	0.0		0.0	0.0	
Reference Time (s)	24.8	24.8		31.6	31.6		67.5	67.5		0.0	0.0	
Adj Reference Time (s)	28.8	28.8		35.6	35.6		71.5	71.5		9.8	9.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	35.6		71.5									
Permitted Option (s)	35.6		79.5									
Split Option (s)	64.4		81.3									
Minimum (s)	35.6		71.5		107.1							
Right Turns												
	EBR											
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	89.3%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1269	1424	513	242	463
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1269	1937	0	705	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.89	0.85
Saturated Flow (vph)	0	4358	4185	0	4302	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.4	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	34.9	55.7	0.0		0.0
Adj Reference Time (s)	0.0	38.9	59.7	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1395		143	
Reference Time A (s)	0.0	34.9	55.7		295.4	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		34.9	55.7			
Adj Reference Time (s)		38.9	59.7			
Split Option						
Ref Time Combined (s)	0.0	34.9	55.7		20.1	
Ref Time Seperate (s)	0.0	34.9	41.0		7.2	
Reference Time (s)	34.9	34.9	55.7		20.1	
Adj Reference Time (s)	38.9	38.9	59.7		24.8	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	59.7		NA			
Permitted Option (s)	59.7		Err			
Split Option (s)	98.6		24.8			
Minimum (s)	59.7		24.8	84.5		

Right Turns

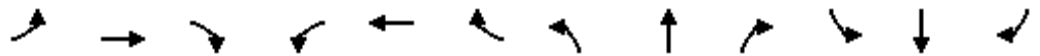
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary

Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕↕			↕↕↕	↔	↔	↕	↔	↔	↕	↔
Volume (vph)	181	1097	225	0	1226	246	371	329	416	423	6	492
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	181	1322	0	0	1226	246	371	329	416	0	429	492
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4247	0	0	4358	1360	1520	1600	1360	0	3042	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	4.7	37.5	0.0	0.0	33.8	22.3			37.3			44.1
Adj Reference Time (s)	8.7	41.5	0.0	0.0	37.8	33.3			41.3			48.1
Permitted Option												
Adj Saturation A (vph)	154	1416		0	1453		101	1600		0	205	
Reference Time A (s)	70.6	37.5		0.0	33.8		439.3	24.7		0.0	251.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		37.3	24.7		NA	NA	
Reference Time (s)		70.6			33.8			37.3			251.6	
Adj Reference Time (s)		74.6			37.8			41.3			255.6	
Split Option												
Ref Time Combined (s)	4.7	37.5		0.0	33.8		29.3	24.7		0.0	16.9	
Ref Time Seperate (s)	4.7	31.1		0.0	33.8		29.3	24.7		16.7	0.5	
Reference Time (s)	37.5	37.5		33.8	33.8		29.3	29.3		16.9	16.9	
Adj Reference Time (s)	41.5	41.5		37.8	37.8		33.3	33.3		33.3	33.3	
Summary												
Protected Option (s)	46.5		NA									
Permitted Option (s)	74.6		255.6									
Split Option (s)	79.2		66.6									
Minimum (s)	46.5		66.6		113.1							
Right Turns												
Adj Reference Time (s)	33.3	41.3	48.1									
Cross Thru Ref Time (s)	33.3	41.5	37.8									
Oncoming Left Ref Time (s)	33.7	33.3	33.3									
Combined (s)	75.3	116.1	119.1									
Intersection Summary												
Intersection Capacity Utilization	99.2%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	734	2061	0	295	179
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	734	2061	0	474	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.91	0.85
Saturated Flow (vph)	0	4358	4358	0	4437	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	20.2	56.7	0.0		0.0
Adj Reference Time (s)	0.0	24.2	60.7	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		148	
Reference Time A (s)	0.0	20.2	56.7		192.5	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		20.2	56.7			
Adj Reference Time (s)		24.2	60.7			
Split Option						
Ref Time Combined (s)	0.0	20.2	56.7		13.1	
Ref Time Seperate (s)	0.0	20.2	56.7		8.2	
Reference Time (s)	20.2	20.2	56.7		13.1	
Adj Reference Time (s)	24.2	24.2	60.7		18.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	60.7		NA			
Permitted Option (s)	60.7		Err			
Split Option (s)	85.0		18.2			
Minimum (s)	60.7		18.2	78.9		

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

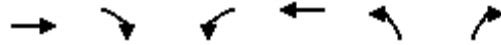
Intersection Summary
 Intersection Capacity Utilization 65.8% ICU Level of Service C
 Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

PM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	917	0	0	1554	0	1086	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	917	0	0	1554	0	1086	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	25.2	0.6	0.0	32.1	0.0	85.7	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	29.2	9.7	0.0	36.1	0.0	89.7	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	25.2		0.0	32.1		1286.1	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		93.7	0.0		0.0	0.0	
Reference Time (s)		25.2			32.1			93.7			0.0	
Adj Reference Time (s)		29.2			36.1			97.7			9.8	
Split Option												
Ref Time Combined (s)	0.0	25.2		0.0	32.1		85.7	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	25.2		0.0	32.1		85.7	0.0		0.0	0.0	
Reference Time (s)	25.2	25.2		32.1	32.1		85.7	85.7		0.0	0.0	
Adj Reference Time (s)	29.2	29.2		36.1	36.1		89.7	89.7		9.8	9.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	36.1		89.7									
Permitted Option (s)	36.1		97.7									
Split Option (s)	65.3		99.6									
Minimum (s)	36.1		89.7		125.8							
Right Turns												
	EBR											
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	104.9%		ICU Level of Service		G							
Reference Times and Phasing Options do not represent an optimized timing plan.												



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	917	0	0	1554	1086	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	917	0	0	1554	1086	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	0.97	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	4612	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	25.2	0.6	0.0	32.1		0.0
Adj Reference Time (s)	29.2	9.7	0.0	36.1		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	154	
Reference Time A (s)	25.2		0.0	32.1	423.8	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	25.2			32.1		
Adj Reference Time (s)	29.2			36.1		
Split Option						
Ref Time Combined (s)	25.2		0.0	32.1	28.3	
Ref Time Seperate (s)	25.2		0.0	32.1	28.3	
Reference Time (s)	25.2		32.1	32.1	28.3	
Adj Reference Time (s)	29.2		36.1	36.1	32.3	
Summary						
	EB	WB		NB		Combined
Protected Option (s)	36.1			NA		
Permitted Option (s)	36.1			Err		
Split Option (s)	65.3			32.3		
Minimum (s)	36.1			32.3		68.3
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	57.0%		ICU Level of Service		B	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

AM 2016
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	869	934	311	163	86
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	869	1245	0	249	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4195	0	4453	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	23.9	35.8	0.0		0.0
Adj Reference Time (s)	0.0	27.9	39.8	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1398		148	
Reference Time A (s)	0.0	23.9	35.8		100.9	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		23.9	35.8			
Adj Reference Time (s)		27.9	39.8			
Split Option						
Ref Time Combined (s)	0.0	23.9	35.8		6.9	
Ref Time Seperate (s)	0.0	23.9	26.9		4.6	
Reference Time (s)	23.9	23.9	35.8		6.9	
Adj Reference Time (s)	27.9	27.9	39.8		13.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	39.8		NA			
Permitted Option (s)	39.8		Err			
Split Option (s)	67.7		13.6			
Minimum (s)	39.8		13.6	53.4		

Right Turns

Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary

Intersection Capacity Utilization 44.5% ICU Level of Service A
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

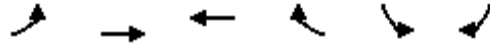
AM 2016
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↗↘↔			↗↘↔	↗	↘	↕	↗	↘	↗↘	↗
Volume (vph)	197	746	84	0	769	152	326	424	280	177	1	166
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	197	830	0	0	769	152	326	424	280	0	178	166
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4292	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.1	23.3	0.0	0.0	21.2	14.1			25.3			15.3
Adj Reference Time (s)	9.1	33.9	0.0	0.0	29.0	33.3			29.3			19.3
Permitted Option												
Adj Saturation A (vph)	154	1431		0	1453		101	1600		0	203	
Reference Time A (s)	76.9	23.3		0.0	21.2		386.1	31.8		0.0	105.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		33.7	31.8		NA	NA	
Reference Time (s)		76.9			21.2			33.7			105.0	
Adj Reference Time (s)		80.9			29.0			37.7			109.0	
Split Option												
Ref Time Combined (s)	5.1	23.3		0.0	21.2		25.7	31.8		0.0	7.0	
Ref Time Seperate (s)	5.1	20.9		0.0	21.2		25.7	31.8		7.0	0.1	
Reference Time (s)	23.3	23.3		21.2	21.2		31.8	31.8		7.0	7.0	
Adj Reference Time (s)	33.9	33.9		29.0	29.0		35.8	35.8		33.3	33.3	
Summary												
Protected Option (s)	38.1		NA									
Permitted Option (s)	80.9		109.0									
Split Option (s)	62.9		69.1									
Minimum (s)	38.1		69.1		107.2							
Right Turns												
Adj Reference Time (s)	33.3	29.3	19.3									
Cross Thru Ref Time (s)	35.8	33.9	29.0									
Oncoming Left Ref Time (s)	39.1	33.3	35.8									
Combined (s)	78.2	96.5	84.1									
Intersection Summary												
Intersection Capacity Utilization	89.4%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

AM 2016
5/2/2017



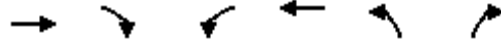
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	860	659	0	290	72
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	860	659	0	362	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4521	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	23.7	18.1	0.0		0.0
Adj Reference Time (s)	0.0	27.7	22.1	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		151	
Reference Time A (s)	0.0	23.7	18.1		144.2	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		23.7	18.1			
Adj Reference Time (s)		27.7	22.1			
Split Option						
Ref Time Combined (s)	0.0	23.7	18.1		9.7	
Ref Time Seperate (s)	0.0	23.7	18.1		7.8	
Reference Time (s)	23.7	23.7	18.1		9.7	
Adj Reference Time (s)	27.7	27.7	22.1		15.4	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	27.7		NA			
Permitted Option (s)	27.7		Err			
Split Option (s)	49.8		15.4			
Minimum (s)	27.7		15.4	43.1		

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary			
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2016
5/2/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	1073	0	0	876	325	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	1073	0	0	876	325	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	1520	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	29.5	0.6	0.0	18.1		0.0
Adj Reference Time (s)	33.5	9.7	0.0	22.1		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	101	
Reference Time A (s)	29.5		0.0	18.1	384.9	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	29.5			18.1		
Adj Reference Time (s)	33.5			22.1		
Split Option						
Ref Time Combined (s)	29.5		0.0	18.1	25.7	
Ref Time Seperate (s)	29.5		0.0	18.1	25.7	
Reference Time (s)	29.5		18.1	18.1	25.7	
Adj Reference Time (s)	33.5		22.1	22.1	29.7	
Summary						
	EB	WB	NB	Combined		
Protected Option (s)	33.5		NA			
Permitted Option (s)	33.5		Err			
Split Option (s)	55.6		29.7			
Minimum (s)	33.5		29.7	63.2		
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	52.7%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

AM 2016+Project
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	956	945	311	163	123
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	956	1256	0	286	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.91	0.85
Saturated Flow (vph)	0	4358	4197	0	4412	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	26.3	36.1	0.0		0.0
Adj Reference Time (s)	0.0	30.3	40.1	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1399		147	
Reference Time A (s)	0.0	26.3	36.1		116.9	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		26.3	36.1			
Adj Reference Time (s)		30.3	40.1			
Split Option						
Ref Time Combined (s)	0.0	26.3	36.1		8.1	
Ref Time Seperate (s)	0.0	26.3	27.2		4.7	
Reference Time (s)	26.3	26.3	36.1		8.1	
Adj Reference Time (s)	30.3	30.3	40.1		14.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	40.1		NA			
Permitted Option (s)	40.1		Err			
Split Option (s)	70.4		14.6			
Minimum (s)	40.1		14.6	54.7		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	45.5%		ICU Level of Service	A		
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

AM 2016+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↗↘			↗↘	↗	↘	↗	↘	↘	↗	↗
Volume (vph)	197	765	152	0	780	152	326	424	280	177	1	166
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	197	917	0	0	780	152	326	424	280	0	178	166
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4250	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.1	26.0	0.0	0.0	21.5	14.1			25.3			15.3
Adj Reference Time (s)	9.1	33.9	0.0	0.0	29.0	33.3			29.3			19.3
Permitted Option												
Adj Saturation A (vph)	154	1417		0	1453		101	1600		0	203	
Reference Time A (s)	76.9	26.0		0.0	21.5		386.1	31.8		0.0	105.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		33.7	31.8		NA	NA	
Reference Time (s)		76.9			21.5			33.7			105.0	
Adj Reference Time (s)		80.9			29.0			37.7			109.0	
Split Option												
Ref Time Combined (s)	5.1	26.0		0.0	21.5		25.7	31.8		0.0	7.0	
Ref Time Seperate (s)	5.1	21.7		0.0	21.5		25.7	31.8		7.0	0.1	
Reference Time (s)	26.0	26.0		21.5	21.5		31.8	31.8		7.0	7.0	
Adj Reference Time (s)	33.9	33.9		29.0	29.0		35.8	35.8		33.3	33.3	
Summary												
Protected Option (s)	38.1		NA									
Permitted Option (s)	80.9		109.0									
Split Option (s)	62.9		69.1									
Minimum (s)	38.1		69.1		107.2							
Right Turns												
Adj Reference Time (s)	33.3	29.3	19.3									
Cross Thru Ref Time (s)	35.8	33.9	29.0									
Oncoming Left Ref Time (s)	39.1	33.3	35.8									
Combined (s)	78.2	96.5	84.1									
Intersection Summary												
Intersection Capacity Utilization	89.4%		ICU Level of Service		E							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

AM 2016+Project
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	897	775	0	290	82
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	897	775	0	372	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4511	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	24.7	21.3	0.0		0.0
Adj Reference Time (s)	0.0	28.7	25.3	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		150	
Reference Time A (s)	0.0	24.7	21.3		148.6	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		24.7	21.3			
Adj Reference Time (s)		28.7	25.3			
Split Option						
Ref Time Combined (s)	0.0	24.7	21.3		10.0	
Ref Time Seperate (s)	0.0	24.7	21.3		7.9	
Reference Time (s)	24.7	24.7	21.3		10.0	
Adj Reference Time (s)	28.7	28.7	25.3		15.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	28.7		NA			
Permitted Option (s)	28.7		Err			
Split Option (s)	54.0		15.6			
Minimum (s)	28.7		15.6	44.3		

Right Turns	
Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary			
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2016+Project
5/2/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	1092	0	0	887	430	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	1092	0	0	887	430	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	1520	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	30.1	0.6	0.0	18.3		0.0
Adj Reference Time (s)	34.1	9.7	0.0	22.3		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	101	
Reference Time A (s)	30.1		0.0	18.3	509.2	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	30.1			18.3		
Adj Reference Time (s)	34.1			22.3		
Split Option						
Ref Time Combined (s)	30.1		0.0	18.3	33.9	
Ref Time Seperate (s)	30.1		0.0	18.3	33.9	
Reference Time (s)	30.1		18.3	18.3	33.9	
Adj Reference Time (s)	34.1		22.3	22.3	37.9	
Summary						
	EB	WB		NB		Combined
Protected Option (s)	34.1			NA		
Permitted Option (s)	34.1			Err		
Split Option (s)	56.4			37.9		
Minimum (s)	34.1			37.9		72.0
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	60.0%		ICU Level of Service		B	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

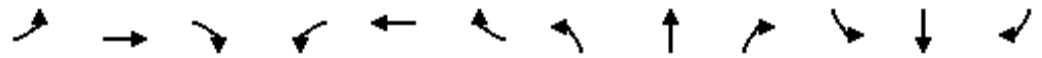
AM 2021
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	959	1031	343	180	95
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	959	1374	0	275	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.92	0.85
Saturated Flow (vph)	0	4358	4195	0	4453	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.2	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	26.4	39.5	0.0		0.0
Adj Reference Time (s)	0.0	30.4	43.5	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1398		148	
Reference Time A (s)	0.0	26.4	39.5		111.4	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		26.4	39.5			
Adj Reference Time (s)		30.4	43.5			
Split Option						
Ref Time Combined (s)	0.0	26.4	39.5		7.6	
Ref Time Seperate (s)	0.0	26.4	29.7		5.1	
Reference Time (s)	26.4	26.4	39.5		7.6	
Adj Reference Time (s)	30.4	30.4	43.5		14.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	43.5		NA			
Permitted Option (s)	43.5		Err			
Split Option (s)	73.9		14.2			
Minimum (s)	43.5		14.2	57.7		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	48.1%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↗↘↔			↗↘↔	↗	↘	↕	↗	↘	↗↘	↗
Volume (vph)	218	824	93	0	849	168	360	468	309	195	1	183
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	218	917	0	0	849	168	360	468	309	0	196	183
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4292	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.7	25.7	0.0	0.0	23.4	15.5			27.9			16.8
Adj Reference Time (s)	9.7	33.9	0.0	0.0	29.0	33.3			31.9			20.8
Permitted Option												
Adj Saturation A (vph)	154	1431		0	1453		101	1600		0	203	
Reference Time A (s)	85.1	25.7		0.0	23.4		426.3	35.1		0.0	115.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		36.4	35.1		NA	NA	
Reference Time (s)		85.1			23.4			36.4			115.6	
Adj Reference Time (s)		89.1			29.0			40.4			119.6	
Split Option												
Ref Time Combined (s)	5.7	25.7		0.0	23.4		28.4	35.1		0.0	7.7	
Ref Time Seperate (s)	5.7	23.1		0.0	23.4		28.4	35.1		7.7	0.1	
Reference Time (s)	25.7	25.7		23.4	23.4		35.1	35.1		7.7	7.7	
Adj Reference Time (s)	33.9	33.9		29.0	29.0		39.1	39.1		33.3	33.3	
Summary												
Protected Option (s)	38.7		NA									
Permitted Option (s)	89.1		119.6									
Split Option (s)	62.9		72.4									
Minimum (s)	38.7		72.4		111.1							
Right Turns												
Adj Reference Time (s)	33.3	31.9	20.8									
Cross Thru Ref Time (s)	39.1	33.9	29.0									
Oncoming Left Ref Time (s)	39.7	33.3	39.1									
Combined (s)	82.1	99.1	88.9									
Intersection Summary												
Intersection Capacity Utilization	92.6%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

AM 2021
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	950	728	0	320	79
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	950	728	0	399	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4522	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	26.2	20.0	0.0		0.0
Adj Reference Time (s)	0.0	30.2	24.0	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		151	
Reference Time A (s)	0.0	26.2	20.0		159.0	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		26.2	20.0			
Adj Reference Time (s)		30.2	24.0			
Split Option						
Ref Time Combined (s)	0.0	26.2	20.0		10.7	
Ref Time Seperate (s)	0.0	26.2	20.0		8.6	
Reference Time (s)	26.2	26.2	20.0		10.7	
Adj Reference Time (s)	30.2	30.2	24.0		16.2	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	30.2		NA			
Permitted Option (s)	30.2		Err			
Split Option (s)	54.2		16.2			
Minimum (s)	30.2		16.2	46.4		

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary
Intersection Capacity Utilization 38.6% ICU Level of Service A
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2021
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	1185	0	0	967	0	359	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	1185	0	0	967	0	359	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	32.6	0.6	0.0	20.0	0.0	28.3	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	36.6	9.7	0.0	24.0	0.0	32.3	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	32.6		0.0	20.0		425.1	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		36.3	0.0		0.0	0.0	
Reference Time (s)		32.6			20.0			36.3			0.0	
Adj Reference Time (s)		36.6			24.0			40.3			9.8	
Split Option												
Ref Time Combined (s)	0.0	32.6		0.0	20.0		28.3	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	32.6		0.0	20.0		28.3	0.0		0.0	0.0	
Reference Time (s)	32.6	32.6		20.0	20.0		28.3	28.3		0.0	0.0	
Adj Reference Time (s)	36.6	36.6		24.0	24.0		32.3	32.3		9.8	9.8	
Summary												
Protected Option (s)	36.6		32.3									
Permitted Option (s)	36.6		40.3									
Split Option (s)	60.6		42.2									
Minimum (s)	36.6		32.3		69.0							
Right Turns												
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	57.5%		ICU Level of Service				B					
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1121	1046	343	180	140
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1121	1389	0	320	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.91	0.85
Saturated Flow (vph)	0	4358	4197	0	4409	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	30.9	39.9	0.0		0.0
Adj Reference Time (s)	0.0	34.9	43.9	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1399		147	
Reference Time A (s)	0.0	30.9	39.9		130.9	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		30.9	39.9			
Adj Reference Time (s)		34.9	43.9			
Split Option						
Ref Time Combined (s)	0.0	30.9	39.9		9.0	
Ref Time Seperate (s)	0.0	30.9	30.1		5.2	
Reference Time (s)	30.9	30.9	39.9		9.0	
Adj Reference Time (s)	34.9	34.9	43.9		15.4	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	43.9		NA			
Permitted Option (s)	43.9		Err			
Split Option (s)	78.7		15.4			
Minimum (s)	43.9		15.4	59.2		

Right Turns

Adj Reference Time (s)	
Cross Thru Ref Time (s)	
Oncoming Left Ref Time (s)	
Combined (s)	

Intersection Summary

Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Reference Times and Phasing Options do not represent an optimized timing plan.			

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↗↘↘			↗↗↗	↗	↘	↗	↗	↘	↗	↗
Volume (vph)	218	865	214	0	864	168	360	468	309	195	1	183
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	218	1079	0	0	864	168	360	468	309	0	196	183
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4229	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.1	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.7	30.7	0.0	0.0	23.8	15.5			27.9			16.8
Adj Reference Time (s)	9.7	34.7	0.0	0.0	29.0	33.3			31.9			20.8
Permitted Option												
Adj Saturation A (vph)	154	1410		0	1453		101	1600		0	203	
Reference Time A (s)	85.1	30.7		0.0	23.8		426.3	35.1		0.0	115.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		36.4	35.1		NA	NA	
Reference Time (s)		85.1			23.8			36.4			115.6	
Adj Reference Time (s)		89.1			29.0			40.4			119.6	
Split Option												
Ref Time Combined (s)	5.7	30.7		0.0	23.8		28.4	35.1		0.0	7.7	
Ref Time Seperate (s)	5.7	24.7		0.0	23.8		28.4	35.1		7.7	0.1	
Reference Time (s)	30.7	30.7		23.8	23.8		35.1	35.1		7.7	7.7	
Adj Reference Time (s)	34.7	34.7		29.0	29.0		39.1	39.1		33.3	33.3	
Summary												
Protected Option (s)	38.7		NA									
Permitted Option (s)	89.1		119.6									
Split Option (s)	63.7		72.4									
Minimum (s)	38.7		72.4		111.1							
Right Turns												
Adj Reference Time (s)	33.3	31.9	20.8									
Cross Thru Ref Time (s)	39.1	34.7	29.0									
Oncoming Left Ref Time (s)	39.7	33.3	39.1									
Combined (s)	82.1	100.0	88.9									

Intersection Summary

Intersection Capacity Utilization 92.6% ICU Level of Service F
Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

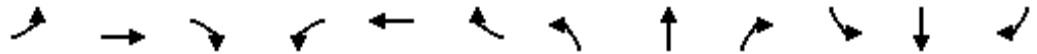
AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	988	828	0	320	84
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	988	828	0	404	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4517	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	27.2	22.8	0.0		0.0
Adj Reference Time (s)	0.0	31.2	26.8	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		151	
Reference Time A (s)	0.0	27.2	22.8		161.1	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		27.2	22.8			
Adj Reference Time (s)		31.2	26.8			
Split Option						
Ref Time Combined (s)	0.0	27.2	22.8		10.9	
Ref Time Seperate (s)	0.0	27.2	22.8		8.6	
Reference Time (s)	27.2	27.2	22.8		10.9	
Adj Reference Time (s)	31.2	31.2	26.8		16.3	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	31.2		NA			
Permitted Option (s)	31.2		Err			
Split Option (s)	58.0		16.3			
Minimum (s)	31.2		16.3	47.5		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	39.6%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2021+Related Projects
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	1207	0	0	974	0	452	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	1207	0	0	974	0	452	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	33.2	0.6	0.0	20.1	0.0	35.7	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	37.2	9.7	0.0	24.1	0.0	39.7	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	33.2		0.0	20.1		535.3	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		43.7	0.0		0.0	0.0	
Reference Time (s)		33.2			20.1			43.7			0.0	
Adj Reference Time (s)		37.2			24.1			47.7			9.8	
Split Option												
Ref Time Combined (s)	0.0	33.2		0.0	20.1		35.7	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	33.2		0.0	20.1		35.7	0.0		0.0	0.0	
Reference Time (s)	33.2	33.2		20.1	20.1		35.7	35.7		0.0	0.0	
Adj Reference Time (s)	37.2	37.2		24.1	24.1		39.7	39.7		9.8	9.8	
Summary												
Protected Option (s)	37.2		39.7									
Permitted Option (s)	37.2		47.7									
Split Option (s)	61.3		49.5									
Minimum (s)	37.2		39.7		76.9							
Right Turns												
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	64.1%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												

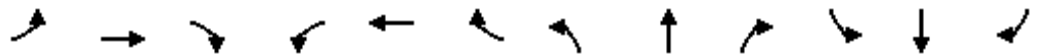
Intersection Capacity Utilization
10: Ave K & SR 14 SB Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1208	1057	343	180	177
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			28.1		24.5	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1208	1400	0	357	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	0.96	0.85	0.90	0.85
Saturated Flow (vph)	0	4358	4198	0	4381	0
Ped Intf Time (s)	0.0	0.0	0.2	0.6	0.3	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	33.3	40.2	0.0		0.0
Adj Reference Time (s)	0.0	37.3	44.2	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1399		146	
Reference Time A (s)	0.0	33.3	40.2		147.0	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		33.3	40.2			
Adj Reference Time (s)		37.3	44.2			
Split Option						
Ref Time Combined (s)	0.0	33.3	40.2		10.1	
Ref Time Seperate (s)	0.0	33.3	30.4		5.2	
Reference Time (s)	33.3	33.3	40.2		10.1	
Adj Reference Time (s)	37.3	37.3	44.2		16.3	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	44.2		NA			
Permitted Option (s)	44.2		Err			
Split Option (s)	81.4		16.3			
Minimum (s)	44.2		16.3	60.5		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	50.4%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
11: SR 14 NB Ramp/15th St W & Ave K

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↗↘↘			↗↗↗	↗	↘	↗	↗	↘	↗	↗
Volume (vph)	218	884	282	0	875	168	360	468	309	195	1	183
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			No			No	
Pedestrian Timing (s)		29.9			25.0			16.0			29.3	
Free Right			No			No			No			No
Ideal Flow	2500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (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 Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	218	1166	0	0	875	168	360	468	309	0	196	183
Lane Utilization Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.96	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85
Saturated Flow (vph)	4612	4200	0	0	4358	1360	1520	1600	1360	0	3041	1360
Ped Intf Time (s)	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			1.00			1.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	5.7	33.5	0.0	0.0	24.1	15.5			27.9			16.8
Adj Reference Time (s)	9.7	37.5	0.0	0.0	29.0	33.3			31.9			20.8
Permitted Option												
Adj Saturation A (vph)	154	1400		0	1453		101	1600		0	203	
Reference Time A (s)	85.1	33.5		0.0	24.1		426.3	35.1		0.0	115.6	
Adj Saturation B (vph)	NA	NA		NA	NA		0	1600		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		36.4	35.1		NA	NA	
Reference Time (s)		85.1			24.1			36.4			115.6	
Adj Reference Time (s)		89.1			29.0			40.4			119.6	
Split Option												
Ref Time Combined (s)	5.7	33.5		0.0	24.1		28.4	35.1		0.0	7.7	
Ref Time Seperate (s)	5.7	25.4		0.0	24.1		28.4	35.1		7.7	0.1	
Reference Time (s)	33.5	33.5		24.1	24.1		35.1	35.1		7.7	7.7	
Adj Reference Time (s)	37.5	37.5		29.0	29.0		39.1	39.1		33.3	33.3	
Summary												
Protected Option (s)	38.7		NA									
Permitted Option (s)	89.1		119.6									
Split Option (s)	66.5		72.4									
Minimum (s)	38.7		72.4		111.1							
Right Turns												
Adj Reference Time (s)	33.3	31.9	20.8									
Cross Thru Ref Time (s)	39.1	37.5	29.0									
Oncoming Left Ref Time (s)	39.7	33.3	39.1									
Combined (s)	82.1	102.7	88.9									
Intersection Summary												
Intersection Capacity Utilization	92.6%		ICU Level of Service		F							
Reference Times and Phasing Options do not represent an optimized timing plan.												

Intersection Capacity Utilization
29: Ave L & SR 14 SB Ramp

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	
Volume (vph)	0	1025	944	0	320	94
Pedestrians	5			5	5	5
Ped Button			No		Yes	
Pedestrian Timing (s)			16.0		20.4	
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	1025	944	0	414	0
Lane Utilization Factor	1.00	0.91	0.91	1.00	0.97	1.00
Turning Factor (vph)	0.95	1.00	1.00	0.85	0.93	0.85
Saturated Flow (vph)	0	4358	4358	0	4508	0
Ped Intf Time (s)	0.0	0.0	0.0	0.6	0.1	0.6
Pedestrian Frequency (%)		0.00	1.00		0.15	
Protected Option Allowed		Yes	Yes		No	
Reference Time (s)	0.0	28.2	26.0	0.0		0.0
Adj Reference Time (s)	0.0	32.2	30.0	0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1453	1453		150	
Reference Time A (s)	0.0	28.2	26.0		165.4	
Adj Saturation B (vph)	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		28.2	26.0			
Adj Reference Time (s)		32.2	30.0			
Split Option						
Ref Time Combined (s)	0.0	28.2	26.0		11.2	
Ref Time Seperate (s)	0.0	28.2	26.0		8.7	
Reference Time (s)	28.2	28.2	26.0		11.2	
Adj Reference Time (s)	32.2	32.2	30.0		16.6	
Summary						
	EB	WB	SB	Combined		
Protected Option (s)	32.2		NA			
Permitted Option (s)	32.2		Err			
Split Option (s)	62.2		16.6			
Minimum (s)	32.2		16.6	48.8		
Right Turns						
Adj Reference Time (s)						
Cross Thru Ref Time (s)						
Oncoming Left Ref Time (s)						
Combined (s)						
Intersection Summary						
Intersection Capacity Utilization	40.7%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Intersection Capacity Utilization
30: SR 14 NB Ramp & Ave L

AM 2021+Related Projects+Project
5/2/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑		↘					
Volume (vph)	0	1226	0	0	985	0	557	0	0	0	0	0
Pedestrians	5		5	5		5	5		5	5		5
Ped Button		No			No			Yes			Yes	
Pedestrian Timing (s)		16.0			16.0			16.0			16.0	
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	5.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (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
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	1226	0	0	985	0	557	0	0	0	0	0
Lane Utilization Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	4358	1360	0	5811	0	1520	0	0	0	0	0
Ped Intf Time (s)	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.6
Pedestrian Frequency (%)		1.00			1.00			0.15			0.15	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	33.8	0.6	0.0	20.3	0.0	44.0	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	0.0	37.8	9.7	0.0	24.3	0.0	48.0	0.0	0.0	0.0	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	1453		0	1453		101	0		0	0	
Reference Time A (s)	0.0	33.8		0.0	20.3		659.6	0.0		0.0	0.0	
Adj Saturation B (vph)	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		52.0	0.0		0.0	0.0	
Reference Time (s)		33.8			20.3			52.0			0.0	
Adj Reference Time (s)		37.8			24.3			56.0			9.8	
Split Option												
Ref Time Combined (s)	0.0	33.8		0.0	20.3		44.0	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	33.8		0.0	20.3		44.0	0.0		0.0	0.0	
Reference Time (s)	33.8	33.8		20.3	20.3		44.0	44.0		0.0	0.0	
Adj Reference Time (s)	37.8	37.8		24.3	24.3		48.0	48.0		9.8	9.8	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	37.8		48.0									
Permitted Option (s)	37.8		56.0									
Split Option (s)	62.1		57.8									
Minimum (s)	37.8		48.0		85.7							
Right Turns												
	EBR											
Adj Reference Time (s)	9.7											
Cross Thru Ref Time (s)	0.0											
Oncoming Left Ref Time (s)	0.0											
Combined (s)	9.7											
Intersection Summary												
Intersection Capacity Utilization	71.4%		ICU Level of Service		C							
Reference Times and Phasing Options do not represent an optimized timing plan.												



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑	↖	
Volume (vph)	1226	0	0	985	557	0
Pedestrians		5	5		5	5
Ped Button	No				Yes	
Pedestrian Timing (s)	16.0				16.0	
Free Right		No				No
Ideal Flow	1600	1600	1600	1600	2500	1600
Lost Time (s)	4.0	5.7	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	1226	0	0	985	557	0
Lane Utilization Factor	0.91	1.00	1.00	0.91	0.97	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.95	0.85
Saturated Flow (vph)	4358	1360	0	5811	4612	0
Ped Intf Time (s)	0.0	0.6	0.0	0.0	0.0	0.6
Pedestrian Frequency (%)	1.00			0.00	0.15	
Protected Option Allowed	Yes			Yes	No	
Reference Time (s)	33.8	0.6	0.0	20.3		0.0
Adj Reference Time (s)	37.8	9.7	0.0	24.3		0.0
Permitted Option						
Adj Saturation A (vph)	1453		0	1453	154	
Reference Time A (s)	33.8		0.0	20.3	217.4	
Adj Saturation B (vph)	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	33.8			20.3		
Adj Reference Time (s)	37.8			24.3		
Split Option						
Ref Time Combined (s)	33.8		0.0	20.3	14.5	
Ref Time Seperate (s)	33.8		0.0	20.3	14.5	
Reference Time (s)	33.8		20.3	20.3	14.5	
Adj Reference Time (s)	37.8		24.3	24.3	18.5	
Summary						
	EB	WB	NB	Combined		
Protected Option (s)	37.8		NA			
Permitted Option (s)	37.8		Err			
Split Option (s)	62.1		18.5			
Minimum (s)	37.8		18.5	56.2		
Right Turns						
	EBR					
Adj Reference Time (s)	9.7					
Cross Thru Ref Time (s)	0.0					
Oncoming Left Ref Time (s)	0.0					
Combined (s)	9.7					
Intersection Summary						
Intersection Capacity Utilization	46.9%		ICU Level of Service		A	
Reference Times and Phasing Options do not represent an optimized timing plan.						

Vehicle Turning Movement Counts

Turning Movement Count Report AM

Location ID: 1
 North/South: 70th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	0	19	0	0	22	23	28	68	7	3	19	1	190
7:45	0	6	0	0	19	6	21	43	5	3	18	1	122
8:00	0	7	1	1	8	3	8	16	4	1	11	0	60
8:15	0	9	0	0	9	6	11	24	5	4	8	0	76
8:30													
8:45													

Total Volume:	0	41	1	1	58	38	68	151	21	11	56	2	448
Approach %	0%	98%	2%	1%	60%	39%	28%	63%	9%	16%	81%	3%	

Peak Hr Begin:	7:30												
PHV	0	41	1	1	58	38	68	151	21	11	56	2	448
PHF	0.553			0.539			0.583			0.750			0.589

Turning Movement Count Report PM

Location ID: 1
 North/South: 70th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	0	27	0	1	12	5	7	9	2	4	23	1	91
16:45	1	24	2	1	13	18	8	10	2	7	26	0	112
17:00	0	26	0	2	18	7	5	9	6	7	25	0	105
17:15	0	33	0	2	24	8	10	11	3	10	37	0	138
17:30													
17:45													

Total Volume:	1	110	2	6	67	38	30	39	13	28	111	1	446
Approach %	1%	97%	2%	5%	60%	34%	37%	48%	16%	20%	79%	1%	

Peak Hr Begin:	16:30												
PHV	1	110	2	6	67	38	30	39	13	28	111	1	446
PHF	0.856			0.816			0.854			0.745			0.808

Turning Movement Count Report AM

Location ID: 2
 North/South: 60th St
 East/West: Avenue K

Date: 4/12/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	10	110	33	44	21	11	45	181	13	18	52	15	553
7:45	6	112	23	19	22	13	37	131	4	9	53	11	440
8:00	0	35	6	12	16	16	12	38	4	5	28	5	177
8:15	3	19	12	12	14	6	15	43	2	8	26	2	162
8:30													
8:45													

Total Volume:	19	276	74	87	73	46	109	393	23	40	159	33	1332
Approach %	5%	75%	20%	42%	35%	22%	21%	75%	4%	17%	69%	14%	

Peak Hr Begin:	7:30												
PHV	19	276	74	87	73	46	109	393	23	40	159	33	1332
PHF	0.603			0.678			0.549			0.682			0.602

Turning Movement Count Report PM

Location ID: 2
 North/South: 60th St
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	4	66	12	18	36	14	25	44	10	7	42	8	286
16:45	13	68	8	17	38	24	14	41	9	7	38	4	281
17:00	6	70	21	13	32	18	19	57	11	9	38	3	297
17:15	12	65	15	18	42	28	21	52	17	6	47	3	326
17:30													
17:45													

Total Volume:	35	269	56	66	148	84	79	194	47	29	165	18	1190
Approach %	10%	75%	16%	22%	50%	28%	25%	61%	15%	14%	78%	8%	

Peak Hr Begin:	16:30												
PHV	35	269	56	66	148	84	79	194	47	29	165	18	1190
PHF	0.928			0.847			0.889			0.930			0.913

Turning Movement Count Report AM

Location ID: 3
 North/South: 50th Street W
 East/West: Avenue K

Date: 4/12/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	9	45	5	5	38	10	48	67	13	8	116	3	367
7:45	4	29	6	5	39	7	40	80	11	7	112	7	347
8:00	1	16	3	7	35	11	20	43	5	3	68	7	219
8:15	6	19	2	6	29	4	11	24	6	6	57	3	173
8:30													
8:45													

Total Volume:	20	109	16	23	141	32	119	214	35	24	353	20	1106
Approach %	14%	75%	11%	12%	72%	16%	32%	58%	10%	6%	89%	5%	

Peak Hr Begin:	7:30												
PHV	20	109	16	23	141	32	119	214	35	24	353	20	1106
PHF	0.614			0.925			0.702			0.781			0.753

Turning Movement Count Report PM

Location ID: 3
 North/South: 50th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	2	60	2	6	63	12	18	33	9	6	67	5	283
16:45	12	59	4	1	61	15	16	43	7	4	68	4	294
17:00	12	60	1	2	63	20	18	40	12	8	71	3	310
17:15	11	52	6	2	70	26	13	37	8	6	71	8	310
17:30													
17:45													

Total Volume:	37	231	13	11	257	73	65	153	36	24	277	20	1197
Approach %	13%	82%	5%	3%	75%	21%	26%	60%	14%	7%	86%	6%	

Peak Hr Begin:	16:30												
PHV	37	231	13	11	257	73	65	153	36	24	277	20	1197
PHF	0.937			0.870			0.907			0.944			0.965

Turning Movement Count Report AM

Location ID: 4
 North/South: 45th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	9	20	30	29	55	5	25	30	4	4	165	5	381
7:45	6	22	39	54	45	4	16	34	2	2	173	3	400
8:00	6	30	56	46	44	3	16	25	3	5	88	6	328
8:15	1	10	23	13	34	2	8	12	1	1	70	1	176
8:30													
8:45													

Total Volume:	22	82	148	142	178	14	65	101	10	12	496	15	1285
Approach %	9%	33%	59%	43%	53%	4%	37%	57%	6%	2%	95%	3%	

Peak Hr Begin:	7:30												
PHV	22	82	148	142	178	14	65	101	10	12	496	15	1285
PHF	0.685			0.811			0.746			0.735			0.803

Turning Movement Count Report PM

Location ID: 4
 North/South: 45th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	2	16	10	12	90	7	5	22	2	2	91	2	261
16:45	2	20	8	7	75	17	9	17	11	4	81	1	252
17:00	7	15	7	11	102	7	5	20	6	6	84	1	271
17:15	6	17	7	10	84	7	14	20	4	6	81	2	258
17:30													
17:45													

Total Volume:	17	68	32	40	351	38	33	79	23	18	337	6	1042
Approach %	15%	58%	27%	9%	82%	9%	24%	59%	17%	5%	93%	2%	

Peak Hr Begin:	16:30												
PHV	17	68	32	40	351	38	33	79	23	18	337	6	1042
PHF	0.975			0.894			0.888			0.950			0.961

Turning Movement Count Report AM

Location ID: 5
 North/South: 40th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	7	54	9	4	70	10	49	72	16	19	187	9	506
7:45	3	53	17	8	78	19	75	63	35	23	212	9	595
8:00	5	20	13	4	68	7	30	32	21	13	152	8	373
8:15	2	24	9	5	43	7	23	23	14	13	100	2	265
8:30													
8:45													

Total Volume:	17	151	48	21	259	43	177	190	86	68	651	28	1739
Approach %	8%	70%	22%	7%	80%	13%	39%	42%	19%	9%	87%	4%	

Peak Hr Begin:	7:30												
PHV	17	151	48	21	259	43	177	190	86	68	651	28	1739
PHF	0.740			0.769			0.655			0.765			0.731

Turning Movement Count Report PM

Location ID: 5
 North/South: 40th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	4	58	9	14	101	29	18	43	10	11	90	4	391
16:45	9	69	11	11	84	22	18	40	9	5	90	9	377
17:00	3	65	9	13	118	26	18	33	8	5	81	4	383
17:15	6	55	11	13	98	22	13	46	12	14	98	6	394
17:30													
17:45													

Total Volume:	22	247	40	51	401	99	67	162	39	35	359	23	1545
Approach %	7%	80%	13%	9%	73%	18%	25%	60%	15%	8%	86%	6%	

Peak Hr Begin:	16:30												
PHV	22	247	40	51	401	99	67	162	39	35	359	23	1545
PHF	0.868			0.877			0.944			0.883			0.980

Turning Movement Count Report AM

Location ID: 6
 North/South: 30th Street W
 East/West: Avenue K

Date: 4/12/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	54	93	26	88	136	23	23	154	66	34	173	29	899
7:45	49	88	50	105	175	5	45	223	94	42	218	43	1137
8:00	30	79	41	48	93	10	29	124	56	35	183	51	779
8:15	26	53	26	25	85	12	29	75	49	34	151	35	600
8:30													
8:45													

Total Volume:	159	313	143	266	489	50	126	576	265	145	725	158	3415
Approach %	26%	51%	23%	33%	61%	6%	13%	60%	27%	14%	71%	15%	

Peak Hr Begin:	7:30												
PHV	159	313	143	266	489	50	126	576	265	145	725	158	3415
PHF	0.822			0.706			0.668			0.848			0.751

Turning Movement Count Report PM

Location ID: 6
 North/South: 30th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	16	139	48	31	120	37	30	102	30	18	124	25	720
16:45	32	138	70	42	106	45	20	114	37	23	139	39	805
17:00	29	134	57	58	142	37	27	124	32	15	97	28	780
17:15	20	142	45	43	121	34	34	114	40	14	140	34	781
17:30													
17:45													

Total Volume:	97	553	220	174	489	153	111	454	139	70	500	126	3086
Approach %	11%	64%	25%	21%	60%	19%	16%	64%	20%	10%	72%	18%	

Peak Hr Begin:	16:30												
PHV	97	553	220	174	489	153	111	454	139	70	500	126	3086
PHF	0.906			0.861			0.936			0.866			0.958

Turning Movement Count Report AM

Location ID: 7
 North/South: 25th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	13	29	16	15	267	3	17	43	4	3	205	14	629
7:45	7	32	27	10	243	3	7	34	8	5	295	28	699
8:00	4	42	46	19	142	2	20	36	2	4	244	14	575
8:15	8	20	36	15	120	7	27	29	2	6	209	9	488
8:30													
8:45													

Total Volume:	32	123	125	59	772	15	71	142	16	18	953	65	2391
Approach %	11%	44%	45%	7%	91%	2%	31%	62%	7%	2%	92%	6%	

Peak Hr Begin:	7:30												
PHV	32	123	125	59	772	15	71	142	16	18	953	65	2391
PHF	0.761			0.742			0.895			0.790			0.855

Turning Movement Count Report PM

Location ID: 7
 North/South: 25th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	15	30	17	23	184	11	9	22	5	6	187	14	523
16:45	9	31	19	23	185	14	10	26	0	4	212	13	546
17:00	11	32	17	23	244	20	10	26	2	2	169	10	566
17:15	8	30	17	18	192	10	10	35	4	6	202	4	536
17:30													
17:45													

Total Volume:	43	123	70	87	805	55	39	109	11	18	770	41	2171
Approach %	18%	52%	30%	9%	85%	6%	25%	69%	7%	2%	93%	5%	

Peak Hr Begin:	16:30												
PHV	43	123	70	87	805	55	39	109	11	18	770	41	2171
PHF	0.952			0.825			0.811			0.905			0.959

Turning Movement Count Report AM

Location ID: 8
 North/South: 20th Street W
 East/West: Avenue K

Date: 4/12/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	16	33	18	5	259	3	16	57	16	14	176	28	641
7:45	19	46	31	16	189	18	27	71	18	13	260	27	735
8:00	17	55	26	23	158	22	22	62	8	16	242	42	693
8:15	20	51	21	18	114	18	12	54	4	25	215	55	607
8:30													
8:45													

Total Volume:	72	185	96	62	720	61	77	244	46	68	893	152	2676
Approach %	20%	52%	27%	7%	85%	7%	21%	66%	13%	6%	80%	14%	

Peak Hr Begin:	7:30												
PHV	72	185	96	62	720	61	77	244	46	68	893	152	2676
PHF	0.901			0.789			0.791			0.928			0.910

Turning Movement Count Report PM

Location ID: 8
 North/South: 20th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	24	106	50	31	215	43	28	55	16	12	205	42	827
16:45	21	97	45	29	189	49	18	71	6	15	194	38	772
17:00	31	98	54	33	221	40	31	58	17	11	180	33	807
17:15	21	78	35	32	212	50	16	64	28	12	219	40	807
17:30													
17:45													

Total Volume:	97	379	184	125	837	182	93	248	67	50	798	153	3213
Approach %	15%	57%	28%	11%	73%	16%	23%	61%	16%	5%	80%	15%	

Peak Hr Begin:	16:30												
PHV	97	379	184	125	837	182	93	248	67	50	798	153	3213
PHF	0.902			0.973			0.944			0.923			0.971

Turning Movement Count Report AM

Location ID: 9
 North/South: 17th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	5	6	33	13	268	13	36	14	5	12	209	7	621
7:45	5	6	34	14	251	14	31	5	7	5	282	11	665
8:00	8	11	32	26	188	29	26	13	8	8	278	15	642
8:15	6	7	38	24	152	18	27	11	2	12	219	11	527
8:30													
8:45													

Total Volume:	24	30	137	77	859	74	120	43	22	37	988	44	2455
Approach %	13%	16%	72%	8%	85%	7%	65%	23%	12%	3%	92%	4%	

Peak Hr Begin:	7:30												
PHV	24	30	137	77	859	74	120	43	22	37	988	44	2455
PHF	0.936			0.859			0.841			0.888			0.923

Turning Movement Count Report PM

Location ID: 9
 North/South: 17th Street W
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	8	10	42	37	287	37	22	19	8	16	240	13	739
16:45	15	10	57	44	277	46	39	20	13	27	291	20	859
17:00	16	20	51	42	279	37	45	12	13	15	224	14	768
17:15	16	16	45	49	268	38	33	20	9	14	274	15	797
17:30													
17:45													

Total Volume:	55	56	195	172	1111	158	139	71	43	72	1029	62	3163
Approach %	18%	18%	64%	12%	77%	11%	55%	28%	17%	6%	88%	5%	

Peak Hr Begin:	16:30												
PHV	55	56	195	172	1111	158	139	71	43	72	1029	62	3163
PHF	0.879			0.982			0.878			0.860			0.921

Turning Movement Count Report AM

Location ID: 10
 North/South: Quarts Hill High School Entrance (Approximately 940 ft. west of 60th St W)
 East/West: Avenue L

Date: 4/13/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	0	0	0	0	68	4	15	0	8	9	111	0	215
7:45	0	0	0	0	30	2	1	0	1	2	49	0	85
8:00	0	0	0	0	10	1	5	0	2	1	32	0	51
8:15	0	0	0	0	24	1	3	0	2	1	31	0	62
8:30													
8:45													

Total Volume:	0	0	0	0	132	8	24	0	13	13	223	0	413
Approach %	0%	0%	0%	0%	94%	6%	65%	0%	35%	6%	94%	0%	

Peak Hr Begin:	7:30												
PHV	0	0	0	0	132	8	24	0	13	13	223	0	413
PHF	0.000			0.486			0.402			0.492			0.480

Turning Movement Count Report PM

Location ID: 10
 North/South: Quarts Hill High School Entrance (Approximately 940 ft. west of 60th St W)
 East/West: Avenue L

Date: 04/13/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	0	0	0	0	52	2	4	0	1	3	39	0	101
16:45	0	0	0	0	54	2	8	0	1	0	36	0	101
17:00	0	0	0	0	62	0	2	0	0	1	46	0	111
17:15	0	0	0	0	71	7	1	0	0	0	42	0	121
17:30													
17:45													

Total Volume:	0	0	0	0	239	11	15	0	2	4	163	0	434
Approach %	0%	0%	0%	0%	96%	4%	88%	0%	12%	2%	98%	0%	

Peak Hr Begin:	16:30												
PHV	0	0	0	0	239	11	15	0	2	4	163	0	434
PHF	0.000			0.801			0.472			0.888			0.897

Turning Movement Count Report AM

Location ID: 11
 North/South: State Route 14 SB Ramps
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	22	0	31	74	273	1	0	0	0	89	185	0	675
7:45	16	0	68	91	264	0	0	0	0	96	251	0	786
8:00	28	0	33	70	198	0	0	0	0	114	237	0	680
8:15	20	0	31	76	199	0	0	0	0	85	196	0	607
8:30													
8:45													

Total Volume:	86	0	163	311	934	1	0	0	0	384	869	0	2748
Approach %	35%	0%	65%	25%	75%	0%	0%	0%	0%	31%	69%	0%	

Peak Hr Begin:	7:30												
PHV	86	0	163	311	934	1	0	0	0	384	869	0	2748
PHF	0.741			0.877			0.000			0.892			0.874

Turning Movement Count Report PM

Location ID: 11
 North/South: State Route 14 SB Ramps
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	55	0	38	125	312	1	0	0	0	91	214	0	836
16:45	66	0	57	93	298	0	0	0	0	114	258	0	886
17:00	50	0	73	132	305	0	0	0	0	88	237	0	885
17:15	58	0	51	115	315	0	0	0	0	99	274	1	913
17:30													
17:45													

Total Volume:	229	0	219	465	1230	1	0	0	0	392	983	1	3520
Approach %	51%	0%	49%	27%	73%	0%	0%	0%	0%	28%	71%	0%	

Peak Hr Begin:	16:30												
PHV	229	0	219	465	1230	1	0	0	0	392	983	1	3520
PHF	0.911			0.968			0.000			0.920			0.964

Turning Movement Count Report AM

Location ID: 12
 North/South: 15th Street W/State Route 14 NB Ramps
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	32	0	36	20	219	0	57	106	125	22	166	31	814
7:45	47	0	49	53	226	0	84	105	84	23	214	81	966
8:00	49	0	42	39	161	0	72	97	62	21	201	44	788
8:15	38	1	50	40	163	0	67	116	55	18	165	41	754
8:30													
8:45													

Total Volume:	166	1	177	152	769	0	280	424	326	84	746	197	3322
Approach %	48%	0%	51%	17%	83%	0%	27%	41%	32%	8%	73%	19%	

Peak Hr Begin:	7:30												
PHV	166	1	177	152	769	0	280	424	326	84	746	197	3322
PHF	0.896			0.825			0.894			0.807			0.860

Turning Movement Count Report PM

Location ID: 12
 North/South: 15th Street W/State Route 14 NB Ramps
 East/West: Avenue K

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	108	1	83	54	276	0	99	76	89	16	200	35	1037
16:45	90	0	86	52	244	1	92	73	92	22	245	46	1043
17:00	137	2	113	53	277	0	91	79	82	20	253	39	1146
17:15	111	2	101	64	254	0	95	70	73	19	256	44	1089
17:30													
17:45													

Total Volume:	446	5	383	223	1051	1	377	298	336	77	954	164	4315
Approach %	53%	1%	46%	17%	82%	0%	37%	29%	33%	6%	80%	14%	

Peak Hr Begin:	16:30												
PHV	446	5	383	223	1051	1	377	298	336	77	954	164	4315
PHF	0.827			0.966			0.957			0.937			0.941

Turning Movement Count Report AM

Location ID: 13
 North/South: 60th Street W
 East/West: Avenue K-8

Date: 4/13/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	6	147	0	5	0	0	0	195	11	18	0	10	392
7:45	3	131	5	5	0	0	0	137	10	12	0	4	307
8:00	3	47	0	1	0	0	0	61	10	8	0	6	136
8:15	2	56	0	1	0	1	0	54	3	4	0	5	126
8:30													
8:45													

Total Volume:	14	381	5	12	0	1	0	447	34	42	0	25	961
Approach %	4%	95%	1%	92%	0%	8%	0%	93%	7%	63%	0%	37%	

Peak Hr Begin:	7:30												
PHV	14	381	5	12	0	1	0	447	34	42	0	25	961
PHF	0.654			0.650			0.584			0.598			0.613

Turning Movement Count Report PM

Location ID: 13
 North/South: 60th Street W
 East/West: Avenue K-8

Date: 04/13/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	8	91	2	2	0	1	0	83	7	6	0	5	205
16:45	9	101	0	0	0	2	1	72	12	5	0	3	205
17:00	6	91	2	2	0	1	1	92	11	8	0	3	217
17:15	3	95	4	0	0	0	0	94	13	6	0	5	220
17:30													
17:45													

Total Volume:	26	378	8	4	0	4	2	341	43	25	0	16	847
Approach %	6%	92%	2%	50%	0%	50%	1%	88%	11%	61%	0%	39%	

Peak Hr Begin:	16:30												
PHV	26	378	8	4	0	4	2	341	43	25	0	16	847
PHF	0.936			0.667			0.902			0.932			0.963

Turning Movement Count Report AM

Location ID: 14
 North/South: 70th Street W
 East/West: Avenue L

Date: 4/13/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	1	30	19	26	23	14	19	62	7	17	10	3	231
7:45	1	9	1	7	6	15	14	45	7	15	9	1	130
8:00	1	13	1	1	3	1	14	29	0	5	8	3	79
8:15	0	8	3	2	4	10	13	28	4	4	5	0	81
8:30													
8:45													

Total Volume:	3	60	24	36	36	40	60	164	18	41	32	7	521
Approach %	3%	69%	28%	32%	32%	36%	25%	68%	7%	51%	40%	9%	

Peak Hr Begin:	7:30												
PHV	3	60	24	36	36	40	60	164	18	41	32	7	521
PHF	0.435			0.444			0.688			0.667			0.564

Turning Movement Count Report PM

Location ID: 14
 North/South: 70th Street W
 East/West: Avenue L

Date: 04/13/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	2	23	3	4	9	20	12	15	5	11	8	1	113
16:45	4	36	3	1	8	13	14	19	5	8	3	1	115
17:00	1	28	6	4	12	18	12	20	2	7	7	0	117
17:15	3	41	5	2	18	33	10	16	1	6	7	0	142
17:30													
17:45													

Total Volume:	10	128	17	11	47	84	48	70	13	32	25	2	487
Approach %	6%	83%	11%	8%	33%	59%	37%	53%	10%	54%	42%	3%	

Peak Hr Begin:	16:30												
PHV	10	128	17	11	47	84	48	70	13	32	25	2	487
PHF	0.791			0.670			0.862			0.738			0.857

Turning Movement Count Report AM

Location ID: 15
 North/South: 65th Street W
 East/West: Avenue L

Date: 4/13/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	0	0	0	0	31	11	41	0	22	6	40	0	151
7:45	0	0	0	0	16	10	15	0	6	2	23	0	72
8:00	0	0	0	0	5	5	8	0	2	2	22	0	44
8:15	0	0	0	0	17	7	13	0	0	2	20	0	59
8:30													
8:45													

Total Volume:	0	0	0	0	69	33	77	0	30	12	105	0	326
Approach %	0%	0%	0%	0%	68%	32%	72%	0%	28%	10%	90%	0%	

Peak Hr Begin:	7:30												
PHV	0	0	0	0	69	33	77	0	30	12	105	0	326
PHF	0.000			0.607			0.425			0.636			0.540

Turning Movement Count Report PM

Location ID: 15
 North/South: 65th Street W
 East/West: Avenue L

Date: 04/13/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	0	0	0	0	27	20	13	0	1	1	24	0	86
16:45	0	0	0	0	22	13	13	0	1	3	18	0	70
17:00	0	0	0	0	36	23	14	0	2	4	21	0	100
17:15	0	0	0	0	38	18	9	0	4	5	19	0	93
17:30													
17:45													

Total Volume:	0	0	0	0	123	74	49	0	8	13	82	0	349
Approach %	0%	0%	0%	0%	62%	38%	86%	0%	14%	14%	86%	0%	

Peak Hr Begin:	16:30												
PHV	0	0	0	0	123	74	49	0	8	13	82	0	349
PHF	0.000			0.835			0.891			0.950			0.873

Turning Movement Count Report AM

Location ID: 16
 North/South: 60th Street W
 East/West: Avenue L

Date: 4/13/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	18	121	53	28	65	55	49	79	9	13	87	77	654
7:45	10	119	43	23	30	13	34	119	6	6	54	18	475
8:00	1	38	18	19	10	14	16	53	3	2	30	3	207
8:15	11	37	20	19	21	11	9	31	2	2	27	10	200
8:30													
8:45													

Total Volume:	40	315	134	89	126	93	108	282	20	23	198	108	1536
Approach %	8%	64%	27%	29%	41%	30%	26%	69%	5%	7%	60%	33%	

Peak Hr Begin:	7:30												
PHV	40	315	134	89	126	93	108	282	20	23	198	108	1536
PHF	0.637			0.520			0.645			0.465			0.587

Turning Movement Count Report PM

Location ID: 16
 North/South: 60th Street W
 East/West: Avenue L

Date: 04/13/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	6	57	32	39	47	29	19	48	5	6	30	7	325
16:45	7	76	28	28	30	21	24	61	3	5	26	10	319
17:00	11	67	26	50	54	14	21	55	6	6	41	5	356
17:15	6	62	22	43	67	28	27	53	9	7	28	10	362
17:30													
17:45													

Total Volume:	30	262	108	160	198	92	91	217	23	24	125	32	1362
Approach %	8%	66%	27%	36%	44%	20%	27%	66%	7%	13%	69%	18%	

Peak Hr Begin:	16:30												
PHV	30	262	108	160	198	92	91	217	23	24	125	32	1362
PHF	0.901			0.815			0.930			0.870			0.941

Turning Movement Count Report AM

Location ID: 17
 North/South: 55th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	0	0	0	0	106	31	53	0	4	13	179	0	386
7:45	0	0	0	0	48	31	35	0	1	3	110	0	228
8:00	0	0	0	1	50	8	25	0	2	0	68	0	154
8:15	0	0	0	0	43	8	23	0	3	0	62	0	139
8:30													
8:45													

Total Volume:	0	0	0	1	247	78	136	0	10	16	419	0	907
Approach %	0%	0%	0%	0%	76%	24%	93%	0%	7%	4%	96%	0%	

Peak Hr Begin:	7:30												
PHV	0	0	0	1	247	78	136	0	10	16	419	0	907
PHF	0.000			0.595			0.640			0.566			0.587

Turning Movement Count Report PM

Location ID: 17
 North/South: 55th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	0	0	0	0	97	25	22	0	1	2	81	1	229
16:45	0	0	0	0	107	26	23	0	0	4	81	0	241
17:00	0	0	0	0	93	19	14	0	0	4	71	0	201
17:15	0	0	0	0	110	28	18	0	6	0	73	0	235
17:30													
17:45													

Total Volume:	0	0	0	0	407	98	77	0	7	10	306	1	906
Approach %	0%	0%	0%	0%	81%	19%	92%	0%	8%	3%	97%	0%	

Peak Hr Begin:	16:30												
PHV	0	0	0	0	407	98	77	0	7	10	306	1	906
PHF	0.000			0.915			0.875			0.932			0.940

Turning Movement Count Report AM

Location ID: 18
 North/South: 50th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	22	47	12	9	85	18	52	77	10	8	207	23	570
7:45	7	34	15	5	57	29	31	95	12	8	121	15	429
8:00	5	35	16	9	54	16	23	45	3	2	89	15	312
8:15	12	31	13	6	51	14	19	28	2	1	78	11	266
8:30													
8:45													

Total Volume:	46	147	56	29	247	77	125	245	27	19	495	64	1577
Approach %	18%	59%	22%	8%	70%	22%	31%	62%	7%	3%	86%	11%	

Peak Hr Begin:	7:30												
PHV	46	147	56	29	247	77	125	245	27	19	495	64	1577
PHF	0.769			0.788			0.714			0.607			0.692

Turning Movement Count Report PM

Location ID: 18
 North/South: 50th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	10	48	7	19	113	57	33	39	5	9	97	13	450
16:45	16	56	5	11	108	38	30	37	10	10	78	11	410
17:00	18	57	9	13	116	45	36	34	3	3	90	10	434
17:15	16	49	14	9	127	48	31	59	13	5	89	8	468
17:30													
17:45													

Total Volume:	60	210	35	52	464	188	130	169	31	27	354	42	1762
Approach %	20%	69%	11%	7%	66%	27%	39%	51%	9%	6%	84%	10%	

Peak Hr Begin:	16:30												
PHV	60	210	35	52	464	188	130	169	31	27	354	42	1762
PHF	0.908			0.931			0.801			0.889			0.941

Turning Movement Count Report AM

Location ID: 19
 North/South: 45th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	3	17	28	14	111	8	28	12	2	3	269	13	508
7:45	2	9	21	17	81	12	27	18	4	1	166	7	365
8:00	5	3	27	19	70	19	11	12	5	0	119	5	295
8:15	5	4	20	4	72	11	10	6	3	4	115	2	256
8:30													
8:45													

Total Volume:	15	33	96	54	334	50	76	48	14	8	669	27	1424
Approach %	10%	23%	67%	12%	76%	11%	55%	35%	10%	1%	95%	4%	

Peak Hr Begin:	7:30												
PHV	15	33	96	54	334	50	76	48	14	8	669	27	1424
PHF	0.750			0.823			0.704			0.618			0.701

Turning Movement Count Report PM

Location ID: 19
 North/South: 45th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	2	5	15	22	179	28	23	9	5	6	123	8	425
16:45	3	10	17	24	178	34	17	8	3	3	125	3	425
17:00	2	8	14	26	169	30	19	11	6	4	132	10	431
17:15	4	12	5	31	178	31	27	7	8	1	129	1	434
17:30													
17:45													

Total Volume:	11	35	51	103	704	123	86	35	22	14	509	22	1715
Approach %	11%	36%	53%	11%	76%	13%	60%	24%	15%	3%	93%	4%	

Peak Hr Begin:	16:30												
PHV	11	35	51	103	704	123	86	35	22	14	509	22	1715
PHF	0.808			0.969			0.851			0.933			0.988

Turning Movement Count Report AM

Location ID: 20
 North/South: 40th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	15	10	61	23	112	6	27	36	9	3	228	32	562
7:45	15	9	46	28	83	4	27	35	4	2	197	15	465
8:00	13	7	35	19	82	4	6	21	3	1	124	11	326
8:15	7	8	23	11	82	8	11	23	4	1	125	13	316
8:30													
8:45													

Total Volume:	50	34	165	81	359	22	71	115	20	7	674	71	1669
Approach %	20%	14%	66%	18%	78%	5%	34%	56%	10%	1%	90%	9%	

Peak Hr Begin:	7:30												
PHV	50	34	165	81	359	22	71	115	20	7	674	71	1669
PHF	0.724			0.819			0.715			0.715			0.742

Turning Movement Count Report PM

Location ID: 20
 North/South: 40th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	22	23	56	36	175	9	11	19	7	2	103	16	479
16:45	30	15	42	21	212	15	9	11	7	2	111	14	489
17:00	31	20	47	25	188	19	4	14	4	2	106	12	472
17:15	26	25	56	38	202	9	9	14	6	7	129	10	531
17:30													
17:45													

Total Volume:	109	83	201	120	777	52	33	58	24	13	449	52	1971
Approach %	28%	21%	51%	13%	82%	5%	29%	50%	21%	3%	87%	10%	

Peak Hr Begin:	16:30												
PHV	109	83	201	120	777	52	33	58	24	13	449	52	1971
PHF	0.918			0.953			0.777			0.880			0.928

Turning Movement Count Report AM

Location ID: 21
 North/South: 35th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	19	13	3	4	112	12	31	14	10	26	272	20	536
7:45	13	4	4	3	95	3	18	26	7	2	245	22	442
8:00	11	0	4	3	89	4	2	6	1	5	160	7	292
8:15	7	1	4	3	91	3	7	4	4	3	147	8	282
8:30													
8:45													

Total Volume:	50	18	15	13	387	22	58	50	22	36	824	57	1552
Approach %	60%	22%	18%	3%	92%	5%	45%	38%	17%	4%	90%	6%	

Peak Hr Begin:	7:30												
PHV	50	18	15	13	387	22	58	50	22	36	824	57	1552
PHF	0.593			0.824			0.591			0.721			0.724

Turning Movement Count Report PM

Location ID: 21
 North/South: 35th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	26	4	3	7	191	16	11	8	5	3	151	8	433
16:45	9	7	9	9	244	5	3	4	5	6	152	8	461
17:00	18	7	7	12	222	15	5	6	6	3	140	8	449
17:15	17	9	6	12	240	16	6	10	5	4	178	13	516
17:30													
17:45													

Total Volume:	70	27	25	40	897	52	25	28	21	16	621	37	1859
Approach %	57%	22%	20%	4%	91%	5%	34%	38%	28%	2%	92%	5%	

Peak Hr Begin:	16:30												
PHV	70	27	25	40	897	52	25	28	21	16	621	37	1859
PHF	0.924			0.923			0.771			0.864			0.901

Turning Movement Count Report AM

Location ID: 22
 North/South: 30th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	20	101	42	14	103	62	62	99	17	31	220	29	800
7:45	12	80	47	16	80	35	85	104	20	28	228	30	765
8:00	17	58	39	11	65	18	37	68	12	9	148	16	498
8:15	26	47	25	18	62	27	33	54	16	17	152	16	493
8:30													
8:45													

Total Volume:	75	286	153	59	310	142	217	325	65	85	748	91	2556
Approach %	15%	56%	30%	12%	61%	28%	36%	54%	11%	9%	81%	10%	

Peak Hr Begin:	7:30												
PHV	75	286	153	59	310	142	217	325	65	85	748	91	2556
PHF	0.788			0.714			0.726			0.808			0.799

Turning Movement Count Report PM

Location ID: 22
 North/South: 30th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	38	75	26	37	181	41	29	64	15	16	137	20	679
16:45	29	58	28	31	229	41	30	63	25	14	151	18	717
17:00	28	69	30	31	207	46	30	70	39	18	118	16	702
17:15	20	83	33	35	244	51	28	69	36	19	132	27	777
17:30													
17:45													

Total Volume:	115	285	117	134	861	179	117	266	115	67	538	81	2875
Approach %	22%	55%	23%	11%	73%	15%	23%	53%	23%	10%	78%	12%	

Peak Hr Begin:	16:30												
PHV	115	285	117	134	861	179	117	266	115	67	538	81	2875
PHF	0.930			0.889			0.896			0.937			0.925

Turning Movement Count Report AM

Location ID: 23
 North/South: 25th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	16	0	12	8	154	0	1	0	1	2	316	15	525
7:45	14	1	22	3	117	1	0	0	0	2	336	13	509
8:00	7	1	12	6	104	2	1	0	3	0	227	8	371
8:15	11	0	17	2	104	0	0	1	1	0	217	9	362
8:30													
8:45													

Total Volume:	48	2	63	19	479	3	2	1	5	4	1096	45	1767
Approach %	42%	2%	56%	4%	96%	1%	25%	13%	63%	0%	96%	4%	

Peak Hr Begin:	7:30												
PHV	48	2	63	19	479	3	2	1	5	4	1096	45	1767
PHF	0.764			0.773			0.500			0.816			0.841

Turning Movement Count Report PM

Location ID: 23
 North/South: 25th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	19	2	13	12	252	1	1	0	1	2	195	13	511
16:45	17	0	8	17	288	1	3	1	1	0	195	16	547
17:00	19	1	15	23	303	0	0	0	2	1	163	10	537
17:15	27	0	14	15	304	2	1	0	0	1	181	12	557
17:30													
17:45													

Total Volume:	82	3	50	67	1147	4	5	1	4	4	734	51	2152
Approach %	61%	2%	37%	6%	94%	0%	50%	10%	40%	1%	93%	6%	

Peak Hr Begin:	16:30												
PHV	82	3	50	67	1147	4	5	1	4	4	734	51	2152
PHF	0.823			0.934			0.500			0.935			0.966

Turning Movement Count Report AM

Location ID: 24
 North/South: 20th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	7	28	26	5	125	0	14	63	10	15	285	24	602
7:45	18	27	30	13	93	5	17	70	5	19	320	28	645
8:00	13	27	29	10	97	7	13	43	9	3	213	21	485
8:15	17	23	23	21	78	9	8	27	2	14	192	34	448
8:30													
8:45													

Total Volume:	55	105	108	49	393	21	52	203	26	51	1010	107	2180
Approach %	21%	39%	40%	11%	85%	5%	19%	72%	9%	4%	86%	9%	

Peak Hr Begin:	7:30												
PHV	55	105	108	49	393	21	52	203	26	51	1010	107	2180
PHF	0.893			0.890			0.764			0.796			0.845

Turning Movement Count Report PM

Location ID: 24
 North/South: 20th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	29	44	22	26	231	18	9	40	19	10	172	31	651
16:45	33	45	24	24	247	12	13	53	15	7	166	21	660
17:00	41	48	14	48	275	18	9	41	6	11	159	19	689
17:15	37	53	17	25	273	14	7	38	11	11	162	26	674
17:30													
17:45													

Total Volume:	140	190	77	123	1026	62	38	172	51	39	659	97	2674
Approach %	34%	47%	19%	10%	85%	5%	15%	66%	20%	5%	83%	12%	

Peak Hr Begin:	16:30												
PHV	140	190	77	123	1026	62	38	172	51	39	659	97	2674
PHF	0.951			0.888			0.806			0.933			0.970

Turning Movement Count Report AM

Location ID: 25
 North/South: 15th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	6	1	32	61	127	2	3	1	0	2	305	27	567
7:45	4	0	30	76	121	1	1	0	0	0	373	24	630
8:00	4	0	25	57	115	1	4	0	1	1	258	30	496
8:15	8	0	27	55	111	0	1	0	0	0	228	20	450
8:30													
8:45													

Total Volume:	22	1	114	249	474	4	9	1	1	3	1164	101	2143
Approach %	16%	1%	83%	34%	65%	1%	82%	9%	9%	0%	92%	8%	

Peak Hr Begin:	7:30												
PHV	22	1	114	249	474	4	9	1	1	3	1164	101	2143
PHF	0.878			0.918			0.550			0.798			0.850

Turning Movement Count Report PM

Location ID: 25
 North/South: 15th Street W
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	22	0	66	82	269	1	0	0	0	0	188	5	633
16:45	18	1	53	52	280	2	1	1	0	0	199	24	631
17:00	29	1	67	70	342	3	2	0	0	0	174	14	702
17:15	8	3	58	66	315	3	1	0	0	0	171	15	640
17:30													
17:45													

Total Volume:	77	5	244	270	1206	9	4	1	0	0	732	58	2606
Approach %	24%	2%	75%	18%	81%	1%	80%	20%	0%	0%	93%	7%	

Peak Hr Begin:	16:30												
PHV	77	5	244	270	1206	9	4	1	0	0	732	58	2606
PHF	0.840			0.895			0.625			0.886			0.928

Turning Movement Count Report AM

Location ID: 26
 North/South: State Route 14 SB Ramps
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	17	0	61	128	180	0	0	0	0	119	230	0	735
7:45	25	0	103	130	182	0	0	0	0	137	262	0	839
8:00	14	0	72	146	146	0	0	0	0	103	199	0	680
8:15	16	0	54	135	151	0	0	0	0	77	169	0	602
8:30													
8:45													

Total Volume:	72	0	290	539	659	0	0	0	0	436	860	0	2856
Approach %	20%	0%	80%	45%	55%	0%	0%	0%	0%	34%	66%	0%	

Peak Hr Begin:	7:30												
PHV	72	0	290	539	659	0	0	0	0	436	860	0	2856
PHF	0.707			0.960			0.000			0.812			0.851

Turning Movement Count Report PM

Location ID: 26
 North/South: State Route 14 SB Ramps
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	10	0	62	117	358	0	0	0	0	96	146	0	789
16:45	23	0	84	158	311	0	0	0	0	91	160	0	827
17:00	48	0	58	128	334	0	0	0	0	92	155	0	815
17:15	45	0	63	128	354	0	0	0	0	89	151	0	830
17:30													
17:45													

Total Volume:	126	0	267	531	1357	0	0	0	0	368	612	0	3261
Approach %	32%	0%	68%	28%	72%	0%	0%	0%	0%	38%	62%	0%	

Peak Hr Begin:	16:30												
PHV	126	0	267	531	1357	0	0	0	0	368	612	0	3261
PHF	0.910			0.979			0.000			0.976			0.982

Turning Movement Count Report AM

Location ID: 27
 North/South: State Route 14 NB Ramps
 East/West: Avenue L

Date: 4/12/2016
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00													
7:15													
7:30	0	0	0	33	225	0	135	0	80	23	261	0	757
7:45	0	0	0	41	223	0	179	0	107	23	343	0	916
8:00	0	0	0	38	215	0	138	0	64	13	257	0	725
8:15	0	0	0	32	213	0	130	0	74	14	212	0	675
8:30													
8:45													

Total Volume:	0	0	0	144	876	0	582	0	325	73	1073	0	3073
Approach %	0%	0%	0%	14%	86%	0%	64%	0%	36%	6%	94%	0%	

Peak Hr Begin:	7:30												
PHV	0	0	0	144	876	0	582	0	325	73	1073	0	3073
PHF	0.000			0.966			0.793			0.783			0.839

Turning Movement Count Report PM

Location ID: 27
 North/South: State Route 14 NB Ramps
 East/West: Avenue L

Date: 04/12/16
 City: Lancaster, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	0	0	0	35	349	0	161	0	108	15	196	0	864
16:45	0	0	0	46	309	0	128	0	181	18	223	0	905
17:00	0	0	0	42	360	0	140	0	104	16	196	0	858
17:15	0	0	0	36	347	0	187	0	123	22	188	0	903
17:30													
17:45													

Total Volume:	0	0	0	159	1365	0	616	0	516	71	803	0	3530
Approach %	0%	0%	0%	10%	90%	0%	54%	0%	46%	8%	92%	0%	

Peak Hr Begin:	16:30												
PHV	0	0	0	159	1365	0	616	0	516	71	803	0	3530
PHF	0.000			0.948			0.913			0.907			0.975