MARICOPA ASSOCIATION OF GOVERNMENTS

SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT

Final Working Paper
Improvement Recommendations

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Prepared for:

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1 INTRODUCTION

This Southwest Freight Subarea Project Assessment (SPA) is being conducted by the Maricopa Association of Governments (MAG). Freight SPAs are ultimately intended to recommend projects and policies that will move goods more efficiently and safely through existing industrial clusters of Maricopa County, thereby fostering the development of a diverse and economically thriving place to work and live.

The SPA focus is on commercial truck freight operations and how freight interacts with other modes of transportation such as passenger cars, freight rail, transit, bicycles, and pedestrians. This working paper details the improvement recommendations for the major intersections and roadways within the study area.

1.1 Background and Need

Southwest Freight SPA study area streets are congested with high levels of commercial vehicles and traffic from the shift workers commuting to and from industrial facilities. The common trend in the Southwest Freight Subarea is for commercial vehicles to leave their specific facility and take the shortest path to Interstate 10 (I-10), the closest major freeway. It is not uncommon to see traffic queuing from an I-10 ramp intersection along the connecting arterial streets for long distances during both traditional peak and nonpeak hours, sometimes blocking upstream adjacent signals.

In addition, connectivity gaps in the pedestrian and bicycle network result in potential conflicts between commercial vehicles and pedestrians/bicycles.

This working paper documents the identifications of needs in the study area, development of improvement recommendations to address needs, and refinement and prioritization of recommendations.

1.2 Study Objectives

The objectives of this study are:

1. Develop an inventory of corridor needs, including intersection and movement needs to reduce congestion and improve safety; and
2. Recommend phased solutions to reduce congestion and improve safety for all modes (vehicles, trucks, bicycles, pedestrians, transit) through innovative and traditional methods.

1.3 Study Area

The study area for the Southwest Freight SPA consists of major mile-grid streets and their intersections, along with Interstate 10 (I-10) and Loop 101 interchanges, within the following limits: 107th Avenue on the west, McDowell Road on the north, Buckeye Road on the south, and approximately 0.25 miles west of 59th Avenue on the east.

59th Avenue is not part of the study area due to the ongoing construction of the Loop 202 South Mountain Freeway in the general vicinity of 59th Avenue. **Figure 1** shows the vicinity of the study area.

Figure 2 displays the 32 major intersections included in the study area along with major roadways.

The study area is comprised of the jurisdictions of the City of Avondale, City of Phoenix, City of Tolleson, and unincorporated Maricopa County as shown in **Figure 3**.

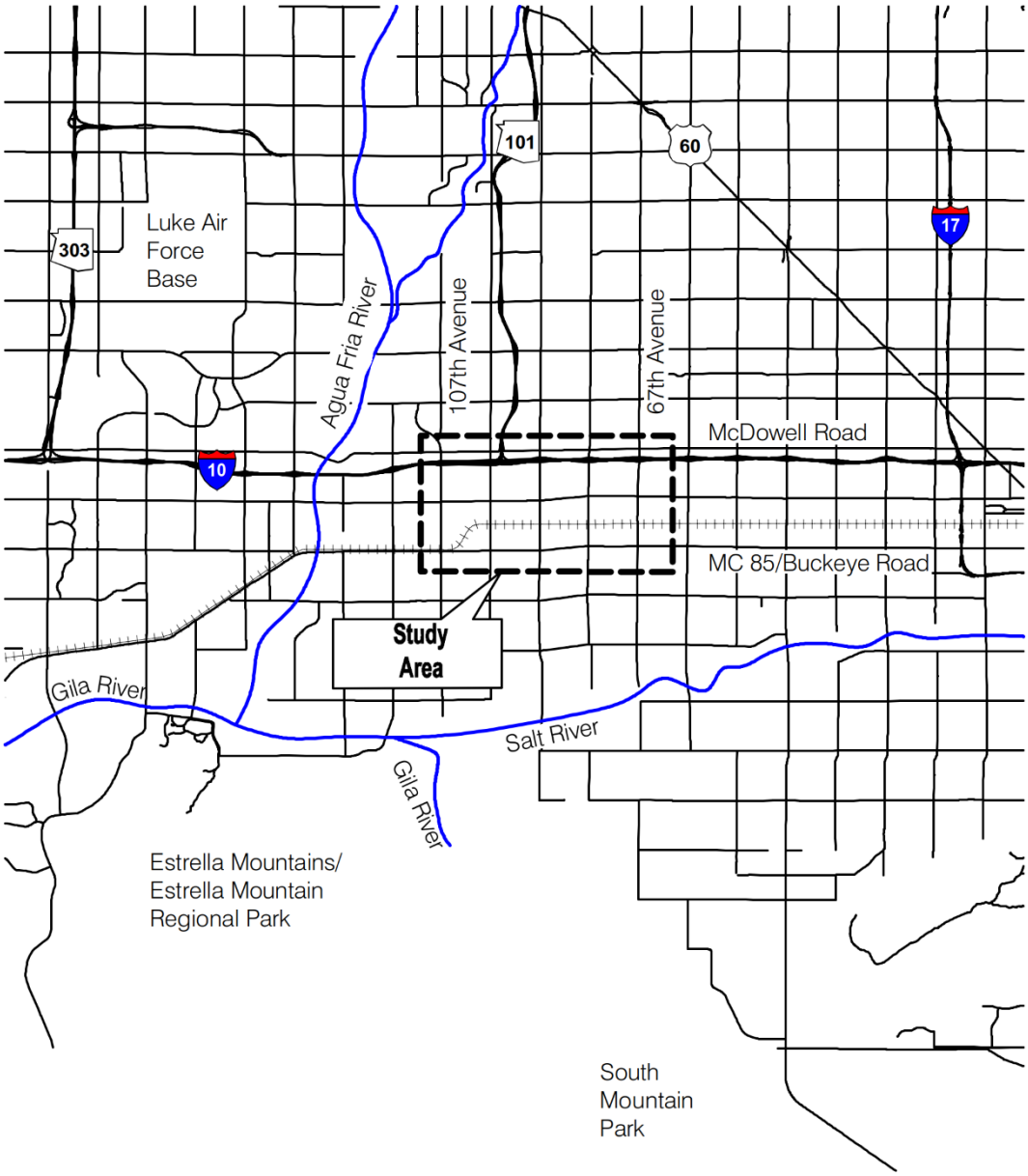


Figure 1 – Vicinity Map

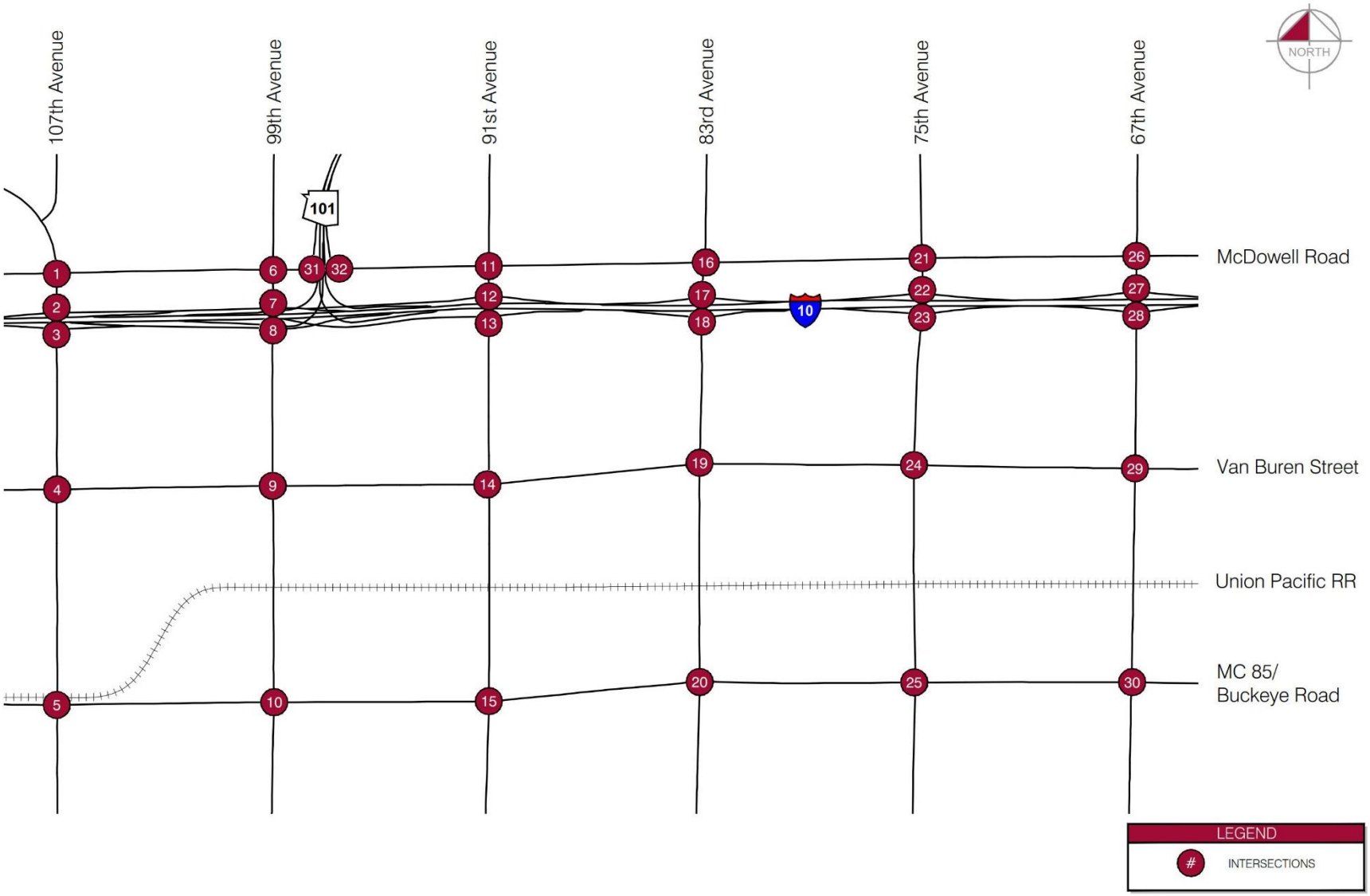


Figure 2 – Study Area

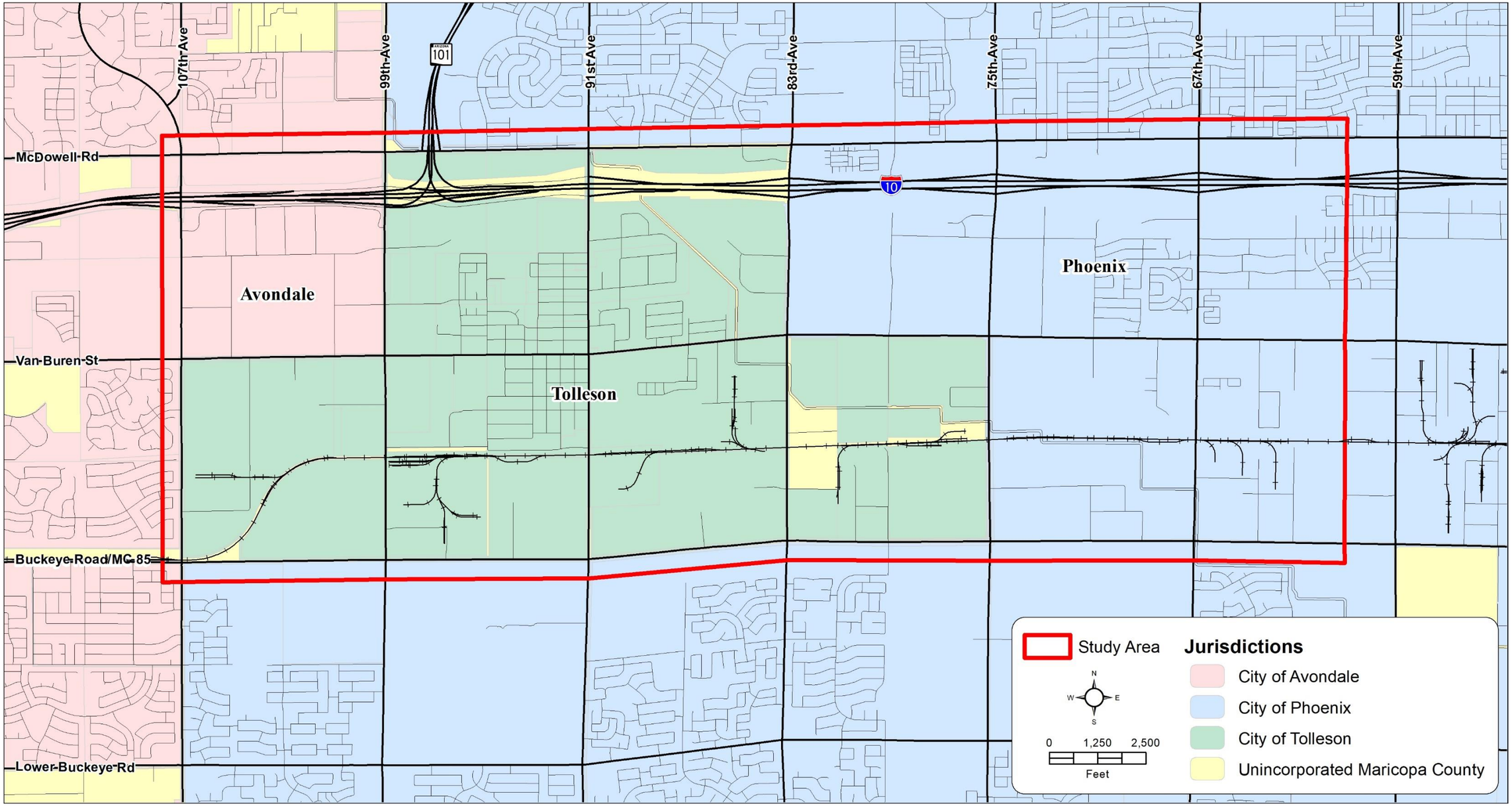


Figure 3 – Study Area Jurisdictions

2 IDENTIFICATION OF NEEDS

This section summarizes the evaluation criteria and measures of effectiveness (MOEs) that helped identify existing improvement needs based on the findings from the Existing Conditions Assessment completed in November 2018 in the same study area. Also included are the initial needs and screening results from the needs identification processes.

2.1 Evaluation Criteria and Measures of Effectiveness

From the Existing Conditions Assessment, twenty-four traffic operations or safety issues were identified. The identified issues are shown in **Figure 4**. Each identified issue was initially evaluated and scored using the following high-level needs screening evaluation criteria/MOEs:

- Safety concerns (truck-related patterns) – yes, no;
- Traffic congestion level (delay, level of service [LOS], queuing, etc.) – severe, high, moderate; and
- Relative cost to address issue – high, medium, low.

2.2 Initial Identified Needs and Screening Results

Each of the twenty-four identified issues were evaluated and scored based on the results of the evaluation criteria/MOEs and given an overall need rating of high, medium, or low. Some of the issues will likely be resolved because they are part of currently ongoing or programmed projects. Based on the final overall need rating and whether the issue is already part of an ongoing or programmed project, each identified issue was recommended to advance or not to the solution development phase of the project where specific solutions will be created for the identified needs.

Only the identified issues with an overall need rating of high or medium were advanced to the solution development phase. Of the twenty-four initially identified issues, eighteen were advanced to the solution development phase. The initial needs screening evaluation criteria and MOE matrix and results, including whether the issue is advanced to the solution development phase, are shown in **Table 1**.

The majority of the issues that were advanced to the solution development phase are congestion-related, with the issues resulting in long queues and delays during both the AM and PM peak hours. Other issues relate to severe truck-related crashes and tight turning radii for trucks.

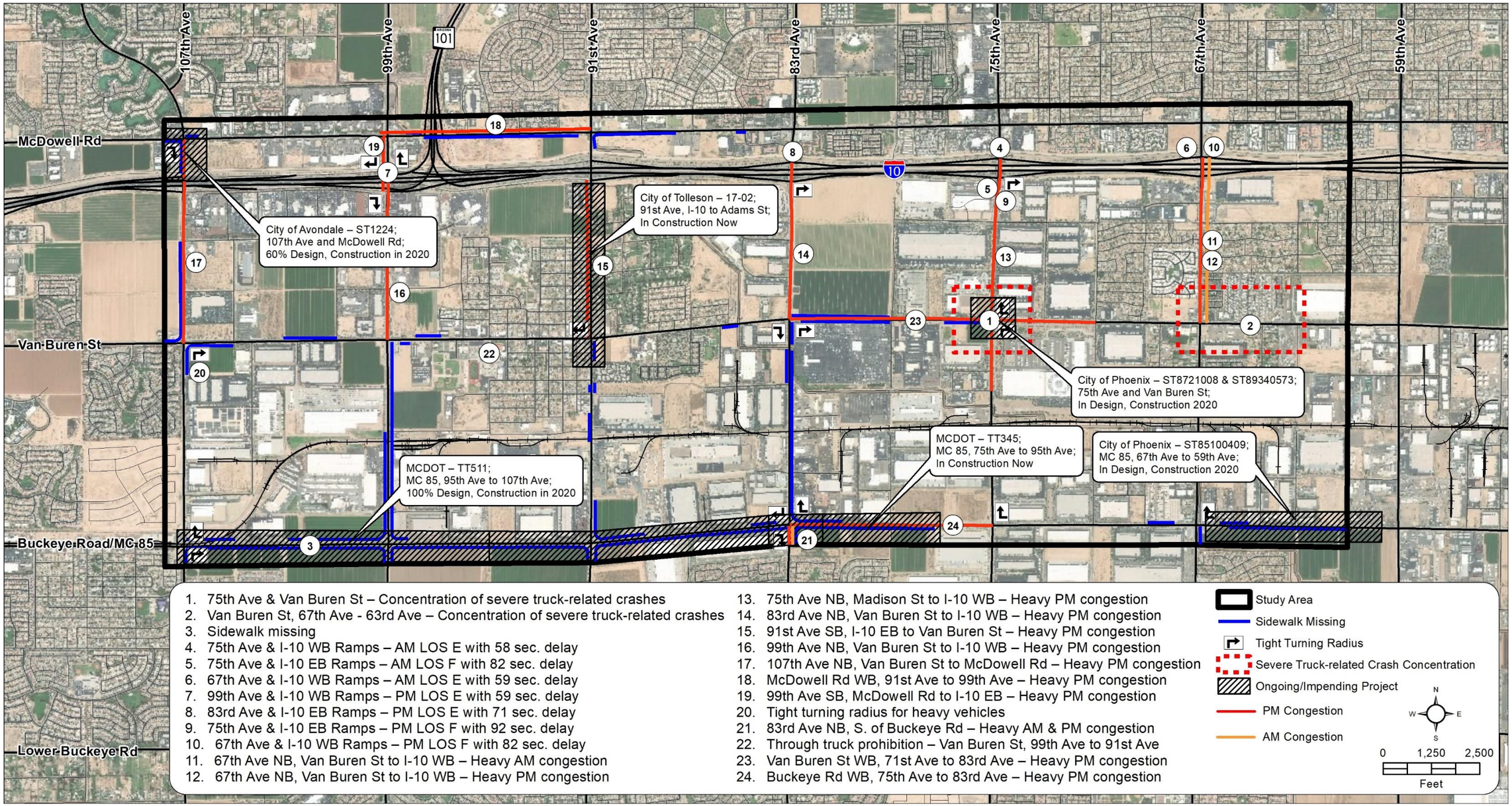


Figure 4 – Identified Freight-Related Issues

Table 1 – Initial Needs Screening Evaluation Criteria

Identified Issues	Initial Needs Screening Evaluation Criteria			Overall Need Rating (High/Medium/Low)	Recommended to Advance into Solution Development with Reason if not Advanced	
	Safety Concerns [truck-related patterns] (Yes/No)	Traffic Congestion Level (Severe/High/Moderate)	Relative Cost to Address Issue (High/Medium/Low)			
1. 75th Ave & Van Buren St – Concentration of severe truck-related crashes	Yes	High	Low	High	**Yes**	
2. Van Buren St, 67th Ave - 63rd Ave – Concentration of severe truck-related crashes	Yes	Moderate	Medium	Medium	**Yes**	
3. Various – Sidewalk missing	No	-	Low	Low	No	Low Need
4. 75th Ave & I-10 WB Ramps – AM LOS E with 58 sec. delay	No	Moderate	Medium	Medium	**Yes**	
5. 75th Ave & I-10 EB Ramps – AM LOS F with 82 sec. delay	No	Severe	Medium	High	**Yes**	
6. 67th Ave & I-10 WB Ramps – AM LOS E with 59 sec. delay	No	Moderate	Medium	Medium	**Yes**	
7. 99th Ave & I-10 WB Ramps – PM LOS E with 59 sec. delay	No	Moderate	Medium	Medium	**Yes**	
8. 83rd Ave & I-10 EB Ramps – PM LOS E with 71 sec. delay	No	High	Medium	Medium	**Yes**	
9. 75th Ave & I-10 EB Ramps – PM LOS F with 92 sec. delay	No	Severe	Medium	High	**Yes**	
10. 67th Ave & I-10 WB Ramps – PM LOS F with 82 sec. delay	No	Severe	Medium	High	**Yes**	
11. 67th Ave NB, Van Buren St to I-10 WB – Heavy AM congestion	No	High	High	Medium	**Yes**	
12. 67th Ave NB, Van Buren St to I-10 WB – Heavy PM congestion	No	High	High	Medium	**Yes**	
13. 75th Ave NB, Madison St to I-10 WB – Heavy PM congestion	No	Severe	High	High	**Yes**	
14. 83rd Ave NB, Van Buren St to I-10 WB – Heavy PM congestion	No	Moderate	High	Low	No	Low Need
15. 91st Ave SB, I-10 EB to Van Buren St – Heavy PM congestion	No	Moderate	High	Low	No	Low Need, recent project
16. 99th Ave NB, Van Buren St to I-10 WB – Heavy PM congestion	No	Severe	High	High	**Yes**	
17. 107th Ave NB, Van Buren St to McDowell Rd – Heavy PM congestion	No	Severe	High	High	**Yes**/No	No at McDowell Rd (part of another project) Yes for rest of segment
18. McDowell Rd WB, 91st Ave to 99th Ave – Heavy PM congestion	No	Severe	High	High	**Yes**	
19. 99th Ave SB, McDowell Rd to I-10 EB – Heavy PM congestion	No	Severe	High	High	**Yes**	
20. Various – Tight turning radius for heavy vehicles	No	Moderate	Medium	Medium	**Yes**/No	No at a few locations that are part of other projects Yes at rest of locations
21. 83rd Ave NB, S. of Buckeye Rd – Heavy AM & PM congestion	No	Severe	High	High	No	Part of another project
22. Through truck prohibition – Van Buren St, 99th Ave to 91st Ave	No	Moderate	Low	Medium	No	Tolleson policy decision
23. Van Buren St WB, 71st Ave to 83rd Ave – Heavy PM congestion	No	High	High	Medium	**Yes**	
24. Buckeye Rd WB, 75th Ave to 83rd Ave – Heavy PM congestion	No	Severe	High	High	No	Part of another project

3 DEVELOPMENT OF IMPROVEMENT RECOMMENDATIONS

This section describes steps taken to develop improvement recommendations based on the identified issues presented in Section 2 that were advanced to the solution development phase.

3.1 Capacity Analysis

Many of the congestion and roadway capacity-related issues can be addressed by improved signal timing and phasing. Others may require lane configuration changes. To analyze these improvements, a tiered set of scenarios was used to gauge how doing simple to more complex improvements improve traffic operations and safety at study area intersections. Each scenario was designed to progressively build on the improvements from previously evaluated scenarios. Traffic operations results were used to determine the effectiveness of each scenario being evaluated.

Traffic operations at study area intersections were analyzed based on LOS, total delay, and queue lengths for signalized intersections using Synchro Studio 10 Traffic Signal Optimization and Simulation Modeling Software, which includes the Synchro and SimTraffic applications.

Typically, the methodology presented in the Transportation Research Board 2010 *Highway Capacity Manual* (HCM) (Special Report 209) is used to analyze intersection operations. However, the 2010 HCM methodology does not support the analysis of clustered intersections or non-NEMA signal phasing, which all I-10 ramp intersections currently use. Due to this limitation and to match the process used in the Existing Conditions Assessment, Synchro 10 analysis methodology was used to analyze all signalized study area intersections. **Table 2** shows the definition of LOS for signalized conditions.

Table 2 – Level of Service Definitions

Level of Service	Signalized Average Total Delay (seconds/vehicle)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Definitions provided from the HCM, Special Report 209, Transportation Research Board, 2010.

Based on the existing and projected 2040 peak hour traffic data, Synchro models were developed to analyze the existing AM and PM peak hour study area intersection operations. The Synchro models used information provided by ADOT, MCDOT, City of Avondale, City of Tolleson, and the City of Phoenix regarding signal timing/phasing for signalized study area intersections, along with refinements to the signal timing/phasing based on field observations of how the signals are operating. From the Synchro analysis, outputs for LOS, delay, and 95th percentile queues were generated for each intersection and movement, where applicable for each scenario.

The following list and subsections show the scenarios that were evaluated, a brief description of what is included in each scenario, and the order in which they were evaluated.

- Scenario 1: Baseline Condition (Existing + Programmed Improvements)
    - Existing conditions (geometry, lane configurations, and signal timing/phasing); and
    - Currently ongoing or programmed improvements.

- Scenario 2A: Signal Timing Adjustments at Intersections with LOS F
    - Signal timing and phasing improvements that bring study area intersections to LOS D or better; and
    - Phase changes at some traffic interchanges (TIs) to make signal phasing more efficient.
- Scenario 2B: Signal Timing Adjustments at Movements with LOS F and Long Queues
    - Signal timing and phasing improvements that bring individual movements at study area intersections to LOS D or better with queues less than 500 feet.
- Scenario 3: Lane Configuration Improvements
    - Lane configuration changes that can be accomplished by restriping, median modifications, and widening.
- Scenario 4A: Intersection LOS D or Better Using Projected 2040 Volumes
    - Intersection layout, lane configurations, and additional laneage needed to achieve study area intersection LOS D or better using projected 2040 volumes; and
    - Signal timing and phasing improvements that bring study area intersections to LOS D or better using projected 2040 volumes.
- Scenario 4B: Movement LOS D or Better Using Projected 2040 Volumes
    - Intersection layout, lane configurations, and additional laneage that bring individual movements and intersections to LOS D or better using projected 2040 volumes; and
    - Signal timing and phasing improvements that bring individual movements and intersections to LOS D or better using projected 2040 volumes.

3.1.1 Scenario 1: Baseline Condition (Existing + Programmed Improvements)

Scenario 1 consisted of evaluating the existing signal timings and lane configurations from the Existing Conditions Assessment, with ongoing or programmed improvements that will be completed in the near future also incorporated. The list of programmed improvements includes the following:

- 107th Avenue/McDowell Road intersection improvements – includes lane configuration changes to each approach;
- 99th Avenue/McDowell Road and Loop 101/McDowell Road signal timing improvements – includes signal timing operation improvements;
- 75th Avenue/Van Buren Street signal operations improvements – left turn signal phasing improvements;
- 91st Avenue/MC 85 and 83rd Avenue/MC 85 intersection improvements – lane configuration and geometric changes to each approach at both intersections; and
- 91st Avenue/Van Buren Street intersection improvements – roadway widening along 91st Avenue and lane configuration changes to each approach at the 91st Avenue/Van Buren Street intersection.

The resulting intersection LOS for the study area intersections is shown in **Table 3**. The number of movements that operated at LOS E and LOS F is shown in **Table 4**. Intersection movements with a 95th percentile queue greater than 500 feet are shown in **Table 5**. More detailed capacity analysis results for Scenario 1 are provided in **Appendix B**.

Table 3 – Scenario 1 Intersection LOS Results

ID	Intersection	Intersection LOS	
		AM Peak	PM Peak
1	107th Avenue & McDowell Road	C	C
2	107th Avenue & I-10 WB Ramps	C	C
3	107th Avenue & I-10 EB Ramps	C	C
4	107th Avenue & Van Buren Street	B	B
5	107th Avenue & MC 85/Buckeye Road	C	C
6	99th Avenue & McDowell Road	C	D
7	99th Avenue & I-10 WB Ramps	C	E
8	99th Avenue & I-10 EB Ramps	C	C
9	99th Avenue & Van Buren Street	D	D
10	99th Avenue & MC 85/Buckeye Road	C	C
11	91st Avenue & McDowell Road	D	D
12	91st Avenue & I-10 WB Ramps	B	B
13	91st Avenue & I-10 EB Ramps	C	C
14	91st Avenue & Van Buren Street	C	D
15	91st Avenue & MC 85/Buckeye Road	C	C
16	83rd Avenue & McDowell Road	D	D
17	83rd Avenue & I-10 WB Ramps	B	C
18	83rd Avenue & I-10 EB Ramps	C	E
19	83rd Avenue & Van Buren Street	D	D
20	83rd Avenue & MC 85/Buckeye Road	C	C
21	75th Avenue & McDowell Road	D	D
22	75th Avenue & I-10 WB Ramps	E	D
23	75th Avenue & I-10 EB Ramps	F	E
24	75th Avenue & Van Buren Street	D	D
25	75th Avenue & MC 85/Buckeye Road	D	D
26	67th Avenue & McDowell Road	D	D
27	67th Avenue & I-10 WB Ramps	C	C
28	67th Avenue & I-10 EB Ramps	C	F
29	67th Avenue & Van Buren Street	D	D
30	67th Avenue & MC 85/Buckeye Road	D	D
31	McDowell Road & Loop 101 SB Ramps	C	C
32	McDowell Road & Loop 101 NB Ramps	C	C

Table 4 – Number of Movements with LOS E or F in Scenario 1 Baseline Condition

Peak Hour	Number of Movements at LOS E	Number of Movements at LOS F
AM	23	8
PM	26	7

Table 5 – Scenario 1 Intersection Movements with a 95th Percentile Queue Greater than 500 Feet

AM Peak			PM Peak		
Intersection	Movement	95th % Queue Length (ft)	Intersection	Movement	95th % Queue Length (ft)
99th Avenue & MC 85/Buckeye Road	EBT	586	99th Avenue & McDowell Road	WBT	565
83rd Avenue & McDowell Road	EBT	544	99th Avenue & I-10 WB Ramps	WBT	743
83rd Avenue & Van Buren Street	SBL	510	99th Avenue & I-10 EB Ramps	NBT	635
75th Avenue & I-10 WB Ramps	SBT	560	91st Avenue & I-10 EB Ramps	NBT	635
75th Avenue & I-10 EB Ramps	EBT	1183	91st Avenue & Van Buren Street	WBT	597
75th Avenue & I-10 EB Ramps	EBR	1003	83rd Avenue & I-10 WB Ramps	NBT	646
75th Avenue & I-10 EB Ramps	NBT	658	83rd Avenue & I-10 EB Ramps	NBT	930
75th Avenue & I-10 EB Ramps	SBT	808	83rd Avenue & I-10 EB Ramps	NBR	603
75th Avenue & Van Buren Street	SBT	542	75th Avenue & I-10 WB Ramps	SBT	564
75th Avenue & MC 85/Buckeye Road	EBT	633	75th Avenue & I-10 EB Ramps	EBL	525
67th Avenue & McDowell Road	EBT	502	75th Avenue & I-10 EB Ramps	EBT	548
67th Avenue & I-10 EB Ramps	SBT	599	75th Avenue & I-10 EB Ramps	NBT	1147
67th Avenue & Van Buren Street	NBT	561	75th Avenue & Van Buren Street	WBT	888
McDowell Road & Loop 101 SB Ramp	SBL	581	75th Avenue & Van Buren Street	SBT	561
			75th Avenue & MC 85/Buckeye Rd	WBT	544
			67th Avenue & McDowell Road	WBT	660
			67th Avenue & I-10 EB Ramps	NBT	950
			67th Avenue & MC 85/Buckeye Rd	WBT	553

3.1.2 Scenario 2A: Signal Timing Adjustments at Intersections with LOS F

In this scenario, study area intersection signal timings were adjusted at intersections with LOS F in an effort to bring the overall intersection LOS to LOS D or better. The phasing at several of the I-10 TIs was also changed to allow for more efficient use of signal timing splits and available storage, which helped improve the operations at these locations.

After optimizing the timings, no study area intersections remained at LOS F, and the 75th Avenue/I-10 Eastbound Ramps intersection was the only study area intersection with a LOS E, as shown in **Table 6**. There were, however, several movements that continued to operate at LOS E and LOS F, as shown in **Table 7**. Intersection movements with a 95th percentile queue greater than 500 feet are shown in **Table 8**. More detailed capacity analysis results for Scenario 2A are provided in **Appendix B**.

Table 6 – Scenario 2A Intersection LOS Results

ID	Intersection	Intersection LOS	
		AM Peak	PM Peak
1	107th Avenue & McDowell Road	C	C
2	107th Avenue & I-10 WB Ramps	C	C
3	107th Avenue & I-10 EB Ramps	C	C
4	107th Avenue & Van Buren Street	B	B
5	107th Avenue & MC 85/Buckeye Road	C	C
6	99th Avenue & McDowell Road	C	D
7	99th Avenue & I-10 WB Ramps	C	D
8	99th Avenue & I-10 EB Ramps	D	D
9	99th Avenue & Van Buren Street	D	D
10	99th Avenue & MC 85/Buckeye Road	C	C
11	91st Avenue & McDowell Road	D	D
12	91st Avenue & I-10 WB Ramps	B	B
13	91st Avenue & I-10 EB Ramps	C	C
14	91st Avenue & Van Buren Street	C	D
15	91st Avenue & MC 85/Buckeye Road	C	C
16	83rd Avenue & McDowell Road	D	D
17	83rd Avenue & I-10 WB Ramps	B	C
18	83rd Avenue & I-10 EB Ramps	C	D
19	83rd Avenue & Van Buren Street	D	D
20	83rd Avenue & MC 85/Buckeye Road	C	C
21	75th Avenue & McDowell Road	D	D
22	75th Avenue & I-10 WB Ramps	D	C
23	75th Avenue & I-10 EB Ramps	E	D
24	75th Avenue & Van Buren Street	D	D
25	75th Avenue & MC 85/Buckeye Road	D	D
26	67th Avenue & McDowell Road	D	D
27	67th Avenue & I-10 WB Ramps	C	C
28	67th Avenue & I-10 EB Ramps	C	D
29	67th Avenue & Van Buren Street	D	D
30	67th Avenue & MC 85/Buckeye Road	C	D
31	McDowell Road & Loop 101 SB Ramps	C	C
32	McDowell Road & Loop 101 NB Ramps	C	C

Table 7 – Number of Movements with LOS E or F after Scenario 2A Improvements

Peak Hour	Number of Movements at LOS E	Number of Movements at LOS F
AM	30	5
PM	29	5

Table 8 – Scenario 2A Intersection Movements with a 95th Percentile Queue Greater than 500 Feet

AM Peak			PM Peak		
Intersection	Movement	95th % Queue Length (ft)	Intersection	Movement	95th % Queue Length (ft)
99th Avenue & MC 85/Buckeye Rd	EBT	586	99th Avenue & McDowell Road	WBT	565
83rd Avenue & McDowell Road	EBT	544	99th Avenue & I-10 WB Ramps	WBT	558
83rd Avenue & Van Buren Street	SBL	500	99th Avenue & I-10 WB Ramps	NBT	575
75th Avenue & I-10 EB Ramps	EBT	1026	99th Avenue & I-10 WB Ramps	SBT	520
75th Avenue & I-10 EB Ramps	EBR	754	99th Avenue & I-10 EB Ramps	NBT	609
75th Avenue & I-10 EB Ramps	SBT	615	91st Avenue & I-10 EB Ramps	NBT	635
75th Avenue & Van Buren Street	SBT	542	91st Avenue & Van Buren Street	WBT	597
75th Avenue & MC 85/Buckeye Rd	EBT	633	83rd Avenue & I-10 EB Ramps	NBT	573
67th Avenue & McDowell Road	EBT	502	75th Avenue & I-10 EB Ramps	EBL	607
67th Avenue & Van Buren Street	NBT	561	75th Avenue & I-10 EB Ramps	EBT	665
McDowell Rd & Loop 101 SB Ramp	SBL	581	75th Avenue & I-10 EB Ramps	NBT	916
			75th Avenue & Van Buren Street	WBT	888
			75th Avenue & Van Buren Street	SBT	561
			75th Avenue & MC 85/Buckeye Rd	WBT	544
			67th Avenue & McDowell Road	WBT	660
			67th Avenue & I-10 EB Ramps	NBT	604
			67th Avenue & MC 85/Buckeye Rd	WBT	553

3.1.3 Scenario 2B: Signal Timing Adjustments at Movements with LOS F and Long Queues

Scenario 2B included further refinement of signal timings in an effort to bring all individual movement LOS to LOS E or better and to reduce all 95th percentile queues to less than 500 feet.

After optimizing the timings again, all study intersections were shown to operate at LOS D or better and all movements were shown to operate at LOS E or better, as shown in **Table 9**. **Table 10** summarizes the number of movements that continued to operate at LOS E or LOS F. Intersection movements with a 95th percentile queue greater than 500 feet are shown in **Table 11**. More detailed capacity analysis results for Scenario 2B are provided in **Appendix B**.

Table 9 – Scenario 2B Intersection LOS Results

ID	Intersection	Intersection LOS	
		AM Peak	PM Peak
1	107th Avenue & McDowell Road	C	C
2	107th Avenue & I-10 WB Ramps	C	C
3	107th Avenue & I-10 EB Ramps	C	C
4	107th Avenue & Van Buren Street	B	B
5	107th Avenue & MC 85/Buckeye Road	C	C
6	99th Avenue & McDowell Road	C	D
7	99th Avenue & I-10 WB Ramps	C	D
8	99th Avenue & I-10 EB Ramps	D	D
9	99th Avenue & Van Buren Street	D	D
10	99th Avenue & MC 85/Buckeye Road	C	C
11	91st Avenue & McDowell Road	D	D
12	91st Avenue & I-10 WB Ramps	B	B
13	91st Avenue & I-10 EB Ramps	C	C
14	91st Avenue & Van Buren Street	C	C
15	91st Avenue & MC 85/Buckeye Road	C	C
16	83rd Avenue & McDowell Road	D	D
17	83rd Avenue & I-10 WB Ramps	B	C
18	83rd Avenue & I-10 EB Ramps	C	C
19	83rd Avenue & Van Buren Street	D	D
20	83rd Avenue & MC 85/Buckeye Road	C	C
21	75th Avenue & McDowell Road	D	D
22	75th Avenue & I-10 WB Ramps	C	C
23	75th Avenue & I-10 EB Ramps	D	D
24	75th Avenue & Van Buren Street	D	D
25	75th Avenue & MC 85/Buckeye Road	D	D
26	67th Avenue & McDowell Road	D	D
27	67th Avenue & I-10 WB Ramps	C	C
28	67th Avenue & I-10 EB Ramps	C	D
29	67th Avenue & Van Buren Street	D	D
30	67th Avenue & MC 85/Buckeye Road	D	C
31	McDowell Road & Loop 101 SB Ramps	C	C
32	McDowell Road & Loop 101 NB Ramps	C	C

Table 10 – Number of Movements with LOS E or F after Scenario 2B Improvements

Peak Hour	Number of Movements at LOS E	Number of Movements at LOS F
AM	20	0
PM	19	0

Table 11 – Scenario 2B Intersection Movements with a 95th Percentile Queue Greater than 500 Feet

AM Peak			PM Peak		
Intersection	Movement	95th % Queue Length (ft)	Intersection	Movement	95th % Queue Length (ft)
99th Avenue & MC 85/Buckeye Rd	EBT	586	99th Avenue & I-10 WB Ramps	WBT	552
83rd Avenue & McDowell Road	EBT	520	99th Avenue & I-10 WB Ramps	NBT	575
75th Avenue & I-10 EB Ramps	EBT	534	99th Avenue & I-10 WB Ramps	SBT	542
75th Avenue & I-10 EB Ramps	SBT	573	99th Avenue & I-10 EB Ramps	NBT	609
75th Avenue & Van Buren Street	SBT	525	75th Avenue & I-10 EB Ramps	NBT	680
67th Avenue & MC 85/Buckeye Rd	EBT	665	75th Avenue & Van Buren Street	WBT	888
McDowell Rd & Loop 101 SB Ramp	SBL	617	75th Avenue & Van Buren Street	SBT	539

3.1.4 Scenario 3: Lane Configuration Improvements

After implementing the aforementioned signal timing adjustments, there were still several locations with movements at LOS E or queues greater than 500 feet. An operational analysis identified where traffic operations can be improved by restriping, installing new or extensions to turn storage lanes, or by adding a right-turn lane.

Many of these locations are at the study area's I-10 TIs, where it was noted that while the northbound left-turn volumes are generally higher than the southbound left-turn volumes, the typical existing TI configuration provides one northbound left-turn lane and two southbound left-turn lanes instead of the other way around. It is believed that when these TIs were initially designed many years ago, the assumption was that the highest left-turn volumes would be southbound (towards Phoenix) as commuters travel east to employment centers. With the large amount of industrial development on the south side of I-10, however, the highest left-turn volumes are now northbound (towards California) as trucks travel west to the ports and population centers in California. As such, it appears these TIs will function better if the lane configurations are adjusted to provide two northbound left-turn lanes and one southbound left-turn lane. Also, it was observed that many of the study area TIs do not provide adequately long storage lanes for northbound left-turn traffic, which results in left-turn queues blocking through vehicles from proceeding.

The assumed Scenario 3 lane configuration changes at the study area intersections are summarized in **Table 12**. After incorporating these lane configuration changes, all study intersections continued to operate at LOS D or better, as shown in **Table 13**. **Table 14** summarizes the number of movements that continued to operate at LOS E or LOS F after Scenario 3 improvements were implemented. Intersection movements with a 95th percentile queue greater than 500 feet are shown in **Table 15**. More detailed capacity analysis results for Scenario 3 are provided in **Appendix B**.

Table 12 – Scenario 3 Improvements

ID	Intersection	Approach			
		NB	SB	EB	WB
8	**99th Ave/I-10 EB Ramps**	Add fourth through lane			
17	**83rd Ave/I-10 WB Ramps**	Add third through lane			
18	**83rd Ave/I-10 EB Ramps**	Add fourth through lane	Remove one left turn lane		
19	**83rd Ave/Van Buren St**				Separate throughs and rights by adding exclusive right turn lane
22	**75th Ave/I-10 WB Ramps**	Add second left turn lane	Add fourth through lane		
23	**75th Ave/I-10 EB Ramps**	Add third and fourth through lanes	Remove one left turn lane Add third through lane		
24	**75th Ave/Van Buren St**	Separate throughs and rights by adding exclusive right turn lane	Separate throughs and rights by adding exclusive right turn lane	Separate throughs and rights by adding exclusive right turn lane	Add second through lane
25	**75th Ave/ MC 85**				Separate throughs and rights by adding exclusive right turn lane
27	**67th Ave/I-10 WB Ramps**	Add second left turn lane			
28	**67th Ave/I-10 EB Ramps**	Add fourth and fifth through lanes	Remove one left turn lane		
29	**67th Ave/Van Buren St**	Separate throughs and rights by adding exclusive right turn lane		Separate throughs and rights by adding exclusive right turn lane	
30	**67th Ave/ MC 85**				Separate throughs and rights by adding exclusive right turn lane

Table 13 – Scenario 3 Intersection LOS Results

ID	Intersection	Intersection LOS	
		AM Peak	PM Peak
1	107th Avenue & McDowell Road	C	C
2	107th Avenue & I-10 WB Ramps	C	C
3	107th Avenue & I-10 EB Ramps	C	C
4	107th Avenue & Van Buren Street	B	B
5	107th Avenue & MC 85/Buckeye Road	C	C
6	99th Avenue & McDowell Road	C	D
7	99th Avenue & I-10 WB Ramps	C	D
8	99th Avenue & I-10 EB Ramps	C	C
9	99th Avenue & Van Buren Street	D	D
10	99th Avenue & MC 85/Buckeye Road	C	C
11	91st Avenue & McDowell Road	D	D
12	91st Avenue & I-10 WB Ramps	B	B
13	91st Avenue & I-10 EB Ramps	C	C
14	91st Avenue & Van Buren Street	C	C
15	91st Avenue & MC 85/Buckeye Road	C	C
16	83rd Avenue & McDowell Road	D	D
17	83rd Avenue & I-10 WB Ramps	B	C
18	83rd Avenue & I-10 EB Ramps	C	C
19	83rd Avenue & Van Buren Street	D	C
20	83rd Avenue & MC 85/Buckeye Road	C	C
21	75th Avenue & McDowell Road	D	D
22	75th Avenue & I-10 WB Ramps	C	C
23	75th Avenue & I-10 EB Ramps	C	D
24	75th Avenue & Van Buren Street	D	C
25	75th Avenue & MC 85/Buckeye Road	D	D
26	67th Avenue & McDowell Road	D	D
27	67th Avenue & I-10 WB Ramps	C	C
28	67th Avenue & I-10 EB Ramps	C	C
29	67th Avenue & Van Buren Street	D	D
30	67th Avenue & MC 85/Buckeye Road	D	C
31	McDowell Road & Loop 101 SB Ramps	C	C
32	McDowell Road & Loop 101 NB Ramps	C	C

Table 14 – Number of Movements with LOS E or F after Scenario 3 Improvements

Peak Hour	Number of Movements at LOS E	Number of Movements at LOS F
AM	16	0
PM	16	1

Table 15 – Scenario 3 Intersection Movements with a 95th Percentile Queue Greater than 500 Feet

AM Peak			PM Peak		
Intersection	Movement	95th % Queue Length (ft)	Intersection	Movement	95th % Queue Length (ft)
99th Avenue & MC 85/Buckeye Rd	EBT	586	99th Avenue & I-10 WB Ramps	WBT	552
83rd Avenue & McDowell Road	EBT	520	99th Avenue & I-10 WB Ramps	NBT	544
75th Avenue & I-10 EB Ramps	EBT	534	99th Avenue & I-10 WB Ramps	SBT	542
67th Avenue & MC 85/Buckeye Rd	EBT	629	75th Avenue & I-10 EB Ramps	SBL	548
McDowell Rd & Loop 101 SB Ramp	SBL	617	67th Avenue & Van Buren St	WBT	681

3.1.5 Other Scenario 3 Improvements Considered

Based on field reviews and discussions with stakeholders, roadway improvements at other locations within the study area that are not designated study area intersections were considered. A qualitative assessment was conducted to determine the viability of these potential improvements.

Remove Existing Traffic Signal at 67th Avenue/Latham Street:

- Northbound traffic on 67th Avenue near the I-10 TI is congested during the peak periods. Northbound queues from the TI were observed growing to more than a quarter mile in length. Part of the issue in this area is there are two closely spaced traffic signals at 67th Avenue/Latham Street and 67th Avenue/Roosevelt Street, which are spaced approximately 500 feet apart. The Latham Street traffic signal is located only about 725 feet south of the TI;
- 67th Avenue between I-10 and Roosevelt Street provides access to multiple warehouses, a gas station, a truck stop, a truck carwash, fast food restaurants, and a residential neighborhood. During site visits, vehicles were observed queuing through the Latham intersection, which prohibited eastbound left-turn traffic from turning. Even so, eastbound left-turning vehicles would sometimes still enter the intersection to turn left and end up blocking the intersection for northbound, and sometimes southbound, through traffic;
- The traffic signal at Latham Street could be removed and the west leg of the intersection restricted to right-in/right-out (RIRO) movements only. (The east leg of this intersection is already restricted to RIRO.) This could be accomplished by adding a raised median on 67th Avenue from the I-10/67th Avenue TI all the way to Roosevelt Street, preventing left-in/left-out movements. A new connector roadway between Latham Street and Roosevelt Street on the west side of 67th Avenue could be constructed to provide a way for vehicles on the west side of 67th Avenue to access Roosevelt Street to be able to turn left onto 67th Avenue; and

- This improvement appears feasible and was supported by stakeholders as a desirable improvement.

Provide Enhanced Bicycle and Pedestrian Facilities on Van Buren Street:

- East-west bicycle and pedestrian travel is challenging in the study area as there are several gaps in the bicycle and pedestrian facilities network and because vehicle volumes and speeds are high. Many of the residential land uses in the study area are along Van Buren Street. In downtown Tolleson, the City of Tolleson has reconfigured Van Buren Street between 99th Avenue and 91st Avenue to provide wide sidewalks and bike lanes and only one through lane in each direction with through trucks prohibited. This reallocation of the right-of-way and truck restriction has changed the character of the area, resulting in reduced speeds and volumes and fewer severe crashes involving bicyclists or pedestrians;
- Reallocating the right-of-way on Van Buren Street between 91st Avenue and 59th Avenue to provide enhanced bicycle and pedestrian facilities could similarly change the character of the corridor and discourage high-speed through traffic. This could be accomplished with minimal right-of-way impacts by eliminating the third westbound through lane that is present through most of this segment (the eastbound direction already only provides two through lanes) and instead providing bike lanes and/or a shared use path (or wider sidewalk). A reduction in the posted speed limit from 45 miles per hour (mph) to either 40 mph or 35 mph could also help "calm" traffic;
- The inclusion of new pedestrian hybrid beacon (PHB) or signalized mid-block crossings would provide more frequent protected crossings along Van Buren Street for bicyclists and pedestrians. PHBs provide protection to the crossing bicyclist or pedestrian by stopping road traffic when the crossing push button is activated;
- Van Buren Street between 83rd Avenue and 75th Avenue generally only has one through lane in each direction with no bike lanes and large gaps in the sidewalk network. Widening this segment to provide two through lanes in each direction with bike lanes and sidewalk or a shared use path would improve traffic operations and enhance bicycle and pedestrian connectivity; and
- The improvements proposed along Van Buren Street appear feasible and were supported by stakeholders as a desirable improvement.

Provide Increased Curb Radii at Corners:

- For locations noted as having tight turning radii for trucks, three-point curves could be installed to provide increased curb radii that better accommodate turning movements of trucks;
- At most locations in the study area noted as having tight turning radii, improvements to the corners are already being recommended as part of other geometric improvements at the intersection, and as such there is an easy opportunity to provide increased curb radii at those locations;
- The 107th Avenue/Van Buren Street intersection is the only location noted as having a tight turning radius that would not already be addressed by another recommended improvement at the same location. The southeast corner curb radius could be improved using a three-point curve; and
- This improvement appears feasible and was supported by stakeholders as a desirable improvement.

Create 79th Avenue Bridge Connection:

- The existing bridge over I-10 at 79th Avenue currently connects I-10 and 79th Avenue north of I-10. The bridge is currently signed for high-occupancy vehicle (HOV) use only during peak periods as it provides convenient access to the park-and-ride lot on the east side of 79th Avenue north of I-10;
- Extending 79th Avenue north from Roosevelt Street to the existing bridge would provide a connection between I-10 and the roadway network south of I-10;
- There is some uncertainty on if that bridge could be converted to general purpose use as it was constructed using Congestion Mitigation and Air Quality (CMAQ) federal funds. ADOT policies would also have to be modified to allow non-HOV vehicles to use the HOV lane to access the bridge ramps; and
- While it is technically feasible to connect to the 79th Avenue bridge, there are several funding and policy questions that could take time to work through. As this improvement is not needed in the near-term, this improvement concept should not a recommendation of the Southwest Freight SPA but may warrant further analysis when a more detailed assessment of I-10 is conducted at some point in the future.

Install Eastbound Frontage Road between 83rd Avenue and 79th Avenue:

- To potentially alleviate southbound traffic at the 83rd Avenue/I-10 TI and 75th Avenue/I-10 TI, a one-way eastbound frontage road could be constructed from the I-10/83rd Avenue eastbound on-ramp to 79th Avenue. This improvement would likely not connect to the existing 79th Avenue HOV ramp bridge for the reasons mentioned in the prior potential improvement but would connect to 79th Avenue as long as 79th Avenue was extended north from Roosevelt Street to the frontage road; and
- This improvement appears feasible but likely warrants additional analysis to determine how much traffic it would draw away from 83rd Avenue and 75th Avenue and whether it is a cost-effective solution. As this improvement is not needed in the near-term, this improvement concept should not be a recommendation of the Southwest Freight SPA but may warrant further analysis when a more detailed assessment of I-10 is conducted at some point in the future.

Create 63rd Avenue Bridge Connection:

- The existing bridge over I-10 at 63rd Avenue currently does not connect to 63rd Avenue north or south of I-10. Extending Latham Street to connect to this bridge would provide a connection to I-10 if ramps to/from the collector-distributor roads were constructed that connect to the bridge; and
- This improvement appears feasible but likely warrants additional analysis to determine how much traffic it would draw away from 67th Avenue and 59th Avenue and whether it is a cost-effective solution. As this improvement is not needed in the near-term, this improvement concept should not be a recommendation of the Southwest Freight SPA but may warrant further analysis when a more detailed assessment of I-10 is conducted at some point in the future.

3.2 Improvement Recommendations

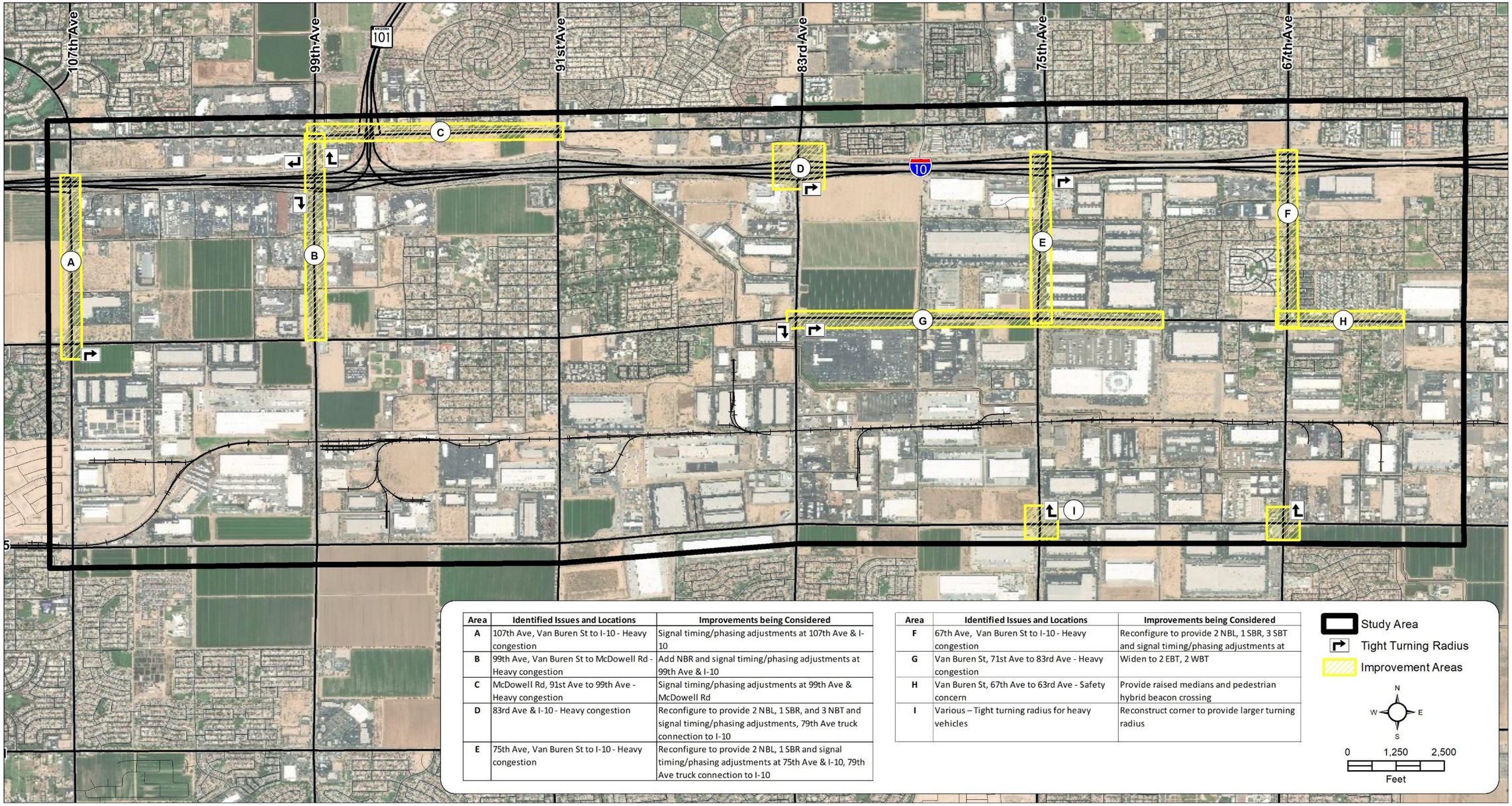
After reviewing the results of the capacity analysis for the various improvement scenarios at the 32 study intersections, as well as the qualitative assessment of other potential improvements in the study area, it was determined that the Scenario 3 study area intersection improvements – along with the removal of the 67th Avenue/Latham Street traffic signal and the enhancement of bicycle and pedestrian facilities on

Van Buren Street between 91st Avenue and 59th Avenue – should be considered the recommended improvements that are moved forward for more detailed analysis. These improvements were grouped into nine improvement consideration areas within the study area and labeled Areas A through I, as shown in **Figure 5**. The other potential improvements deferred to future analysis are also mentioned in this figure for documentation purposes.

These recommended improvements provide safety and operational benefits to all roadway users. Increasing curb radii helps set back pedestrians from the existing sharp corners where trucks are turning, and trucks have an easier time making turning movements and don't have to cross into opposing lanes of traffic when making right turns, creating a safer environment for all roadway users.

Enhancing multimodal connectivity in the study area is addressed through improvement recommendations such as the installation of a shared use path and bike lanes along Van Buren Street, protected mid-block crossings for pedestrians and bicyclists, and a more complete sidewalk network that allows pedestrians to move about the study area easier and safer.

In addition, the overall reduction in congestion and delay provided through the recommendations of enhanced signal timing and operations, widening of roadways, and addition of lanes where necessary, will benefit all roadway users within the study area.



Area	Identified Issues and Locations	Improvements being Considered
A	107th Ave, Van Buren St to I-10 - Heavy congestion	Signal timing/phasing adjustments at 107th Ave & I-10
B	99th Ave, Van Buren St to McDowell Rd - Heavy congestion	Add NBR and signal timing/phasing adjustments at 99th Ave & I-10
C	McDowell Rd, 91st Ave to 99th Ave - Heavy congestion	Signal timing/phasing adjustments at 99th Ave & McDowell Rd
D	83rd Ave & I-10 - Heavy congestion	Reconfigure to provide 2 NBL, 1 SBR, and 3 NBT and signal timing/phasing adjustments, 79th Ave truck connection to I-10
E	75th Ave, Van Buren St to I-10 - Heavy congestion	Reconfigure to provide 2 NBL, 1 SBR and signal timing/phasing adjustments at 75th Ave & I-10, 79th Ave truck connection to I-10

Area	Identified Issues and Locations	Improvements being Considered
F	67th Ave, Van Buren St to I-10 - Heavy congestion	Reconfigure to provide 2 NBL, 1 SBR, 3 SBT and signal timing/phasing adjustments at
G	Van Buren St, 71st Ave to 83rd Ave - Heavy congestion	Widen to 2 EBT, 2 WBT
H	Van Buren St, 67th Ave to 63rd Ave - Safety concern	Provide raised medians and pedestrian hybrid beacon crossing
I	Various – Tight turning radius for heavy vehicles	Reconstruct corner to provide larger turning radius

Figure 5 – Improvement Consideration Areas

3.3 Sensitivity Analysis

While this study focuses on near-term improvements that address existing safety and operational issues, a sensitivity analysis comprised of two scenarios was conducted to provide some sense of what other improvements might be needed in the long-term future analysis year of 2040. The locations and improvements noted in the subsequent tables should be considered as future development and other improvement projects are being contemplated in the vicinity of these locations.

To determine 2040 traffic volumes, study area roadway segment 2030 and 2040 projected volumes, as taken from the MAG regional model, were used to calculate a growth rate percentage that could be applied to existing volumes at study area intersections. The resulting average growth rate percentage for the study area was 1.1%. For more detail on the growth rate calculations, see **Appendix C**.

3.3.1 Scenario 4A: Intersection LOS D or Better Using Projected 2040 Volumes

The improvements shown in **Table 16** for Scenario 4A were identified (in addition to those already identified in Scenario 3) as the minimum improvements needed to bring 2040 intersection LOS values for each study area intersection to LOS D or better.

3.3.2 Scenario 4B: Movement LOS D or Better Using Projected 2040 Volumes

The improvements shown in **Table 17** for Scenario 4B were identified (in addition to those already identified in Scenario 3) as the minimum improvements needed to bring 2040 movement and intersection LOS values to LOS D or better.

Table 16 – Scenario 4A Improvements

ID	Intersection	Approach			
		NB	SB	EB	WB
7	**99th Ave/ I-10 WB Ramps**		Separate throughs and rights by adding exclusive channelized right turn lane		
10	**99th Ave/ MC 85**	Separate the throughs and rights by adding an exclusive right turn lane	Make exclusive right turn a shared through-right		
11	**91st Ave/ McDowell Rd**	Separate throughs and rights by adding exclusive right turn lane		Separate throughs and rights by adding exclusive right turn lane	Separate throughs and rights by adding exclusive right turn lane
16	**83rd Ave/ McDowell Rd**	Add second left turn lane Separate the throughs and rights by adding an exclusive right turn lane	Add second left turn lane	Add third through lane	Add third through lane
21	**75th Ave/ McDowell Rd**	Add second left turn lane	Add second left turn lane	Separate throughs and rights by adding exclusive right turn lane	Separate throughs and rights by adding exclusive right turn lane
25	**75th Ave/ MC 85**	Separate throughs and rights by adding exclusive right turn lane			
26	**67th Ave/ McDowell Rd**		Separate throughs and rights by adding exclusive right turn lane	Separate throughs and rights by adding exclusive right turn lane	Make exclusive right turn a shared through-right
30	**67th Ave/ MC 85**	Separate throughs and rights by adding exclusive right turn lane		Separate throughs and rights by adding exclusive right turn lane	
31	**McDowell Rd/Loop 101 SB Ramp**		Reconfigure off-ramp to include one left, one shared left-right, and dual rights		

Table 17 – Scenario 4B Improvements

ID	Intersection	Approach			
		NB	SB	EB	WB
3	**107th Ave/I-10 EB Ramps**	Separate the throughs and rights by adding an exclusive right turn lane	-	-	-
5	**107th Ave/MC 85**	Separate the throughs and rights by adding an exclusive right turn lane	-	-	Separate the throughs and rights by adding an exclusive right turn lane
6	**99th Ave/ McDowell Rd**	-	-	Make exclusive right turn a shared through-right	Add a third through lane
7	**99th Ave/I-10 WB Ramps**	Add a fourth through lane	Separate the throughs and rights by adding dual exclusive right turn lane	-	Reconfigure off-ramp to include one left, a shared through-left, two throughs, and one right
9	**99th Ave/Van Buren St**	-	-	Make exclusive right turn a shared through-right	-
10	**99th Ave/MC 85**	Separate the throughs and rights by adding an exclusive right turn lane	Make exclusive right turn a shared through-right	Separate the throughs and rights by adding an exclusive right turn lane Add a third through lane	Make exclusive right turn a shared through-right
11	**91st Ave/McDowell Rd**	Dual left turn lanes Add third through lane	-	Separate the throughs and rights by adding an exclusive right turn lane	Add a third through lane
12	**91st Ave/I-10 WB Ramps**	-	Separate the throughs and rights by adding an exclusive right turn lane	-	-
14	**91st Ave/Van Buren St**	-	-	Make exclusive right turn a shared through-right	Add a second through lane
16	**83rd Ave/McDowell Rd**	Separate the throughs and rights by adding an exclusive right turn lane	-	Add a third through lane	Add a third through lane Dual left turn lanes
17	**83rd Ave/I-10 WB Ramps**	Add a third through lane	-	-	-
18	**83rd Ave/I-10 EB Ramps**	-	-	Reconfigure off ramp to include one left, one shared through-left, one shared through-right, and one right	-

ID	Intersection	Approach			
		NB	SB	EB	WB
19	**83rd Ave/Van Buren St**	-	Dual Left turn lanes Separate the throughs and rights by adding an exclusive right turn lane	-	Separate the throughs and rights by adding an exclusive right turn lane
21	**75th Ave/ McDowell Rd**	Separate the throughs and rights by adding an exclusive right turn lane	-	Separate the throughs and rights by adding an exclusive right turn lane	Separate the throughs and rights by adding an exclusive right turn lane
23	**75th Ave/I-10 EB Ramps**	-	Dual Left turn lanes	Reconfigure off ramp to include one left, one shared through-left one shared through-right, and one right	-
24	**75th Ave/Van Buren St**	Add a third through lane	Add a third through lane	Separate the throughs and rights by adding an exclusive right turn lane	-
25	**75th Ave/MC 85**	Separate the throughs and rights by adding an exclusive right turn lane	Dual Left turn lanes	Make exclusive right turn a shared through-right	Add a third through lane
26	**67th Ave/ McDowell Rd**	-	Separate the throughs and rights by adding an exclusive right turn lane	Separate the throughs and rights by adding an exclusive right turn lane	Add a third through lane
27	**67th Ave/I-10 WB Ramps**	-	-	-	Reconfigure off-ramp to include dual lefts, one through, and one right
28	**67th Ave/I-10 EB Ramps**	-	Add a third through lane	Reconfigure off-ramp to include one left, one shared through-left, one shared through-right, and one right	-
29	**67th Ave/Van Buren St**	Add a third through lane	-	Separate the throughs and rights by adding an exclusive right turn lane	Separate the throughs and rights by adding an exclusive right turn lane
30	**67th Ave/MC 85**	Separate the throughs and rights by adding an exclusive right turn lane	-	Add a third through lane	Add a third through lane

ID	Intersection	Approach			
		NB	SB	EB	WB
31	**McDowell Rd/Loop 101 SB Ramp**	-	Reconfigure off-ramp to include one left, one shared left-right, and dual rights	-	Add a third through lane
32	**McDowell Rd/Loop 101 NB Ramp**	-	-	-	Add a third through lane

3.4 Title VI Disadvantaged Populations Analysis

Title VI populations are disadvantaged populations that are protected by Title VI of the Civil Rights Act of 1964. Disproportionately high and adverse effects on disadvantaged populations can be defined as an adverse effect that (1) is predominantly borne by a disadvantaged population; or (2) will be suffered by the disadvantaged population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-disadvantaged population. For the purpose of social impact analyses for disadvantaged populations, disproportionate adverse impacts are likely to occur when the disadvantaged population is either 50 percent or greater than the total population for a specific area or is more than double the percentage of the disadvantaged population within the comparative county (Maricopa County).

The MAG Demographic Viewer (http://geo.azmag.gov/maps/demographic), which uses 2013-2017 U.S. Census Bureau American Community Survey (ACS) data, was utilized to identify Title VI disadvantaged populations within the study area. The following Title VI disadvantaged population categories are those for which data could be isolated and mapped for the study area and for which comparative state and county data was available:

- Minorities (see **Figure 6**);
- Age 65 Years or Older (see **Figure 7**);
- Persons Below Poverty Level (see **Figure 8**); and
- Limited English Proficiency (see **Figure 9**).

Table 18 summarizes the state, county, and study area Title VI disadvantaged population data.

Table 18 – Title VI Disadvantaged Population Comparison

Disadvantaged Population Category	State of Arizona		Maricopa County		Study Area	
	Total	Percent	Total	Percent	Total	Percent
Population Base	6,809,946	100%	4,155,501	100%	35,454	100%
Minority	3,023,528	44%	1,815,396	44%	31,465	89%
Age 65+	1,106,362	16%	586,644	14%	1,582	5%
Below Poverty Level	1,128,046	17%	644,476	16%	11,436	32%
Limited English Proficiency	570,223	8%	355,270	9%	5,819	16%

The percentage of the total population considered a minority in the study area (89%) is more than 50% and is more than double the percentage of the population considered a minority within the county and the state (44% each), suggesting a high potential for disproportionate adverse impacts if improvements are not carefully developed to minimize such adverse impacts. Most of the minority population within the study area lives between MC 85/Buckeye Road and Van Buren Street or along Van Buren Street, where over 90% of the population are minorities. Almost all parts of the study area have a minority population percentage of over 60%.

The percentage of the total population that is age 65 years or older in the study area (5%) is lower than the county and state percentages. The largest concentrations of individuals in the study area that are age 65 years or older are located in the area north of Van Buren Street, south of McDowell Road, east of 99th Avenue, and west of 83rd Avenue, where over 8% of the population is within this category.

The percentage of the total population below the poverty level in the study area (32%) is double the percentage of the population below the poverty level within the county (16%), suggesting a high potential for disproportionate adverse impacts if improvements are not carefully developed to minimize such adverse impacts. The population of persons below the poverty level in the study area is mostly concentrated east of 75th Avenue, where over 30% of the population is within this category.

The percentage of the total population with limited English proficiency in the study area (16%) is nearly double the percentage of the population with limited English proficiency within the county (9%), suggesting a high potential for disproportionate adverse impacts if improvements are not carefully developed to minimize such adverse impacts. The population of persons with limited English proficiency in the study area is mostly concentrated south of Van Buren Street west of 83rd Avenue and north of Van Buren Street east of 83rd Avenue, where over 30% of the population is within this category.

This information on Title VI disadvantaged populations was taken into account during the refinement of the improvement recommendations and in the development of public outreach materials.

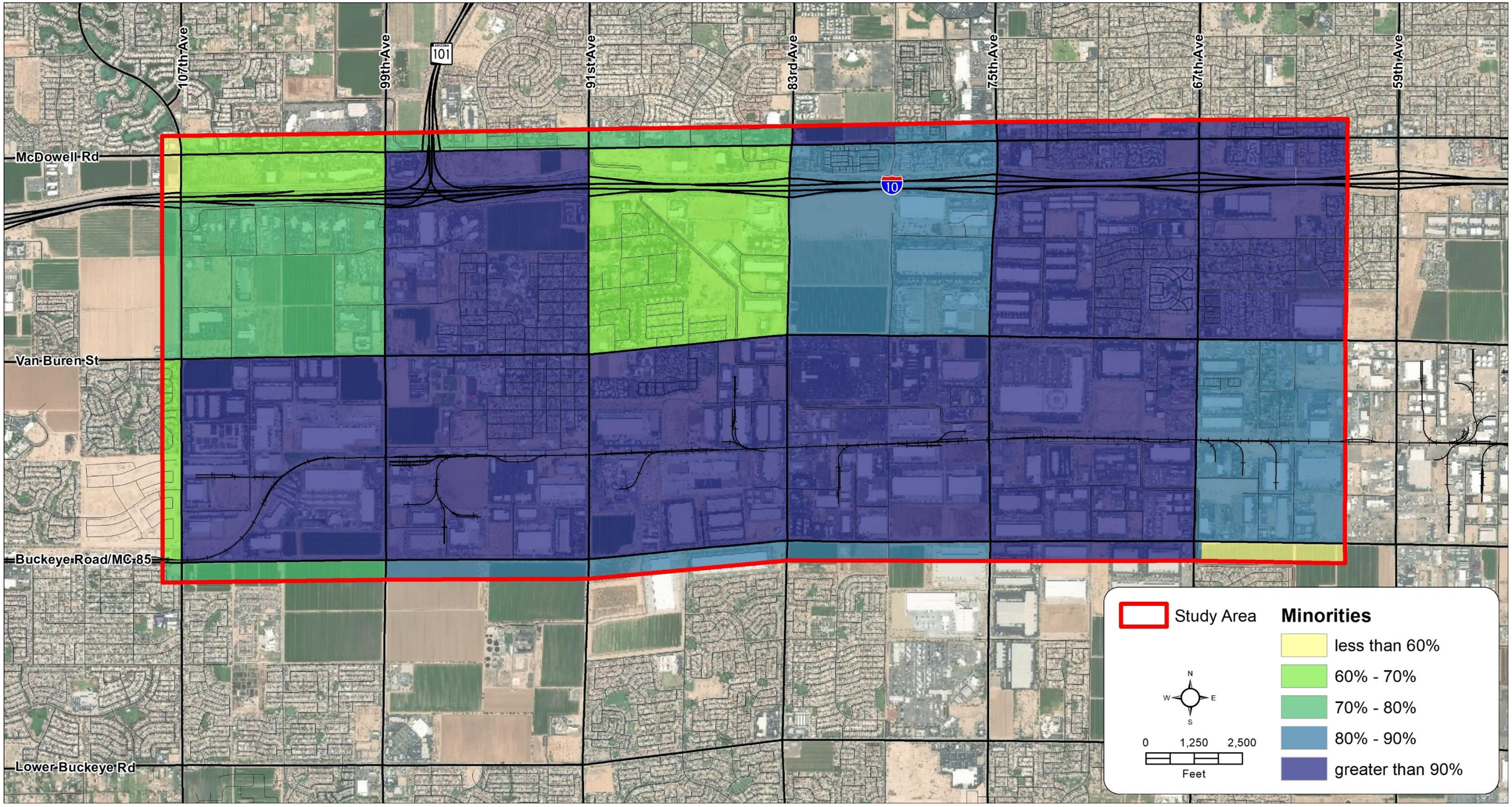


Figure 6 – Minority Population

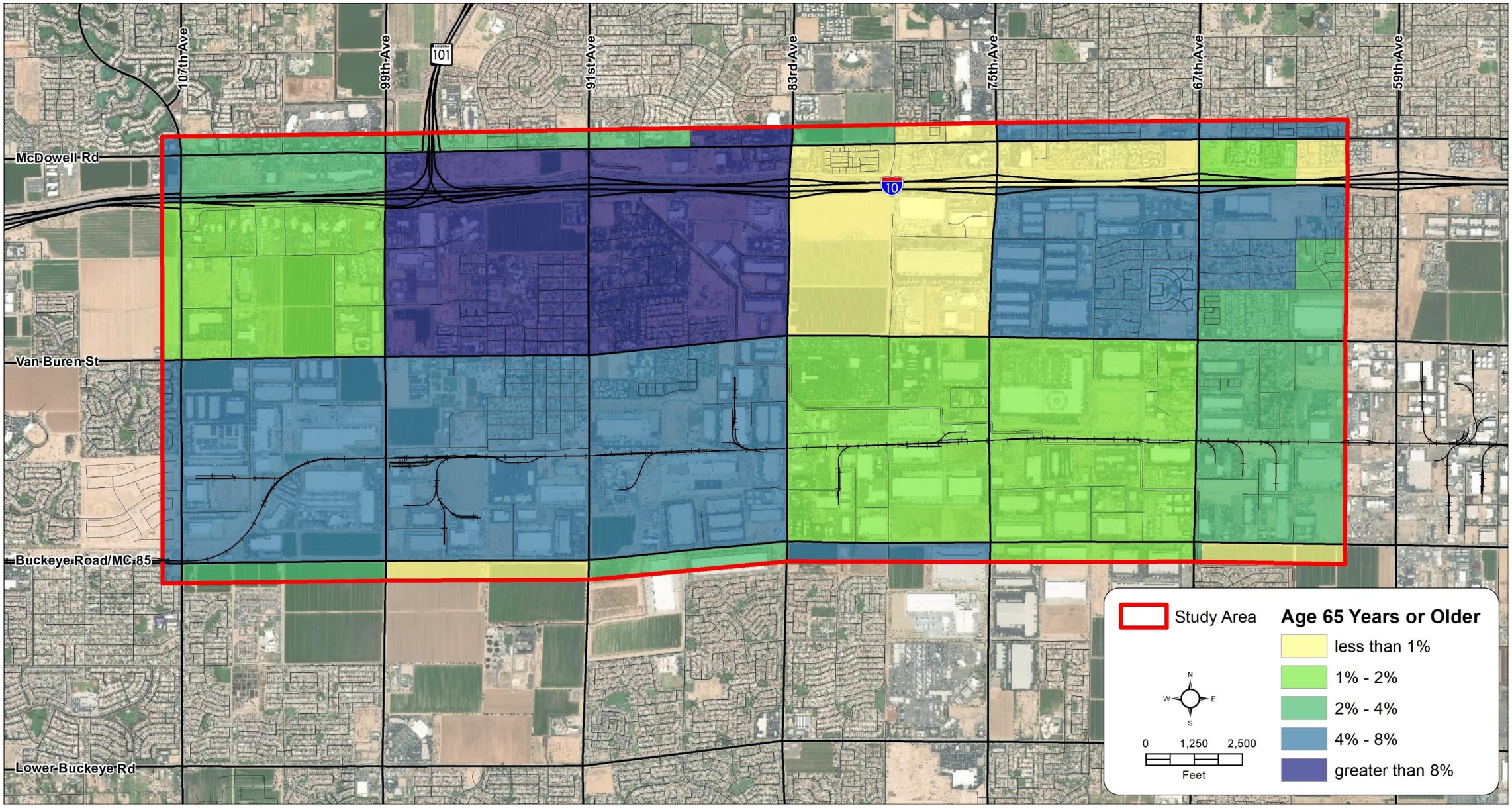


Figure 7 – Population Age 65 Years or Older

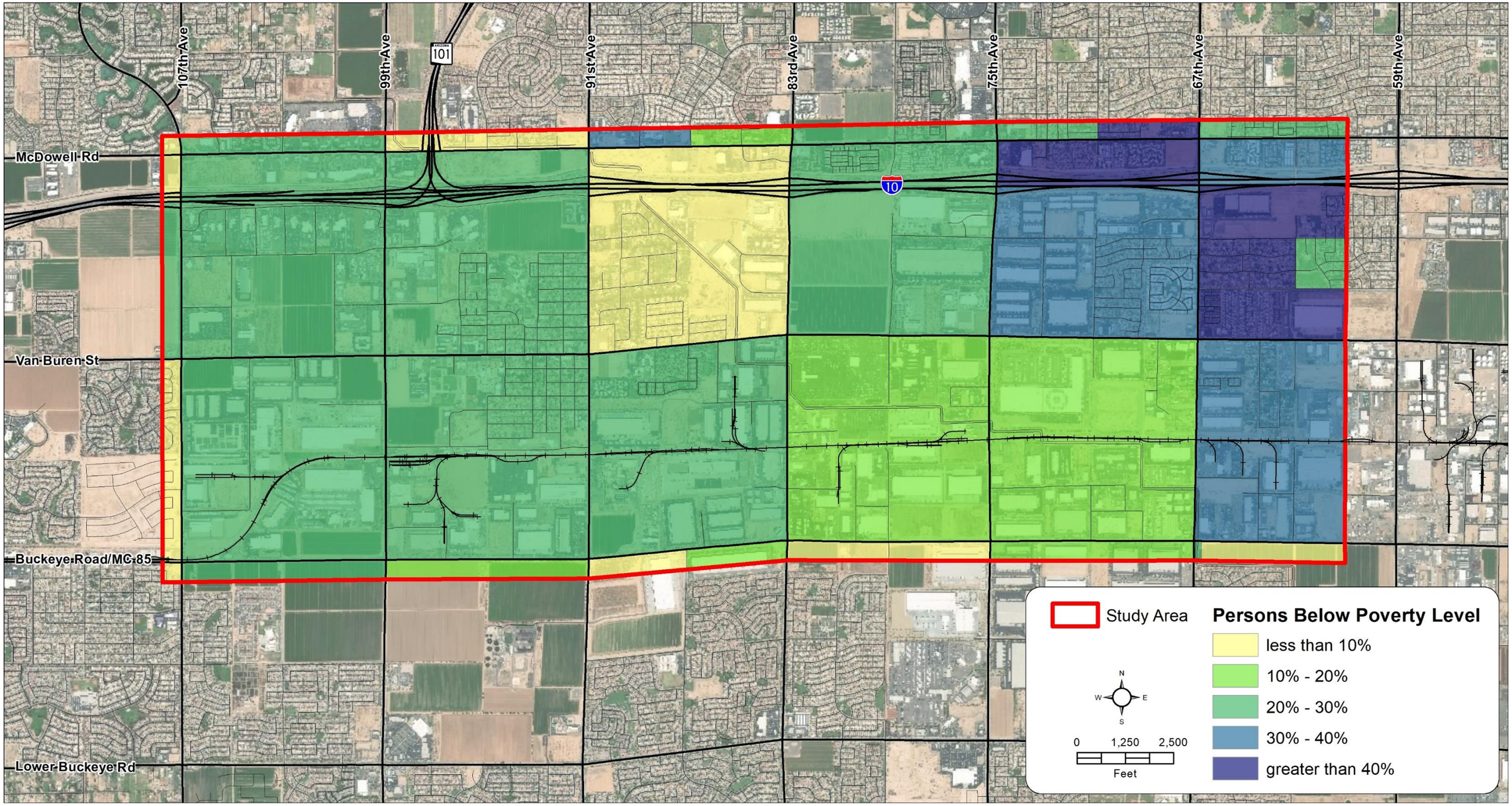


Figure 8 – Persons Below Poverty Level

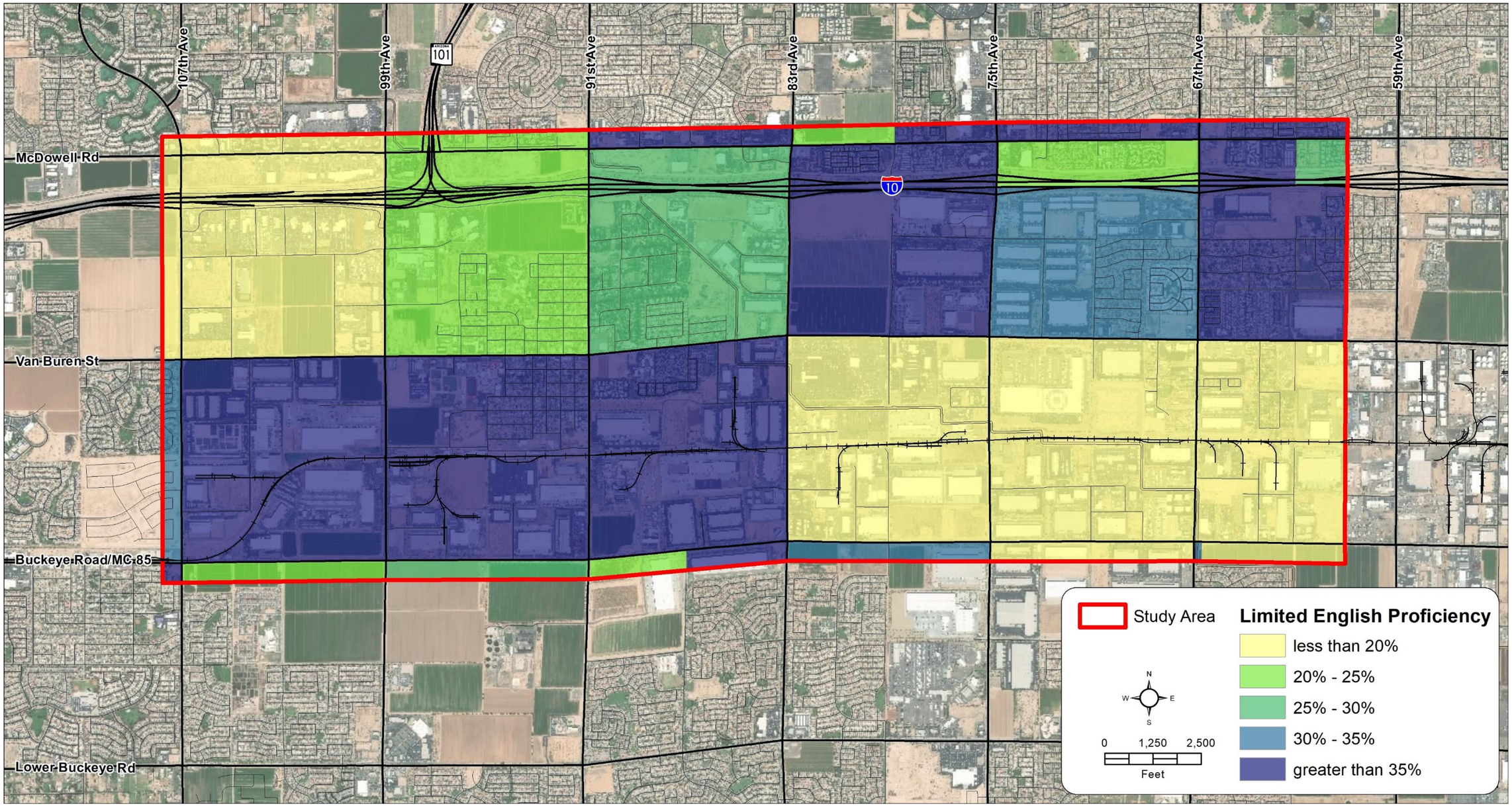


Figure 9 – Limited English Proficiency Population

4 RECOMMENDED IMPROVEMENT PROJECTS

This section provides more detailed information on the study area improvement recommendations. The improvements in the previously mentioned nine improvement areas were grouped into eleven recommended improvement projects. The improvement projects are described in **Table 19** and shown in **Figure 10**. Concept layout drawings for each improvement project can be found in **Appendix A**.

Table 19 – Recommended Improvement Projects

Project #	Project Name	Improvements
1	67th Avenue Improvements: I-10 to Roosevelt Street	Modify median and install 2 NB left-turn lanes on bridge
		Modify median south of EB ramps and install 2 additional inside NBT lanes
		Install raised median south of EB ramps
		Construct new road connecting Latham St to Roosevelt St
		Relocate Flying J driveway on Latham St
		Install raised median on 67th Ave through existing 67th Ave/Latham intersection
2	75th Avenue/I-10 TI Improvements	Install 2 NB left-turn lanes on bridge
		Modify median south of EB ramps and install 2 additional NBT inside lanes
		Install raised median south of EB ramps
		Restripe to provide third SB through lane on bridge and provide third SB through lane that becomes a trap right-turn lane at Roosevelt St south of the EB ramps
		Install exclusive SB and NB right-turn lanes at ramps
3	83rd Avenue/I-10 TI Improvements	Install 2 NB left-turn lanes on bridge
		Install raised median south of EB ramps
		Modify median south of EB ramps and install 2 additional NBT inside lanes
		Install exclusive NB right-turn lane at EB ramps
4	99th Avenue/I-10 TI Improvements	Install exclusive NB right-turn lane at EB ramps
5	Van Buren Street Improvements: 59th Avenue to 75th Avenue	Restripe roadway to provide 2 lanes in each direction, realigning roadway where necessary to avoid residential impacts while still providing the desired cross-section
		Provide a 10’ and an 11’ travel lane in each direction
		Install a 10’ shared use path on the north side of Van Buren St
		Install new sidewalk ramps at intersection corners
		Install 6’ bike lanes
		Install new 10’ raised median
		Install new PHB mid-block signalized crossing west of 64th Dr
		Install exclusive WB right-turn lane at 75th Ave
		Install exclusive NB and EB right-turn lanes at 67th Ave
		Install reduced speed limit signs to either 35 mph or 40 mph

Project #	Project Name	Improvements
6	Van Buren Street Improvements: 75th Avenue to 83rd Avenue	Widen and restripe roadway where necessary to provide 2 lanes in each direction
		Provide a 10' and an 11' travel lane in each direction
		Install a 10' shared use path on the north side of Van Buren St
		Install new sidewalk ramps at intersection corners
		Install 6' bike lanes
		Install new 10' raised median
		Install new irrigation pipe in place of canal on south side of Van Buren St
		Install exclusive NB and WB right-turn lanes at 83rd Ave
		Install exclusive WB right-turn lane at 79th Ave
		Install bus bay for WB buses just west of 75th Ave
		Install exclusive EB right-turn lane at 75th Ave
		Install reduced speed limit signs to either 35 mph or 40 mph
7	Van Buren Street Improvements: 83rd Avenue to 91st Avenue	Widen roadway to provide 2 lanes in each direction, realigning roadway where necessary to avoid residential impacts while still providing the desired cross-section
		Provide a 10' and an 11' travel lane in each direction
		Install a 10' shared use path on the north side of Van Buren St except where 8' sidewalk already exists
		Install new sidewalk ramps at intersection corners
		Install 6' bike lanes
		Install new 10' raised median
		Install bus bay for EB buses just east of 91st Ave
		Install new PHB mid-block signalized crossing at 87th Dr
		Install reduced speed limit signs to either 35 mph or 40 mph
8	75th Avenue/Van Buren Street Improvements	Widen intersection for future second NB/SB left-turn lane at 75th Ave
		Relocate existing gas utilities and irrigation structure at 75th Ave
		Install exclusive NB and SB right-turn lanes at 75th Ave
9	107th Avenue/Van Buren Street Improvements	Reconstruct southeast corner curb to provide for right-turning trucks
		Relocate existing traffic signal
		Relocate existing irrigation headwall
10	67th Avenue/Buckeye Road/ MC 85 Improvements	Reconstruct northeast corner curb to provide for right-turning trucks
		Install exclusive WB right-turn lane
11	75th Avenue/Buckeye Road/ MC 85 Improvements	Reconstruct northeast corner curb to provide for right-turning trucks
		Install exclusive WB right-turn lane

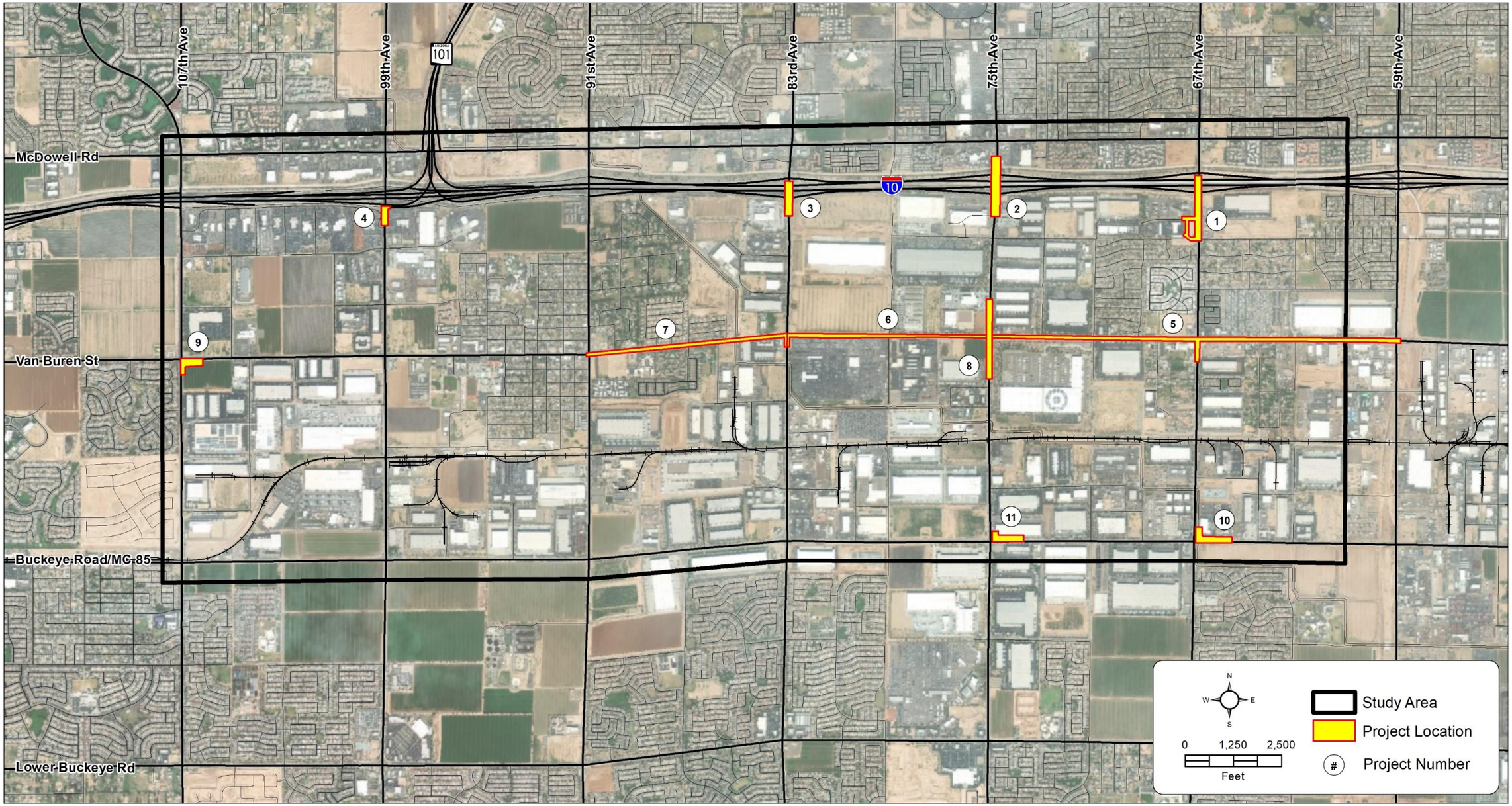


Figure 10 – Locations of Recommended Improvement Projects

4.1 Planning-Level Opinion of Probable Cost

A planning-level opinion of probable cost was developed for each recommended improvement project, as shown in **Table 20**. The cost estimates utilize unit prices derived from recent bid tabs and include estimates for design, construction, and right-of-way acquisition, where applicable. The detailed planning-level opinion of probable cost for each recommended improvement project is located in **Appendix D**.

Table 20 – Probable Costs for Recommended Improvement Projects

Project #	Project Name	Planning-Level Opinion of Probable Total Cost
1	67th Avenue Improvements: I-10 to Roosevelt Street	$1.59M
2	75th Avenue/I-10 TI Improvements	$0.92M
3	83rd Avenue/I-10 TI Improvements	$0.69M
4	99th Avenue/I-10 TI Improvements	$0.42M
5	Van Buren Street Improvements: 59th Avenue to 75th Avenue	$7.90M
6	Van Buren Street Improvements: 75th Avenue to 83rd Avenue	$5.08M
7	Van Buren Street Improvements: 83rd Avenue to 91st Avenue	$5.35M
8	75th Avenue/Van Buren Street Improvements	$3.76M
9	107th Avenue/Van Buren Street Improvements	$0.18M
10	67th Avenue/Buckeye Road/ MC 85 Improvements	$0.24M
11	75th Avenue/Buckeye Road/ MC 85 Improvements	$0.24M

4.2 Improvement Project Sheets

A project sheet has been developed for each recommended improvement project that can be found in **Appendix E**. The project sheet includes the following information for each improvement recommendation:

- Project Location;
- Project Length;
- Jurisdictional Agencies;
- Partnering Agencies;
- Design Cost;
- Construction Cost;
- Right-of-Way Cost;
- Total Cost;
- Priority (High, Medium, or Low);
- Project Description;
- Comments; and
- Location Map.

The project sheets can be used by the agencies that have jurisdiction over the project area to incorporate the information into their own project programming processes.

4.3 Prioritization of Improvement Projects

For each recommended improvement project, the categories of cost per mile, whether or not an identified safety issue is addressed, and the reduction in average delay were used to help determine prioritization of the projects. The following prioritization order is recommended for the improvement projects if funding is not available to implement all of the projects:

1. 75th Avenue/I-10 TI Improvements (high priority);
2. Van Buren Street Improvements: 59th Avenue to 75th Avenue (high priority);
3. 67th Avenue Improvements: I-10 to Roosevelt Street (high priority);
4. Van Buren Street Improvements: 75th Avenue to 83rd Avenue (high priority);
5. 75th Avenue/Van Buren Street Improvements (high priority);
6. 83rd Avenue/I-10 TI Improvements (medium priority);
7. 99th Avenue/I-10 TI Improvements (medium priority);
8. 67th Avenue/Buckeye Road/MC 85 Improvements (low priority);
9. 75th Avenue/Buckeye Road/MC 85 (low priority);
10. 107th Avenue/Van Buren Street Improvements (low priority); and
11. Van Buren Street Improvements: 83rd Avenue to 91st Avenue (low priority).

4.4 Public and Stakeholder Outreach

Public outreach has been conducted as a coordinated effort between MAG's Communication Division, MAG's consultant Kimley-Horn, and each of the stakeholder agencies with jurisdiction in the study area (City of Avondale, City of Phoenix, City of Tolleson, ADOT, and MCDOT). Completed and planned outreach activities include the following:

- A project fact sheet has been developed that summarizes the study's objectives, location, and recommended improvements projects. The project fact sheet was distributed to study agency partners for them to distribute electronically and/or at upcoming public events;
- MAG has added a section on the Southwest Freight Subarea Project Assessment to its freight website (http://azmag.gov/smartmoves/). The Improvement Recommendations working paper and project fact sheet will be made available by MAG for public viewing and downloading on the website. An interactive comment map has also been developed by MAG where viewers can leave their comments;
- MAG will reach out to the Arizona Trucking Association (AZTA) to make a brief presentation on the recommended improvement projects at one of AZTA's monthly meetings; and
- The Improvement Recommendations working paper has been provided to the stakeholder agencies with jurisdiction in the study area for their review and comment.

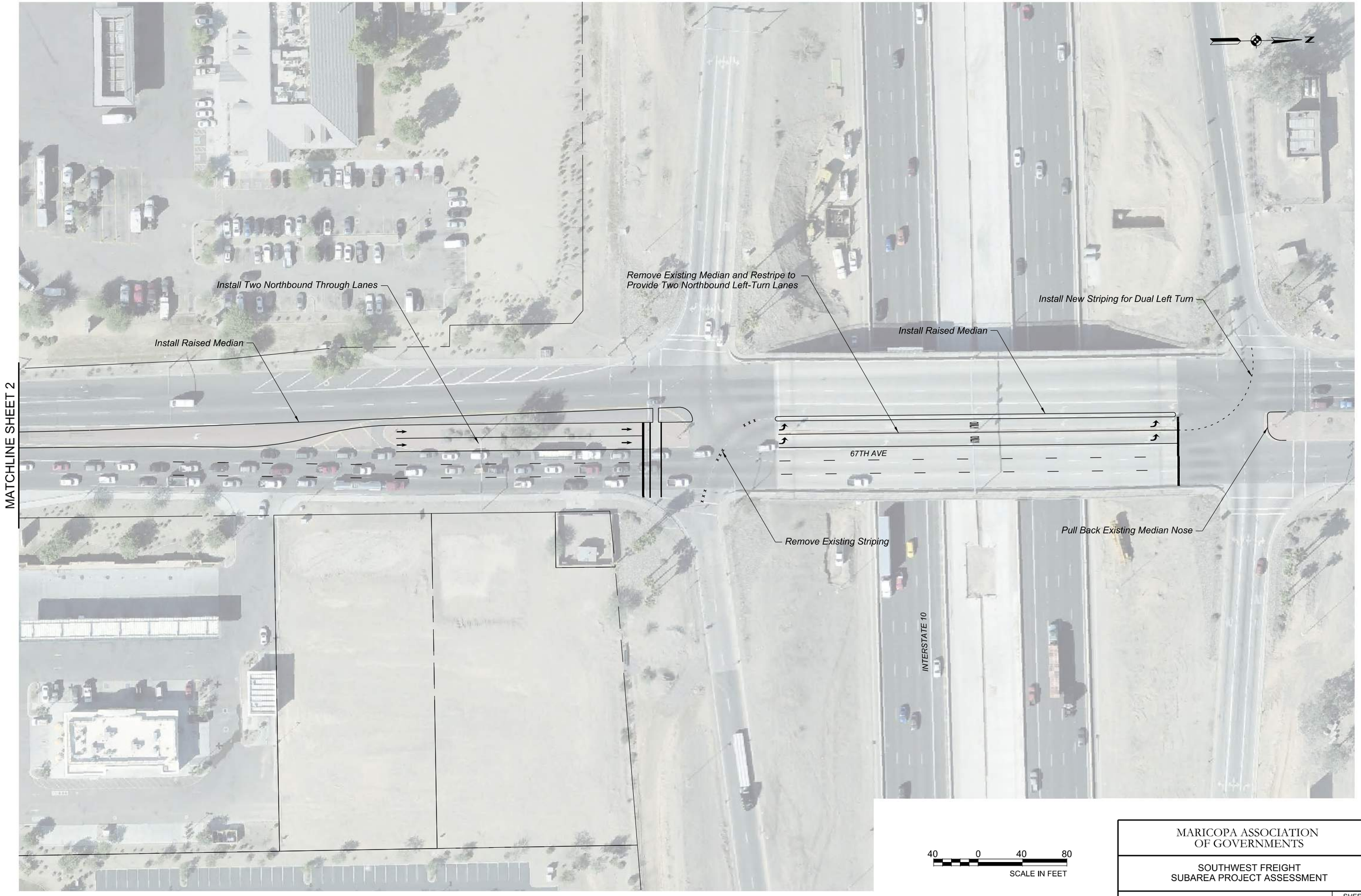
4.5 Next Steps

A Project Assessment Final Report will be developed that combines the findings and recommendations from the Existing Conditions Assessment working paper completed in November 2018 and this Improvement Recommendations working paper.

Implementation of the improvements recommended herein will need to be coordinated between the agencies that have jurisdiction over the various locations where improvements have been recommended. This jurisdictional coordination includes identifying potential funding sources and coordinating with other ongoing and upcoming projects (e.g., the recommended improvements at the traffic interchanges along I-10 will need to be coordinated between ADOT and MAG and with the upcoming planned MAG I-10 major investment study between Loop 303 and 7th Avenue).

When funding becomes available for the improvements recommended herein, additional stakeholder and public outreach should be conducted during design to confirm the community supports the recommended improvements and identify if any refinements are needed to the design concepts.

APPENDIX A – CONCEPT LAYOUTS OF RECOMMENDED IMPROVEMENT PROJECTS



MARICOPA ASSOCIATION OF GOVERNMENTS

SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT

67TH AVE AND I-10

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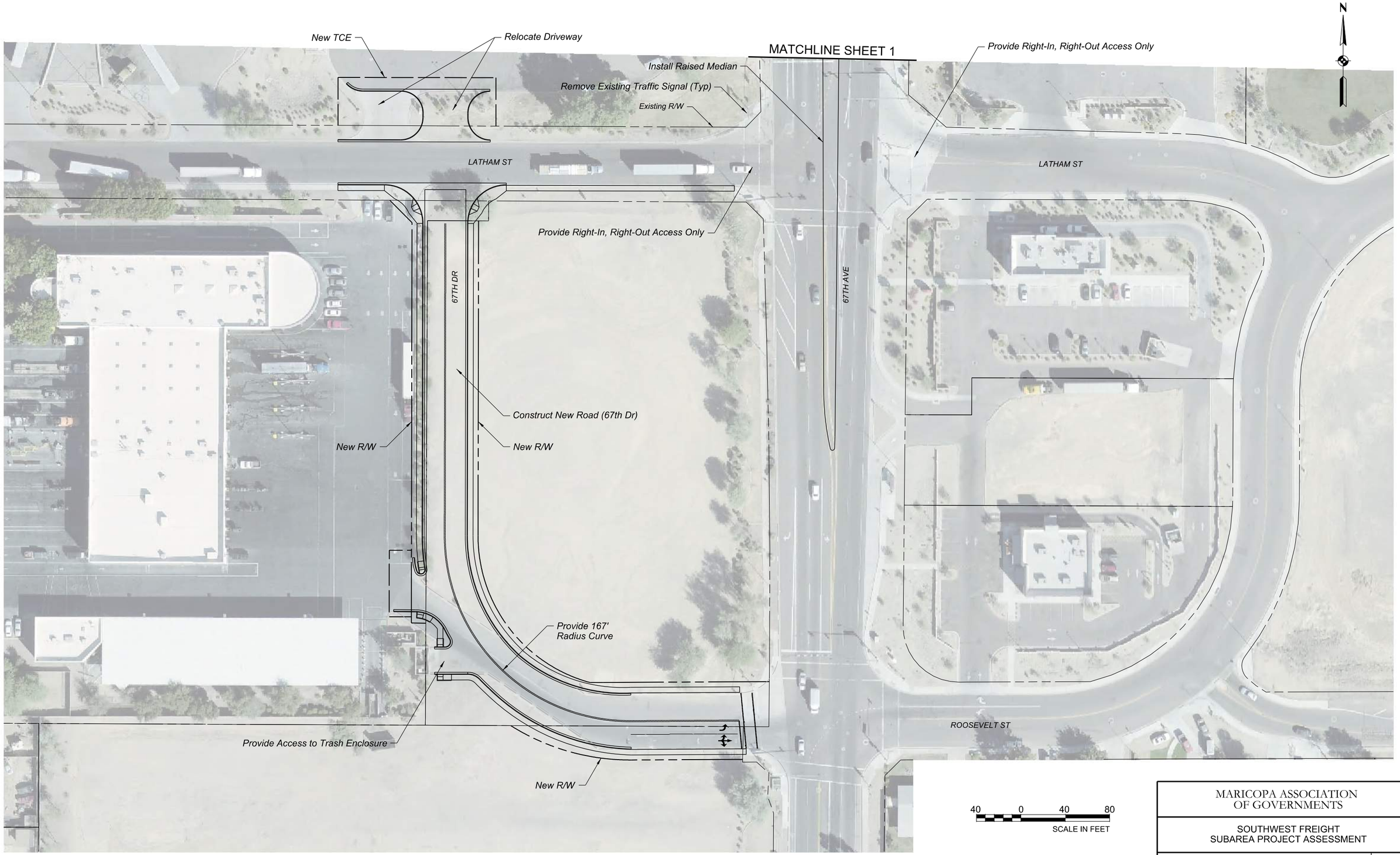

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67TH AVE AND LATHAM ST

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SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT

75TH AVE AND I-10

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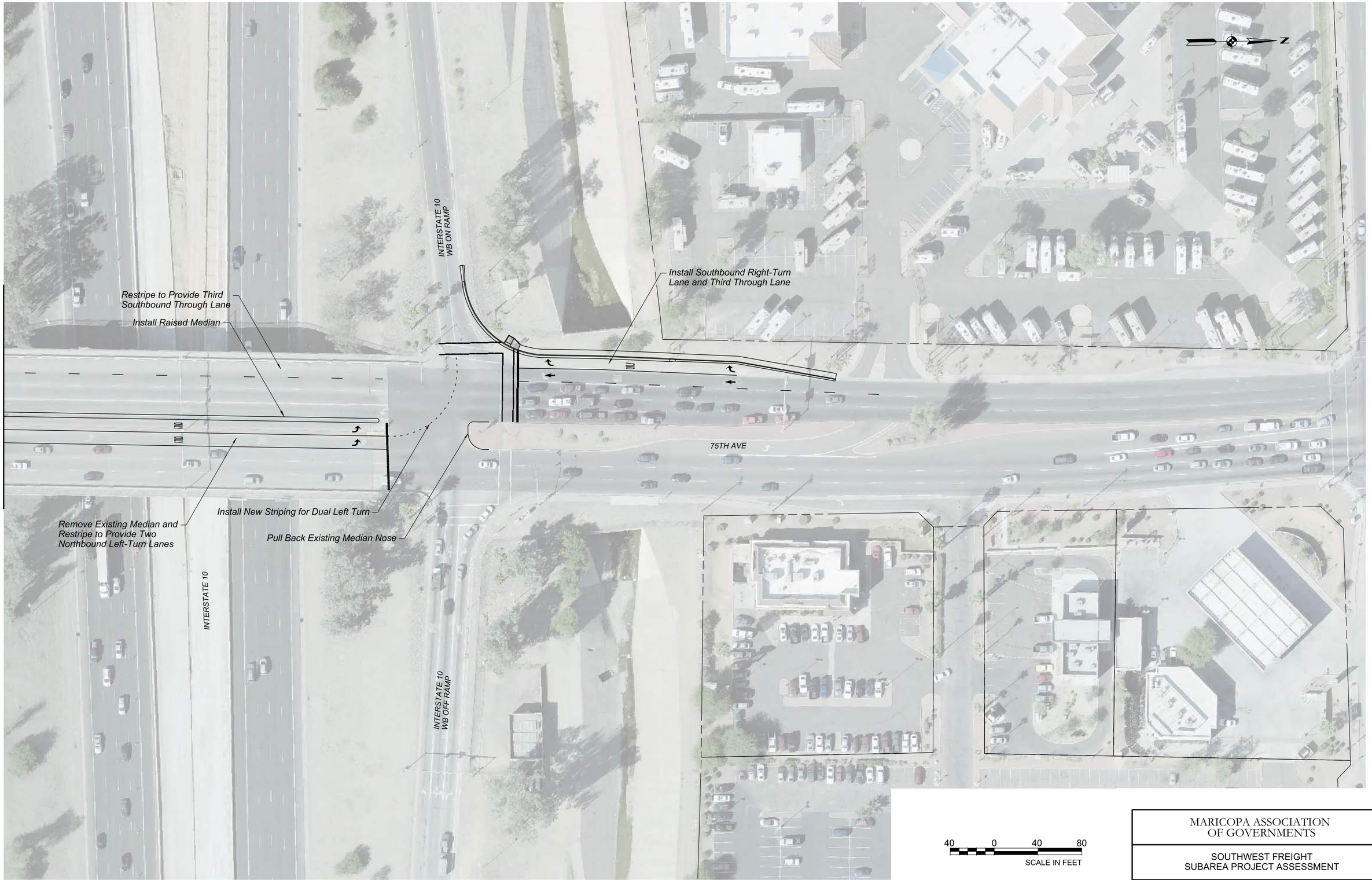

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75TH AVE AND I-10

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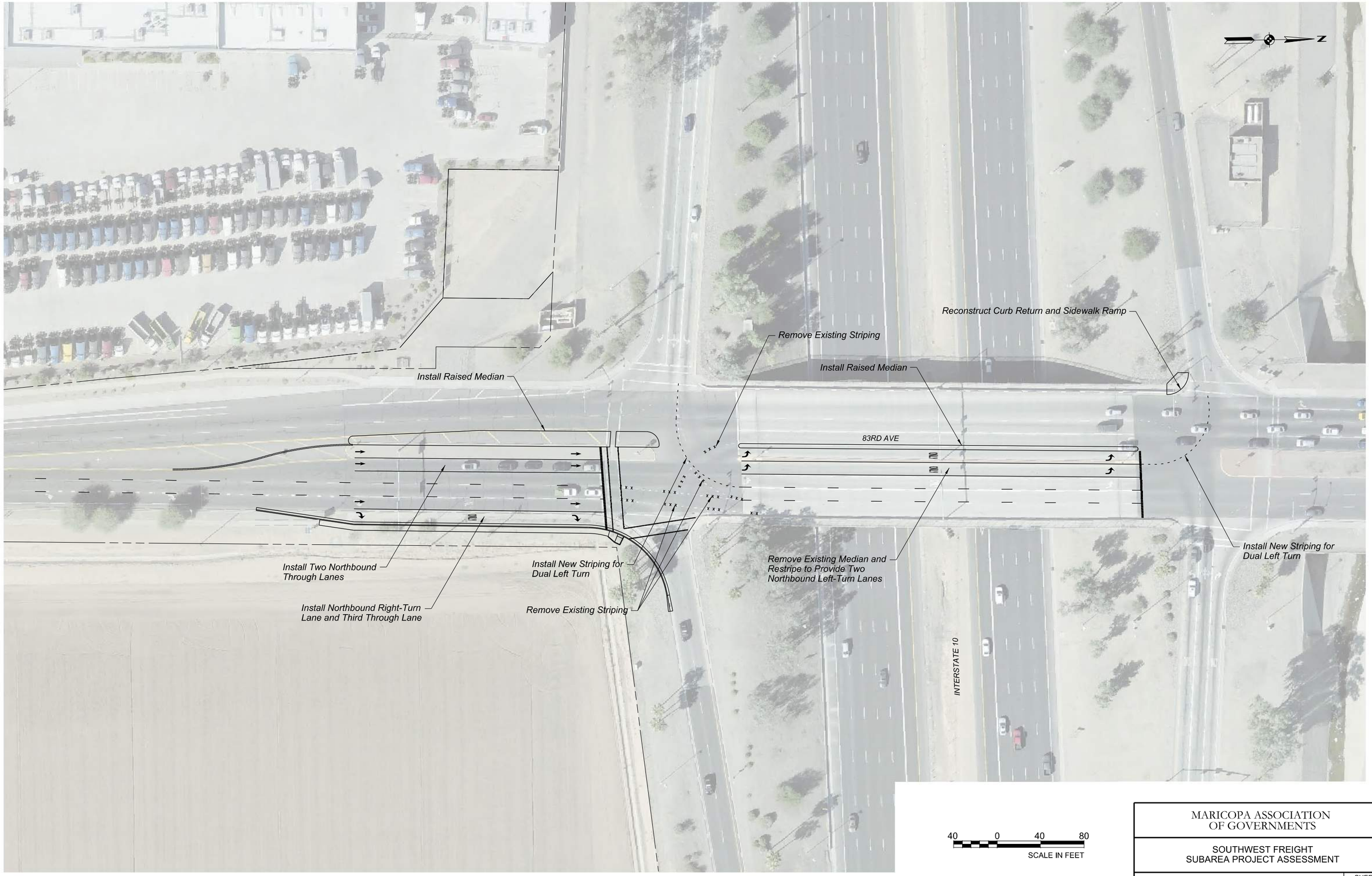

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83RD AVE AND I-10

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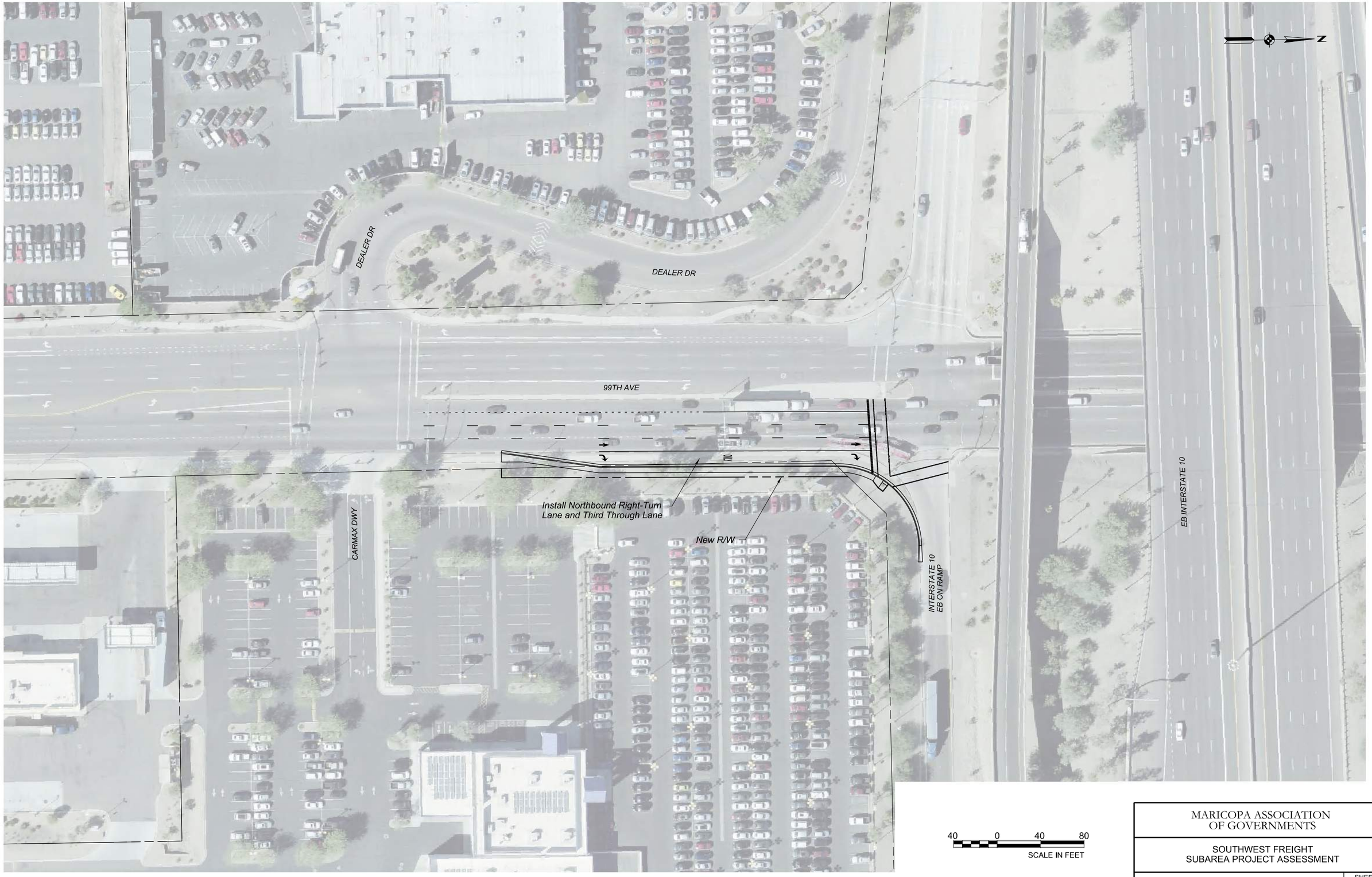

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99TH AVE AND I-10

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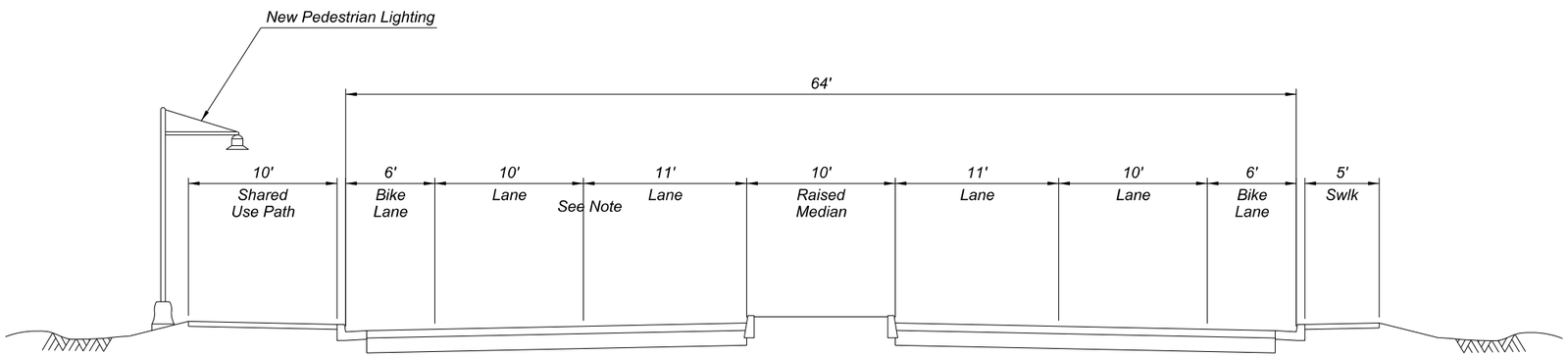

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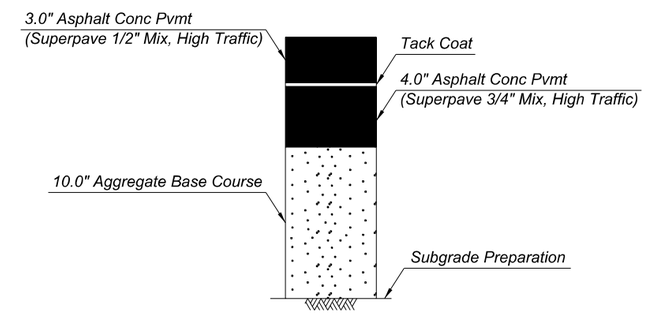
Van Buren St
59th Ave to 91st Ave



Total Thickness = 17.0"

PAVEMENT STRUCTURAL SECTION

(Not to Scale)

Note: 8' sidewalk provided in place of 10' shared use path between 87th Dr and 85th Ave due to right-of-way constraints

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SOUTHWEST FREIGHT
SUBAREA PROJECT ASSESSMENT

TYPICAL SECTION

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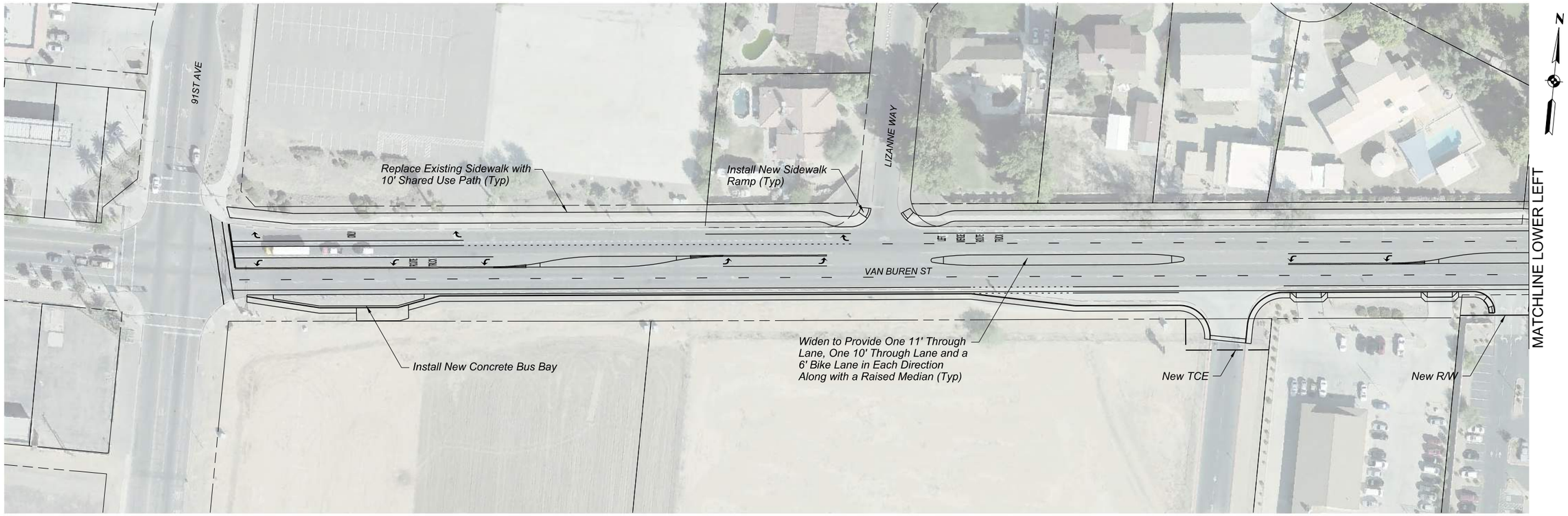

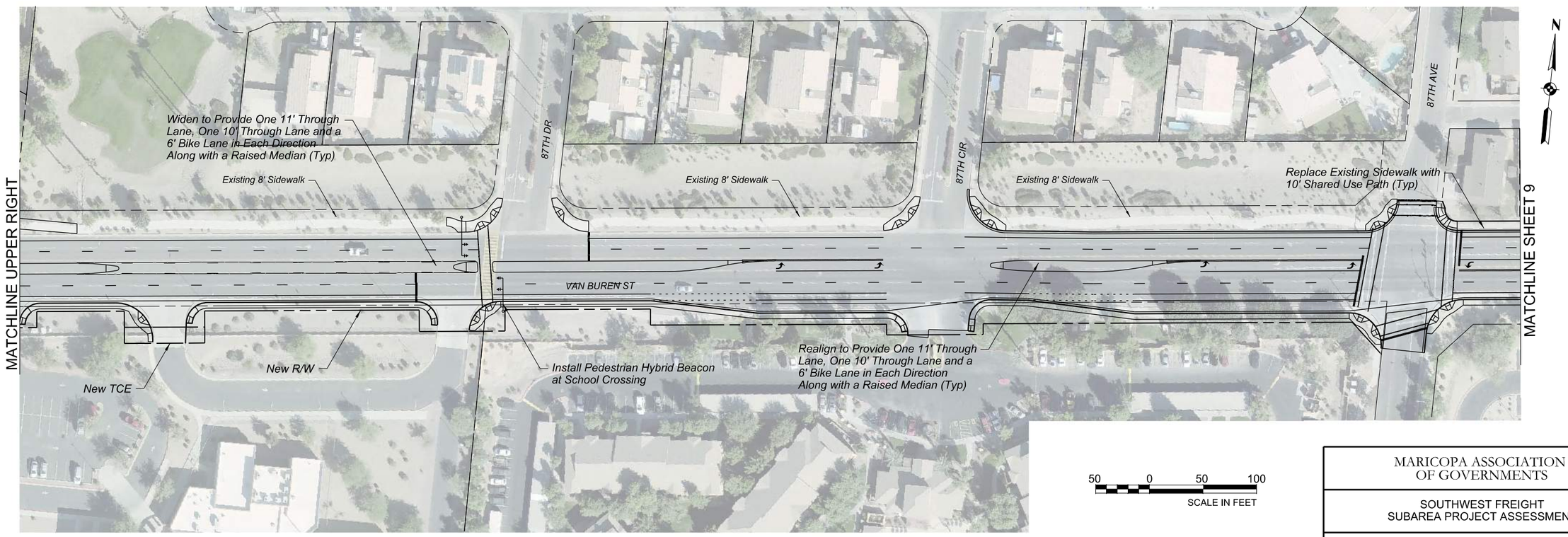

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SUBAREA PROJECT ASSESSMENT

VAN BUREN ST IMPROVEMENTS

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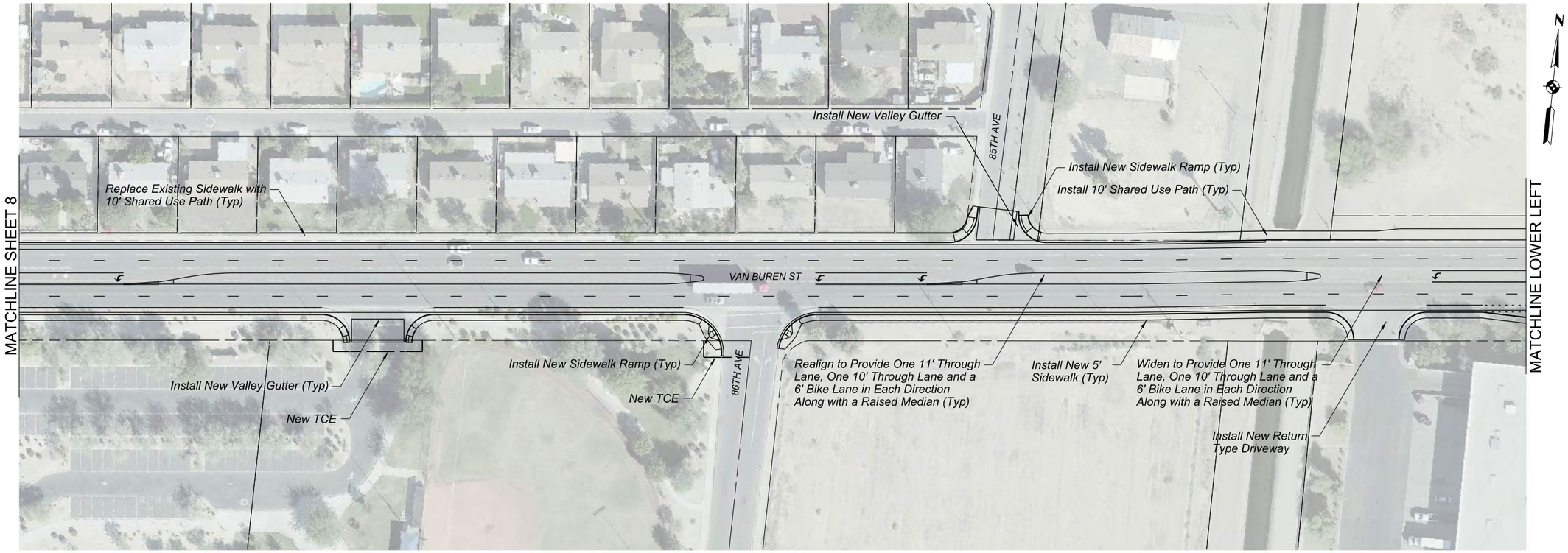

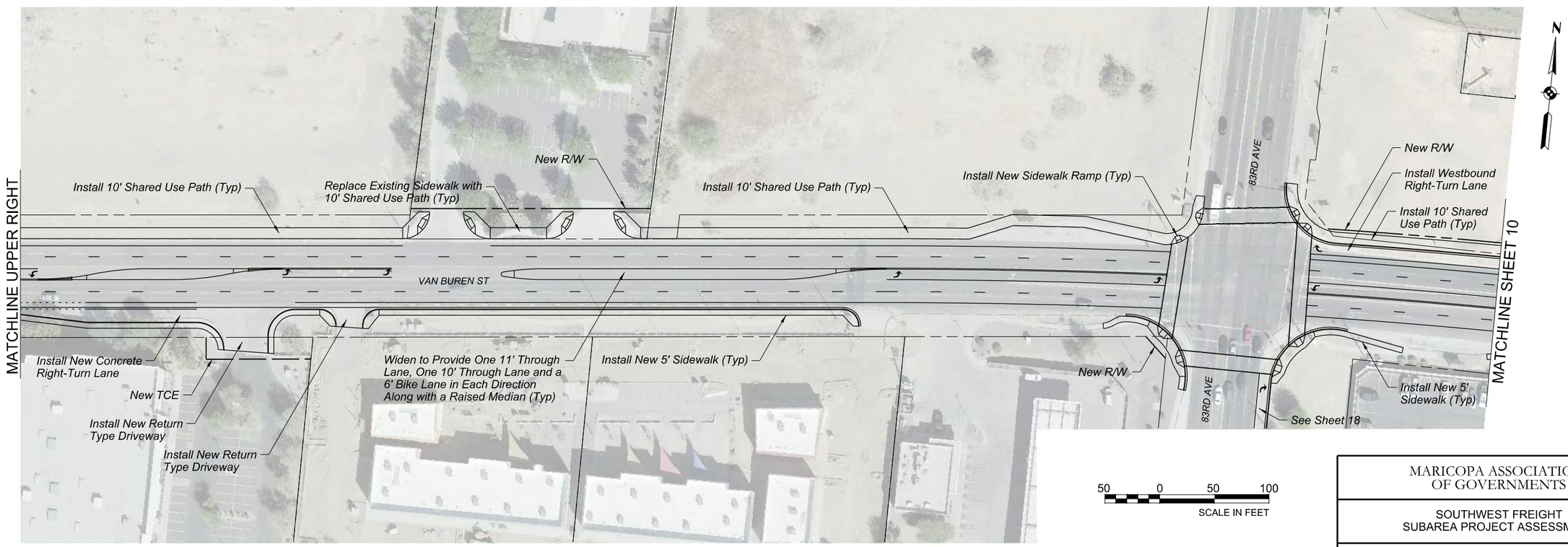

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SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT

VAN BUREN ST IMPROVEMENTS

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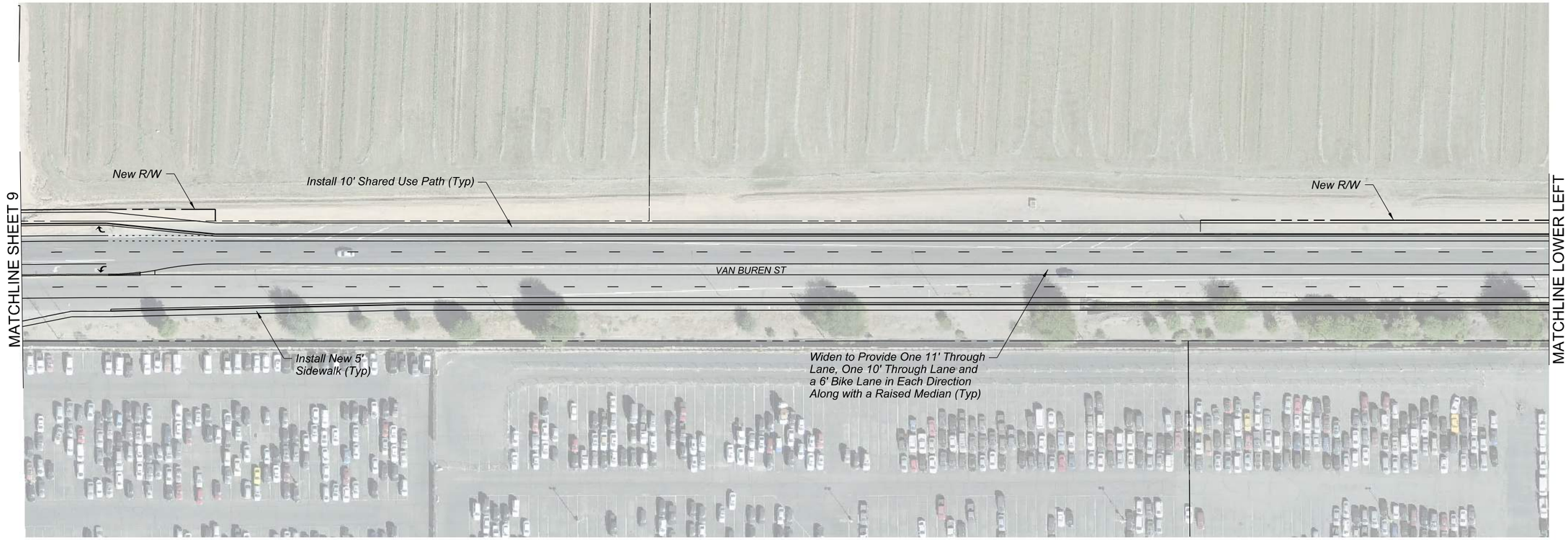

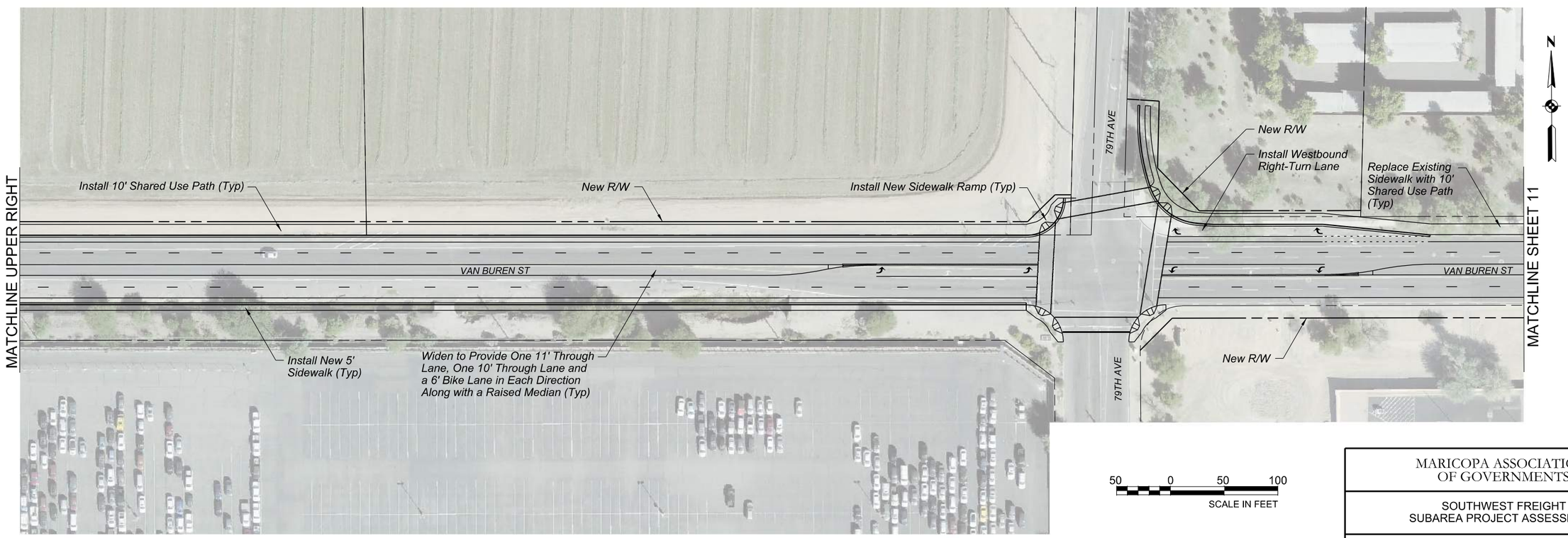

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VAN BUREN ST IMPROVEMENTS

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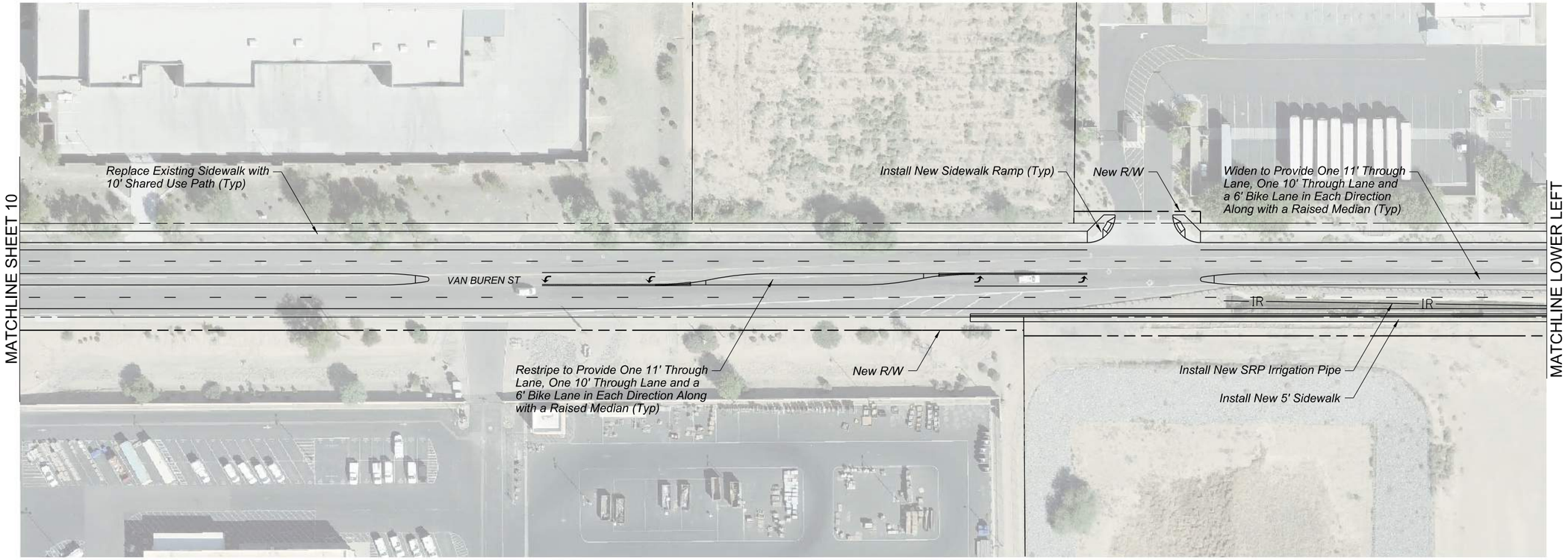

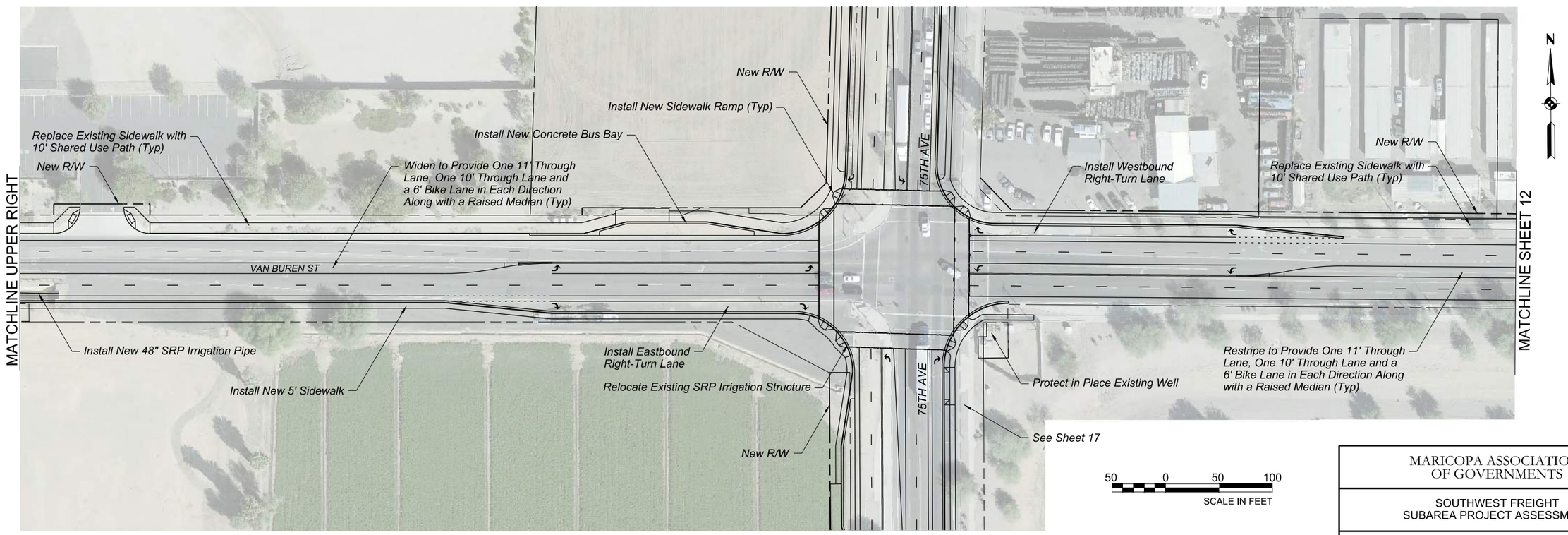

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VAN BUREN ST IMPROVEMENTS

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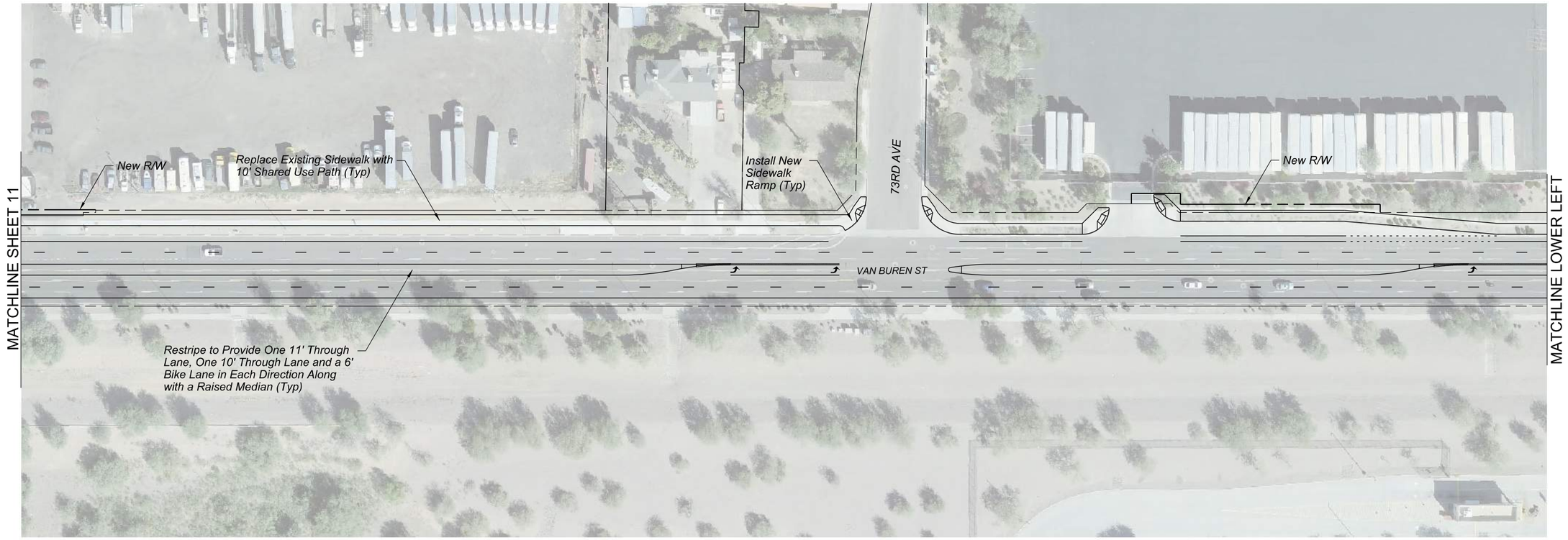

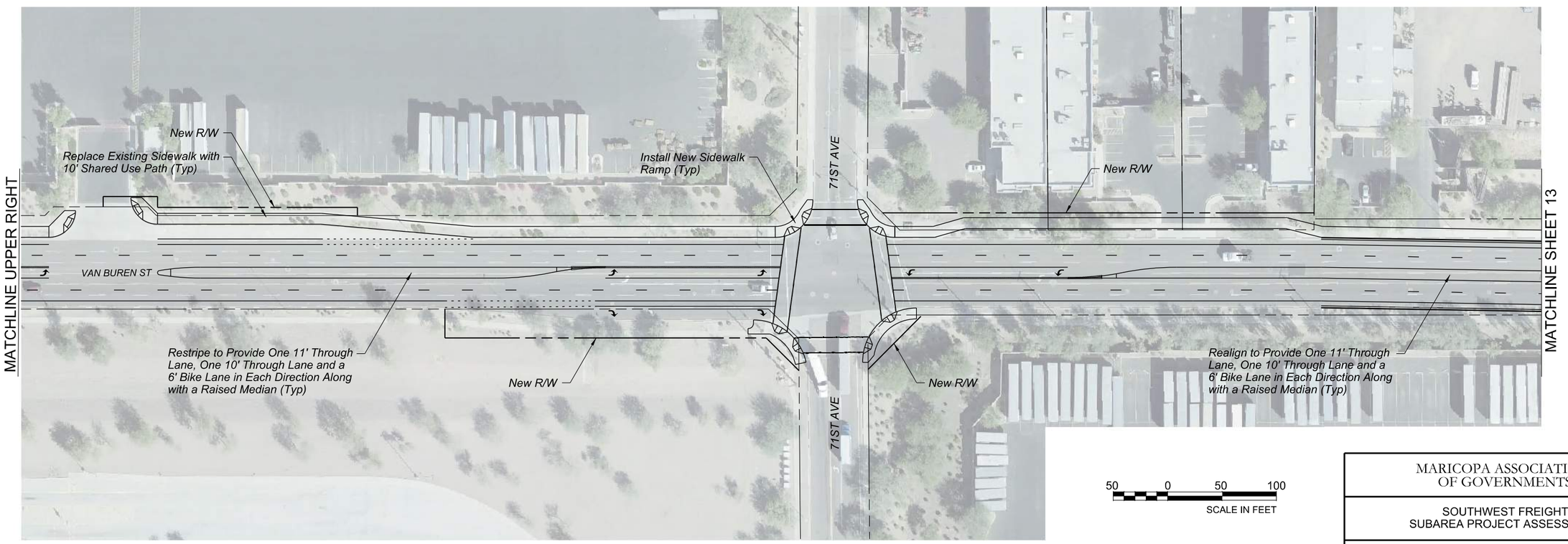

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VAN BUREN ST IMPROVEMENTS

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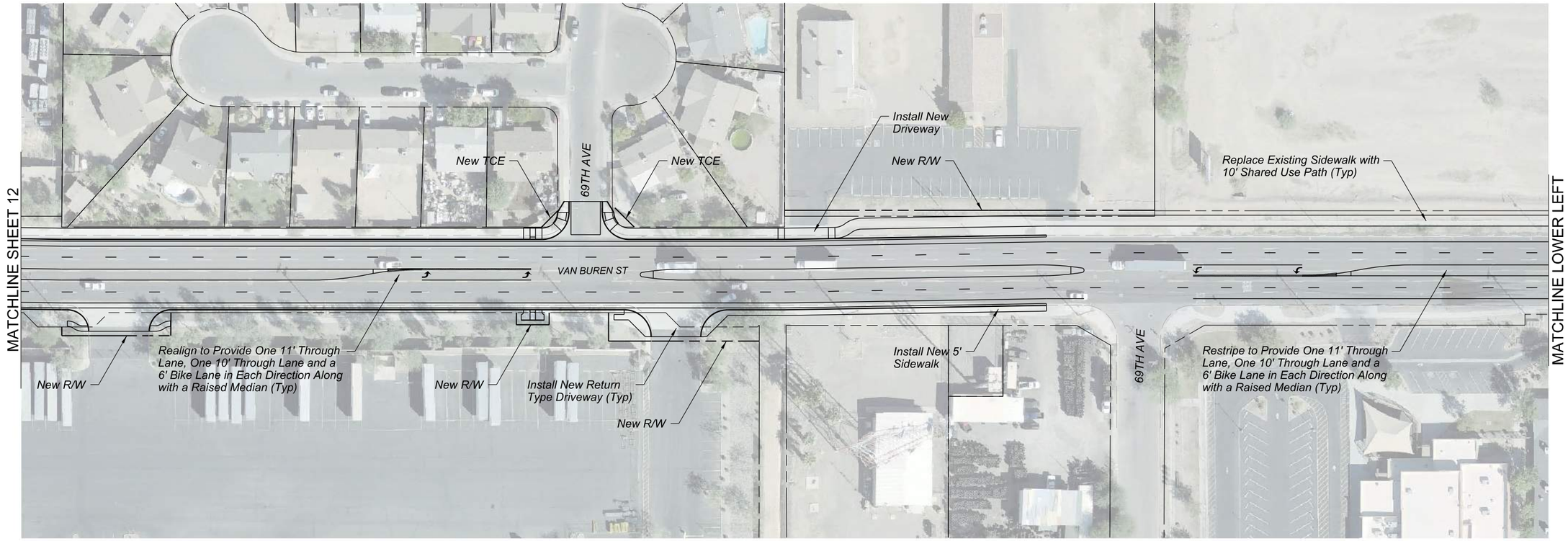

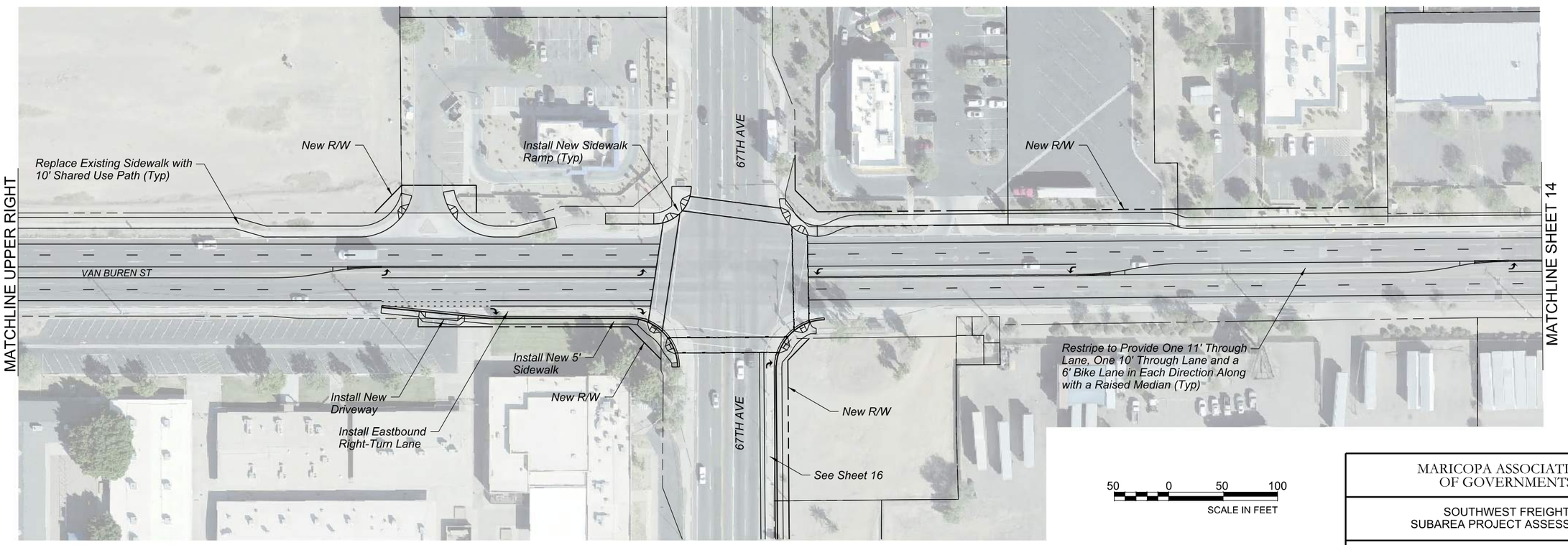

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SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT

VAN BUREN ST IMPROVEMENTS

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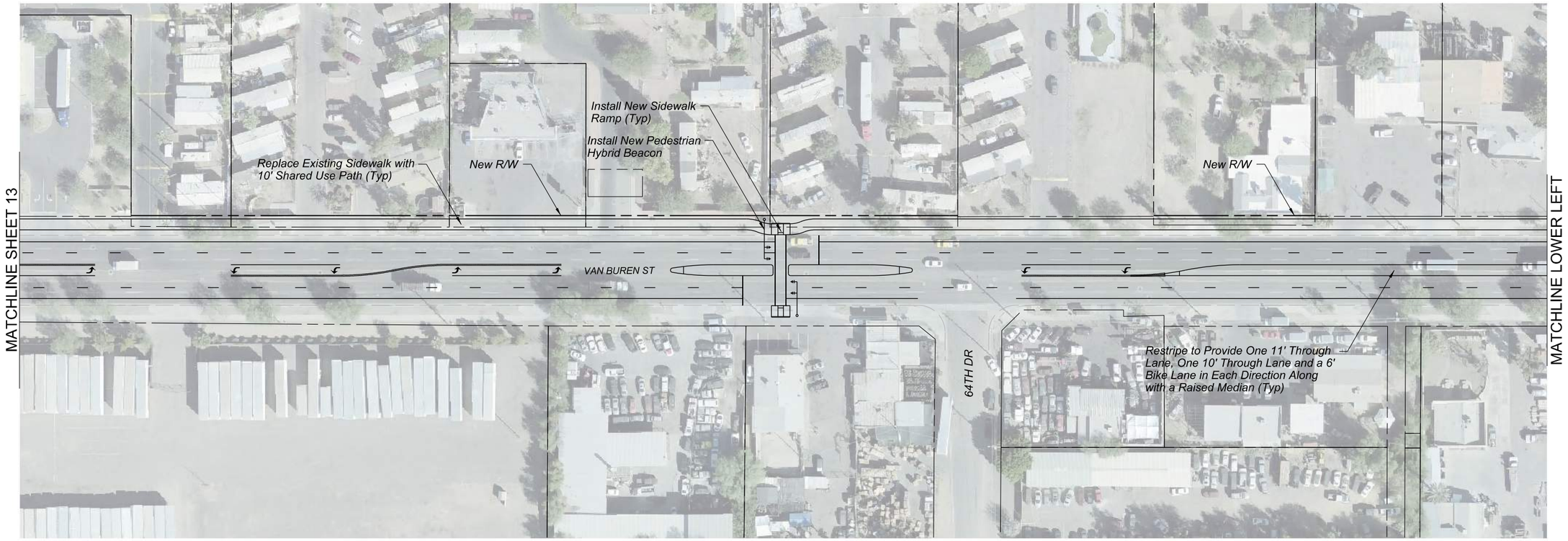

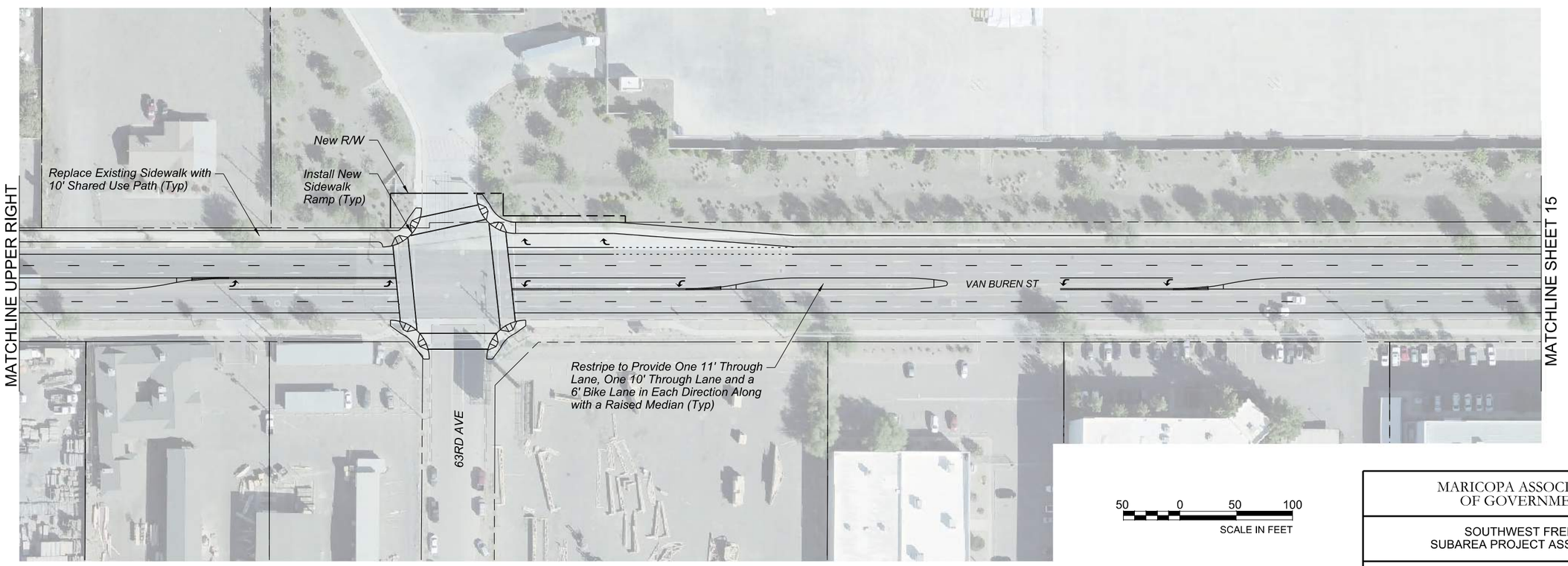

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SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT

VAN BUREN ST IMPROVEMENTS

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VAN BUREN ST IMPROVEMENTS

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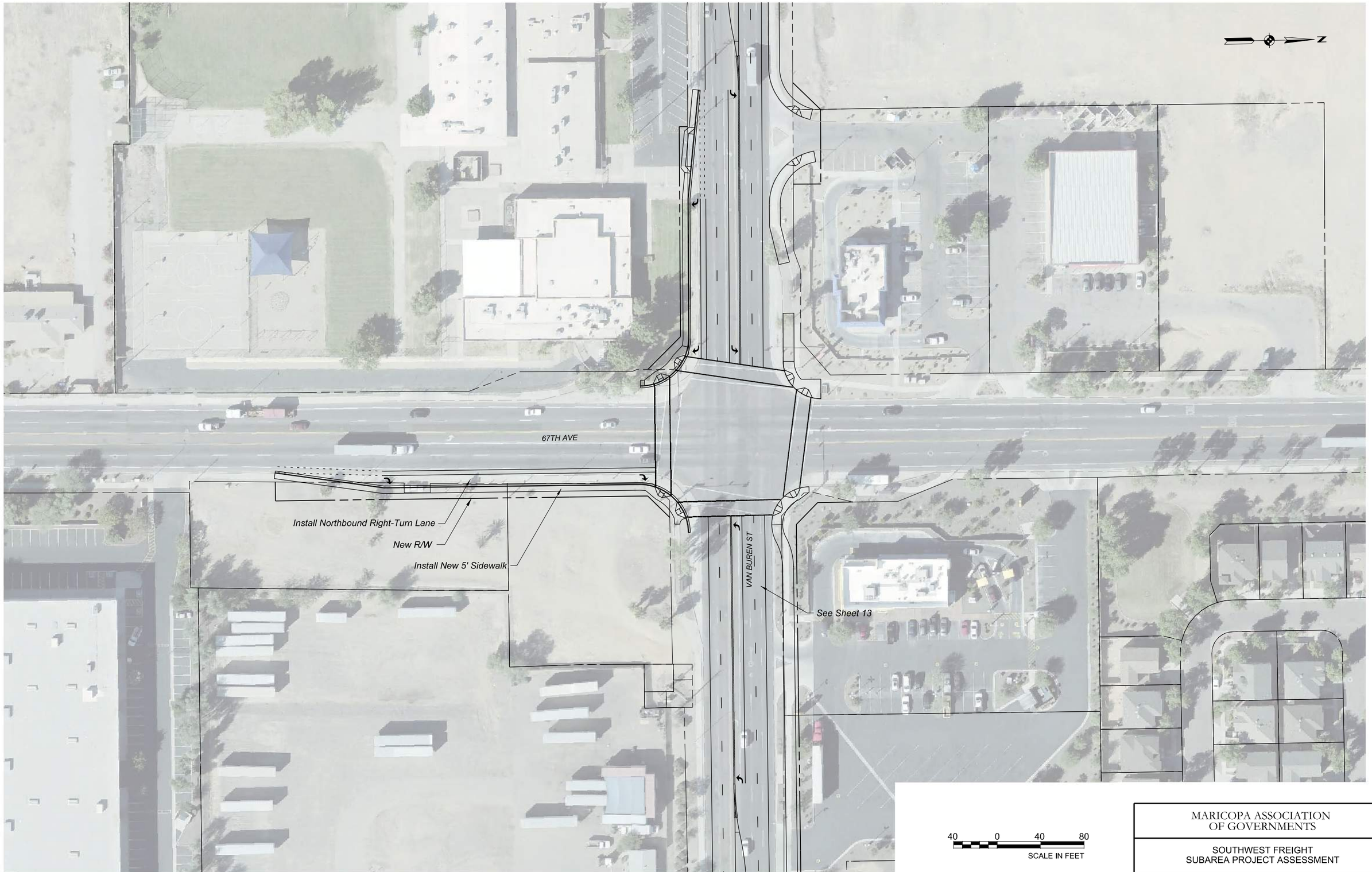

MARICOPA ASSOCIATION OF GOVERNMENTS

SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT

67TH AVE AND VAN BUREN ST

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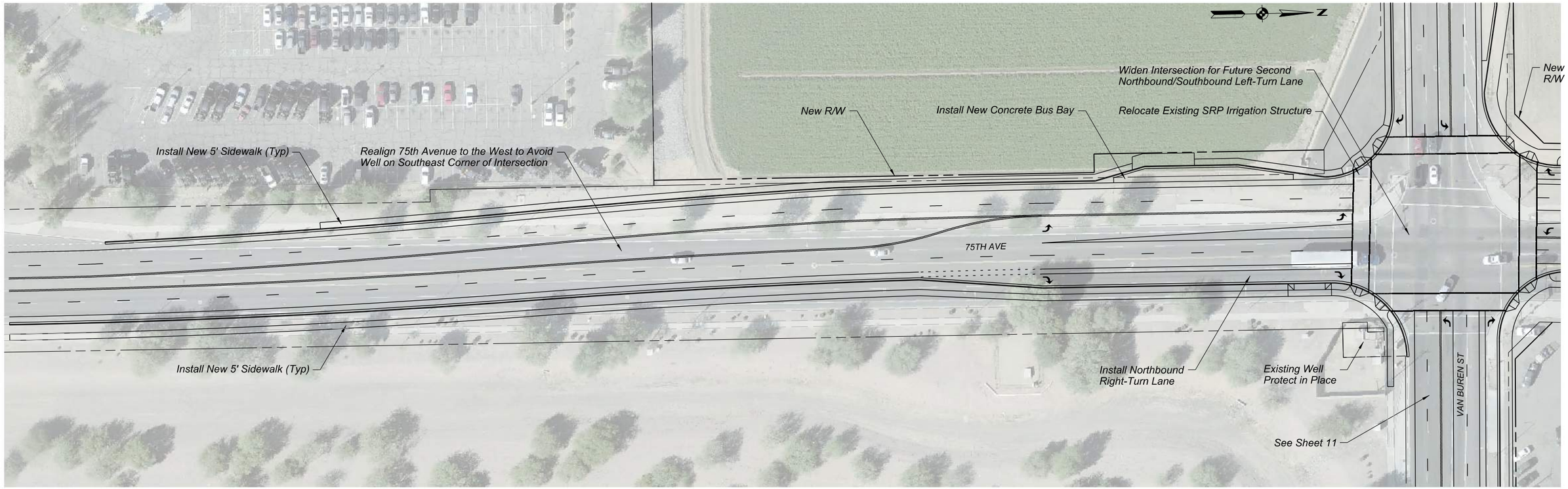

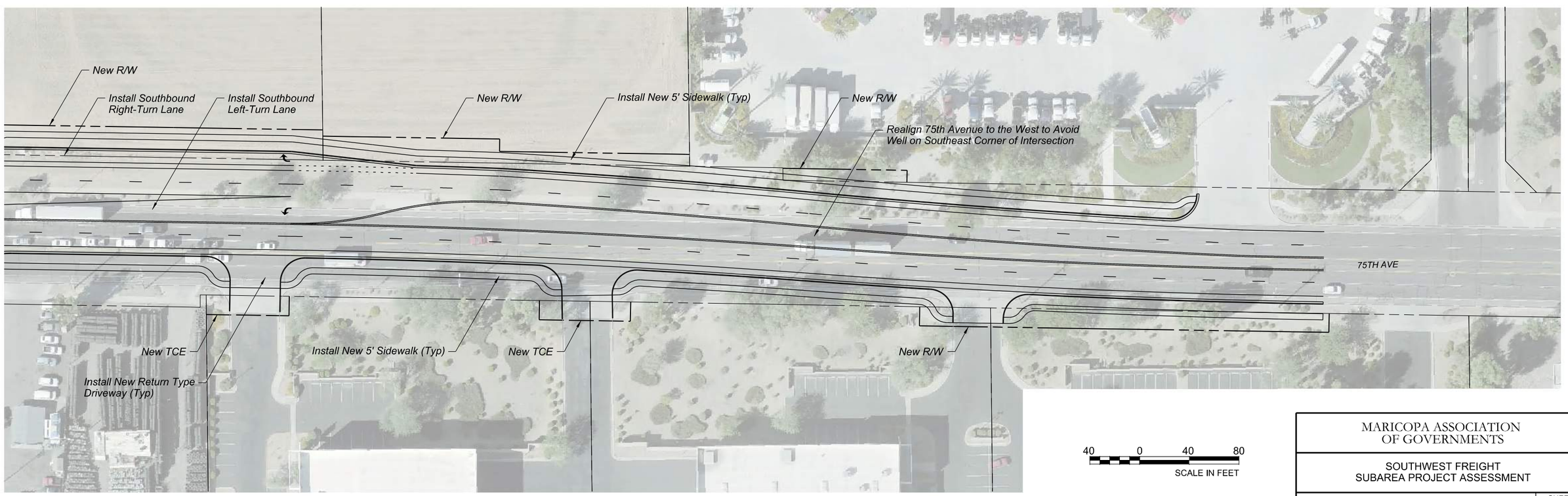

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SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT

75TH AVE AND VAN BUREN ST

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OF GOVERNMENTS

SOUTHWEST FREIGHT
SUBAREA PROJECT ASSESSMENT

83RD AVE AND VAN BUREN ST

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SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT

107TH AVE AND VAN BUREN ST

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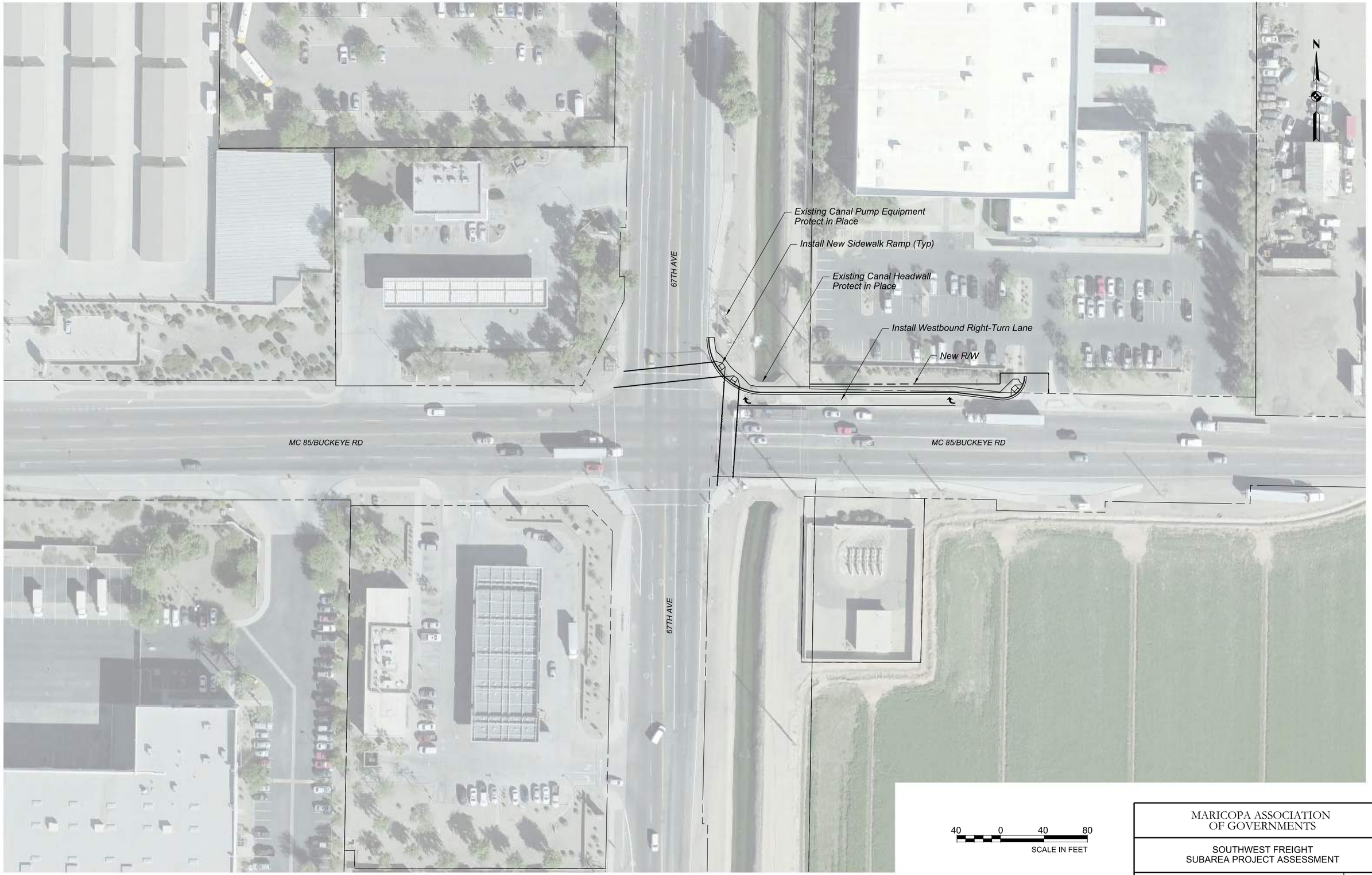

MARICOPA ASSOCIATION
OF GOVERNMENTS

SOUTHWEST FREIGHT
SUBAREA PROJECT ASSESSMENT

67TH AVE AND MC 85/BUCKEYE RD

SHEET
20 OF 21

1:48:01 PM 6/13/2019

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MARICOPA ASSOCIATION
OF GOVERNMENTS

SOUTHWEST FREIGHT
SUBAREA PROJECT ASSESSMENT

75TH AVE AND MC 85/BUCKEYE RD

SHEET
21 OF 21

1:48:03 PM 6/13/2019

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APPENDIX B – SYNCHRO DETAILED REPORTS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	511	71	193	255	55	62	444	270	101	412	93
Future Volume (vph)	72	511	71	193	255	55	62	444	270	101	412	93
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	230		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.973				0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	5124	1595	3493	4874	0	1801	3601	1611	1701	3494	0
Flt Permitted	0.553			0.950			0.304			0.239		
Satd. Flow (perm)	1009	5124	1595	3493	4874	0	576	3601	1611	428	3494	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		44				240		19	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			15.2			9.3			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.98	0.98	0.98	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles (%)	6%	3%	3%	2%	5%	7%	2%	2%	2%	8%	2%	3%
Adj. Flow (vph)	76	538	75	197	260	56	65	467	284	104	425	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	538	75	197	316	0	65	467	284	104	521	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	20.0	55.0	55.0	20.0	55.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	16.0%	44.0%	44.0%	16.0%	44.0%		16.0%	24.0%	24.0%	16.0%	24.0%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	58.9	49.0	49.0	12.0	55.6		29.9	20.0	20.0	34.6	24.2	
Actuated g/C Ratio	0.53	0.44	0.44	0.11	0.50		0.27	0.18	0.18	0.31	0.22	
v/c Ratio	0.13	0.24	0.10	0.52	0.13		0.26	0.72	0.59	0.41	0.67	
Control Delay	11.4	21.0	3.3	53.2	14.6		29.2	50.4	14.1	32.2	44.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	11.4	21.0	3.3	53.2	14.6		29.2	50.4	14.1	32.2	44.2	
LOS	B	C	A	D	B		C	D	B	C	D	
Approach Delay		18.0			29.5			36.1			42.2	
Approach LOS		B			C			D			D	
Stops (vph)	34	308	6	175	139		42	403	54	68	433	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	8	0	11	13		1	12	3	2	14	
CO Emissions (g/hr)	63	578	30	758	925		90	871	224	159	964	
NOx Emissions (g/hr)	12	112	6	148	180		18	169	44	31	188	
VOC Emissions (g/hr)	15	134	7	176	214		21	202	52	37	223	
Dilemma Vehicles (#)	0	23	0	0	11		0	17	0	0	18	
Queue Length 50th (ft)	21	85	0	69	38		32	165	27	53	177	
Queue Length 95th (ft)	49	134	22	114	66		67	240	115	99	253	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160	230			120		120	150		
Base Capacity (vph)	706	2254	753	504	2455		360	793	542	322	819	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.11	0.24	0.10	0.39	0.13		0.18	0.59	0.52	0.32	0.64	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 111.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 44.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	81	3	30	216	747	0	0	475	183
Future Volume (vph)	0	0	0	81	3	30	216	747	0	0	475	183
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.991	0.850					0.958	
Flt Protected				0.950	0.958		0.950					
Satd. Flow (prot)	0	0	0	1662	1596	1531	1685	3601	0	0	4957	0
Flt Permitted				0.950	0.958		0.950					
Satd. Flow (perm)	0	0	0	1662	1596	1531	1685	3601	0	0	4957	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					55	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		12.3			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.89	0.89	0.89	0.93	0.93	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	2%	2%	9%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	91	3	34	232	803	0	0	516	199
Shared Lane Traffic (%)				47%		10%						
Lane Group Flow (vph)	0	0	0	48	49	31	232	803	0	0	715	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				40.0	40.0	40.0					30.0	
Total Split (%)				26.7%	26.7%	26.7%					20.0%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				13.6	13.6	13.6	55.1	84.6			24.1	
Actuated g/C Ratio				0.13	0.13	0.13	0.51	0.78			0.22	
v/c Ratio				0.23	0.24	0.11	0.27	0.29			0.63	
Control Delay				47.2	46.1	0.8	15.2	0.9			38.9	
Queue Delay				0.0	0.0	0.0	1.4	0.7			0.0	
Total Delay				47.2	46.1	0.8	16.6	1.7			38.9	
LOS				D	D	A	B	A			D	
Approach Delay					35.5			5.0			38.9	
Approach LOS					D			A			D	
Stops (vph)				38	37	0	142	26			535	

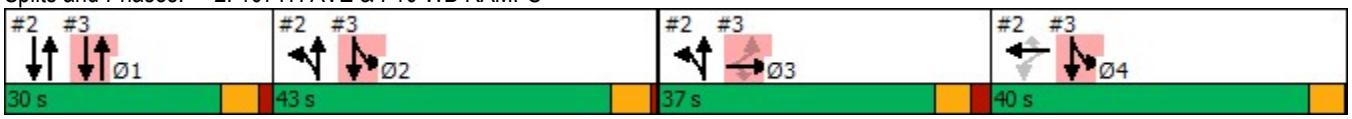
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	43.0	37.0
Total Split (%)	29%	25%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				1	1	0	3	2			16	
CO Emissions (g/hr)				79	79	12	205	152			1129	
NOx Emissions (g/hr)				15	15	2	40	30			220	
VOC Emissions (g/hr)				18	18	3	47	35			262	
Dilemma Vehicles (#)				0	1	0	0	21			30	
Queue Length 50th (ft)				31	32	0	114	7			152	
Queue Length 95th (ft)				74	78	0	m177	26			224	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				547	526	574	854	2802			1143	
Starvation Cap Reductn				0	0	0	438	1564			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.09	0.09	0.05	0.56	0.65			0.63	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 108.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 20.0 Intersection LOS: C
Intersection Capacity Utilization 44.5% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	117	433	0	0	0	0	655	214	43	525	0
Future Volume (vph)	298	117	433	0	0	0	0	655	214	43	525	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.924	0.850					0.963				
Flt Protected	0.950	0.995								0.950		
Satd. Flow (prot)	1711	1564	1501	0	0	0	0	4947	0	1717	3601	0
Flt Permitted	0.950	0.995								0.950		
Satd. Flow (perm)	1711	1564	1501	0	0	0	0	4947	0	1717	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31	339					47				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.97	0.97	0.97	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	4%	0%	0%	0%	0%	3%	2%	7%	2%	0%
Adj. Flow (vph)	359	141	522	0	0	0	0	675	221	48	590	0
Shared Lane Traffic (%)	10%		35%									
Lane Group Flow (vph)	323	360	339	0	0	0	0	896	0	48	590	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	37.0	37.0	37.0					30.0				
Total Split (%)	24.7%	24.7%	24.7%					20.0%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	31.1	31.1	31.1					24.1		30.6	65.4	
Actuated g/C Ratio	0.29	0.29	0.29					0.22		0.28	0.60	
v/c Ratio	0.66	0.77	0.51					0.79		0.10	0.27	
Control Delay	43.5	46.1	6.6					44.6		15.5	1.4	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.1	
Total Delay	43.5	46.1	6.6					44.6		15.5	1.5	
LOS	D	D	A					D		B	A	
Approach Delay		32.2						44.6			2.6	
Approach LOS		C						D			A	
Stops (vph)	231	234	28					738		35	27	

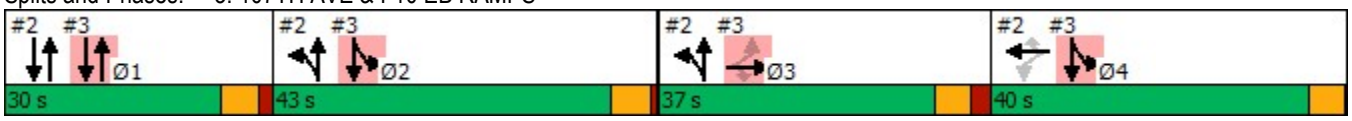
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	43.0	40.0
Total Split (%)	29%	27%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	7	2					39		1	2	
CO Emissions (g/hr)	466	510	155					2749		47	118	
NOx Emissions (g/hr)	91	99	30					535		9	23	
VOC Emissions (g/hr)	108	118	36					637		11	27	
Dilemma Vehicles (#)	0	13	0					39		0	2	
Queue Length 50th (ft)	207	230	0					205		28	9	
Queue Length 95th (ft)	324	#389	51					#310		m54	10	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	489	469	671					1135		1150	2830	
Starvation Cap Reductn	0	0	0					0		0	836	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.66	0.77	0.51					0.79		0.04	0.30	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 108.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 44.5% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	429	102	36	143	36	58	603	66	79	387	65
Future Volume (vph)	115	429	102	36	143	36	58	603	66	79	387	65
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	200		150	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1841	1580	1783	1726	1550	1801	3601	1550	1766	3532	1611
Flt Permitted	0.516			0.490			0.506			0.358		
Satd. Flow (perm)	978	1841	1580	920	1726	1550	959	3601	1550	666	3532	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			85			85			85
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			79.7			59.8	
Peak Hour Factor	0.90	0.90	0.90	0.78	0.78	0.78	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	3%	12%	6%	2%	2%	6%	4%	4%	2%
Adj. Flow (vph)	128	477	113	46	183	46	62	641	70	86	421	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	477	113	46	183	46	62	641	70	86	421	71
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	50.0	50.0	38.0	38.0	38.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	13.3%	55.6%	55.6%	42.2%	42.2%	42.2%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	26.9	24.9	24.9	16.3	16.3	16.3	21.9	21.9	21.9	21.9	21.9	21.9
Actuated g/C Ratio	0.46	0.42	0.42	0.28	0.28	0.28	0.37	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.24	0.62	0.15	0.18	0.39	0.09	0.17	0.48	0.11	0.35	0.32	0.11
Control Delay	10.6	17.4	3.2	20.6	21.8	2.1	15.6	16.5	3.5	20.0	15.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	17.4	3.2	20.6	21.8	2.1	15.6	16.5	3.5	20.0	15.0	3.5
LOS	B	B	A	C	C	A	B	B	A	C	B	A
Approach Delay		13.9			18.3			15.2			14.3	
Approach LOS		B			B			B			B	
Stops (vph)	58	305	14	29	109	2	40	429	8	57	256	8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	7	1	2	7	1	3	28	2	3	14	2
CO Emissions (g/hr)	102	499	47	122	482	89	186	1954	168	214	998	127
NOx Emissions (g/hr)	20	97	9	24	94	17	36	380	33	42	194	25
VOC Emissions (g/hr)	24	116	11	28	112	21	43	453	39	49	231	29
Dilemma Vehicles (#)	0	28	0	0	9	0	0	40	0	0	26	0
Queue Length 50th (ft)	23	116	0	12	52	0	15	91	0	22	55	0
Queue Length 95th (ft)	60	241	25	35	100	4	44	155	18	64	101	19
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170	200		150	210		160
Base Capacity (vph)	559	1401	1229	509	955	895	564	2117	946	391	2077	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.34	0.09	0.09	0.19	0.05	0.11	0.30	0.07	0.22	0.20	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 59
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 70.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: 107TH AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	808	51	27	315	222	72	514	172	184	319	76
Future Volume (vph)	158	808	51	27	315	222	72	514	172	184	319	76
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.991			0.938			0.962			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3532	0	1717	3206	0	1801	3464	0	1655	3442	0
Flt Permitted	0.282			0.178			0.485			0.206		
Satd. Flow (perm)	535	3532	0	322	3206	0	919	3464	0	359	3442	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			189			42			25	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.96	0.96	0.96	0.86	0.86	0.86
Heavy Vehicles (%)	2%	3%	4%	7%	5%	11%	2%	2%	2%	11%	4%	2%
Adj. Flow (vph)	172	878	55	31	358	252	75	535	179	214	371	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	933	0	31	610	0	75	714	0	214	459	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	49.0		12.0	49.0		14.0	39.0		10.0	35.0	
Total Split (%)	10.9%	44.5%		10.9%	44.5%		12.7%	35.5%		9.1%	31.8%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	50.4	42.9		45.4	37.1		43.0	33.0		47.1	38.0	
Actuated g/C Ratio	0.46	0.39		0.41	0.34		0.39	0.30		0.43	0.35	
v/c Ratio	0.51	0.68		0.15	0.51		0.18	0.67		0.77	0.38	
Control Delay	21.9	30.4		21.4	35.4		20.2	35.5		46.8	29.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	30.4		21.4	35.4		20.2	35.5		46.8	29.0	
LOS	C	C		C	D		C	D		D	C	
Approach Delay		29.1			34.7			34.1			34.6	
Approach LOS		C			C			C			C	
Stops (vph)	87	682		18	851		43	555		101	283	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	22		1	35		1	17		9	19	
CO Emissions (g/hr)	218	1512		91	2443		97	1197		650	1352	
NOx Emissions (g/hr)	42	294		18	475		19	233		126	263	
VOC Emissions (g/hr)	51	350		21	566		22	277		151	313	
Dilemma Vehicles (#)	0	39		0	63		0	31		0	18	
Queue Length 50th (ft)	67	287		16	172		30	221		95	126	
Queue Length 95th (ft)	102	350		32	170		62	288		#247	179	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	337	1400		241	1349		462	1067		277	1206	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.51	0.67		0.13	0.45		0.16	0.67		0.77	0.38	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 32.6 Intersection LOS: C
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

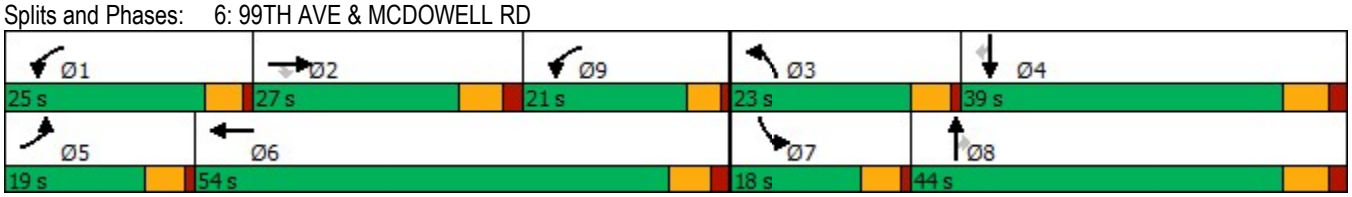
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	673	116	542	475	13	145	436	615	131	191	36
Future Volume (vph)	55	673	116	542	475	13	145	436	615	131	191	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202		2				634			200
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.84	0.84	0.84	0.94	0.94	0.94	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	3%	5%	3%	8%	8%	3%	6%	9%	4%	3%
Adj. Flow (vph)	65	801	138	577	505	14	149	449	634	135	197	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	801	138	577	519	0	149	449	634	135	197	37
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	19.0	27.0	27.0		54.0		23.0	44.0	44.0	18.0	39.0	39.0
Total Split (%)	14.1%	20.0%	20.0%		40.0%		17.0%	32.6%	32.6%	13.3%	28.9%	28.9%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	None	None	None
Act Effct Green (s)	8.0	40.3	40.3	30.3	70.2		11.4	22.2	22.2	10.6	21.3	21.3
Actuated g/C Ratio	0.06	0.31	0.31	0.23	0.53		0.09	0.17	0.17	0.08	0.16	0.16
v/c Ratio	0.31	0.74	0.22	0.75	0.28		0.53	0.53	0.65	0.52	0.24	0.09
Control Delay	66.0	47.4	1.5	30.8	18.9		66.0	52.7	6.9	67.4	49.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	47.4	1.5	30.8	18.9		66.0	52.7	6.9	67.4	49.5	0.4
LOS	E	D	A	C	B		E	D	A	E	D	A
Approach Delay		42.3			25.2			30.7			51.1	
Approach LOS		D			C			C			D	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	25.0	21.0
Total Split (%)	19%	16%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	50	586	2	474	260		132	384	44	120	159	0
Fuel Used(gal)	3	37	4	13	8		4	12	5	5	6	0
CO Emissions (g/hr)	226	2568	281	892	576		311	840	352	341	435	31
NOx Emissions (g/hr)	44	500	55	173	112		60	163	69	66	85	6
VOC Emissions (g/hr)	52	595	65	207	133		72	195	82	79	101	7
Dilemma Vehicles (#)	0	25	0	0	15		0	13	0	0	6	0
Queue Length 50th (ft)	28	327	0	113	129		64	130	0	58	54	0
Queue Length 95th (ft)	53	423	0	168	198		107	178	55	101	85	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	368	1084	620	919	1860		446	1442	1220	319	1237	539
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.74	0.22	0.63	0.28		0.33	0.31	0.52	0.42	0.16	0.07

Intersection Summary	
Area Type: Other	
Cycle Length: 135	
Actuated Cycle Length: 131.6	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 34.3	Intersection LOS: C
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: 99TH AVE & MCDOWELL RD



Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	335	251	173	171	1107	0	0	774	69
Future Volume (vph)	0	0	0	335	251	173	171	1107	0	0	774	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.994	0.850					0.988	
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1381	2866	1379	1466	4868	0	0	6012	0
Flt Permitted				0.950	0.983		0.176					
Satd. Flow (perm)	0	0	0	1381	2866	1379	272	4868	0	0	6012	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	116					13	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.96	0.96	0.96	0.94	0.94	0.94	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	15%	4%	3%	19%	3%	0%	0%	4%	2%
Adj. Flow (vph)	0	0	0	349	261	180	182	1178	0	0	900	80
Shared Lane Traffic (%)				41%		10%						
Lane Group Flow (vph)	0	0	0	206	422	162	182	1178	0	0	980	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2 4	1 2 4			1	
Permitted Phases				3		3	1 2 4					
Detector Phase				3	3	3	2 4	1 2 4			1	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0					20.0	
Minimum Split (s)				45.8	45.8	45.8					28.9	
Total Split (s)				40.0	40.0	40.0					45.0	
Total Split (%)				26.7%	26.7%	26.7%					30.0%	
Yellow Time (s)				3.9	3.9	3.9					4.7	
All-Red Time (s)				1.9	1.9	1.9					1.2	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				5.8	5.8	5.8					5.9	
Lead/Lag				Lead	Lead	Lead					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					C-Min	
Act Effct Green (s)				33.5	33.5	33.5	93.0	104.8			42.8	
Actuated g/C Ratio				0.22	0.22	0.22	0.62	0.70			0.29	
v/c Ratio				0.67	0.66	0.41	0.32	0.35			0.57	
Control Delay				64.8	58.2	18.8	11.2	0.5			47.4	
Queue Delay				0.0	0.0	0.0	0.0	0.1			0.0	
Total Delay				64.8	58.2	18.8	11.2	0.7			47.4	
LOS				E	E	B	B	A			D	
Approach Delay					51.9			2.1			47.4	
Approach LOS					D			A			D	
Stops (vph)				180	360	42	103	15			698	

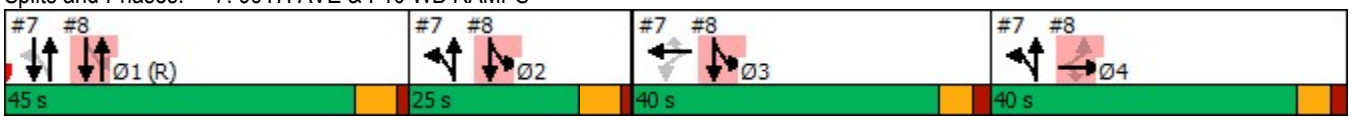
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	10.0
Minimum Split (s)	30.0	47.8
Total Split (s)	25.0	40.0
Total Split (%)	17%	27%
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.2	1.9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				7	14	3	2	4			22	
CO Emissions (g/hr)				491	959	198	158	290			1522	
NOx Emissions (g/hr)				96	187	39	31	56			296	
VOC Emissions (g/hr)				114	222	46	37	67			353	
Dilemma Vehicles (#)				0	13	0	0	2			28	
Queue Length 50th (ft)				203	218	39	69	5			244	
Queue Length 95th (ft)				307	286	118	130	5			268	
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				314	654	403	595	3388			1724	
Starvation Cap Reductn				0	0	0	0	970			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.66	0.65	0.40	0.31	0.49			0.57	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of 1st Green
Natural Cycle: 155
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 28.8 Intersection LOS: C
Intersection Capacity Utilization 44.0% ICU Level of Service A
Analysis Period (min) 15
Description: WB I-10 Off ramp

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	353	90	258	0	0	0	0	884	206	85	1066	0
Future Volume (vph)	353	90	258	0	0	0	0	884	206	85	1066	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		140	0		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.977								0.950		
Satd. Flow (prot)	1557	2845	1292	0	0	0	0	4686	1334	1711	4643	0
Flt Permitted	0.950	0.977								0.167		
Satd. Flow (perm)	1557	2845	1292	0	0	0	0	4686	1334	301	4643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27	108						215			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			8.1	
Peak Hour Factor	0.91	0.91	0.91	0.25	0.25	0.25	0.96	0.96	0.96	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	7%	17%	2%	8%	0%
Adj. Flow (vph)	388	99	284	0	0	0	0	921	215	97	1211	0
Shared Lane Traffic (%)	48%		37%									
Lane Group Flow (vph)	202	390	179	0	0	0	0	921	215	97	1211	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						1		2 3	1 2 3	
Permitted Phases	4		4						1	1 2 3		
Detector Phase	4	4	4					1	1	2 3	1 2 3	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	47.8	47.8	47.8					28.9	28.9			
Total Split (s)	40.0	40.0	40.0					45.0	45.0			
Total Split (%)	26.7%	26.7%	26.7%					30.0%	30.0%			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.8	5.8	5.8					5.9	5.9			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	None	None	None					C-Min	C-Min			
Act Effct Green (s)	31.2	31.2	31.2					42.8	42.8	101.2	107.1	
Actuated g/C Ratio	0.21	0.21	0.21					0.29	0.29	0.67	0.71	
v/c Ratio	0.63	0.64	0.51					0.69	0.40	0.13	0.37	
Control Delay	62.7	55.0	25.6					51.7	7.6	6.1	2.2	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.4	
Total Delay	62.7	55.0	25.6					51.7	7.6	6.1	2.6	
LOS	E	D	C					D	A	A	A	
Approach Delay		50.2						43.4			2.8	
Approach LOS		D						D			A	
Stops (vph)	165	296	59					776	21	28	103	

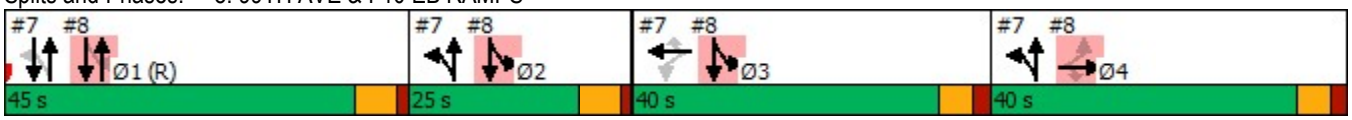
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	30.0	45.8
Total Split (s)	25.0	40.0
Total Split (%)	17%	27%
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.2	1.9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	12	3					41	6	1	5	
CO Emissions (g/hr)	458	825	244					2872	401	52	381	
NOx Emissions (g/hr)	89	160	47					559	78	10	74	
VOC Emissions (g/hr)	106	191	56					666	93	12	88	
Dilemma Vehicles (#)	0	11	0					29	0	0	19	
Queue Length 50th (ft)	194	186	63					306	0	13	23	
Queue Length 95th (ft)	292	250	150					360	69	m41	27	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						140			
Base Capacity (vph)	354	669	377					1337	534	759	3337	
Starvation Cap Reductn	0	0	0					0	0	0	1376	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.57	0.58	0.47					0.69	0.40	0.13	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of 1st Green
Natural Cycle: 155
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 28.5 Intersection LOS: C
Intersection Capacity Utilization 44.0% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	368	64	86	119	139	87	639	196	178	442	89
Future Volume (vph)	120	368	64	86	119	139	87	639	196	178	442	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1586	1801	1280	1711	3323	1531	1601	4600	1487	1711	2983	1290
Flt Permitted	0.642			0.428			0.299			0.272		
Satd. Flow (perm)	1072	1801	1280	771	3323	1531	504	4600	1487	490	2983	1290
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			191			190			190
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.94	0.94	0.94	0.77	0.77	0.77	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	10%	2%	22%	2%	5%	2%	9%	9%	5%	2%	17%	21%
Adj. Flow (vph)	128	391	68	112	155	181	96	702	215	193	480	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	391	68	112	155	181	96	702	215	193	480	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	53.0	53.0	14.0	53.0	53.0	16.0	59.0	59.0	14.0	57.0	57.0
Total Split (%)	10.0%	37.9%	37.9%	10.0%	37.9%	37.9%	11.4%	42.1%	42.1%	10.0%	40.7%	40.7%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	70.5	61.3	61.3	68.1	60.2	60.2	35.9	29.3	29.3	32.3	27.5	27.5
Actuated g/C Ratio	0.50	0.44	0.44	0.49	0.43	0.43	0.26	0.21	0.21	0.23	0.20	0.20
v/c Ratio	0.22	0.50	0.10	0.26	0.11	0.24	0.53	0.73	0.47	1.25	0.82	0.24
Control Delay	17.3	32.8	0.3	11.0	13.8	3.0	46.6	55.9	11.7	192.9	65.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	32.8	0.3	11.0	13.8	3.0	46.6	55.9	11.7	192.9	65.4	1.4
LOS	B	C	A	B	B	A	D	E	B	F	E	A
Approach Delay		25.7			8.8			45.7			89.3	
Approach LOS		C			A			D			F	
Stops (vph)	62	266	0	36	64	38	69	578	33	154	413	0

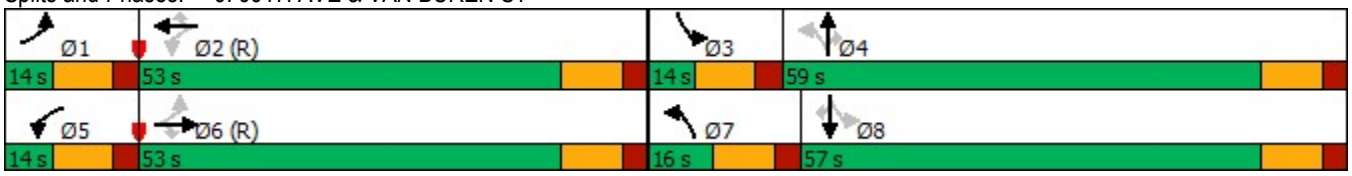
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	18	2	4	6	6	5	37	8	13	22	2
CO Emissions (g/hr)	371	1286	154	288	408	445	328	2553	534	934	1543	157
NOx Emissions (g/hr)	72	250	30	56	79	86	64	497	104	182	300	31
VOC Emissions (g/hr)	86	298	36	67	95	103	76	592	124	216	358	36
Dilemma Vehicles (#)	0	13	0	0	2	0	0	18	0	0	13	0
Queue Length 50th (ft)	54	252	0	18	33	30	64	220	19	~176	223	0
Queue Length 95th (ft)	101	404	0	m26	m42	m34	103	250	86	#296	270	0
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	573	788	667	429	1427	767	183	1636	651	155	1018	565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.50	0.10	0.26	0.11	0.24	0.52	0.43	0.33	1.25	0.47	0.17

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 47.5 Intersection LOS: D
Intersection Capacity Utilization 66.7% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	1028	60	37	296	141	129	614	129	131	257	71
Future Volume (vph)	176	1028	60	37	296	141	129	614	129	131	257	71
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.992				0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3506	0	1655	3251	1217	1801	3490	0	1446	1841	1580
Flt Permitted	0.499			0.097			0.537			0.118		
Satd. Flow (perm)	946	3506	0	169	3251	1217	1018	3490	0	180	1841	1580
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				164		22				116
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4799			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.88	0.88	0.88	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	11%	13%	35%	2%	2%	5%	27%	5%	4%
Adj. Flow (vph)	196	1142	67	43	344	164	147	698	147	135	265	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	1209	0	43	344	164	147	845	0	135	265	73
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0
Total Split (s)	10.0	47.0		10.0	47.0	47.0	12.0	35.0		18.0	41.0	41.0
Total Split (%)	9.1%	42.7%		9.1%	42.7%	42.7%	10.9%	31.8%		16.4%	37.3%	37.3%
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4		3.0	4.4	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4		4.0	6.4	6.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effct Green (s)	51.7	45.4		49.4	41.1	41.1	40.1	30.0		46.9	33.8	33.8
Actuated g/C Ratio	0.47	0.41		0.45	0.37	0.37	0.36	0.27		0.43	0.31	0.31
v/c Ratio	0.40	0.83		0.29	0.28	0.29	0.35	0.87		0.65	0.47	0.13
Control Delay	13.7	29.0		23.0	19.7	5.4	21.9	48.7		35.3	33.8	1.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	13.7	29.0		23.0	19.7	5.4	21.9	48.7		35.3	33.8	1.9
LOS	B	C		C	B	A	C	D		D	C	A
Approach Delay		26.9			15.7			44.7			29.3	
Approach LOS		C			B			D			C	
Stops (vph)	66	956		25	149	28	85	649		82	203	3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	58		2	13	5	3	22		6	13	3
CO Emissions (g/hr)	518	4026		125	931	369	191	1520		453	920	176
NOx Emissions (g/hr)	101	783		24	181	72	37	296		88	179	34
VOC Emissions (g/hr)	120	933		29	216	85	44	352		105	213	41
Dilemma Vehicles (#)	0	21		0	4	0	0	32		0	9	0
Queue Length 50th (ft)	45	471		17	82	0	61	291		57	149	0
Queue Length 95th (ft)	m72	#586		32	67	17	101	#400		110	228	11
Internal Link Dist (ft)		5209			4719			274			849	
Turn Bay Length (ft)	160			170		250	190			250		250
Base Capacity (vph)	493	1449		157	1215	557	430	967		239	579	576
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.40	0.83		0.27	0.28	0.29	0.34	0.87		0.56	0.46	0.13

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 34 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 30.6 Intersection LOS: C
Intersection Capacity Utilization 69.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85

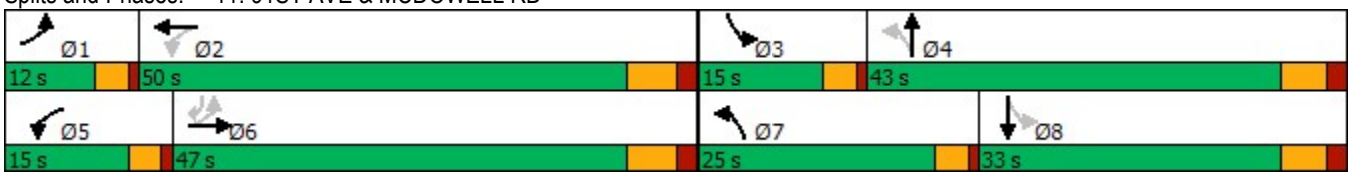
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	527	196	148	319	76	322	706	203	131	497	64
Future Volume (vph)	106	527	196	148	319	76	322	706	203	131	497	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.959			0.971			0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3226	0	1662	3258	0	1711	3308	0	1711	3355	1531
Flt Permitted	0.442			0.145			0.219			0.149		
Satd. Flow (perm)	796	3226	0	254	3258	0	394	3308	0	268	3355	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			27			32				136
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			14.5			54.8	
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.96	0.96	0.96	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	3%	5%	4%	4%	2%	2%	2%	2%	4%	2%
Adj. Flow (vph)	126	627	233	180	389	93	335	735	211	151	571	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	860	0	180	482	0	335	946	0	151	571	74
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	12.0	47.0		15.0	50.0		25.0	43.0		15.0	33.0	47.0
Total Split (%)	10.0%	39.2%		12.5%	41.7%		20.8%	35.8%		12.5%	27.5%	39.2%
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4		4.0	6.4		4.0	6.0		4.0	6.0	6.4
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min		None	None		None	None	Min
Act Effct Green (s)	47.0	37.0		52.9	40.0		51.7	36.0		38.6	26.9	37.0
Actuated g/C Ratio	0.41	0.33		0.46	0.35		0.45	0.32		0.34	0.24	0.33
v/c Ratio	0.32	0.80		0.73	0.42		0.85	0.89		0.71	0.72	0.13
Control Delay	20.0	39.5		36.1	27.8		42.7	47.7		42.3	47.2	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	20.0	39.5		36.1	27.8		42.7	47.7		42.3	47.2	0.4
LOS	B	D		D	C		D	D		D	D	A
Approach Delay		37.0			30.0			46.4			41.9	
Approach LOS		D			C			D			D	
Stops (vph)	61	604		81	270		206	786		90	445	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	31		7	19		6	20		4	18	1
CO Emissions (g/hr)	268	2191		499	1333		425	1371		312	1273	91
NOx Emissions (g/hr)	52	426		97	259		83	267		61	248	18
VOC Emissions (g/hr)	62	508		116	309		99	318		72	295	21
Dilemma Vehicles (#)	0	29		0	14		0	37		0	20	0
Queue Length 50th (ft)	53	295		79	136		174	359		69	218	0
Queue Length 95th (ft)	84	338		113	164		#308	#483		#134	273	0
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	396	1190		255	1274		423	1105		234	808	637
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.32	0.72		0.71	0.38		0.79	0.86		0.65	0.71	0.12

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 113.8
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 40.0 Intersection LOS: D
Intersection Capacity Utilization 73.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	168	4	175	92	939	0	0	674	76
Future Volume (vph)	0	0	0	168	4	175	92	939	0	0	674	76
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.917	0.850					0.985	
Flt Protected				0.950	0.980		0.950					
Satd. Flow (prot)	0	0	0	1694	1519	1487	1749	3601	0	0	3509	0
Flt Permitted				0.950	0.980		0.229					
Satd. Flow (perm)	0	0	0	1694	1519	1487	422	3601	0	0	3509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					45	128					17	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			14.5	
Peak Hour Factor	0.25	0.25	0.25	0.86	0.86	0.86	0.97	0.97	0.97	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	3%	2%	5%	5%	2%	0%	0%	3%	4%
Adj. Flow (vph)	0	0	0	195	5	203	95	968	0	0	741	84
Shared Lane Traffic (%)				28%		37%						
Lane Group Flow (vph)	0	0	0	140	135	128	95	968	0	0	825	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				30.0	30.0	30.0	15.0					
Total Split (%)				24.0%	24.0%	24.0%	12.0%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				24.4	24.4	24.4	45.0	50.1			67.5	
Actuated g/C Ratio				0.21	0.21	0.21	0.38	0.43			0.57	
v/c Ratio				0.40	0.39	0.31	0.35	0.63			0.41	
Control Delay				45.9	31.5	9.4	21.8	18.7			14.2	
Queue Delay				0.0	0.0	0.0	0.0	0.4			0.0	
Total Delay				45.9	31.5	9.4	21.8	19.2			14.2	
LOS				D	C	A	C	B			B	
Approach Delay					29.5			19.4			14.2	
Approach LOS					C			B			B	
Stops (vph)				101	66	16	39	390			383	

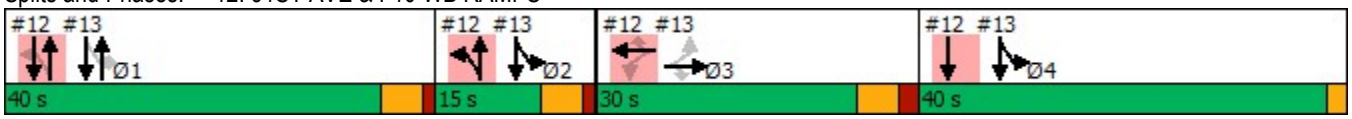
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	40.0	40.0
Total Split (%)	32%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	3	2	1	10			9	
CO Emissions (g/hr)				253	193	108	73	697			635	
NOx Emissions (g/hr)				49	38	21	14	136			124	
VOC Emissions (g/hr)				59	45	25	17	161			147	
Dilemma Vehicles (#)				0	5	0	0	0			32	
Queue Length 50th (ft)				97	63	0	26	137			170	
Queue Length 95th (ft)				166	131	49	m43	168			212	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				350	349	409	272	1530			1995	
Starvation Cap Reductn				0	0	0	0	184			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.40	0.39	0.31	0.35	0.72			0.41	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 43.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	348	8	224	0	0	0	0	676	143	94	760	0
Future Volume (vph)	348	8	224	0	0	0	0	676	143	94	760	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	0		240	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.968	0.850						0.850			
Flt Protected	0.950	0.964								0.950		
Satd. Flow (prot)	1711	1606	1516	0	0	0	0	3601	1611	1717	3532	0
Flt Permitted	0.950	0.964								0.200		
Satd. Flow (perm)	1711	1606	1516	0	0	0	0	3601	1611	361	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10	183						151			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.99	0.99	0.99	0.25	0.25	0.25	0.95	0.95	0.95	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	0%	0%	0%	0%	2%	2%	7%	4%	0%
Adj. Flow (vph)	352	8	226	0	0	0	0	712	151	107	864	0
Shared Lane Traffic (%)	42%		19%									
Lane Group Flow (vph)	204	199	183	0	0	0	0	712	151	107	864	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					40.0	40.0			
Total Split (%)	24.0%	24.0%	24.0%					32.0%	32.0%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	24.4	24.4	24.4					35.0	35.0	72.3	82.6	
Actuated g/C Ratio	0.21	0.21	0.21					0.30	0.30	0.61	0.70	
v/c Ratio	0.58	0.59	0.40					0.67	0.26	0.16	0.35	
Control Delay	50.8	49.2	8.8					40.8	6.5	3.8	3.9	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.1	
Total Delay	50.8	49.2	8.8					40.8	6.5	3.8	4.0	
LOS	D	D	A					D	A	A	A	
Approach Delay		37.2						34.8			4.0	
Approach LOS		D						C			A	
Stops (vph)	179	167	23					578	17	21	151	

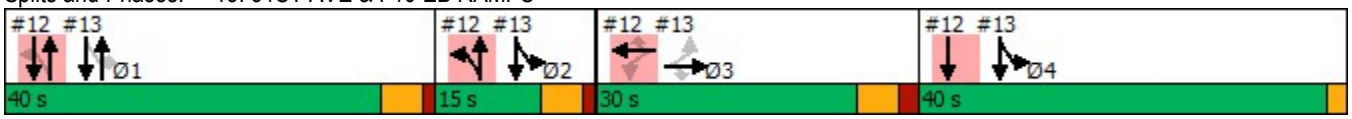
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	15.0	40.0
Total Split (%)	12%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	6	3					30	5	1	5	
CO Emissions (g/hr)	464	441	188					2096	318	40	316	
NOx Emissions (g/hr)	90	86	37					408	62	8	62	
VOC Emissions (g/hr)	107	102	43					486	74	9	73	
Dilemma Vehicles (#)	0	8	0					29	0	0	2	
Queue Length 50th (ft)	148	143	0					250	0	17	73	
Queue Length 95th (ft)	248	248	65					343	50	29	91	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	354	340	459					1070	584	749	2452	
Starvation Cap Reductn	0	0	0					0	0	0	614	
Spillback Cap Reductn	0	0	0					5	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.58	0.59	0.40					0.67	0.26	0.14	0.47	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 43.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	287	85	65	208	115	106	542	131	140	465	144
Future Volume (vph)	198	287	85	65	208	115	106	542	131	140	465	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1749	1531	1558	1749	1516	1678	3421	1432	1678	3323	1516
Flt Permitted	0.255			0.387			0.436			0.367		
Satd. Flow (perm)	459	1749	1531	635	1749	1516	770	3421	1432	648	3323	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			102			155			127			132
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.94	0.94	0.94	0.91	0.91	0.91
Heavy Vehicles (%)	2%	5%	2%	12%	5%	3%	4%	2%	9%	4%	5%	3%
Adj. Flow (vph)	239	346	102	88	281	155	113	577	139	154	511	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	346	102	88	281	155	113	577	139	154	511	158
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	25.0	35.0	35.0	25.0	35.0	35.0	25.0	55.0	55.0	25.0	55.0	55.0
Total Split (%)	17.9%	25.0%	25.0%	17.9%	25.0%	25.0%	17.9%	39.3%	39.3%	17.9%	39.3%	39.3%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	52.2	33.5	33.5	39.3	24.6	24.6	74.1	60.9	60.9	77.6	62.7	62.7
Actuated g/C Ratio	0.37	0.24	0.24	0.28	0.18	0.18	0.53	0.44	0.44	0.55	0.45	0.45
v/c Ratio	0.71	0.83	0.23	0.37	0.92	0.39	0.24	0.39	0.20	0.35	0.34	0.21
Control Delay	44.7	59.5	10.5	33.1	89.8	10.1	16.4	29.2	6.4	17.6	27.2	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	59.5	10.5	33.1	89.8	10.1	16.4	29.2	6.4	17.6	27.2	7.1
LOS	D	E	B	C	F	B	B	C	A	B	C	A
Approach Delay		47.1			56.7			23.6			21.5	
Approach LOS		D			E			C			C	
Stops (vph)	139	214	23	46	191	16	52	365	17	66	299	22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	17	4	3	13	5	5	27	5	5	19	5
CO Emissions (g/hr)	775	1188	281	233	928	351	337	1874	373	360	1301	324
NOx Emissions (g/hr)	151	231	55	45	181	68	66	365	73	70	253	63
VOC Emissions (g/hr)	180	275	65	54	215	81	78	434	86	83	301	75
Dilemma Vehicles (#)	0	0	0	0	0	0	0	19	0	0	17	0
Queue Length 50th (ft)	146	220	4	51	251	0	48	192	6	67	163	14
Queue Length 95th (ft)	m186	m297	m29	72	285	29	82	260	51	109	222	61
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	358	418	443	365	323	406	575	1489	695	524	1488	752
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.83	0.23	0.24	0.87	0.38	0.20	0.39	0.20	0.29	0.34	0.21

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 61 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 34.7 Intersection LOS: C
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: 91ST AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	927	98	45	342	131	101	616	47	120	443	91
Future Volume (vph)	116	927	98	45	342	131	101	616	47	120	443	91
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.986			0.958			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	4764	0	1531	4140	0	1749	5110	0	1749	3566	1508
Flt Permitted	0.421			0.188			0.353			0.223		
Satd. Flow (perm)	720	4764	0	303	4140	0	650	5110	0	411	3566	1508
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			106			11				114
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		445			470			399			4882	
Travel Time (s)		6.1			6.4			6.0			74.0	
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	13%	10%	2%	20%	26%	12%	5%	2%	4%	5%	3%	9%
Adj. Flow (vph)	129	1030	109	51	384	147	122	742	57	126	466	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	1139	0	51	531	0	122	799	0	126	466	96
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	9.0	48.0		12.0	51.0		11.0	40.0		10.0	39.0	39.0
Total Split (%)	8.2%	43.6%		10.9%	46.4%		10.0%	36.4%		9.1%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	59.0	50.7		56.9	48.2		36.9	27.6		35.7	27.0	27.0
Actuated g/C Ratio	0.54	0.46		0.52	0.44		0.34	0.25		0.32	0.25	0.25
v/c Ratio	0.29	0.52		0.23	0.28		0.42	0.62		0.59	0.53	0.21
Control Delay	11.1	15.9		21.5	21.7		27.6	37.8		36.0	37.8	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	11.1	15.9		21.5	21.7		27.6	37.8		36.0	37.8	4.9
LOS	B	B		C	C		C	D		D	D	A
Approach Delay		15.4			21.7			36.5			32.9	
Approach LOS		B			C			D			C	
Stops (vph)	36	587		26	517		67	558		86	369	9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	46		2	25		2	17		6	23	3
CO Emissions (g/hr)	327	3245		145	1782		155	1218		425	1624	235
NOx Emissions (g/hr)	64	631		28	347		30	237		83	316	46
VOC Emissions (g/hr)	76	752		33	413		36	282		99	376	55
Dilemma Vehicles (#)	0	78		0	42		0	26		0	16	0
Queue Length 50th (ft)	26	120		10	58		59	182		61	152	0
Queue Length 95th (ft)	m40	m153		51	109		85	188		96	188	28
Internal Link Dist (ft)		365			390			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	443	2206		251	1874		291	1577		212	1063	529
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.29	0.52		0.20	0.28		0.42	0.51		0.59	0.44	0.18

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 94 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 51.6% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	857	89	216	304	60	89	581	227	229	591	36
Future Volume (vph)	66	857	89	216	304	60	89	581	227	229	591	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.986				0.850		0.958			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3331	0	1678	3355	1516	1646	4612	0	1711	4824	0
Flt Permitted	0.560			0.084			0.360			0.127		
Satd. Flow (perm)	1008	3331	0	148	3355	1516	624	4612	0	229	4824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				99		78			7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.77	0.77	0.77	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93
Heavy Vehicles (%)	2%	3%	6%	4%	4%	3%	6%	5%	2%	2%	3%	3%
Adj. Flow (vph)	86	1113	116	225	317	63	98	638	249	246	635	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	1229	0	225	317	63	98	887	0	246	674	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9		11.0	32.9	
Total Split (s)	20.0	45.0		20.0	45.0	45.0	20.0	35.0		20.0	35.0	
Total Split (%)	16.7%	37.5%		16.7%	37.5%	37.5%	16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6		1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9		4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	52.9	43.4		63.6	52.0	52.0	38.3	27.4		48.3	33.5	
Actuated g/C Ratio	0.44	0.36		0.53	0.43	0.43	0.32	0.23		0.40	0.28	
v/c Ratio	0.18	1.01		0.87	0.22	0.09	0.36	0.80		0.88	0.50	
Control Delay	16.0	67.8		67.6	26.3	8.1	26.5	45.8		61.2	37.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	16.0	67.8		67.6	26.3	8.1	26.5	45.8		61.2	37.4	
LOS	B	E		E	C	A	C	D		E	D	
Approach Delay		64.5			39.7			43.9			43.8	
Approach LOS		E			D			D			D	
Stops (vph)	37	774		197	187	22	59	685		157	505	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	55		13	14	2	2	21		9	23	
CO Emissions (g/hr)	205	3847		900	1010	171	119	1433		644	1616	
NOx Emissions (g/hr)	40	749		175	196	33	23	279		125	314	
VOC Emissions (g/hr)	48	892		209	234	40	28	332		149	375	
Dilemma Vehicles (#)	0	35		0	39	0	0	34		0	21	
Queue Length 50th (ft)	32	~549		150	61	1	47	220		135	157	
Queue Length 95th (ft)	52	#544		#254	141	m25	82	266		#270	201	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	604	1212		287	1453	712	371	1177		289	1351	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.14	1.01		0.78	0.22	0.09	0.26	0.75		0.85	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 50.3 Intersection LOS: D
Intersection Capacity Utilization 78.5% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: 83rd ave & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	238	6	244	316	845	0	0	526	285
Future Volume (vph)	0	0	0	238	6	244	316	845	0	0	526	285
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.919	0.850						0.850
Flt Protected				0.950	0.979		0.950					
Satd. Flow (prot)	0	0	0	1479	1406	1446	2921	3566	0	0	5124	1611
Flt Permitted				0.950	0.979		0.950					
Satd. Flow (perm)	0	0	0	1479	1406	1446	2921	3566	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					58	87						356
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.92	0.92	0.92	0.88	0.88	0.88	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	18%	17%	8%	22%	3%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	259	7	265	359	960	0	0	658	356
Shared Lane Traffic (%)				29%		36%						
Lane Group Flow (vph)	0	0	0	184	177	170	359	960	0	0	658	356
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							30.0				35.0	35.0
Total Split (%)							23.1%				26.9%	26.9%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				Min	Min
Act Effct Green (s)				29.7	29.7	29.7	43.2	74.3			24.7	24.7
Actuated g/C Ratio				0.26	0.26	0.26	0.37	0.64			0.21	0.21
v/c Ratio				0.49	0.44	0.39	0.33	0.42			0.60	0.57
Control Delay				42.8	28.6	21.3	11.7	4.1			44.5	8.1
Queue Delay				0.0	0.0	0.0	0.0	0.3			0.0	0.0
Total Delay				42.8	28.6	21.3	11.7	4.4			44.5	8.1
LOS				D	C	C	B	A			D	A
Approach Delay					31.2			6.4			31.7	
Approach LOS					C			A			C	
Stops (vph)				137	87	61	116	396			454	28

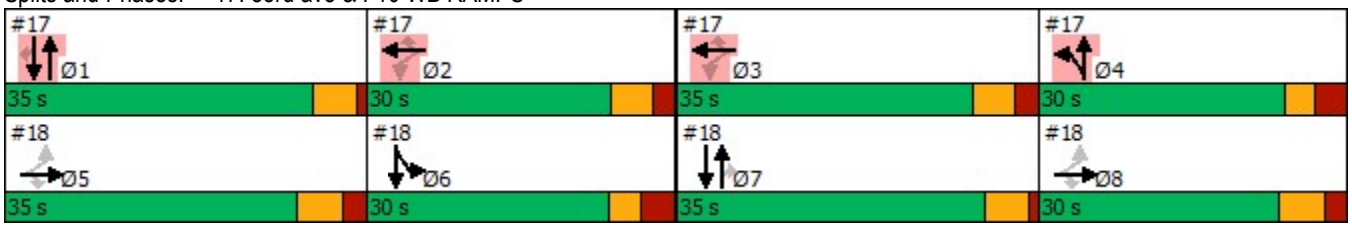
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	30.0	35.0	35.0	30.0	35.0	30.0
Total Split (%)	23%	27%	27%	23%	27%	23%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	4	3	3	8			13	2
CO Emissions (g/hr)				344	260	213	227	589			931	167
NOx Emissions (g/hr)				67	51	42	44	115			181	33
VOC Emissions (g/hr)				80	60	49	53	136			216	39
Dilemma Vehicles (#)				0	5	0	0	7			20	0
Queue Length 50th (ft)				131	85	55	23	5			171	0
Queue Length 95th (ft)				211	163	125	76	77			195	40
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				678	676	710	1089	2460			1342	684
Starvation Cap Reductn				0	0	0	0	840			0	0
Spillback Cap Reductn				4	4	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.27	0.26	0.24	0.33	0.59			0.49	0.52

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 115.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 20.0 Intersection LOS: B
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	13	828	0	0	0	0	812	117	137	641	0
Future Volume (vph)	365	13	828	0	0	0	0	812	117	137	641	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.867	0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1711	1381	1406	0	0	0	0	4798	1284	3493	3401	0
Flt Permitted	0.950	0.996								0.950		
Satd. Flow (perm)	1711	1381	1406	0	0	0	0	4798	1284	3493	3401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109	109						142			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			54.4			7.7	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.93	0.93	0.93	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	11%	0%	0%	0%	0%	10%	28%	2%	8%	0%
Adj. Flow (vph)	420	15	952	0	0	0	0	873	126	167	782	0
Shared Lane Traffic (%)	10%		47%									
Lane Group Flow (vph)	378	504	505	0	0	0	0	873	126	167	782	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								35.0	35.0	30.0		
Total Split (%)								26.9%	26.9%	23.1%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	Min		
Act Effct Green (s)	47.7	47.7	47.7					26.8	26.8	22.4	54.7	
Actuated g/C Ratio	0.41	0.41	0.41					0.23	0.23	0.19	0.47	
v/c Ratio	0.54	0.80	0.79					0.79	0.31	0.25	0.49	
Control Delay	29.1	33.7	32.9					48.8	7.0	20.5	19.0	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.6	
Total Delay	29.1	33.7	32.9					48.8	7.0	20.5	19.6	
LOS	C	C	C					D	A	C	B	
Approach Delay		32.2						43.5			19.7	
Approach LOS		C						D			B	
Stops (vph)	235	303	302					736	11	101	552	

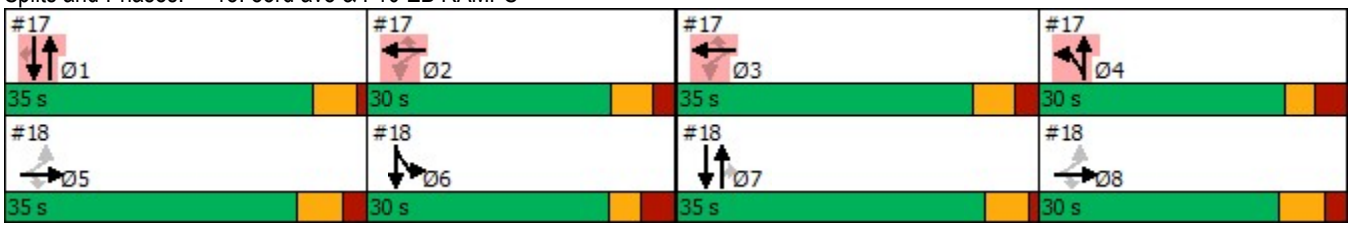
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	35.0	30.0	35.0	30.0	35.0	30.0
Total Split (%)	27%	23%	27%	23%	27%	23%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	12	12					36	3	2	11	
CO Emissions (g/hr)	604	825	820					2526	212	160	801	
NOx Emissions (g/hr)	118	161	160					491	41	31	156	
VOC Emissions (g/hr)	140	191	190					585	49	37	186	
Dilemma Vehicles (#)	0	17	0					32	0	0	1	
Queue Length 50th (ft)	232	304	289					235	0	55	282	
Queue Length 95th (ft)	315	436	415					309	40	86	357	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	854	744	756					1257	441	724	1705	
Starvation Cap Reductn	0	0	0					0	0	0	515	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.44	0.68	0.67					0.69	0.29	0.23	0.66	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 115.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 32.0 Intersection LOS: C
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	461	30	46	85	97	7	648	91	391	867	96
Future Volume (vph)	122	461	30	46	85	97	7	648	91	391	867	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.991			0.920			0.982			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3327	0	1312	2684	0	1531	4466	0	1586	3192	0
Flt Permitted	0.543			0.399			0.245			0.154		
Satd. Flow (perm)	875	3327	0	551	2684	0	395	4466	0	257	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			139			23			10	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			54.4	
Peak Hour Factor	0.90	0.90	0.90	0.70	0.70	0.70	0.89	0.89	0.89	0.95	0.95	0.95
Heavy Vehicles (%)	14%	4%	3%	33%	18%	21%	14%	10%	12%	10%	8%	5%
Adj. Flow (vph)	136	512	33	66	121	139	8	728	102	412	913	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	545	0	66	260	0	8	830	0	412	1014	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0		20.0	30.0		20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0		25.0	45.0		25.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%		20.8%	37.5%		20.8%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	60.9	49.4		55.5	45.1		32.7	25.3		52.8	48.6	
Actuated g/C Ratio	0.51	0.41		0.46	0.38		0.27	0.21		0.44	0.40	
v/c Ratio	0.27	0.40		0.22	0.24		0.05	0.86		1.16	0.78	
Control Delay	18.3	27.3		31.6	31.5		19.6	54.3		128.3	35.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.3	27.3		31.6	31.5		19.6	54.3		128.3	35.8	
LOS	B	C		C	C		B	D		F	D	
Approach Delay		25.5			31.5			54.0			62.5	
Approach LOS		C			C			D			E	
Stops (vph)	66	341		36	249		6	678		263	808	

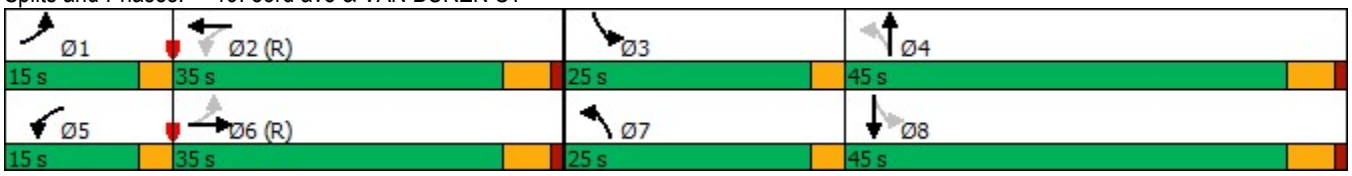
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	24		2	10		0	42		23	39	
CO Emissions (g/hr)	404	1712		161	724		24	2937		1579	2761	
NOx Emissions (g/hr)	79	333		31	141		5	571		307	537	
VOC Emissions (g/hr)	94	397		37	168		6	681		366	640	
Dilemma Vehicles (#)	0	21		0	6		0	25		0	32	
Queue Length 50th (ft)	55	156		39	60		3	221		~321	339	
Queue Length 95th (ft)	101	228		m58	68		12	258		#510	454	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250			230		
Base Capacity (vph)	514	1371		347	1095		372	1485		356	1299	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.40		0.19	0.24		0.02	0.56		1.16	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 49 (41%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 49.5 Intersection LOS: D
Intersection Capacity Utilization 63.1% ICU Level of Service B
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



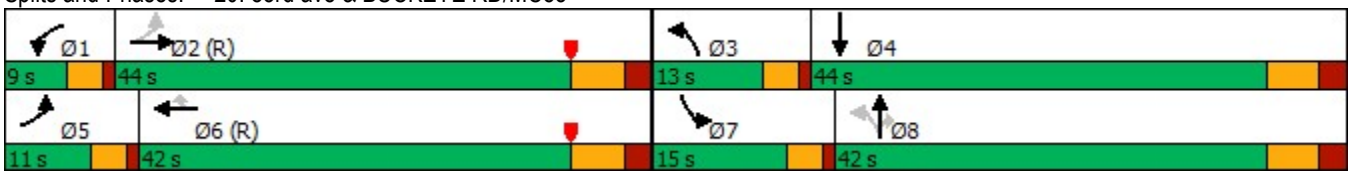
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	1196	34	13	280	111	63	438	113	171	344	172
Future Volume (vph)	177	1196	34	13	280	111	63	438	113	171	344	172
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.996				0.850			0.850		0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	4910	0	2897	4435	1358	1801	3566	1580	3098	4558	0
Flt Permitted	0.516			0.950			0.449			0.950		
Satd. Flow (perm)	891	4910	0	2897	4435	1358	851	3566	1580	3098	4558	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				118			126		125	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		461			432			976			409	
Travel Time (s)		6.3			5.9			14.8			6.2	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90	0.99	0.99	0.99
Heavy Vehicles (%)	12%	7%	9%	23%	19%	21%	2%	3%	4%	15%	7%	16%
Adj. Flow (vph)	190	1286	37	14	298	118	70	487	126	173	347	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	190	1323	0	14	298	118	70	487	126	173	521	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	11.0	44.0		9.0	42.0	42.0	13.0	42.0	42.0	15.0	44.0	
Total Split (%)	10.0%	40.0%		8.2%	38.2%	38.2%	11.8%	38.2%	38.2%	13.6%	40.0%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	61.5	54.9		5.1	44.6	44.6	33.9	24.1	24.1	9.7	28.5	
Actuated g/C Ratio	0.56	0.50		0.05	0.41	0.41	0.31	0.22	0.22	0.09	0.26	
v/c Ratio	0.34	0.54		0.10	0.17	0.19	0.22	0.62	0.28	0.63	0.41	
Control Delay	7.6	12.6		51.6	23.0	5.7	22.7	42.0	7.3	58.9	26.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.6	12.6		51.6	23.0	5.7	22.7	42.0	7.3	58.9	26.1	
LOS	A	B		D	C	A	C	D	A	E	C	
Approach Delay		12.0			19.2			33.6			34.3	
Approach LOS		B			B			C			C	
Stops (vph)	36	691		16	179	15	40	381	15	161	314	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	54		1	13	4	1	11	1	10	24	
CO Emissions (g/hr)	462	3773		57	935	283	83	787	75	696	1710	
NOx Emissions (g/hr)	90	734		11	182	55	16	153	15	135	333	
VOC Emissions (g/hr)	107	875		13	217	66	19	182	17	161	396	
Dilemma Vehicles (#)	0	43		0	13	0	0	16	0	0	19	
Queue Length 50th (ft)	26	80		5	49	0	32	165	0	61	85	
Queue Length 95th (ft)	45	321		15	79	41	56	202	44	97	111	
Internal Link Dist (ft)		381			352			896			329	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	567	2452		139	1797	620	354	1144	592	309	1628	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.34	0.54		0.10	0.17	0.19	0.20	0.43	0.21	0.56	0.32	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 61 (55%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 52.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



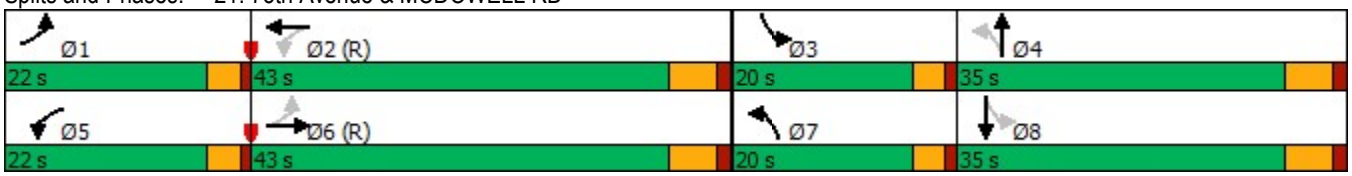
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	730	246	238	355	129	90	748	163	157	663	44
Future Volume (vph)	97	730	246	238	355	129	90	748	163	157	663	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.962			0.960			0.973			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4717	0	1711	4652	0	1711	4670	0	1711	4827	0
Flt Permitted	0.422			0.131			0.239			0.123		
Satd. Flow (perm)	760	4717	0	236	4652	0	430	4670	0	221	4827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		74			79			38			8	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.87	0.87	0.87	0.83	0.83	0.83	0.90	0.90	0.90	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	3%	2%	4%	2%	2%	5%	2%	2%	3%	2%
Adj. Flow (vph)	111	839	283	287	428	155	100	831	181	183	771	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	1122	0	287	583	0	100	1012	0	183	822	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2		6.0	48.2		10.0	30.8		10.0	30.8	
Total Split (s)	22.0	43.0		22.0	43.0		20.0	35.0		20.0	35.0	
Total Split (%)	18.3%	35.8%		18.3%	35.8%		16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8		4.0	5.8		4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	52.4	42.1		64.6	50.4		39.5	28.8		47.1	32.6	
Actuated g/C Ratio	0.44	0.35		0.54	0.42		0.33	0.24		0.39	0.27	
v/c Ratio	0.28	0.66		0.86	0.29		0.42	0.88		0.75	0.62	
Control Delay	10.4	19.3		62.4	31.0		28.3	52.0		44.7	40.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.4	19.3		62.4	31.0		28.3	52.0		44.7	40.1	
LOS	B	B		E	C		C	D		D	D	
Approach Delay		18.5			41.3			49.9			40.9	
Approach LOS		B			D			D			D	
Stops (vph)	31	442		206	649		59	813		106	597	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	43		14	28		2	25		4	17	
CO Emissions (g/hr)	275	3006		954	1923		123	1735		249	1177	
NOx Emissions (g/hr)	54	585		186	374		24	337		48	229	
VOC Emissions (g/hr)	64	697		221	446		28	402		58	273	
Dilemma Vehicles (#)	0	59		0	52		0	35		0	24	
Queue Length 50th (ft)	29	153		196	107		47	261		92	196	
Queue Length 95th (ft)	m31	m110		m#287	164		83	#326		147	234	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	532	1703		351	1998		335	1190		285	1329	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.66		0.82	0.29		0.30	0.85		0.64	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 36.8 Intersection LOS: D
Intersection Capacity Utilization 70.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	316	0	309	226	804	0	0	847	305
Future Volume (vph)	0	0	0	316	0	309	226	804	0	0	847	305
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.920	0.850						0.850
Flt Protected				0.950	0.977		0.950					
Satd. Flow (prot)	0	0	0	1544	1461	1501	1611	5075	0	0	5124	1611
Flt Permitted				0.950	0.977		0.950					
Satd. Flow (perm)	0	0	0	1544	1461	1501	1611	5075	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					59	59						238
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.94	0.94	0.94	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	13%	2%	4%	14%	4%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	363	0	355	240	855	0	0	1020	367
Shared Lane Traffic (%)				31%		36%						
Lane Group Flow (vph)	0	0	0	250	241	227	240	855	0	0	1020	367
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							40.0				42.0	42.0
Total Split (%)							20.0%				21.0%	21.0%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				Min	Min
Act Effct Green (s)				69.2	69.2	69.2	63.1	107.4			36.8	36.8
Actuated g/C Ratio				0.37	0.37	0.37	0.34	0.57			0.20	0.20
v/c Ratio				0.44	0.42	0.39	0.44	0.30			1.02	0.73
Control Delay				47.1	34.6	33.1	18.5	1.9			105.8	34.1
Queue Delay				0.1	0.1	0.0	0.0	0.4			30.6	0.0
Total Delay				47.2	34.7	33.1	18.5	2.3			136.3	34.1
LOS				D	C	C	B	A			F	C
Approach Delay					38.5			5.9			109.3	
Approach LOS					D			A			F	
Stops (vph)				159	115	104	99	116			761	111

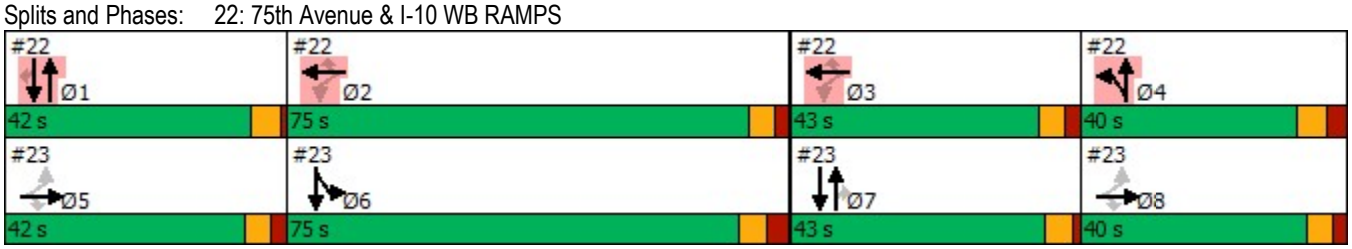
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	75.0	43.0	42.0	75.0	43.0	40.0
Total Split (%)	38%	22%	21%	38%	22%	20%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	5	5	3	4			32	5
CO Emissions (g/hr)				452	365	335	199	314			2265	363
NOx Emissions (g/hr)				88	71	65	39	61			441	71
VOC Emissions (g/hr)				105	85	78	46	73			525	84
Dilemma Vehicles (#)				0	4	0	0	8			21	0
Queue Length 50th (ft)				245	183	160	63	6			~488	156
Queue Length 95th (ft)				321	260	229	m130	m7			#560	249
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				818	802	823	540	2897			1001	506
Starvation Cap Reductn				0	0	0	0	1398			0	0
Spillback Cap Reductn				109	106	0	0	0			149	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.35	0.35	0.28	0.44	0.57			1.20	0.73

Intersection Summary

Area Type: Other
Cycle Length: 200
Actuated Cycle Length: 188.2
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 58.0 Intersection LOS: E
Intersection Capacity Utilization 66.2% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	205	827	0	0	0	0	616	165	243	989	0
Future Volume (vph)	319	205	827	0	0	0	0	616	165	243	989	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	0		150	0		0
Storage Lanes	1		1	0		0	0		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt		0.914	0.850						0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1662	1518	1446	0	0	0	0	3339	1369	3493	3465	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1662	1518	1446	0	0	0	0	3339	1369	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38	60						101			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.89	0.89	0.89	0.25	0.25	0.25	0.84	0.84	0.84	0.83	0.83	0.83
Heavy Vehicles (%)	5%	2%	8%	0%	0%	0%	0%	10%	20%	2%	6%	0%
Adj. Flow (vph)	358	230	929	0	0	0	0	733	196	293	1192	0
Shared Lane Traffic (%)	10%		38%									
Lane Group Flow (vph)	322	619	576	0	0	0	0	733	196	293	1192	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								43.0	43.0	75.0		
Total Split (%)								21.5%	21.5%	37.5%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	Min		
Act Effct Green (s)	75.9	75.9	75.9					37.8	37.8	55.2	98.2	
Actuated g/C Ratio	0.40	0.40	0.40					0.20	0.20	0.29	0.52	
v/c Ratio	0.48	0.98	0.93					1.09	0.55	0.29	0.66	
Control Delay	45.8	81.1	70.6					129.9	39.5	24.3	39.3	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	49.9	
Total Delay	45.8	81.1	70.6					129.9	39.5	24.3	89.2	
LOS	D	F	E					F	D	C	F	
Approach Delay		69.6						110.9			76.4	
Approach LOS		E						F			E	
Stops (vph)	209	453	411					529	74	194	948	

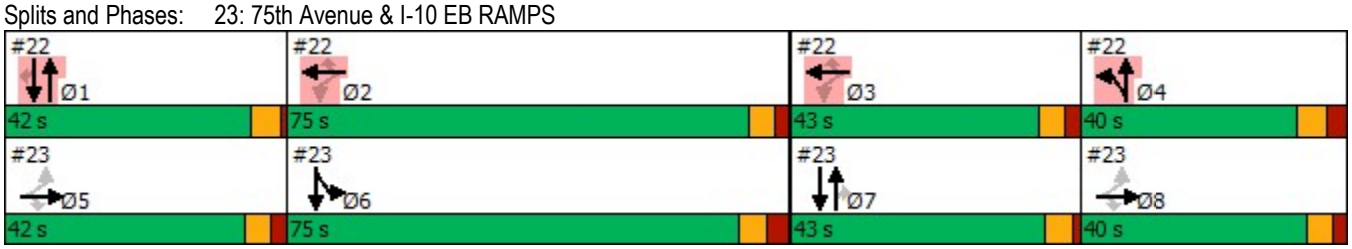
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	42.0	75.0	43.0	40.0	42.0	40.0
Total Split (%)	21%	38%	22%	20%	21%	20%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	20	18					38	6	4	23	
CO Emissions (g/hr)	574	1423	1239					2634	434	310	1612	
NOx Emissions (g/hr)	112	277	241					512	85	60	314	
VOC Emissions (g/hr)	133	330	287					610	101	72	374	
Dilemma Vehicles (#)	0	14	0					14	0	0	2	
Queue Length 50th (ft)	311	794	664					~537	106	153	783	
Queue Length 95th (ft)	452	#1183	#1003					#658	188	m168	m808	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	670	634	619					670	355	1249	1802	
Starvation Cap Reductn	0	0	0					0	0	0	834	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.48	0.98	0.93					1.09	0.55	0.23	1.23	

Intersection Summary

Area Type: Other
Cycle Length: 200
Actuated Cycle Length: 188.2
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 81.9 Intersection LOS: F
Intersection Capacity Utilization 66.2% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	643	137	58	148	59	35	648	229	218	1047	57
Future Volume (vph)	58	643	137	58	148	59	35	648	229	218	1047	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		270	250		0	220		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.974				0.850		0.961			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1302	3118	0	1442	1597	1229	1491	3007	0	1531	3221	0
Flt Permitted	0.535			0.120			0.123			0.086		
Satd. Flow (perm)	733	3118	0	182	1597	1229	193	3007	0	139	3221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				139		44			6	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.83	0.83	0.83	0.76	0.76	0.76	0.83	0.83	0.83	0.89	0.89	0.89
Heavy Vehicles (%)	34%	9%	9%	21%	15%	27%	17%	11%	13%	14%	7%	16%
Adj. Flow (vph)	70	775	165	76	195	78	42	781	276	245	1176	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	940	0	76	195	78	42	1057	0	245	1240	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		2.0	15.0	
Minimum Split (s)	9.5	52.0		9.5	52.0	52.0	9.5	34.0		16.0	50.0	
Total Split (s)	12.0	38.0		12.0	38.0	38.0	12.0	44.0		26.0	58.0	
Total Split (%)	10.0%	31.7%		10.0%	31.7%	31.7%	10.0%	36.7%		21.7%	48.3%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	5.3		4.0	5.3	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes	Yes		Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	41.9	35.1		41.9	35.1	35.1	50.7	43.1		66.0	55.4	
Actuated g/C Ratio	0.35	0.29		0.35	0.29	0.29	0.42	0.36		0.55	0.46	
v/c Ratio	0.24	1.02		0.55	0.42	0.17	0.27	0.95		0.88	0.83	
Control Delay	29.5	75.9		49.6	49.0	9.6	26.8	58.1		59.6	34.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	29.5	75.9		49.6	49.0	9.6	26.8	58.1		59.6	34.9	
LOS	C	E		D	D	A	C	E		E	C	
Approach Delay		72.7			40.3			56.9			39.0	
Approach LOS		E			D			E			D	
Stops (vph)	40	1100		52	135	24	25	577		156	926	

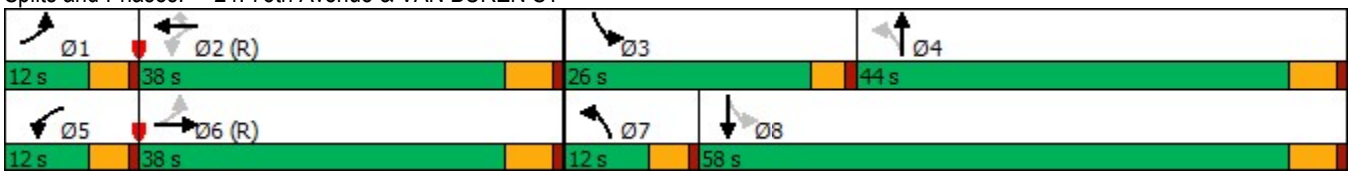
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	52		3	8	2	2	48		10	46	
CO Emissions (g/hr)	196	3623		228	583	173	119	3341		687	3208	
NOx Emissions (g/hr)	38	705		44	113	34	23	650		134	624	
VOC Emissions (g/hr)	46	840		53	135	40	28	774		159	743	
Dilemma Vehicles (#)	0	0		0	1	0	0	84		0	40	
Queue Length 50th (ft)	33	~384		48	145	1	20	338		139	446	
Queue Length 95th (ft)	m40	m#228		m76	m189	m11	m31	m#477		#245	542	
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200			200		270	250			220		
Base Capacity (vph)	291	926		141	467	458	163	1108		331	1491	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	1.02		0.54	0.42	0.17	0.26	0.95		0.74	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 52.7 Intersection LOS: D
Intersection Capacity Utilization 73.3% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	1105	118	29	277	130	73	572	170	222	420	39
Future Volume (vph)	164	1105	118	29	277	130	73	572	170	222	420	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		0	260		0	270		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.952			0.966			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3401	1454	1670	2945	0	1505	3283	0	1597	3331	0
Flt Permitted	0.375			0.107			0.466			0.122		
Satd. Flow (perm)	704	3401	1454	188	2945	0	738	3283	0	205	3331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105		65			31			9	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4818			2586			1298			2861	
Travel Time (s)		65.7			35.3			19.7			43.3	
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	3%	8%	13%	10%	21%	14%	22%	9%	5%	15%	8%	18%
Adj. Flow (vph)	178	1201	128	35	334	157	79	622	185	244	462	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	1201	128	35	491	0	79	807	0	244	505	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		
Detector Phase	1	6	6	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0		17.0	30.0		17.0	30.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		15.0	35.0		25.0	45.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		12.5%	29.2%		20.8%	37.5%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	61.8	53.0	53.0	53.4	44.5		39.0	29.3		52.2	41.0	
Actuated g/C Ratio	0.52	0.44	0.44	0.44	0.37		0.32	0.24		0.44	0.34	
v/c Ratio	0.38	0.80	0.18	0.23	0.43		0.28	0.98		0.84	0.44	
Control Delay	19.3	35.7	7.7	21.0	28.1		22.6	69.9		65.8	26.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.3	35.7	7.7	21.0	28.1		22.6	69.9		65.8	26.3	
LOS	B	D	A	C	C		C	E		E	C	
Approach Delay		31.4			27.6			65.7			39.1	
Approach LOS		C			C			E			D	
Stops (vph)	87	886	22	16	238		48	647		172	445	

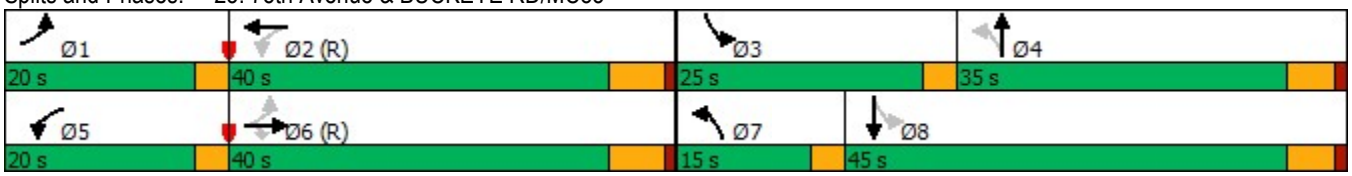
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	58	4	1	20		2	25		13	24	
CO Emissions (g/hr)	520	4085	311	93	1370		108	1738		893	1668	
NOx Emissions (g/hr)	101	795	61	18	267		21	338		174	324	
VOC Emissions (g/hr)	121	947	72	22	318		25	403		207	386	
Dilemma Vehicles (#)	0	44	0	0	46		0	28		0	29	
Queue Length 50th (ft)	73	438	11	12	106		35	316		156	97	
Queue Length 95th (ft)	125	#633	54	34	174		63	#451		m187	m118	
Internal Link Dist (ft)		4738			2506			1218			2781	
Turn Bay Length (ft)	260		190	270			260			270		
Base Capacity (vph)	515	1501	700	306	1133		346	830		344	1151	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.80	0.18	0.11	0.43		0.23	0.97		0.71	0.44	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 79 (66%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 40.7 Intersection LOS: D
Intersection Capacity Utilization 74.0% ICU Level of Service D
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	677	244	228	533	129	160	577	71	124	755	88
Future Volume (vph)	160	677	244	228	533	129	160	577	71	124	755	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.960				0.850		0.984			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3221	0	1711	3388	1531	1711	4700	0	1711	4795	0
Flt Permitted	0.361			0.122			0.144			0.251		
Satd. Flow (perm)	650	3221	0	220	3388	1531	259	4700	0	452	4795	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45				161		16			15	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.94	0.94	0.94	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	2%	4%	4%	2%	3%	2%	2%	4%	13%	2%	3%	2%
Adj. Flow (vph)	170	720	260	285	666	161	176	634	78	139	848	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	980	0	285	666	161	176	712	0	139	947	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		8.0	15.0	
Minimum Split (s)	11.0	50.3		9.0	48.3	48.3	9.0	33.0		12.0	28.3	
Total Split (s)	23.0	45.0		23.0	45.0	45.0	20.0	32.0		20.0	32.0	
Total Split (%)	19.2%	37.5%		19.2%	37.5%	37.5%	16.7%	26.7%		16.7%	26.7%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		Min	Ped	
Act Effct Green (s)	57.1	44.9		67.7	51.5	51.5	42.3	27.7		38.3	25.7	
Actuated g/C Ratio	0.48	0.37		0.56	0.43	0.43	0.35	0.23		0.32	0.21	
v/c Ratio	0.42	0.79		0.85	0.46	0.22	0.70	0.65		0.53	0.91	
Control Delay	13.2	27.4		46.8	27.0	4.6	42.3	43.8		33.0	59.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.2	27.4		46.8	27.0	4.6	42.3	43.8		33.0	59.0	
LOS	B	C		D	C	A	D	D		C	E	
Approach Delay		25.3			28.8			43.5			55.6	
Approach LOS		C			C			D			E	
Stops (vph)	53	753		138	375	13	111	559		86	776	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	46		6	12	1	3	15		4	35	
CO Emissions (g/hr)	455	3194		400	831	92	238	1054		298	2470	
NOx Emissions (g/hr)	89	621		78	162	18	46	205		58	481	
VOC Emissions (g/hr)	105	740		93	193	21	55	244		69	572	
Dilemma Vehicles (#)	0	6		0	22	0	0	21		0	31	
Queue Length 50th (ft)	45	356		141	197	0	91	173		70	254	
Queue Length 95th (ft)	m66	#502		204	234	30	153	226		115	#314	
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	518	1234		362	1453	748	287	1125		327	1085	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.33	0.79		0.79	0.46	0.22	0.61	0.63		0.43	0.87	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 75.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	217	200	254	222	515	0	0	974	218
Future Volume (vph)	0	0	0	217	200	254	222	515	0	0	974	218
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.957	0.850						0.850
Flt Protected				0.950	0.994		0.950					
Satd. Flow (prot)	0	0	0	1441	2384	1424	1655	5075	0	0	5175	1611
Flt Permitted				0.950	0.994		0.950					
Satd. Flow (perm)	0	0	0	1441	2384	1424	1655	5075	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					41	167						148
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	16%	50%	5%	11%	4%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	233	215	273	236	548	0	0	1015	227
Shared Lane Traffic (%)				20%		39%						
Lane Group Flow (vph)	0	0	0	186	368	167	236	548	0	0	1015	227
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							40.0				42.0	42.0
Total Split (%)							20.0%				21.0%	21.0%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							1.0				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							5.3				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				Min	Min
Act Effct Green (s)				36.0	36.0	36.0	56.3	98.6			37.0	37.0
Actuated g/C Ratio				0.25	0.25	0.25	0.39	0.68			0.26	0.26
v/c Ratio				0.52	0.59	0.35	0.37	0.16			0.77	0.44
Control Delay				53.0	46.7	7.8	6.5	0.6			55.9	20.3
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.2	0.0
Total Delay				53.0	46.7	7.8	6.5	0.6			56.1	20.3
LOS				D	D	A	A	A			E	C
Approach Delay					39.3			2.4			49.6	
Approach LOS					D			A			D	
Stops (vph)				143	259	16	52	39			873	67

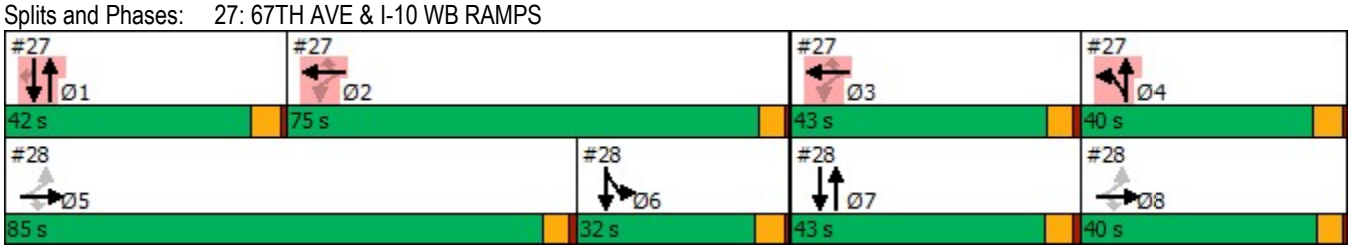
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.9	30.0	30.0	30.0	30.0
Total Split (s)	75.0	43.0	85.0	32.0	43.0	40.0
Total Split (%)	38%	22%	43%	16%	22%	20%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	9	2	2	2			25	3
CO Emissions (g/hr)				360	661	126	111	160			1775	199
NOx Emissions (g/hr)				70	129	24	22	31			345	39
VOC Emissions (g/hr)				84	153	29	26	37			411	46
Dilemma Vehicles (#)				0	9	0	0	1			33	0
Queue Length 50th (ft)				169	160	0	15	1			329	59
Queue Length 95th (ft)				269	230	64	m54	1			443	159
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				712	1199	788	643	3454			1320	521
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				23	38	0	0	0			36	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.27	0.32	0.21	0.37	0.16			0.79	0.44

Intersection Summary

Area Type: Other
Cycle Length: 200
Actuated Cycle Length: 144.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 33.4 Intersection LOS: C
Intersection Capacity Utilization 48.6% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	10	500	0	0	0	0	673	189	286	887	0
Future Volume (vph)	170	10	500	0	0	0	0	673	189	286	887	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	0.91	0.97	0.95	1.00
Frt		0.865	0.850					0.967				
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1639	2739	1424	0	0	0	0	4761	0	3493	3465	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1639	2739	1424	0	0	0	0	4761	0	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28	41					31				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.89	0.89	0.89	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	5%	0%	0%	0%	0%	5%	15%	2%	6%	0%
Adj. Flow (vph)	200	12	588	0	0	0	0	756	212	304	944	0
Shared Lane Traffic (%)	10%		50%									
Lane Group Flow (vph)	180	326	294	0	0	0	0	968	0	304	944	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								43.0		32.0		
Total Split (%)								21.5%		16.0%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		1.0		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		5.3		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		Min		
Act Effct Green (s)	48.6	48.6	48.6					38.0		42.7	86.0	
Actuated g/C Ratio	0.34	0.34	0.34					0.26		0.29	0.59	
v/c Ratio	0.33	0.35	0.58					0.76		0.30	0.46	
Control Delay	36.7	33.1	38.0					53.6		11.1	14.9	
Queue Delay	0.0	0.0	0.0					0.0		0.0	2.0	
Total Delay	36.7	33.1	38.0					53.6		11.1	16.9	
LOS	D	C	D					D		B	B	
Approach Delay		35.7						53.6			15.5	
Approach LOS		D						D			B	
Stops (vph)	108	178	170					748		169	760	

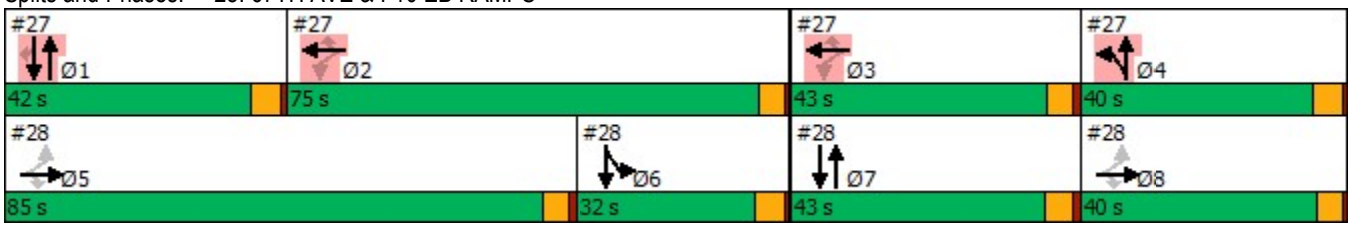
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.9	30.0	30.0	30.0
Total Split (s)	42.0	75.0	43.0	40.0	85.0	40.0
Total Split (%)	21%	38%	22%	20%	43%	20%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	7	7					39		3	13	
CO Emissions (g/hr)	286	489	467					2724		232	931	
NOx Emissions (g/hr)	56	95	91					530		45	181	
VOC Emissions (g/hr)	66	113	108					631		54	216	
Dilemma Vehicles (#)	0	8	0					29		0	0	
Queue Length 50th (ft)	138	121	215					303		67	408	
Queue Length 95th (ft)	194	155	294					408		m158	599	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	1260	2113	1104					1270		1028	2056	
Starvation Cap Reductn	0	0	0					0		0	917	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.14	0.15	0.27					0.76		0.30	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 200
Actuated Cycle Length: 144.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 33.1 Intersection LOS: C
Intersection Capacity Utilization 48.6% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	736	132	110	188	83	110	615	282	196	701	50
Future Volume (vph)	158	736	132	110	188	83	110	615	282	196	701	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		0	250		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.977			0.954			0.953			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3011	0	1601	3959	0	1662	3022	0	1586	3152	0
Flt Permitted	0.519			0.148			0.173			0.106		
Satd. Flow (perm)	836	3011	0	249	3959	0	303	3022	0	177	3152	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			90			60			6	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	14%	12%	20%	9%	19%	25%	5%	11%	8%	10%	9%	18%
Adj. Flow (vph)	168	783	140	120	204	90	118	661	303	228	815	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	923	0	120	294	0	118	964	0	228	873	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	9.0	52.0		9.0	52.0		9.0	50.0		9.0	50.0	
Total Split (s)	17.0	47.0		13.0	43.0		16.0	37.0		23.0	44.0	
Total Split (%)	14.2%	39.2%		10.8%	35.8%		13.3%	30.8%		19.2%	36.7%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7		4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes			Yes			Yes	
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	55.4	41.5		48.6	38.1		45.7	33.6		56.0	39.9	
Actuated g/C Ratio	0.46	0.35		0.40	0.32		0.38	0.28		0.47	0.33	
v/c Ratio	0.37	0.88		0.60	0.22		0.50	1.08		0.81	0.83	
Control Delay	15.4	28.9		32.1	21.3		38.7	102.4		50.4	45.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.4	28.9		32.1	21.3		38.7	102.4		50.4	45.0	
LOS	B	C		C	C		D	F		D	D	
Approach Delay		26.8			24.4			95.5			46.1	
Approach LOS		C			C			F			D	
Stops (vph)	63	529		67	133		91	1130		134	661	

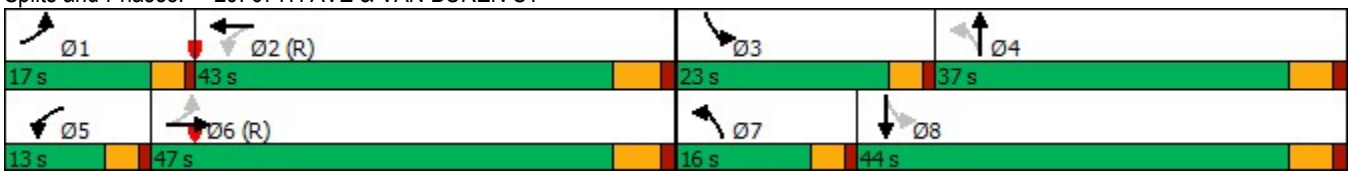
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	42		3	7		6	62		8	33	
CO Emissions (g/hr)	476	2939		223	478		396	4309		586	2287	
NOx Emissions (g/hr)	93	572		43	93		77	838		114	445	
VOC Emissions (g/hr)	110	681		52	111		92	999		136	530	
Dilemma Vehicles (#)	0	6		0	11		0	79		0	27	
Queue Length 50th (ft)	55	223		52	42		71	~424		123	327	
Queue Length 95th (ft)	m59	m250		91	66		m104	m#561		#213	389	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250			250			250			260		
Base Capacity (vph)	465	1052		202	1316		254	890		305	1052	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.36	0.88		0.59	0.22		0.46	1.08		0.75	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 52.4 Intersection LOS: D
Intersection Capacity Utilization 78.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	1043	77	74	303	72	130	625	187	112	478	226
Future Volume (vph)	264	1043	77	74	303	72	130	625	187	112	478	226
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		0	200		0	260		260
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.990			0.971			0.965				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	3270	0	1701	2923	0	1717	3442	0	1640	3433	1494
Flt Permitted	0.409			0.098			0.306			0.106		
Satd. Flow (perm)	706	3270	0	175	2923	0	553	3442	0	183	3433	1494
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			26			32				279
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.85	0.85	0.85	0.81	0.81	0.81
Heavy Vehicles (%)	12%	11%	14%	8%	23%	18%	7%	3%	3%	12%	7%	10%
Adj. Flow (vph)	290	1146	85	82	337	80	153	735	220	138	590	279
Shared Lane Traffic (%)												
Lane Group Flow (vph)	290	1231	0	82	417	0	153	955	0	138	590	279
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0		12.0	32.0		17.0	37.0	37.0
Total Split (s)	18.0	50.0		13.0	45.0		14.0	37.0		20.0	43.0	43.0
Total Split (%)	15.0%	41.7%		10.8%	37.5%		11.7%	30.8%		16.7%	35.8%	35.8%
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2		0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5		3.0	5.2		3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	Ped
Act Effct Green (s)	60.6	48.6		51.5	40.7		49.0	36.5		51.4	37.9	37.9
Actuated g/C Ratio	0.50	0.40		0.43	0.34		0.41	0.30		0.43	0.32	0.32
v/c Ratio	0.62	0.93		0.46	0.41		0.47	0.89		0.62	0.54	0.42
Control Delay	15.4	30.0		25.0	30.4		25.4	50.7		50.5	46.3	15.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	15.4	30.0		25.0	30.4		25.4	50.7		50.5	46.3	15.6
LOS	B	C		C	C		C	D		D	D	B
Approach Delay		27.2			29.5			47.2			38.4	
Approach LOS		C			C			D			D	
Stops (vph)	95	681		42	265		80	692		89	343	108

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	54		2	11		2	21		6	25	10
CO Emissions (g/hr)	770	3743		138	775		169	1481		420	1736	685
NOx Emissions (g/hr)	150	728		27	151		33	288		82	338	133
VOC Emissions (g/hr)	179	868		32	180		39	343		97	402	159
Dilemma Vehicles (#)	0	35		0	15		0	31		0	42	0
Queue Length 50th (ft)	63	506		32	123		70	356		90	186	62
Queue Length 95th (ft)	m81	m#275		61	171		107	#474		m114	222	m96
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250			200			260		260
Base Capacity (vph)	472	1328		205	1007		335	1068		287	1085	662
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.61	0.93		0.40	0.41		0.46	0.89		0.48	0.54	0.42

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 32 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 35.6 Intersection LOS: D
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85

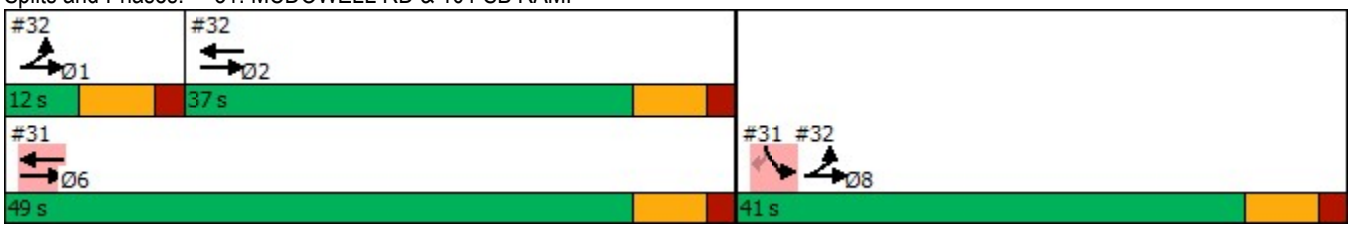
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1300	600	0	600	400		
Future Volume (vph)	0	1300	600	0	600	400		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	1	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6520	3601	0	1801	2836		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6520	3601	0	1801	2836		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						307		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1413	652	0	652	435		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1413	652	0	652	435		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		49.0	49.0		41.0	41.0	12.0	37.0
Total Split (%)		54.4%	54.4%		45.6%	45.6%	13%	41%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		42.0	42.0		34.0	34.0		
Actuated g/C Ratio		0.47	0.47		0.38	0.38		
v/c Ratio		0.46	0.39		0.96	0.34		
Control Delay		17.0	10.4		54.8	6.7		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		17.0	10.4		54.8	6.7		
LOS		B	B		D	A		
Approach Delay		17.0	10.4		35.6			
Approach LOS		B	B		D			
Stops (vph)		839	166		511	84		
Fuel Used(gal)		23	5		22	8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		1615	357		1551	537		
NOx Emissions (g/hr)		314	69		302	104		
VOC Emissions (g/hr)		374	83		359	124		
Dilemma Vehicles (#)		64	72		0	0		
Queue Length 50th (ft)		152	62		355	26		
Queue Length 95th (ft)		183	m61		#581	61		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3042	1680		680	1262		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.46	0.39		0.96	0.34		

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 22.0	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: MCDOWELL RD & 101 SB RAMP



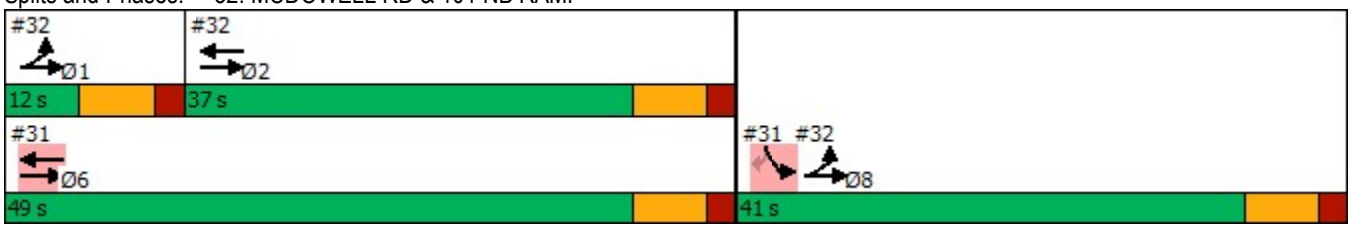
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	500	1400	600	500	0	0			
Future Volume (vph)	500	1400	600	500	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.932						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	3021	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	3021	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			251						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	543	1522	652	543	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	543	1522	1195	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			37.0				12.0	49.0	41.0
Total Split (%)			41.1%				13%	54%	46%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	46.0	90.0	30.0						
Actuated g/C Ratio	0.51	1.00	0.33						
v/c Ratio	0.34	0.47	1.02						
Control Delay	24.0	2.2	55.8						
Queue Delay	0.0	0.0	0.0						
Total Delay	24.0	2.2	55.8						
LOS	C	A	E						
Approach Delay		7.9	55.8						
Approach LOS		A	E						
Stops (vph)	361	271	796						
Fuel Used(gal)	8	8	50						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	588	569	3482						
NOx Emissions (g/hr)	114	111	677						
VOC Emissions (g/hr)	136	132	807						
Dilemma Vehicles (#)	0	0	56						
Queue Length 50th (ft)	119	78	~311						
Queue Length 95th (ft)	m146	m72	#459						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1606	3241	1174						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.34	0.47	1.02						

Intersection Summary	
Area Type: CBD	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 25.5	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: MCDOWELL RD & 101 NB RAMP



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	570	125	423	613	153	167	526	251	170	355	155
Future Volume (vph)	97	570	125	423	613	153	167	526	251	170	355	155
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	230		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.970				0.850		0.954	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	5175	1611	3493	5009	0	1801	3601	1611	1801	3436	0
Flt Permitted	0.338			0.950			0.283			0.201		
Satd. Flow (perm)	628	5175	1611	3493	5009	0	536	3601	1611	381	3436	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130		52				179		48	
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			15.2			9.3			23.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.89	0.89	0.89	0.91	0.91	0.91
Heavy Vehicles (%)	4%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	101	594	130	441	639	159	188	591	282	187	390	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	594	130	441	798	0	188	591	282	187	560	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	13.0	42.0	42.0	39.0	68.0		15.0	45.0	45.0	19.0	49.0	
Total Split (%)	9.0%	29.0%	29.0%	26.9%	46.9%		10.3%	31.0%	31.0%	13.1%	33.8%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	46.7	36.1	36.1	20.1	48.0		38.5	26.1	26.1	42.6	28.2	
Actuated g/C Ratio	0.41	0.31	0.31	0.17	0.42		0.33	0.23	0.23	0.37	0.24	
v/c Ratio	0.30	0.37	0.22	0.73	0.38		0.63	0.72	0.56	0.63	0.64	
Control Delay	18.5	33.4	7.0	53.3	23.1		35.7	47.2	19.3	34.2	39.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.5	33.4	7.0	53.3	23.1		35.7	47.2	19.3	34.2	39.0	
LOS	B	C	A	D	C		D	D	B	C	D	
Approach Delay		27.4			33.9			37.7			37.8	
Approach LOS		C			C			D			D	
Stops (vph)	58	429	16	385	474		120	465	82	110	399	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	12	1	24	36		4	14	4	3	11	
CO Emissions (g/hr)	106	820	65	1664	2490		265	997	255	242	797	
NOx Emissions (g/hr)	21	159	13	324	485		52	194	50	47	155	
VOC Emissions (g/hr)	25	190	15	386	577		61	231	59	56	185	
Dilemma Vehicles (#)	0	24	0	0	26		0	18	0	0	16	
Queue Length 50th (ft)	35	124	0	160	139		93	215	64	93	178	
Queue Length 95th (ft)	75	196	50	238	202		158	297	156	160	254	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160	230			120		120	150		
Base Capacity (vph)	349	1622	594	1073	2737		303	1245	674	334	1339	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.29	0.37	0.22	0.41	0.29		0.62	0.47	0.42	0.56	0.42	

Intersection Summary

Area Type: Other
Cycle Length: 145
Actuated Cycle Length: 115.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 56.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	131	11	45	281	896	0	0	528	345
Future Volume (vph)	0	0	0	131	11	45	281	896	0	0	528	345
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.991	0.850					0.941	
Flt Protected				0.950	0.962		0.950					
Satd. Flow (prot)	0	0	0	1694	1632	1531	1749	3601	0	0	4869	0
Flt Permitted				0.950	0.962		0.950					
Satd. Flow (perm)	0	0	0	1694	1632	1531	1749	3601	0	0	4869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					98	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		12.3			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	3%	2%	2%	5%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	151	13	52	312	996	0	0	562	367
Shared Lane Traffic (%)				44%		10%						
Lane Group Flow (vph)	0	0	0	85	84	47	312	996	0	0	929	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				40.0	40.0	40.0					36.0	
Total Split (%)				26.7%	26.7%	26.7%					24.0%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				13.8	13.8	13.8	54.2	89.9			30.3	
Actuated g/C Ratio				0.12	0.12	0.12	0.47	0.79			0.27	
v/c Ratio				0.42	0.42	0.17	0.38	0.35			0.68	
Control Delay				55.4	54.6	1.3	21.0	1.2			38.0	
Queue Delay				0.0	0.0	0.0	4.5	0.9			0.0	
Total Delay				55.4	54.6	1.3	25.5	2.1			38.0	
LOS				E	D	A	C	A			D	
Approach Delay					43.3			7.7			38.0	
Approach LOS					D			A			D	
Stops (vph)				64	63	0	196	37			685	

Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	45.0	29.0
Total Split (%)	30%	19%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				2	2	0	4	3			21	
CO Emissions (g/hr)				144	141	18	299	190			1465	
NOx Emissions (g/hr)				28	27	3	58	37			285	
VOC Emissions (g/hr)				33	33	4	69	44			339	
Dilemma Vehicles (#)				0	2	0	0	35			38	
Queue Length 50th (ft)				61	61	0	169	8			199	
Queue Length 95th (ft)				124	125	0	m279	42			305	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				534	515	554	841	2858			1365	
Starvation Cap Reductn				0	0	0	446	1480			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.16	0.16	0.08	0.79	0.72			0.68	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 114.2
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS

Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	351	37	208	0	0	0	0	829	153	63	600	0
Future Volume (vph)	351	37	208	0	0	0	0	829	153	63	600	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.982	0.850					0.977				
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4	210					22				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.95	0.95	0.95	0.89	0.89	0.89
Heavy Vehicles (%)	2%	5%	7%	0%	0%	0%	0%	2%	3%	2%	2%	0%
Adj. Flow (vph)	403	43	239	0	0	0	0	873	161	71	674	0
Shared Lane Traffic (%)	41%		12%									
Lane Group Flow (vph)	238	237	210	0	0	0	0	1034	0	71	674	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	29.0	29.0	29.0					36.0				
Total Split (%)	19.3%	19.3%	19.3%					24.0%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	22.4	22.4	22.4					30.3		38.5	79.5	
Actuated g/C Ratio	0.20	0.20	0.20					0.27		0.34	0.70	
v/c Ratio	0.71	0.74	0.46					0.76		0.12	0.27	
Control Delay	57.6	59.3	9.6					43.6		16.6	0.9	
Queue Delay	0.0	0.0	0.0					0.1		0.0	0.1	
Total Delay	57.6	59.3	9.6					43.7		16.6	1.1	
LOS	E	E	A					D		B	A	
Approach Delay		43.5						43.7			2.5	
Approach LOS		D						D			A	
Stops (vph)	179	175	23					840		46	24	

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	45.0	40.0
Total Split (%)	30%	27%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	6	2					44		1	2	
CO Emissions (g/hr)	402	402	113					3099		65	125	
NOx Emissions (g/hr)	78	78	22					603		13	24	
VOC Emissions (g/hr)	93	93	26					718		15	29	
Dilemma Vehicles (#)	0	8	0					42		0	2	
Queue Length 50th (ft)	170	175	0					249		40	8	
Queue Length 95th (ft)	#328	#351	65					#387		m73	9	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	347	331	463					1357		1186	2965	
Starvation Cap Reductn	0	0	0					0		0	1211	
Spillback Cap Reductn	0	0	0					20		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.69	0.72	0.45					0.77		0.06	0.38	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 114.2
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS

Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	206	72	114	474	120	73	630	52	26	590	145
Future Volume (vph)	77	206	72	114	474	120	73	630	52	26	590	145
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	200		150	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1774	1580	1783	1877	1565	1783	3566	1611	1640	3601	1611
Flt Permitted	0.239			0.617			0.330			0.320		
Satd. Flow (perm)	453	1774	1580	1158	1877	1565	619	3566	1611	552	3601	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			124			69			158
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			79.7			59.8	
Peak Hour Factor	0.91	0.91	0.91	0.97	0.97	0.97	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	9%	4%	3%	3%	5%	3%	3%	2%	12%	2%	2%
Adj. Flow (vph)	85	226	79	118	489	124	76	656	54	28	641	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	226	79	118	489	124	76	656	54	28	641	158
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	66.0	66.0	54.0	54.0	54.0	44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	10.9%	60.0%	60.0%	49.1%	49.1%	49.1%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	36.2	34.0	34.0	26.0	26.0	26.0	25.1	25.1	25.1	25.1	25.1	25.1
Actuated g/C Ratio	0.50	0.47	0.47	0.36	0.36	0.36	0.35	0.35	0.35	0.35	0.35	0.35
v/c Ratio	0.24	0.27	0.10	0.28	0.72	0.19	0.35	0.53	0.09	0.15	0.51	0.24
Control Delay	11.0	12.1	3.1	19.8	27.5	4.5	27.2	22.6	4.4	22.8	22.3	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	12.1	3.1	19.8	27.5	4.5	27.2	22.6	4.4	22.8	22.3	4.9
LOS	B	B	A	B	C	A	C	C	A	C	C	A
Approach Delay		10.0			22.4			21.8			19.0	
Approach LOS		B			C			C			B	
Stops (vph)	32	103	8	71	374	15	54	468	6	20	436	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	3	0	5	24	4	4	30	2	1	23	4
CO Emissions (g/hr)	63	186	32	367	1648	309	250	2113	133	72	1623	285
NOx Emissions (g/hr)	12	36	6	71	321	60	49	411	26	14	316	55
VOC Emissions (g/hr)	15	43	7	85	382	72	58	490	31	17	376	66
Dilemma Vehicles (#)	0	11	0	0	26	0	0	35	0	0	32	0
Queue Length 50th (ft)	16	50	0	35	174	0	25	120	0	8	116	0
Queue Length 95th (ft)	48	120	21	92	360	34	80	234	19	35	227	42
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170	200		150	210		160
Base Capacity (vph)	387	1483	1334	821	1331	1145	349	2013	939	311	2033	978
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.15	0.06	0.14	0.37	0.11	0.22	0.33	0.06	0.09	0.32	0.16

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 72
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 19.4 Intersection LOS: B
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: 107TH AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	338	96	129	802	188	82	334	49	122	525	162
Future Volume (vph)	119	338	96	129	802	188	82	334	49	122	525	162
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.967			0.971			0.981			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3482	0	1801	3425	0	1801	3533	0	1749	3467	0
Flt Permitted	0.107			0.424			0.266			0.432		
Satd. Flow (perm)	203	3482	0	804	3425	0	504	3533	0	795	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			29			15			38	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.93	0.93	0.93	0.98	0.98	0.98	0.89	0.89	0.89	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	3%	9%	2%	2%	2%	5%	2%	3%
Adj. Flow (vph)	128	363	103	132	818	192	92	375	55	126	541	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	466	0	132	1010	0	92	430	0	126	708	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	46.0		12.0	46.0		12.0	40.0		12.0	40.0	
Total Split (%)	10.9%	41.8%		10.9%	41.8%		10.9%	36.4%		10.9%	36.4%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	48.8	38.6		48.9	38.6		44.9	35.0		46.3	37.1	
Actuated g/C Ratio	0.44	0.35		0.44	0.35		0.41	0.32		0.42	0.34	
v/c Ratio	0.65	0.37		0.31	0.83		0.32	0.38		0.32	0.59	
Control Delay	32.8	25.3		8.6	17.7		21.5	29.8		21.1	32.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.8	25.3		8.6	17.7		21.5	29.8		21.1	32.1	
LOS	C	C		A	B		C	C		C	C	
Approach Delay		26.9			16.7			28.3			30.5	
Approach LOS		C			B			C			C	
Stops (vph)	68	287		27	350		48	281		74	537	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	10		5	42		2	9		6	35	
CO Emissions (g/hr)	185	670		347	2947		111	613		392	2421	
NOx Emissions (g/hr)	36	130		68	573		22	119		76	471	
VOC Emissions (g/hr)	43	155		80	683		26	142		91	561	
Dilemma Vehicles (#)	0	20		0	71		0	17		0	31	
Queue Length 50th (ft)	48	116		20	92		38	122		53	216	
Queue Length 95th (ft)	#95	160		m28	146		69	165		92	282	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	207	1268		432	1244		303	1132		403	1193	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.62	0.37		0.31	0.81		0.30	0.38		0.31	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 30 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 24.3 Intersection LOS: C
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

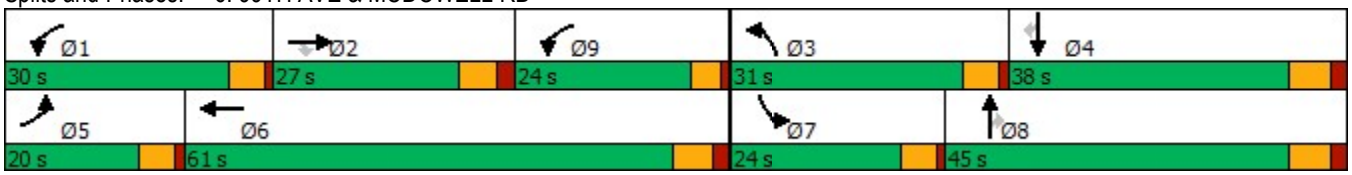
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	633	153	559	967	76	350	505	556	139	602	114
Future Volume (vph)	81	633	153	559	967	76	350	505	556	139	602	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.989				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		6				562			217
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.98	0.98	0.98	0.99	0.99	0.99	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	90	703	170	570	987	78	354	510	562	149	647	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	703	170	570	1065	0	354	510	562	149	647	123
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	20.0	27.0	27.0		61.0		31.0	45.0	45.0	24.0	38.0	38.0
Total Split (%)	13.3%	18.0%	18.0%		40.7%		20.7%	30.0%	30.0%	16.0%	25.3%	25.3%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	Min	None	None
Act Effct Green (s)	9.3	40.5	40.5	33.6	69.8		20.1	33.4	33.4	11.9	25.2	25.2
Actuated g/C Ratio	0.06	0.27	0.27	0.23	0.47		0.14	0.23	0.23	0.08	0.17	0.17
v/c Ratio	0.42	0.73	0.29	0.74	0.64		0.76	0.44	0.53	0.55	0.75	0.27
Control Delay	75.5	55.8	3.0	33.8	32.8		73.6	50.9	5.5	75.1	64.8	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.5	55.8	3.0	33.8	32.8		73.6	50.9	5.5	75.1	64.8	1.5
LOS	E	E	A	C	C		E	D	A	E	E	A
Approach Delay		48.3			33.1			38.6			58.0	
Approach LOS		D			C			D			E	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	30.0	24.0
Total Split (%)	20%	16%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	76	556	5	489	766		326	418	34	129	555	0
Fuel Used(gal)	5	36	5	14	23		11	13	4	5	22	1
CO Emissions (g/hr)	346	2495	376	944	1620		794	937	302	379	1550	99
NOx Emissions (g/hr)	67	485	73	184	315		155	182	59	74	301	19
VOC Emissions (g/hr)	80	578	87	219	375		184	217	70	88	359	23
Dilemma Vehicles (#)	0	21	0	0	28		0	13	0	0	17	0
Queue Length 50th (ft)	43	327	0	140	405		171	154	0	72	218	0
Queue Length 95th (ft)	81	476	21	205	565		252	217	53	122	298	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	352	969	591	1014	1657		611	1357	1156	442	1093	510
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.73	0.29	0.56	0.64		0.58	0.38	0.49	0.34	0.59	0.24

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 147.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 42.3	Intersection LOS: D
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: 99TH AVE & MCDOWELL RD



Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	196	735	346	265	1124	0	0	884	442
Future Volume (vph)	0	0	0	196	735	346	265	1124	0	0	884	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.993	0.850					0.950	
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1443	3039	1393	1586	4916	0	0	5885	0
Flt Permitted				0.950	0.999		0.095					
Satd. Flow (perm)	0	0	0	1443	3039	1393	159	4916	0	0	5885	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	106					81	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.89	0.89	0.89	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	10%	3%	2%	10%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	211	790	372	298	1263	0	0	1016	508
Shared Lane Traffic (%)				10%		10%						
Lane Group Flow (vph)	0	0	0	190	848	335	298	1263	0	0	1524	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2 4	1 2 4			1	
Permitted Phases				3		3	1 2 4					
Detector Phase				3	3	3	2 4	1 2 4			1	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0					20.0	
Minimum Split (s)				45.8	45.8	45.8					28.9	
Total Split (s)				40.0	40.0	40.0					45.0	
Total Split (%)				26.7%	26.7%	26.7%					30.0%	
Yellow Time (s)				3.9	3.9	3.9					4.7	
All-Red Time (s)				1.9	1.9	1.9					1.2	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				5.8	5.8	5.8					5.9	
Lead/Lag				Lead	Lead	Lead					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					C-Min	
Act Effct Green (s)				34.2	34.2	34.2	92.3	104.1			41.9	
Actuated g/C Ratio				0.23	0.23	0.23	0.62	0.69			0.28	
v/c Ratio				0.58	1.22	0.84	0.52	0.37			1.03dr	
Control Delay				59.5	159.3	56.5	27.0	0.1			57.3	
Queue Delay				0.0	0.0	0.0	0.0	0.2			0.0	
Total Delay				59.5	159.3	56.5	27.0	0.3			57.3	
LOS				E	F	E	C	A			E	
Approach Delay					120.4			5.4			57.3	
Approach LOS					F			A			E	
Stops (vph)				157	647	204	233	0			1153	

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	10.0
Minimum Split (s)	30.0	47.8
Total Split (s)	25.0	40.0
Total Split (%)	17%	27%
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.2	1.9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	42	10	5	4			38	
CO Emissions (g/hr)				422	2957	668	369	275			2630	
NOx Emissions (g/hr)				82	575	130	72	53			512	
VOC Emissions (g/hr)				98	685	155	85	64			609	
Dilemma Vehicles (#)				0	21	0	0	0			43	
Queue Length 50th (ft)				183	~591	246	220	0			411	
Queue Length 95th (ft)				279	#743	#431	m236	m0			#443	
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				329	695	399	605	3398			1700	
Starvation Cap Reductn				0	0	0	0	1112			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.58	1.22	0.84	0.49	0.55			0.90	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 58.6 Intersection LOS: E
Intersection Capacity Utilization 64.5% ICU Level of Service C
Analysis Period (min) 15
Description: WB I-10 Off ramp

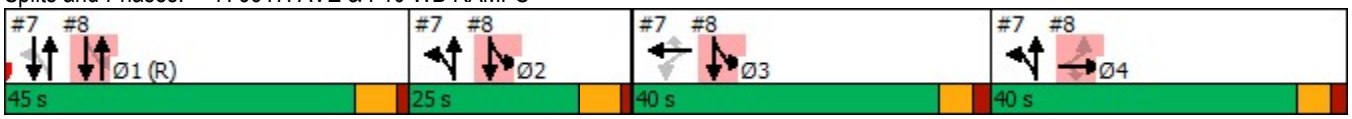
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	136	181	0	0	0	0	1304	475	236	935	0
Future Volume (vph)	273	136	181	0	0	0	0	1304	475	236	935	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		140	0		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.978	0.850						0.850			
Flt Protected	0.950	0.980								0.950		
Satd. Flow (prot)	1557	2828	1146	0	0	0	0	4775	1473	1711	4686	0
Flt Permitted	0.950	0.980								0.095		
Satd. Flow (perm)	1557	2828	1146	0	0	0	0	4775	1473	171	4686	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11	142						355			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.25	0.25	0.25	0.98	0.98	0.98	0.87	0.87	0.87
Heavy Vehicles (%)	2%	6%	24%	0%	0%	0%	0%	5%	6%	2%	7%	0%
Adj. Flow (vph)	294	146	195	0	0	0	0	1331	485	271	1075	0
Shared Lane Traffic (%)	45%		25%									
Lane Group Flow (vph)	162	327	146	0	0	0	0	1331	485	271	1075	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						1		2 3	1 2 3	
Permitted Phases	4		4						1	1 2 3		
Detector Phase	4	4	4					1	1	2 3	1 2 3	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	47.8	47.8	47.8					28.9	28.9			
Total Split (s)	40.0	40.0	40.0					45.0	45.0			
Total Split (%)	26.7%	26.7%	26.7%					30.0%	30.0%			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.8	5.8	5.8					5.9	5.9			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	None	None	None					C-Min	C-Min			
Act Effct Green (s)	31.4	31.4	31.4					41.9	41.9	101.0	106.9	
Actuated g/C Ratio	0.21	0.21	0.21					0.28	0.28	0.67	0.71	
v/c Ratio	0.50	0.54	0.41					1.00	0.73	0.38	0.32	
Control Delay	57.3	54.2	11.4					63.4	13.1	20.6	1.5	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.4	
Total Delay	57.3	54.2	11.4					63.4	13.1	20.6	1.9	
LOS	E	D	B					E	B	C	A	
Approach Delay		45.2						49.9			5.7	
Approach LOS		D						D			A	
Stops (vph)	130	257	20					1154	244	174	45	

Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	30.0	45.8
Total Split (s)	25.0	40.0
Total Split (%)	17%	27%
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.2	1.9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	10	2					64	16	4	4	
CO Emissions (g/hr)	359	706	150					4460	1131	278	286	
NOx Emissions (g/hr)	70	137	29					868	220	54	56	
VOC Emissions (g/hr)	83	164	35					1034	262	64	66	
Dilemma Vehicles (#)	0	9	0					26	0	0	14	
Queue Length 50th (ft)	151	158	3					~526	241	183	19	
Queue Length 95th (ft)	236	216	71					#635	314	m221	m23	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						140			
Base Capacity (vph)	354	653	370					1332	667	721	3338	
Starvation Cap Reductn	0	0	0					0	0	0	1578	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.46	0.50	0.39					1.00	0.73	0.38	0.61	

Intersection Summary

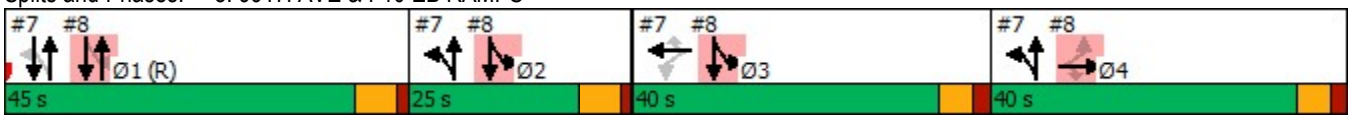
Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 64.5% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

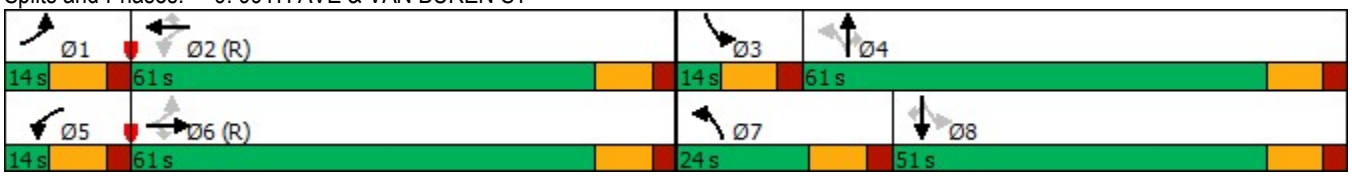
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	116	57	85	417	178	112	839	62	142	668	152
Future Volume (vph)	97	116	57	85	417	178	112	839	62	142	668	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1454	1766	1459	1711	3421	1531	1616	4775	1531	1711	3292	1432
Flt Permitted	0.453			0.676			0.156			0.246		
Satd. Flow (perm)	693	1766	1459	1217	3421	1531	265	4775	1531	443	3292	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			245			245			177			244
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.96	0.96	0.96	0.99	0.99	0.99
Heavy Vehicles (%)	20%	4%	7%	2%	2%	2%	8%	5%	2%	2%	6%	9%
Adj. Flow (vph)	105	126	62	90	444	189	117	874	65	143	675	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	126	62	90	444	189	117	874	65	143	675	154
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	61.0	61.0	14.0	61.0	61.0	24.0	61.0	61.0	14.0	51.0	51.0
Total Split (%)	9.3%	40.7%	40.7%	9.3%	40.7%	40.7%	16.0%	40.7%	40.7%	9.3%	34.0%	34.0%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	67.2	60.0	60.0	65.8	59.3	59.3	53.3	42.1	42.1	40.4	35.6	35.6
Actuated g/C Ratio	0.45	0.40	0.40	0.44	0.40	0.40	0.36	0.28	0.28	0.27	0.24	0.24
v/c Ratio	0.30	0.18	0.08	0.16	0.33	0.25	0.60	0.65	0.12	0.90	0.87	0.29
Control Delay	26.4	32.2	0.2	23.6	33.8	1.8	42.9	49.3	0.4	74.2	48.3	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	32.2	0.2	23.6	33.8	1.8	42.9	49.3	0.4	74.2	48.3	2.8
LOS	C	C	A	C	C	A	D	D	A	E	D	A
Approach Delay		23.4			24.2			45.6			44.9	
Approach LOS		C			C			D			D	
Stops (vph)	65	76	0	55	288	4	72	714	0	84	658	22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	6	2	4	22	8	6	46	2	7	31	4
CO Emissions (g/hr)	326	398	137	306	1567	553	401	3234	150	471	2200	291
NOx Emissions (g/hr)	63	77	27	60	305	108	78	629	29	92	428	57
VOC Emissions (g/hr)	75	92	32	71	363	128	93	749	35	109	510	67
Dilemma Vehicles (#)	0	4	0	0	14	0	0	22	0	0	5	0
Queue Length 50th (ft)	54	81	0	46	163	0	76	275	0	40	364	12
Queue Length 95th (ft)	104	140	0	89	222	16	113	297	0	#137	430	38
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	347	707	731	555	1352	753	232	1648	644	159	917	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.18	0.08	0.16	0.33	0.25	0.50	0.53	0.10	0.90	0.74	0.27

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 38.2 Intersection LOS: D
Intersection Capacity Utilization 61.9% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



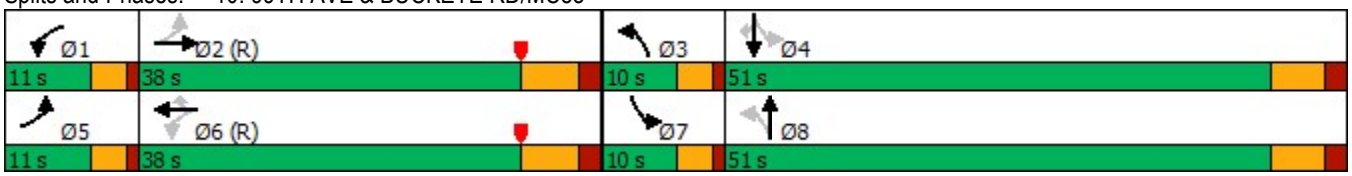
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	323	49	116	818	282	148	531	59	122	541	170
Future Volume (vph)	133	323	49	116	818	282	148	531	59	122	541	170
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.980				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3385	0	1801	3566	1381	1801	3456	0	1413	1895	1611
Flt Permitted	0.117			0.429			0.146			0.297		
Satd. Flow (perm)	220	3385	0	813	3566	1381	277	3456	0	442	1895	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				248		13				185
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4797			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	2%	2%	3%	19%	2%	5%	2%	30%	2%	2%
Adj. Flow (vph)	166	404	61	127	899	310	168	603	67	133	588	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	465	0	127	899	310	168	670	0	133	588	185
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0
Total Split (s)	11.0	38.0		11.0	38.0	38.0	10.0	51.0		10.0	51.0	51.0
Total Split (%)	10.0%	34.5%		10.0%	34.5%	34.5%	9.1%	46.4%		9.1%	46.4%	46.4%
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4		3.0	4.4	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4		4.0	6.4	6.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effct Green (s)	46.0	34.7		43.2	33.4	33.4	49.6	40.9		49.2	40.7	40.7
Actuated g/C Ratio	0.42	0.32		0.39	0.30	0.30	0.45	0.37		0.45	0.37	0.37
v/c Ratio	0.78	0.43		0.33	0.83	0.52	0.79	0.52		0.53	0.84	0.26
Control Delay	63.1	30.4		14.0	31.1	5.7	44.8	27.5		24.4	43.0	4.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	63.1	30.4		14.0	31.1	5.7	44.8	27.5		24.4	43.0	4.0
LOS	E	C		B	C	A	D	C		C	D	A
Approach Delay		39.0			23.6			30.9			32.3	
Approach LOS		D			C			C			C	
Stops (vph)	108	229		38	691	58	80	430		72	479	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	18		5	43	11	4	14		6	29	6
CO Emissions (g/hr)	547	1279		334	3005	741	252	954		399	2053	435
NOx Emissions (g/hr)	106	249		65	585	144	49	186		78	400	85
VOC Emissions (g/hr)	127	296		77	697	172	58	221		93	476	101
Dilemma Vehicles (#)	0	52		0	37	0	0	21		0	22	0
Queue Length 50th (ft)	98	113		25	286	17	62	181		49	360	0
Queue Length 95th (ft)	#160	151		51	#411	22	#127	223		84	495	43
Internal Link Dist (ft)		5209			4717			274			849	
Turn Bay Length (ft)	160			170		250	190			250		250
Base Capacity (vph)	213	1078		387	1081	591	212	1408		251	768	763
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.78	0.43		0.33	0.83	0.52	0.79	0.48		0.53	0.77	0.24

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 71 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 30.0 Intersection LOS: C
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85



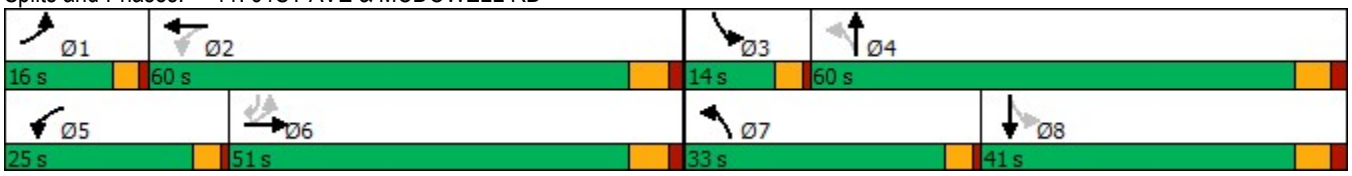
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	438	212	187	683	155	287	718	151	94	589	112
Future Volume (vph)	118	438	212	187	683	155	287	718	151	94	589	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.951			0.972			0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3243	0	1711	3325	0	1711	3332	0	1711	3421	1531
Flt Permitted	0.152			0.201			0.190			0.193		
Satd. Flow (perm)	274	3243	0	362	3325	0	342	3332	0	348	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			20			19				138
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			12.7			47.9	
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	130	481	233	210	767	174	305	764	161	100	627	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	714	0	210	941	0	305	925	0	100	627	119
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	16.0	51.0		25.0	60.0		33.0	60.0		14.0	41.0	51.0
Total Split (%)	10.7%	34.0%		16.7%	40.0%		22.0%	40.0%		9.3%	27.3%	34.0%
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4		4.0	6.4		4.0	6.0		4.0	6.0	6.4
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min		None	None		None	None	Min
Act Effct Green (s)	53.5	41.2		62.4	46.3		60.7	46.1		43.4	33.0	41.2
Actuated g/C Ratio	0.41	0.31		0.47	0.35		0.46	0.35		0.33	0.25	0.31
v/c Ratio	0.60	0.68		0.65	0.80		0.80	0.78		0.50	0.73	0.21
Control Delay	33.4	41.2		31.4	44.4		42.4	43.7		32.6	52.9	4.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	33.4	41.2		31.4	44.4		42.4	43.7		32.6	52.9	4.7
LOS	C	D		C	D		D	D		C	D	A
Approach Delay		40.0			42.0			43.4			43.7	
Approach LOS		D			D			D			D	
Stops (vph)	70	508		107	713		186	737		61	522	8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	28		9	45		6	19		3	23	2
CO Emissions (g/hr)	323	1957		623	3144		402	1355		211	1587	162
NOx Emissions (g/hr)	63	381		121	612		78	264		41	309	32
VOC Emissions (g/hr)	75	454		144	729		93	314		49	368	38
Dilemma Vehicles (#)	0	21		0	28		0	28		0	18	0
Queue Length 50th (ft)	66	273		113	397		180	390		52	275	0
Queue Length 95th (ft)	113	380		175	501		291	496		93	380	34
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	251	1189		393	1404		468	1417		226	956	633
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.52	0.60		0.53	0.67		0.65	0.65		0.44	0.66	0.19

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 131.6
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 42.4 Intersection LOS: D
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	147	13	191	191	978	0	0	894	207
Future Volume (vph)	0	0	0	147	13	191	191	978	0	0	894	207
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.899	0.850					0.972	
Flt Protected				0.950	0.989		0.950					
Satd. Flow (prot)	0	0	0	1711	1524	1531	1801	3601	0	0	3500	0
Flt Permitted				0.950	0.989		0.089					
Satd. Flow (perm)	0	0	0	1711	1524	1531	169	3601	0	0	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					64	125					31	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			12.7	
Peak Hour Factor	0.25	0.25	0.25	0.90	0.90	0.90	0.96	0.96	0.96	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	8%	2%	2%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	163	14	212	199	1019	0	0	982	227
Shared Lane Traffic (%)				17%		41%						
Lane Group Flow (vph)	0	0	0	135	129	125	199	1019	0	0	1209	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				30.0	30.0	30.0	30.0					
Total Split (%)				21.4%	21.4%	21.4%	21.4%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				24.3	24.3	24.3	67.3	72.4			75.0	
Actuated g/C Ratio				0.18	0.18	0.18	0.49	0.53			0.55	
v/c Ratio				0.45	0.40	0.34	0.57	0.54			0.63	
Control Delay				56.8	30.4	10.7	28.4	5.9			23.3	
Queue Delay				0.0	0.0	0.0	0.0	0.9			0.6	
Total Delay				56.8	30.4	10.7	28.4	6.7			23.9	
LOS				E	C	B	C	A			C	
Approach Delay					33.2			10.3			23.9	
Approach LOS					C			B			C	
Stops (vph)				108	54	16	163	109			723	

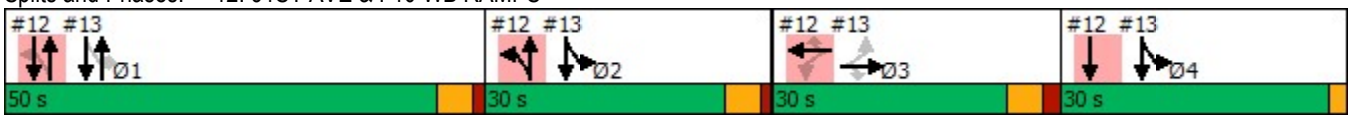
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	50.0	30.0
Total Split (%)	36%	21%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	3	2	3	6			18	
CO Emissions (g/hr)				281	181	112	212	390			1249	
NOx Emissions (g/hr)				55	35	22	41	76			243	
VOC Emissions (g/hr)				65	42	26	49	90			290	
Dilemma Vehicles (#)				0	4	0	0	0			40	
Queue Length 50th (ft)				117	57	0	141	58			387	
Queue Length 95th (ft)				190	129	60	m166	m65			462	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				302	322	373	381	1961			1920	
Starvation Cap Reductn				0	0	0	0	603			338	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.45	0.40	0.34	0.52	0.75			0.76	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 137.6
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 54.7% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	4	88	0	0	0	0	1045	179	217	814	0
Future Volume (vph)	128	4	88	0	0	0	0	1045	179	217	814	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	0		240	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.967								0.950		
Satd. Flow (prot)	1678	1556	1446	0	0	0	0	3601	1611	1801	3601	0
Flt Permitted	0.950	0.967								0.089		
Satd. Flow (perm)	1678	1556	1446	0	0	0	0	3601	1611	169	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11	76						131			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.90	0.90	0.90	0.25	0.25	0.25	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	4%	2%	8%	0%	0%	0%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	142	4	98	0	0	0	0	1077	185	231	866	0
Shared Lane Traffic (%)	40%		22%									
Lane Group Flow (vph)	85	83	76	0	0	0	0	1077	185	231	866	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					50.0	50.0			
Total Split (%)	21.4%	21.4%	21.4%					35.7%	35.7%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	24.3	24.3	24.3					44.9	44.9	92.3	102.5	
Actuated g/C Ratio	0.18	0.18	0.18					0.33	0.33	0.67	0.74	
v/c Ratio	0.29	0.29	0.24					0.92	0.30	0.34	0.32	
Control Delay	53.1	46.5	12.2					57.6	12.7	17.0	2.5	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.2	
Total Delay	53.1	46.5	12.2					57.6	12.7	17.0	2.8	
LOS	D	D	B					E	B	B	A	
Approach Delay		38.1						51.0			5.8	
Approach LOS		D						D			A	
Stops (vph)	65	56	13					945	44	108	111	

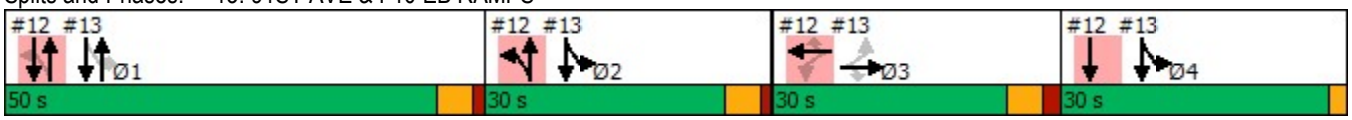
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	30.0	30.0
Total Split (%)	21%	21%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	2	1					50	6	2	4	
CO Emissions (g/hr)	175	158	78					3518	426	165	297	
NOx Emissions (g/hr)	34	31	15					685	83	32	58	
VOC Emissions (g/hr)	41	37	18					815	99	38	69	
Dilemma Vehicles (#)	0	3	0					37	0	0	1	
Queue Length 50th (ft)	71	63	0					500	35	72	59	
Queue Length 95th (ft)	128	120	48					#635	95	144	70	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	296	284	318					1175	614	707	2747	
Starvation Cap Reductn	0	0	0					0	0	0	1029	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.29	0.29	0.24					0.92	0.30	0.33	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 137.6
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 30.7 Intersection LOS: C
Intersection Capacity Utilization 54.7% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	227	98	120	354	270	78	708	161	72	519	101
Future Volume (vph)	171	227	98	120	354	270	78	708	161	72	519	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1801	1531	1711	1801	1531	1711	3421	1487	1694	3421	1516
Flt Permitted	0.121			0.518			0.399			0.271		
Satd. Flow (perm)	218	1801	1531	933	1801	1531	718	3421	1487	483	3421	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133			271			124			141
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.91	0.91	0.91	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	3%	2%	3%
Adj. Flow (vph)	197	261	113	135	398	303	86	778	177	75	541	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	261	113	135	398	303	86	778	177	75	541	105
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	25.0	38.0	38.0	25.0	38.0	38.0	25.0	58.0	58.0	19.0	52.0	52.0
Total Split (%)	17.9%	27.1%	27.1%	17.9%	27.1%	27.1%	17.9%	41.4%	41.4%	13.6%	37.1%	37.1%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	54.6	34.0	34.0	45.6	28.9	28.9	73.7	61.6	61.6	73.0	61.2	61.2
Actuated g/C Ratio	0.39	0.24	0.24	0.33	0.21	0.21	0.53	0.44	0.44	0.52	0.44	0.44
v/c Ratio	0.75	0.60	0.24	0.37	1.07	0.57	0.20	0.52	0.24	0.24	0.36	0.14
Control Delay	49.8	53.4	5.3	30.9	119.1	12.5	16.8	30.7	9.6	17.5	28.1	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	53.4	5.3	30.9	119.1	12.5	16.8	30.7	9.6	17.5	28.1	2.0
LOS	D	D	A	C	F	B	B	C	A	B	C	A
Approach Delay		42.7			66.3			26.0			23.2	
Approach LOS		D			E			C			C	
Stops (vph)	119	197	8	83	302	43	37	506	35	36	342	4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	13	4	6	25	12	4	35	7	3	21	3
CO Emissions (g/hr)	682	928	311	425	1719	834	248	2480	473	186	1462	214
NOx Emissions (g/hr)	133	181	61	83	335	162	48	482	92	36	284	42
VOC Emissions (g/hr)	158	215	72	99	398	193	57	575	110	43	339	50
Dilemma Vehicles (#)	0	0	0	0	0	0	0	25	0	0	19	0
Queue Length 50th (ft)	122	212	0	80	~401	24	36	266	28	31	171	0
Queue Length 95th (ft)	187	296	31	122	#597	111	68	358	84	61	239	17
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	309	436	472	473	371	531	545	1505	723	396	1495	742
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.60	0.24	0.29	1.07	0.57	0.16	0.52	0.24	0.19	0.36	0.14

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 39.0 Intersection LOS: D
Intersection Capacity Utilization 65.7% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: 91ST AVE & VAN BUREN ST

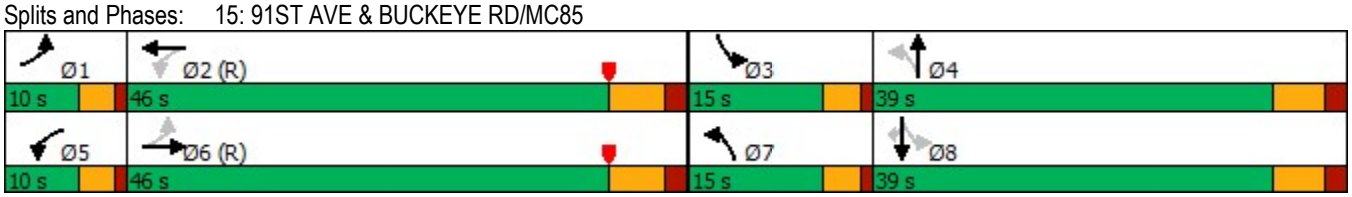
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	338	65	91	851	145	171	511	30	118	437	155
Future Volume (vph)	101	338	65	91	851	145	171	511	30	118	437	155
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.976			0.978			0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1717	4695	0	1766	4851	0	1733	5111	0	1717	3601	1550
Flt Permitted	0.184			0.495			0.316			0.356		
Satd. Flow (perm)	332	4695	0	920	4851	0	576	5111	0	643	3601	1550
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			34			8				167
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		447			450			399			4882	
Travel Time (s)		6.1			6.1			6.0			74.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	7%	11%	3%	4%	7%	3%	6%	2%	10%	7%	2%	6%
Adj. Flow (vph)	106	356	68	101	946	161	182	544	32	127	470	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	424	0	101	1107	0	182	576	0	127	470	167
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	10.0	46.0		10.0	46.0		15.0	39.0		15.0	39.0	39.0
Total Split (%)	9.1%	41.8%		9.1%	41.8%		13.6%	35.5%		13.6%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	57.4	47.6		57.0	47.4		37.9	25.2		35.7	24.0	24.0
Actuated g/C Ratio	0.52	0.43		0.52	0.43		0.34	0.23		0.32	0.22	0.22
v/c Ratio	0.40	0.21		0.19	0.52		0.59	0.49		0.42	0.60	0.36
Control Delay	28.2	26.0		8.3	12.8		31.5	37.3		26.8	41.3	7.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	28.2	26.0		8.3	12.8		31.5	37.3		26.8	41.3	7.1
LOS	C	C		A	B		C	D		C	D	A
Approach Delay		26.4			12.4			35.9			31.4	
Approach LOS		C			B			D			C	
Stops (vph)	70	556		24	302		117	446		77	378	19

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	24		3	40		4	14		6	23	6
CO Emissions (g/hr)	350	1683		245	2782		276	982		396	1636	409
NOx Emissions (g/hr)	68	327		48	541		54	191		77	318	80
VOC Emissions (g/hr)	81	390		57	645		64	228		92	379	95
Dilemma Vehicles (#)	0	67		0	35		0	20		0	16	0
Queue Length 50th (ft)	49	72		20	90		89	128		60	158	0
Queue Length 95th (ft)	106	110		37	106		129	154		93	195	50
Internal Link Dist (ft)		367			370			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	267	2054		534	2110		317	1529		325	1073	579
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.40	0.21		0.19	0.52		0.57	0.38		0.39	0.44	0.29

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 7 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 56.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85



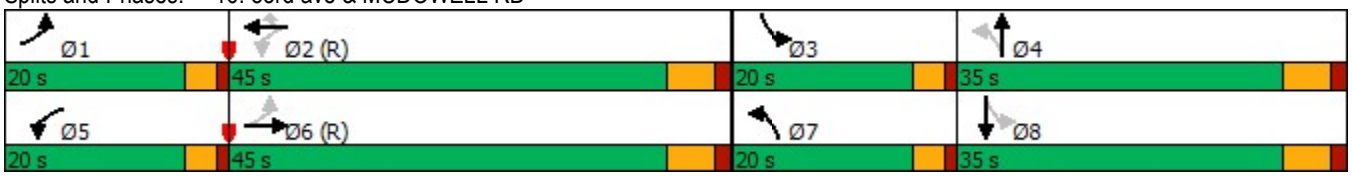
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	552	110	273	888	300	197	886	171	167	739	125
Future Volume (vph)	145	552	110	273	888	300	197	886	171	167	739	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.975				0.850		0.976			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3336	0	1711	3421	1531	1711	4798	0	1711	4808	0
Flt Permitted	0.159			0.219			0.138			0.137		
Satd. Flow (perm)	286	3336	0	394	3421	1531	248	4798	0	247	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				314		31			26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	161	613	122	297	965	326	212	953	184	178	786	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	735	0	297	965	326	212	1137	0	178	919	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9		11.0	32.9	
Total Split (s)	20.0	45.0		20.0	45.0	45.0	20.0	35.0		20.0	35.0	
Total Split (%)	16.7%	37.5%		16.7%	37.5%	37.5%	16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6		1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9		4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	55.5	42.3		62.0	45.9	45.9	46.2	30.4		43.5	29.1	
Actuated g/C Ratio	0.46	0.35		0.52	0.38	0.38	0.38	0.25		0.36	0.24	
v/c Ratio	0.61	0.62		0.81	0.74	0.42	0.80	0.92		0.74	0.78	
Control Delay	26.1	34.8		42.1	23.2	1.5	49.5	54.7		43.6	46.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.1	34.8		42.1	23.2	1.5	49.5	54.7		43.6	46.4	
LOS	C	C		D	C	A	D	D		D	D	
Approach Delay		33.2			22.3			53.9			45.9	
Approach LOS		C			C			D			D	
Stops (vph)	81	527		190	649	13	135	936		114	768	
Fuel Used(gal)	7	34		14	43	11	5	29		6	34	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	471	2368		987	2999	741	332	2045		427	2400	
NOx Emissions (g/hr)	92	461		192	584	144	65	398		83	467	
VOC Emissions (g/hr)	109	549		229	695	172	77	474		99	556	
Dilemma Vehicles (#)	0	28		0	8	0	0	39		0	32	
Queue Length 50th (ft)	65	250		103	306	4	106	300		87	234	
Queue Length 95th (ft)	107	320		m#213	m#370	m9	#210	#409		153	290	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	333	1189		378	1309	779	293	1243		290	1201	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.48	0.62		0.79	0.74	0.42	0.72	0.91		0.61	0.77	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 38.2 Intersection LOS: D
Intersection Capacity Utilization 75.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: 83rd ave & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	181	10	410	583	1078	0	0	649	497
Future Volume (vph)	0	0	0	181	10	410	583	1078	0	0	649	497
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.869	0.850						0.850
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1586	1481	1531	3330	3601	0	0	5124	1611
Flt Permitted				0.950	0.996		0.950					
Satd. Flow (perm)	0	0	0	1586	1481	1531	3330	3601	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					87	87						558
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.88	0.88	0.88	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	10%	6%	2%	7%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	206	11	466	641	1185	0	0	729	558
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	185	251	247	641	1185	0	0	729	558
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							60.0				70.0	70.0
Total Split (%)							30.0%				35.0%	35.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				Min	Min
Act Effct Green (s)				31.2	31.2	31.2	65.6	109.9			37.9	37.9
Actuated g/C Ratio				0.20	0.20	0.20	0.43	0.72			0.25	0.25
v/c Ratio				0.57	0.68	0.65	0.45	0.46			0.57	0.68
Control Delay				65.0	47.8	45.9	7.1	6.6			52.9	8.2
Queue Delay				0.0	0.0	0.0	1.0	0.4			0.0	0.0
Total Delay				65.0	47.8	45.9	8.1	7.0			52.9	8.2
LOS				E	D	D	A	A			D	A
Approach Delay					51.7			7.4			33.6	
Approach LOS					D			A			C	
Stops (vph)				141	132	127	195	584			545	37

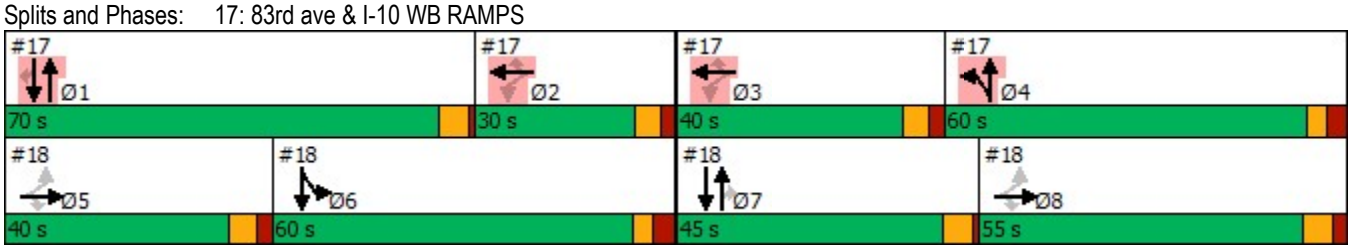
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	30.0	40.0	40.0	60.0	45.0	55.0
Total Split (%)	15%	20%	20%	30%	23%	28%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	6	6	5	12			17	4
CO Emissions (g/hr)				391	425	409	363	858			1214	283
NOx Emissions (g/hr)				76	83	80	71	167			236	55
VOC Emissions (g/hr)				91	98	95	84	199			281	66
Dilemma Vehicles (#)				0	6	0	0	0			17	0
Queue Length 50th (ft)				176	169	156	16	1			232	0
Queue Length 95th (ft)				301	312	290	m256	m646			321	95
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				608	621	641	1433	3193			2231	1016
Starvation Cap Reductn				0	0	0	505	1362			0	0
Spillback Cap Reductn				0	0	0	0	0			9	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.30	0.40	0.39	0.69	0.65			0.33	0.55

Intersection Summary

Area Type: Other
Cycle Length: 200
Actuated Cycle Length: 153.1
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 24.2 Intersection LOS: C
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	3	423	0	0	0	0	1267	423	228	683	0
Future Volume (vph)	420	3	423	0	0	0	0	1267	423	228	683	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.919	0.850						0.850			
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1711	1453	1369	0	0	0	0	5075	1454	3493	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1711	1453	1369	0	0	0	0	5075	1454	3493	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38	156						225			
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			61.2			7.7	
Peak Hour Factor	0.86	0.86	0.86	0.25	0.25	0.25	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	33%	14%	0%	0%	0%	0%	4%	13%	2%	5%	0%
Adj. Flow (vph)	488	3	492	0	0	0	0	1408	470	243	727	0
Shared Lane Traffic (%)	30%		36%									
Lane Group Flow (vph)	342	326	315	0	0	0	0	1408	470	243	727	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								45.0	45.0	60.0		
Total Split (%)								22.5%	22.5%	30.0%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	Min		
Act Effct Green (s)	47.6	47.6	47.6					40.9	40.9	45.5	91.9	
Actuated g/C Ratio	0.31	0.31	0.31					0.27	0.27	0.30	0.60	
v/c Ratio	0.64	0.68	0.59					1.04	0.85	0.23	0.35	
Control Delay	52.4	49.3	26.9					88.3	44.4	14.2	7.6	
Queue Delay	0.0	0.0	0.0					24.5	0.0	0.0	0.9	
Total Delay	52.4	49.3	26.9					112.8	44.4	14.2	8.5	
LOS	D	D	C					F	D	B	A	
Approach Delay		43.2						95.7			9.9	
Approach LOS		D						F			A	
Stops (vph)	242	210	113					1023	201	99	470	

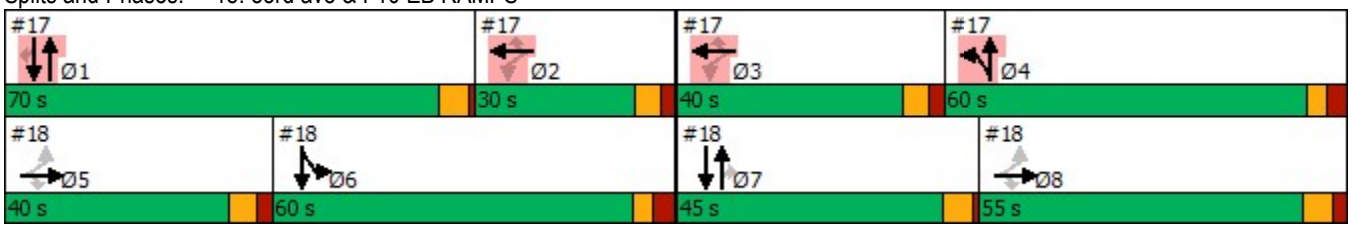
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	70.0	30.0	40.0	60.0	40.0	55.0
Total Split (%)	35%	15%	20%	30%	20%	28%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	9	6					64	16	3	9	
CO Emissions (g/hr)	666	604	419					4450	1125	185	640	
NOx Emissions (g/hr)	129	117	82					866	219	36	125	
VOC Emissions (g/hr)	154	140	97					1031	261	43	148	
Dilemma Vehicles (#)	0	7	0					37	0	0	1	
Queue Length 50th (ft)	309	279	141					~556	252	26	279	
Queue Length 95th (ft)	461	430	256					#930	#603	91	405	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	821	717	738					1356	553	1311	2100	
Starvation Cap Reductn	0	0	0					0	0	0	1017	
Spillback Cap Reductn	3	3	0					84	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.42	0.46	0.43					1.11	0.85	0.19	0.67	

Intersection Summary

Area Type: Other
Cycle Length: 200
Actuated Cycle Length: 153.1
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 60.5 Intersection LOS: E
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	194	56	145	420	426	73	888	49	116	852	156
Future Volume (vph)	174	194	56	145	420	426	73	888	49	116	852	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.966			0.924			0.992			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3194	0	1586	3041	0	1631	4688	0	1363	3226	0
Flt Permitted	0.112			0.574			0.109			0.151		
Satd. Flow (perm)	189	3194	0	958	3041	0	187	4688	0	217	3226	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			203			7			19	
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			61.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	9%	6%	4%	10%	3%	9%	7%	6%	8%	28%	6%	4%
Adj. Flow (vph)	202	226	65	169	488	495	86	1045	58	127	936	171
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	291	0	169	983	0	86	1103	0	127	1107	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0		20.0	30.0		20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0		25.0	45.0		25.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%		20.8%	37.5%		20.8%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	52.2	36.4		47.6	33.6		56.1	44.9		59.5	48.1	
Actuated g/C Ratio	0.44	0.30		0.40	0.28		0.47	0.37		0.50	0.40	
v/c Ratio	0.81	0.29		0.38	0.99		0.45	0.63		0.62	0.85	
Control Delay	53.4	31.5		21.6	45.6		22.1	32.1		28.6	39.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.4	31.5		21.6	45.6		22.1	32.1		28.6	39.4	
LOS	D	C		C	D		C	C		C	D	
Approach Delay		40.5			42.1			31.4			38.3	
Approach LOS		D			D			C			D	
Stops (vph)	108	172		70	542		37	735		60	879	

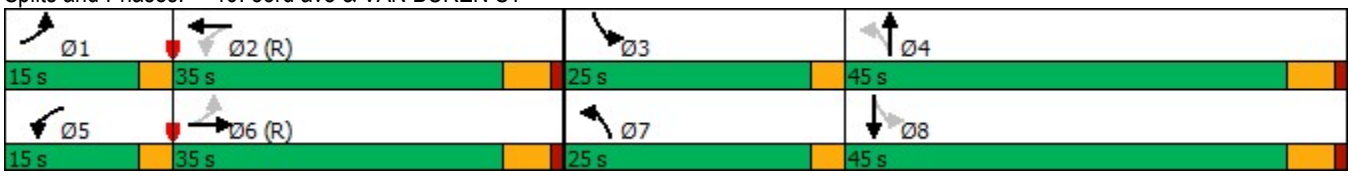
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	13		6	43		3	48		4	41	
CO Emissions (g/hr)	668	888		450	3019		231	3322		286	2881	
NOx Emissions (g/hr)	130	173		87	587		45	646		56	561	
VOC Emissions (g/hr)	155	206		104	700		53	770		66	668	
Dilemma Vehicles (#)	0	10		0	41		0	31		0	34	
Queue Length 50th (ft)	102	83		67	~221		33	248		51	405	
Queue Length 95th (ft)	#248	123		m77	m#227		52	270		79	480	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250			230		
Base Capacity (vph)	250	989		455	997		359	1770		319	1305	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.81	0.29		0.37	0.99		0.24	0.62		0.40	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 71 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 37.6 Intersection LOS: D
Intersection Capacity Utilization 78.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



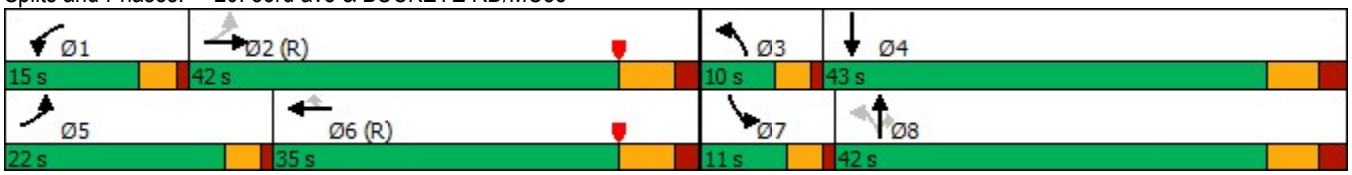
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	315	91	105	824	186	91	473	29	101	736	170
Future Volume (vph)	166	315	91	105	824	186	91	473	29	101	736	170
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.966				0.850			0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	4645	0	3493	4887	1454	1801	3566	1536	2897	4921	0
Flt Permitted	0.239			0.950			0.186			0.950		
Satd. Flow (perm)	444	4645	0	3493	4887	1454	353	3566	1536	2897	4921	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70				194			156		51	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		460			509			976			400	
Travel Time (s)		6.3			6.9			14.8			6.1	
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	4%	12%	2%	2%	8%	13%	2%	3%	7%	23%	2%	14%
Adj. Flow (vph)	171	325	94	109	858	194	101	526	32	105	767	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	419	0	109	858	194	101	526	32	105	944	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	22.0	42.0		15.0	35.0	35.0	10.0	42.0	42.0	11.0	43.0	
Total Split (%)	20.0%	38.2%		13.6%	31.8%	31.8%	9.1%	38.2%	38.2%	10.0%	39.1%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	55.9	42.9		7.8	40.3	40.3	40.0	31.2	31.2	6.7	31.8	
Actuated g/C Ratio	0.51	0.39		0.07	0.37	0.37	0.36	0.28	0.28	0.06	0.29	
v/c Ratio	0.49	0.23		0.44	0.48	0.30	0.48	0.52	0.06	0.59	0.65	
Control Delay	25.0	16.1		54.2	29.2	5.5	27.9	34.6	0.2	64.4	34.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.0	16.1		54.2	29.2	5.5	27.9	34.6	0.2	64.4	34.1	
LOS	C	B		D	C	A	C	C	A	E	C	
Approach Delay		18.7			27.6			31.9			37.1	
Approach LOS		B			C			C			D	
Stops (vph)	126	199		98	623	21	57	382	0	98	724	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	18		6	42	7	2	11	0	6	47	
CO Emissions (g/hr)	574	1235		430	2929	470	126	775	13	422	3256	
NOx Emissions (g/hr)	112	240		84	570	91	25	151	3	82	634	
VOC Emissions (g/hr)	133	286		100	679	109	29	180	3	98	755	
Dilemma Vehicles (#)	0	4		0	37	0	0	17	0	0	35	
Queue Length 50th (ft)	61	49		38	169	0	44	163	0	37	199	
Queue Length 95th (ft)	129	61		65	237	53	75	206	0	67	234	
Internal Link Dist (ft)		380			429			896			320	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	448	1852		349	1790	655	210	1144	598	184	1658	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.38	0.23		0.31	0.48	0.30	0.48	0.46	0.05	0.57	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 54 (49%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 57.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	539	132	238	1033	286	231	915	149	265	786	135
Future Volume (vph)	123	539	132	238	1033	286	231	915	149	265	786	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.970			0.967			0.979			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4768	0	1694	4754	0	1711	4813	0	1711	4808	0
Flt Permitted	0.098			0.269			0.137			0.135		
Satd. Flow (perm)	176	4768	0	480	4754	0	247	4813	0	243	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			60			24			26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	132	580	142	253	1099	304	260	1028	167	294	873	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	722	0	253	1403	0	260	1195	0	294	1023	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2		6.0	48.2		10.0	30.8		10.0	30.8	
Total Split (s)	22.0	43.0		22.0	43.0		20.0	35.0		20.0	35.0	
Total Split (%)	18.3%	35.8%		18.3%	35.8%		16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8		4.0	5.8		4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	52.5	40.7		60.7	45.2		46.5	29.2		47.5	29.7	
Actuated g/C Ratio	0.44	0.34		0.51	0.38		0.39	0.24		0.40	0.25	
v/c Ratio	0.64	0.44		0.65	0.77		0.92	1.01		1.01	0.85	
Control Delay	41.7	46.6		25.1	18.2		66.2	71.8		88.5	49.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.7	46.6		25.1	18.2		66.2	71.8		88.5	49.7	
LOS	D	D		C	B		E	E		F	D	
Approach Delay		45.9			19.2			70.8			58.3	
Approach LOS		D			B			E			E	
Stops (vph)	100	1328		128	902		155	947		174	825	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	46		11	61		6	33		8	24	
CO Emissions (g/hr)	457	3218		760	4248		442	2324		581	1701	
NOx Emissions (g/hr)	89	626		148	827		86	452		113	331	
VOC Emissions (g/hr)	106	746		176	985		102	539		135	394	
Dilemma Vehicles (#)	0	27		0	47		0	42		0	35	
Queue Length 50th (ft)	82	202		60	109		146	~338		~182	272	
Queue Length 95th (ft)	m127	m247		m113	m211		#294	#435		#366	329	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	317	1651		425	1827		291	1189		291	1209	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.42	0.44		0.60	0.77		0.89	1.01		1.01	0.85	

Intersection Summary

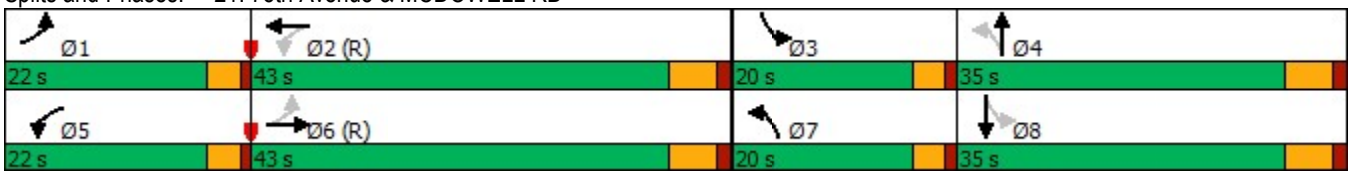
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 47.5 Intersection LOS: D
Intersection Capacity Utilization 79.7% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	170	10	454	377	1220	0	0	774	354
Future Volume (vph)	0	0	0	170	10	454	377	1220	0	0	774	354
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.867	0.850						0.850
Flt Protected				0.950	0.997		0.950					
Satd. Flow (prot)	0	0	0	1572	1482	1531	1655	5175	0	0	5124	1611
Flt Permitted				0.950	0.997		0.950					
Satd. Flow (perm)	0	0	0	1572	1482	1531	1655	5175	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					23	62						299
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	11%	2%	2%	11%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	202	12	540	414	1341	0	0	841	385
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	182	286	286	414	1341	0	0	841	385
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							65.0				30.0	30.0
Total Split (%)							34.2%				15.8%	15.8%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				Min	Min
Act Effct Green (s)				41.6	41.6	41.6	65.3	98.3			25.2	25.2
Actuated g/C Ratio				0.27	0.27	0.27	0.43	0.65			0.17	0.17
v/c Ratio				0.42	0.68	0.62	0.58	0.40			0.99	0.74
Control Delay				49.1	54.2	43.7	9.1	1.6			90.0	25.5
Queue Delay				0.0	0.0	0.0	2.6	0.5			1.8	0.0
Total Delay				49.1	54.2	43.7	11.6	2.1			91.8	25.5
LOS				D	D	D	B	A			F	C
Approach Delay					49.0			4.3			71.0	
Approach LOS					D			A			E	
Stops (vph)				119	191	159	167	290			655	86

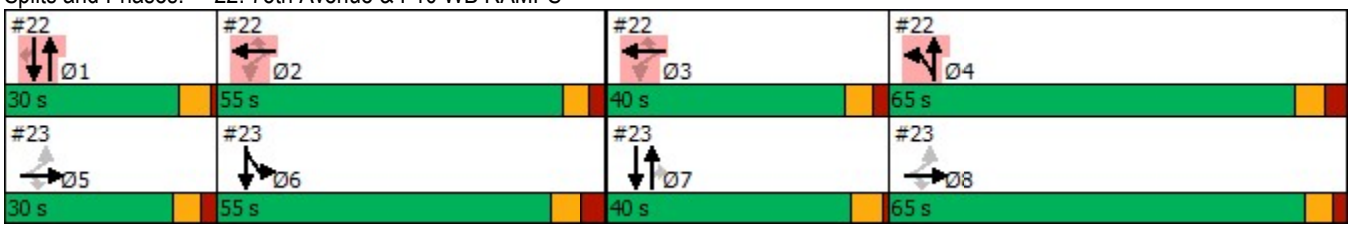
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	55.0	40.0	30.0	55.0	40.0	65.0
Total Split (%)	29%	21%	16%	29%	21%	34%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	8	7	4	8			27	5
CO Emissions (g/hr)				328	536	472	283	570			1861	341
NOx Emissions (g/hr)				64	104	92	55	111			362	66
VOC Emissions (g/hr)				76	124	109	66	132			431	79
Dilemma Vehicles (#)				0	6	0	0	0			23	0
Queue Length 50th (ft)				152	251	201	75	1			302	76
Queue Length 95th (ft)				242	381	315	m172	m38			#564	#255
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				714	686	730	730	3354			852	517
Starvation Cap Reductn				0	0	0	201	1383			0	0
Spillback Cap Reductn				21	19	0	0	0			7	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.26	0.43	0.39	0.78	0.68			1.00	0.74

Intersection Summary

Area Type: Other
Cycle Length: 190
Actuated Cycle Length: 151.6
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 35.2 Intersection LOS: D
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	644	4	451	0	0	0	0	983	242	316	682	0
Future Volume (vph)	644	4	451	0	0	0	0	983	242	316	682	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	0		150	0		0
Storage Lanes	1		1	0		0	0		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt		0.957	0.850						0.850			
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1551	1394	0	0	0	0	3532	1536	3493	3465	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1551	1394	0	0	0	0	3532	1536	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14	139						107			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.95	0.95	0.95	0.25	0.25	0.25	0.91	0.91	0.91	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	12%	0%	0%	0%	0%	4%	7%	2%	6%	0%
Adj. Flow (vph)	678	4	475	0	0	0	0	1080	266	333	718	0
Shared Lane Traffic (%)	41%		24%									
Lane Group Flow (vph)	400	396	361	0	0	0	0	1080	266	333	718	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								40.0	40.0	55.0		
Total Split (%)								21.1%	21.1%	28.9%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	Min		
Act Effct Green (s)	54.1	54.1	54.1					35.4	35.4	42.4	83.2	
Actuated g/C Ratio	0.36	0.36	0.36					0.23	0.23	0.28	0.55	
v/c Ratio	0.66	0.70	0.62					1.31	0.60	0.34	0.38	
Control Delay	46.7	48.0	28.7					192.1	40.2	7.0	8.6	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	1.6	
Total Delay	46.7	48.0	28.7					192.1	40.2	7.0	10.2	
LOS	D	D	C					F	D	A	B	
Approach Delay		41.5						162.1			9.2	
Approach LOS		D						F			A	
Stops (vph)	305	300	171					741	131	148	457	

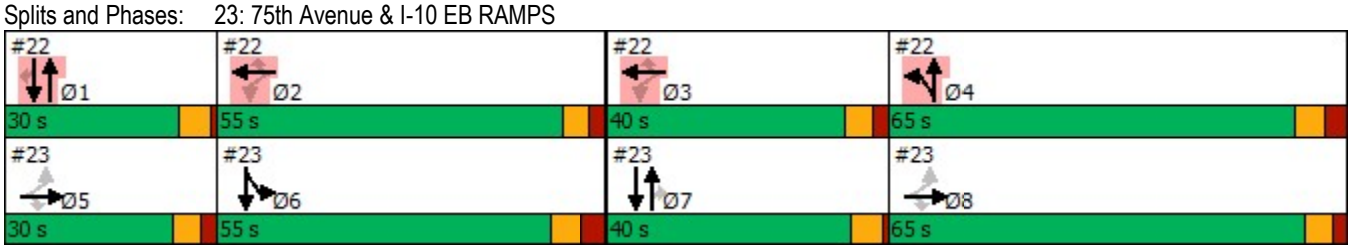
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	30.0	55.0	40.0	65.0	30.0	65.0
Total Split (%)	16%	29%	21%	34%	16%	34%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	11	8					71	9	3	9	
CO Emissions (g/hr)	789	786	533					4982	659	235	643	
NOx Emissions (g/hr)	153	153	104					969	128	46	125	
VOC Emissions (g/hr)	183	182	124					1155	153	54	149	
Dilemma Vehicles (#)	0	10	0					25	0	0	0	
Queue Length 50th (ft)	343	351	188					~707	139	22	314	
Queue Length 95th (ft)	525	548	338					#1147	308	m90	m428	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	798	730	724					825	441	1145	1858	
Starvation Cap Reductn	0	0	0					0	0	0	915	
Spillback Cap Reductn	2	2	0					5	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.50	0.54	0.50					1.32	0.60	0.29	0.76	

Intersection Summary

Area Type: Other
Cycle Length: 190
Actuated Cycle Length: 151.6
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 77.6 Intersection LOS: E
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	219	56	123	661	217	133	738	99	137	786	128
Future Volume (vph)	33	219	56	123	661	217	133	738	99	137	786	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		270	250		0	220		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.969				0.850		0.982			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3008	0	1631	1733	1473	1531	3233	0	1504	3110	0
Flt Permitted	0.094			0.493			0.101			0.114		
Satd. Flow (perm)	158	3008	0	846	1733	1473	163	3233	0	180	3110	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30				168		13			16	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	9%	11%	18%	7%	6%	6%	14%	6%	6%	16%	10%	9%
Adj. Flow (vph)	38	249	64	132	711	233	149	829	111	152	873	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	313	0	132	711	233	149	940	0	152	1015	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		2.0	15.0	
Minimum Split (s)	9.5	52.0		9.5	52.0	52.0	9.5	34.0		16.0	50.0	
Total Split (s)	12.0	48.0		12.0	48.0	48.0	16.0	44.0		16.0	44.0	
Total Split (%)	10.0%	40.0%		10.0%	40.0%	40.0%	13.3%	36.7%		13.3%	36.7%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	5.3		4.0	5.3	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes	Yes		Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	50.3	42.7		52.9	47.6	47.6	51.7	39.8		51.3	39.1	
Actuated g/C Ratio	0.42	0.36		0.44	0.40	0.40	0.43	0.33		0.43	0.33	
v/c Ratio	0.26	0.29		0.31	1.03	0.34	0.76	0.87		0.77	0.99	
Control Delay	34.8	33.8		7.8	58.2	1.0	54.7	36.9		49.3	66.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	34.8	33.8		7.8	58.2	1.0	54.7	36.9		49.3	66.4	
LOS	C	C		A	E	A	D	D		D	E	
Approach Delay		33.9			39.6			39.3			64.2	
Approach LOS		C			D			D			E	
Stops (vph)	25	385		22	508	3	122	781		83	801	

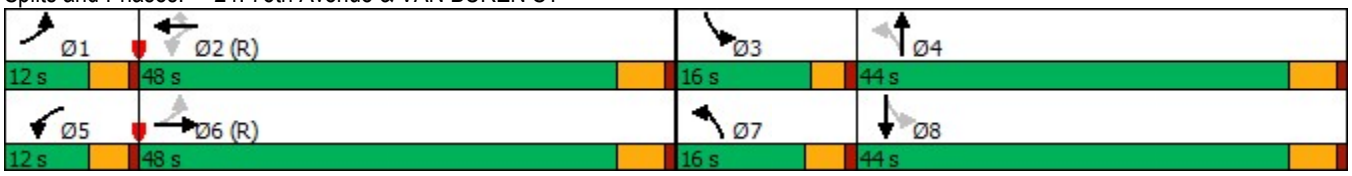
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	16		5	37	8	8	45		6	44	
CO Emissions (g/hr)	116	1110		334	2606	536	530	3136		398	3096	
NOx Emissions (g/hr)	23	216		65	507	104	103	610		78	602	
VOC Emissions (g/hr)	27	257		77	604	124	123	727		92	717	
Dilemma Vehicles (#)	0	36		0	8	0	0	17		0	35	
Queue Length 50th (ft)	18	71		18	~647	0	52	384		68	~408	
Queue Length 95th (ft)	m51	151		m26	m#888	m1	m#127	#479		#163	#561	
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200			200		270	250			220		
Base Capacity (vph)	157	1089		422	687	685	201	1080		211	1023	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.29		0.31	1.03	0.34	0.74	0.87		0.72	0.99	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 111 (93%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 46.8 Intersection LOS: D
Intersection Capacity Utilization 81.6% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	335	85	151	887	128	97	486	54	143	556	85
Future Volume (vph)	47	335	85	151	887	128	97	486	54	143	556	85
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		0	260		0	270		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.981			0.985			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	3113	1442	1685	3317	0	1685	3269	0	1640	3345	0
Flt Permitted	0.156			0.453			0.211			0.135		
Satd. Flow (perm)	267	3113	1442	803	3317	0	374	3269	0	233	3345	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104		13			10			14	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4741			2586			1298			2861	
Travel Time (s)		64.7			35.3			19.7			43.3	
Peak Hour Factor	0.82	0.82	0.82	0.91	0.91	0.91	0.78	0.78	0.78	0.95	0.95	0.95
Heavy Vehicles (%)	13%	18%	14%	9%	8%	13%	9%	10%	17%	12%	8%	5%
Adj. Flow (vph)	57	409	104	166	975	141	124	623	69	151	585	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	409	104	166	1116	0	124	692	0	151	674	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		
Detector Phase	1	6	6	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0		17.0	30.0		17.0	30.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		20.0	40.0		20.0	40.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		16.7%	33.3%		16.7%	33.3%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	60.9	51.3	51.3	67.9	56.8		40.2	28.6		45.9	31.4	
Actuated g/C Ratio	0.51	0.43	0.43	0.57	0.47		0.34	0.24		0.38	0.26	
v/c Ratio	0.27	0.31	0.15	0.31	0.71		0.55	0.88		0.66	0.76	
Control Delay	17.7	25.7	6.0	14.5	22.8		32.7	56.6		38.2	51.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.7	25.7	6.0	14.5	22.8		32.7	56.6		38.2	51.8	
LOS	B	C	A	B	C		C	E		D	D	
Approach Delay		21.3			21.8			53.0			49.3	
Approach LOS		C			C			D			D	
Stops (vph)	24	222	11	49	425		63	500		125	916	

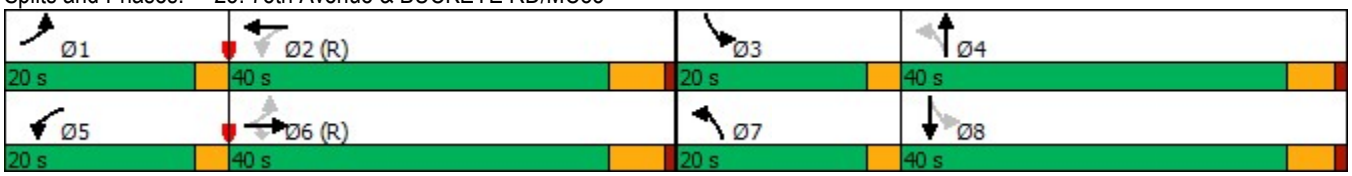
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	16	3	6	45		2	17		8	40	
CO Emissions (g/hr)	147	1141	217	436	3155		157	1188		531	2811	
NOx Emissions (g/hr)	29	222	42	85	614		31	231		103	547	
VOC Emissions (g/hr)	34	264	50	101	731		36	275		123	651	
Dilemma Vehicles (#)	0	14	0	0	65		0	19		0	6	
Queue Length 50th (ft)	19	108	0	32	143		63	268		106	284	
Queue Length 95th (ft)	42	161	32	m79	#544		79	266		m117	m300	
Internal Link Dist (ft)		4661			2506			1218			2781	
Turn Bay Length (ft)	260		190	270			260			270		
Base Capacity (vph)	342	1330	675	579	1576		328	946		288	989	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.31	0.15	0.29	0.71		0.38	0.73		0.52	0.68	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 35.5 Intersection LOS: D
Intersection Capacity Utilization 62.8% ICU Level of Service B
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



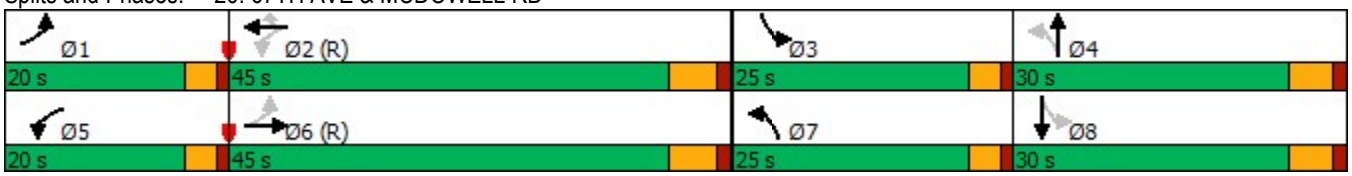
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	538	151	196	1096	277	219	802	86	179	720	157
Future Volume (vph)	147	538	151	196	1096	277	219	802	86	179	720	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.967				0.850		0.985			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3308	0	1711	3421	1531	1711	4842	0	1711	4783	0
Flt Permitted	0.089			0.241			0.138			0.148		
Satd. Flow (perm)	160	3308	0	434	3421	1531	248	4842	0	266	4783	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				236		14			36	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	158	578	162	211	1178	298	241	881	95	203	818	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	740	0	211	1178	298	241	976	0	203	996	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		8.0	15.0	
Minimum Split (s)	11.0	50.3		9.0	48.3	48.3	9.0	33.0		12.0	28.3	
Total Split (s)	20.0	45.0		20.0	45.0	45.0	25.0	30.0		25.0	30.0	
Total Split (%)	16.7%	37.5%		16.7%	37.5%	37.5%	20.8%	25.0%		20.8%	25.0%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		Min	Ped	
Act Effct Green (s)	58.0	45.1		60.4	46.3	46.3	46.6	28.9		43.0	27.1	
Actuated g/C Ratio	0.48	0.38		0.50	0.39	0.39	0.39	0.24		0.36	0.23	
v/c Ratio	0.71	0.59		0.60	0.89	0.40	0.82	0.83		0.75	0.90	
Control Delay	44.8	44.8		23.8	45.4	8.8	50.5	49.9		44.5	55.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	44.8	44.8		23.8	45.4	8.8	50.5	49.9		44.5	55.3	
LOS	D	D		C	D	A	D	D		D	E	
Approach Delay		44.8			36.2			50.0			53.5	
Approach LOS		D			D			D			D	
Stops (vph)	118	829		107	906	53	159	772		127	763	
Fuel Used(gal)	8	40		4	30	3	5	22		7	36	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	544	2788		270	2114	237	357	1526		462	2491	
NOx Emissions (g/hr)	106	542		53	411	46	69	297		90	485	
VOC Emissions (g/hr)	126	646		63	490	55	83	354		107	577	
Dilemma Vehicles (#)	0	82		0	43	0	0	31		0	32	
Queue Length 50th (ft)	95	228		89	457	31	124	251		101	260	
Queue Length 95th (ft)	m133	m309		138	#660	109	221	#368		169	#359	
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	289	1264		394	1321	736	355	1175		358	1108	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.55	0.59		0.54	0.89	0.40	0.68	0.83		0.57	0.90	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 45.3 Intersection LOS: D
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	139	400	388	404	767	0	0	732	246
Future Volume (vph)	0	0	0	139	400	388	404	767	0	0	732	246
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.962	0.850						0.850
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1533	3128	1466	1733	5175	0	0	5175	1611
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1533	3128	1466	1733	5175	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					28	97						220
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.89	0.89	0.89	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	9%	2%	2%	6%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	165	476	462	454	862	0	0	787	265
Shared Lane Traffic (%)				10%		36%						
Lane Group Flow (vph)	0	0	0	148	659	296	454	862	0	0	787	265
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							65.0				30.0	30.0
Total Split (%)							34.2%				15.8%	15.8%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							1.0				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							5.3				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				Min	Min
Act Effct Green (s)				51.2	51.2	51.2	56.6	86.9			25.0	25.0
Actuated g/C Ratio				0.34	0.34	0.34	0.38	0.59			0.17	0.17
v/c Ratio				0.28	0.60	0.52	0.69	0.28			0.90	0.58
Control Delay				36.9	40.8	28.8	11.4	1.5			75.3	18.8
Queue Delay				0.0	0.0	0.0	2.4	0.3			0.0	0.0
Total Delay				36.9	40.8	28.8	13.9	1.8			75.3	18.8
LOS				D	D	C	B	A			E	B
Approach Delay					37.1			6.0			61.1	
Approach LOS					D			A			E	
Stops (vph)				85	420	129	238	168			645	50

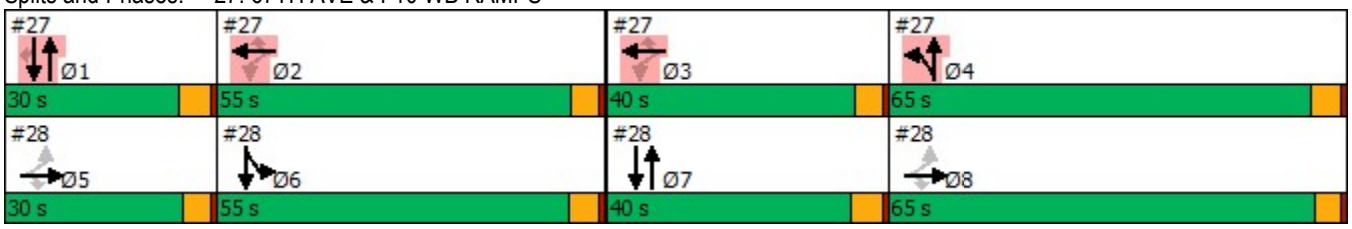
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.9	30.0	30.0	30.0	30.0
Total Split (s)	55.0	40.0	30.0	55.0	40.0	65.0
Total Split (%)	29%	21%	16%	29%	21%	34%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				3	15	5	5	5			22	3
CO Emissions (g/hr)				215	1025	366	330	323			1529	201
NOx Emissions (g/hr)				42	199	71	64	63			297	39
VOC Emissions (g/hr)				50	238	85	76	75			354	47
Dilemma Vehicles (#)				0	15	0	0	0			23	0
Queue Length 50th (ft)				112	289	165	161	10			274	37
Queue Length 95th (ft)				176	359	257	m372	m58			#459	151
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				777	1599	791	718	3020			871	454
Starvation Cap Reductn				0	0	0	152	1375			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.19	0.41	0.37	0.80	0.52			0.90	0.58

Intersection Summary

Area Type: Other
Cycle Length: 190
Actuated Cycle Length: 148.5
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 32.6 Intersection LOS: C
Intersection Capacity Utilization 56.5% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	500	250	275	0	0	0	0	1208	159	252	580	0
Future Volume (vph)	500	250	275	0	0	0	0	1208	159	252	580	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	0.91	0.97	0.95	1.00
Frt		0.988	0.850					0.983				
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1639	3131	1359	0	0	0	0	5003	0	3493	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1639	3131	1359	0	0	0	0	5003	0	3493	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6	190					11				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	3%	9%	2%	5%	0%
Adj. Flow (vph)	588	294	324	0	0	0	0	1313	173	274	630	0
Shared Lane Traffic (%)	48%		15%									
Lane Group Flow (vph)	306	625	275	0	0	0	0	1486	0	274	630	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								40.0		55.0		
Total Split (%)								21.1%		28.9%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		1.0		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		5.3		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		Min		
Act Effct Green (s)	45.9	45.9	45.9					35.1		51.8	92.3	
Actuated g/C Ratio	0.31	0.31	0.31					0.24		0.35	0.62	
v/c Ratio	0.60	0.64	0.50					1.25		0.22	0.29	
Control Delay	49.8	47.5	16.4					163.6		3.8	4.8	
Queue Delay	0.0	0.0	0.0					0.1		0.0	0.9	
Total Delay	49.8	47.5	16.4					163.6		3.8	5.7	
LOS	D	D	B					F		A	A	
Approach Delay		41.0						163.6			5.1	
Approach LOS		D						F			A	
Stops (vph)	212	438	61					1071		99	388	

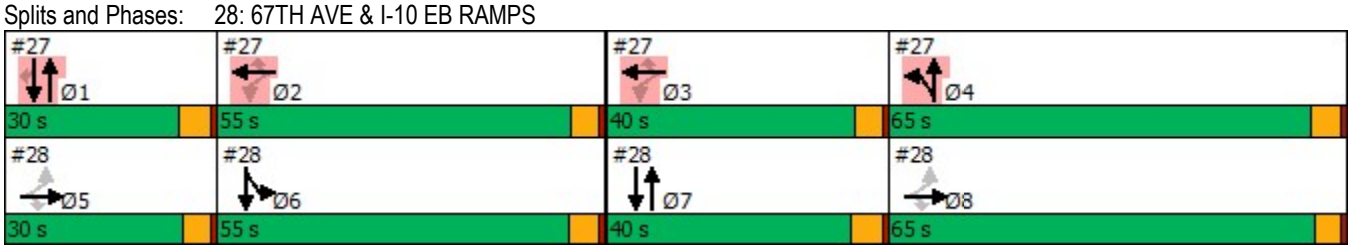
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.9	30.0	30.0	30.0
Total Split (s)	30.0	55.0	40.0	65.0	30.0	65.0
Total Split (%)	16%	29%	21%	34%	16%	34%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	16	4					91		2	6	
CO Emissions (g/hr)	559	1130	280					6379		145	450	
NOx Emissions (g/hr)	109	220	54					1241		28	88	
VOC Emissions (g/hr)	130	262	65					1478		33	104	
Dilemma Vehicles (#)	0	14	0					37		0	0	
Queue Length 50th (ft)	276	300	68					~648		4	0	
Queue Length 95th (ft)	394	381	151					#950		m11	m367	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	718	1375	702					1191		1280	2160	
Starvation Cap Reductn	0	0	0					0		0	1196	
Spillback Cap Reductn	4	7	0					16		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.43	0.46	0.39					1.26		0.21	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 190
Actuated Cycle Length: 148.5
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 82.7 Intersection LOS: F
Intersection Capacity Utilization 56.5% ICU Level of Service B
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

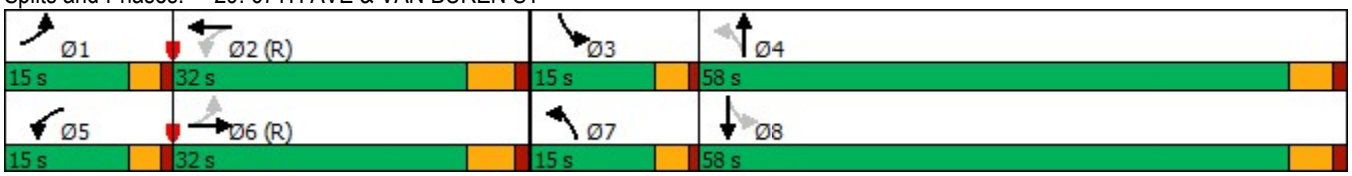
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	352	96	204	773	131	177	902	107	88	440	82
Future Volume (vph)	114	352	96	204	773	131	177	902	107	88	440	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		0	250		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.968			0.978			0.984			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3077	0	1646	4601	0	1572	3251	0	1572	3096	0
Flt Permitted	0.138			0.263			0.340			0.086		
Satd. Flow (perm)	222	3077	0	456	4601	0	563	3251	0	142	3096	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			25			13			23	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91
Heavy Vehicles (%)	14%	10%	9%	6%	6%	10%	11%	5%	11%	11%	10%	10%
Adj. Flow (vph)	133	409	112	234	889	151	203	1037	123	97	484	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	521	0	234	1040	0	203	1160	0	97	574	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	9.0	52.0		9.0	52.0		9.0	50.0		9.0	50.0	
Total Split (s)	15.0	32.0		15.0	32.0		15.0	58.0		15.0	58.0	
Total Split (%)	12.5%	26.7%		12.5%	26.7%		12.5%	48.3%		12.5%	48.3%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7		4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes			Yes			Yes	
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	42.3	29.0		47.4	32.0		59.7	47.3		57.7	46.3	
Actuated g/C Ratio	0.35	0.24		0.40	0.27		0.50	0.39		0.48	0.39	
v/c Ratio	0.65	0.68		0.72	0.83		0.55	0.90		0.52	0.48	
Control Delay	41.7	45.5		42.1	48.5		25.0	43.7		26.9	27.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.7	45.5		42.1	48.5		25.0	43.7		26.9	27.3	
LOS	D	D		D	D		C	D		C	C	
Approach Delay		44.7			47.4			40.9			27.2	
Approach LOS		D			D			D			C	
Stops (vph)	79	396		135	749		95	681		45	358	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	25		6	32		8	51		3	20	
CO Emissions (g/hr)	415	1730		452	2218		567	3598		223	1388	
NOx Emissions (g/hr)	81	337		88	431		110	700		43	270	
VOC Emissions (g/hr)	96	401		105	514		132	834		52	322	
Dilemma Vehicles (#)	0	6		0	35		0	89		0	16	
Queue Length 50th (ft)	72	196		125	284		80	342		36	163	
Queue Length 95th (ft)	m113	m242		#226	#375		m113	384		74	200	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250			250			250			260		
Base Capacity (vph)	209	764		324	1246		372	1432		200	1369	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.64	0.68		0.72	0.83		0.55	0.81		0.48	0.42	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 41.3 Intersection LOS: D
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	431	86	143	895	112	102	558	52	58	485	173
Future Volume (vph)	119	431	86	143	895	112	102	558	52	58	485	173
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		0	200		0	260		260
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.975			0.983			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1701	3101	0	1749	3202	0	1783	3445	0	1371	3465	1480
Flt Permitted	0.133			0.321			0.264			0.143		
Satd. Flow (perm)	238	3101	0	591	3202	0	496	3445	0	206	3465	1480
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			13			8				178
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.79	0.79	0.79	0.97	0.97	0.97
Heavy Vehicles (%)	8%	17%	8%	5%	12%	19%	3%	5%	8%	34%	6%	11%
Adj. Flow (vph)	153	553	110	155	973	122	129	706	66	60	500	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	663	0	155	1095	0	129	772	0	60	500	178
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0		12.0	32.0		17.0	37.0	37.0
Total Split (s)	14.0	43.0		21.0	50.0		18.0	38.0		18.0	38.0	38.0
Total Split (%)	11.7%	35.8%		17.5%	41.7%		15.0%	31.7%		15.0%	31.7%	31.7%
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2		0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5		3.0	5.2		3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	Ped
Act Effct Green (s)	67.2	53.9		66.8	53.8		43.5	31.6		38.4	27.4	27.4
Actuated g/C Ratio	0.56	0.45		0.56	0.45		0.36	0.26		0.32	0.23	0.23
v/c Ratio	0.58	0.47		0.36	0.76		0.43	0.84		0.40	0.63	0.37
Control Delay	34.1	20.5		15.4	33.4		29.0	50.9		35.1	52.1	10.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.1	20.5		15.4	33.4		29.0	50.9		35.1	52.1	10.5
LOS	C	C		B	C		C	D		D	D	B
Approach Delay		23.0			31.1			47.7			40.7	
Approach LOS		C			C			D			D	
Stops (vph)	95	237		67	795		66	559		40	401	62

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	23		3	31		2	16		3	26	7
CO Emissions (g/hr)	424	1590		235	2196		140	1142		200	1838	498
NOx Emissions (g/hr)	83	309		46	427		27	222		39	358	97
VOC Emissions (g/hr)	98	369		55	509		32	265		46	426	115
Dilemma Vehicles (#)	0	16		0	41		0	21		0	39	0
Queue Length 50th (ft)	49	130		53	371		67	301		32	183	13
Queue Length 95th (ft)	116	145		102	#553		86	296		m49	194	m43
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250			200			260		260
Base Capacity (vph)	278	1404		518	1443		342	967		219	951	535
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.55	0.47		0.30	0.76		0.38	0.80		0.27	0.53	0.33

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 35.3 Intersection LOS: D
Intersection Capacity Utilization 62.8% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1300	600	0	500	1000		
Future Volume (vph)	0	1300	600	0	500	1000		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	1	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6520	3601	0	1801	2836		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6520	3601	0	1801	2836		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						362		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1413	652	0	543	1087		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1413	652	0	543	1087		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		53.0	53.0		37.0	37.0	13.0	40.0
Total Split (%)		58.9%	58.9%		41.1%	41.1%	14%	44%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		46.0	46.0		30.0	30.0		
Actuated g/C Ratio		0.51	0.51		0.33	0.33		
v/c Ratio		0.42	0.35		0.91	0.92		
Control Delay		14.2	8.7		49.8	32.4		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		14.2	8.7		49.8	32.4		
LOS		B	A		D	C		
Approach Delay		14.2	8.7		38.2			
Approach LOS		B	A		D			
Stops (vph)		765	156		431	642		
Fuel Used(gal)		21	5		18	30		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		1500	333		1261	2083		
NOx Emissions (g/hr)		292	65		245	405		
VOC Emissions (g/hr)		348	77		292	483		
Dilemma Vehicles (#)		61	59		0	0		
Queue Length 50th (ft)		138	58		292	236		
Queue Length 95th (ft)		165	m57		#486	#386		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3332	1840		600	1186		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.42	0.35		0.91	0.92		

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 23.8	Intersection LOS: C
Intersection Capacity Utilization 100.6%	ICU Level of Service G
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: MCDOWELL RD & 101 SB RAMP

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	400	1400	600	600	0	0			
Future Volume (vph)	400	1400	600	600	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.925						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	2998	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	2998	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			317						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	435	1522	652	652	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	435	1522	1304	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			40.0				13.0	53.0	37.0
Total Split (%)			44.4%				14%	59%	41%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	43.0	90.0	33.0						
Actuated g/C Ratio	0.48	1.00	0.37						
v/c Ratio	0.29	0.47	1.00						
Control Delay	26.5	2.4	48.6						
Queue Delay	0.0	0.0	0.0						
Total Delay	26.5	2.4	48.6						
LOS	C	A	D						
Approach Delay		7.7	48.6						
Approach LOS		A	D						
Stops (vph)	298	301	851						
Fuel Used(gal)	7	9	52						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	492	598	3663						
NOx Emissions (g/hr)	96	116	713						
VOC Emissions (g/hr)	114	139	849						
Dilemma Vehicles (#)	0	0	62						
Queue Length 50th (ft)	101	87	~315						
Queue Length 95th (ft)	m129	m94	#479						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1502	3241	1300						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.29	0.47	1.00						

Intersection Summary	
Area Type: CBD	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 100.6%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 101: MCDOWELL RD & 101 NB RAMP

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	511	71	193	255	55	62	444	270	101	412	93
Future Volume (vph)	72	511	71	193	255	55	62	444	270	101	412	93
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	230		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.973				0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	5124	1595	3493	4874	0	1801	3601	1611	1701	3494	0
Flt Permitted	0.553			0.950			0.304			0.239		
Satd. Flow (perm)	1009	5124	1595	3493	4874	0	576	3601	1611	428	3494	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		44				240		19	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			15.2			9.3			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.98	0.98	0.98	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles (%)	6%	3%	3%	2%	5%	7%	2%	2%	2%	8%	2%	3%
Adj. Flow (vph)	76	538	75	197	260	56	65	467	284	104	425	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	538	75	197	316	0	65	467	284	104	521	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	20.0	55.0	55.0	20.0	55.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	16.0%	44.0%	44.0%	16.0%	44.0%		16.0%	24.0%	24.0%	16.0%	24.0%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	58.9	49.0	49.0	12.0	55.6		29.9	20.0	20.0	34.6	24.2	
Actuated g/C Ratio	0.53	0.44	0.44	0.11	0.50		0.27	0.18	0.18	0.31	0.22	
v/c Ratio	0.13	0.24	0.10	0.52	0.13		0.26	0.72	0.59	0.41	0.67	
Control Delay	11.4	21.0	3.3	53.2	14.6		29.2	50.4	14.1	32.2	44.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	11.4	21.0	3.3	53.2	14.6		29.2	50.4	14.1	32.2	44.2	
LOS	B	C	A	D	B		C	D	B	C	D	
Approach Delay		18.0			29.5			36.1			42.2	
Approach LOS		B			C			D			D	
Stops (vph)	34	308	6	175	139		42	403	54	68	433	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	8	0	11	13		1	12	3	2	14	
CO Emissions (g/hr)	63	578	30	758	925		90	871	224	159	964	
NOx Emissions (g/hr)	12	112	6	148	180		18	169	44	31	188	
VOC Emissions (g/hr)	15	134	7	176	214		21	202	52	37	223	
Dilemma Vehicles (#)	0	23	0	0	11		0	17	0	0	18	
Queue Length 50th (ft)	21	85	0	69	38		32	165	27	53	177	
Queue Length 95th (ft)	49	134	22	114	66		67	240	115	99	253	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160	230			120		120	150		
Base Capacity (vph)	706	2254	753	504	2455		360	793	542	322	819	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.11	0.24	0.10	0.39	0.13		0.18	0.59	0.52	0.32	0.64	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 111.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 44.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	81	3	30	216	747	0	0	475	183
Future Volume (vph)	0	0	0	81	3	30	216	747	0	0	475	183
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.991	0.850					0.958	
Flt Protected				0.950	0.958		0.950					
Satd. Flow (prot)	0	0	0	1662	1596	1531	1685	3601	0	0	4957	0
Flt Permitted				0.950	0.958		0.950					
Satd. Flow (perm)	0	0	0	1662	1596	1531	1685	3601	0	0	4957	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					55	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		12.3			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.89	0.89	0.89	0.93	0.93	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	2%	2%	9%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	91	3	34	232	803	0	0	516	199
Shared Lane Traffic (%)				47%		10%						
Lane Group Flow (vph)	0	0	0	48	49	31	232	803	0	0	715	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				40.0	40.0	40.0					30.0	
Total Split (%)				26.7%	26.7%	26.7%					20.0%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				13.6	13.6	13.6	55.1	84.6			24.1	
Actuated g/C Ratio				0.13	0.13	0.13	0.51	0.78			0.22	
v/c Ratio				0.23	0.24	0.11	0.27	0.29			0.63	
Control Delay				47.2	46.1	0.8	15.2	0.9			38.9	
Queue Delay				0.0	0.0	0.0	1.4	0.7			0.0	
Total Delay				47.2	46.1	0.8	16.6	1.7			38.9	
LOS				D	D	A	B	A			D	
Approach Delay					35.5			5.0			38.9	
Approach LOS					D			A			D	
Stops (vph)				38	37	0	142	26			535	

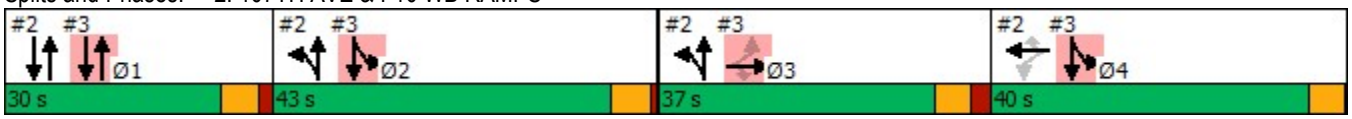
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	43.0	37.0
Total Split (%)	29%	25%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				1	1	0	3	2			16	
CO Emissions (g/hr)				79	79	12	205	152			1129	
NOx Emissions (g/hr)				15	15	2	40	30			220	
VOC Emissions (g/hr)				18	18	3	47	35			262	
Dilemma Vehicles (#)				0	1	0	0	21			30	
Queue Length 50th (ft)				31	32	0	114	7			152	
Queue Length 95th (ft)				74	78	0	m177	26			224	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				547	526	574	854	2802			1143	
Starvation Cap Reductn				0	0	0	438	1564			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.09	0.09	0.05	0.56	0.65			0.63	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 108.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 20.0 Intersection LOS: C
Intersection Capacity Utilization 44.5% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	117	433	0	0	0	0	655	214	43	525	0
Future Volume (vph)	298	117	433	0	0	0	0	655	214	43	525	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.924	0.850					0.963				
Flt Protected	0.950	0.995								0.950		
Satd. Flow (prot)	1711	1564	1501	0	0	0	0	4947	0	1717	3601	0
Flt Permitted	0.950	0.995								0.950		
Satd. Flow (perm)	1711	1564	1501	0	0	0	0	4947	0	1717	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31	339					47				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.97	0.97	0.97	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	4%	0%	0%	0%	0%	3%	2%	7%	2%	0%
Adj. Flow (vph)	359	141	522	0	0	0	0	675	221	48	590	0
Shared Lane Traffic (%)	10%		35%									
Lane Group Flow (vph)	323	360	339	0	0	0	0	896	0	48	590	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	37.0	37.0	37.0					30.0				
Total Split (%)	24.7%	24.7%	24.7%					20.0%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	31.1	31.1	31.1					24.1		30.6	65.4	
Actuated g/C Ratio	0.29	0.29	0.29					0.22		0.28	0.60	
v/c Ratio	0.66	0.77	0.51					0.79		0.10	0.27	
Control Delay	43.5	46.1	6.6					44.6		15.5	1.4	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.1	
Total Delay	43.5	46.1	6.6					44.6		15.5	1.5	
LOS	D	D	A					D		B	A	
Approach Delay		32.2						44.6			2.6	
Approach LOS		C						D			A	
Stops (vph)	231	234	28					738		35	27	

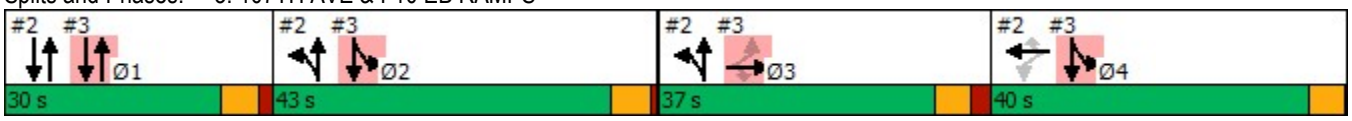
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	43.0	40.0
Total Split (%)	29%	27%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	7	2					39		1	2	
CO Emissions (g/hr)	466	510	155					2749		47	118	
NOx Emissions (g/hr)	91	99	30					535		9	23	
VOC Emissions (g/hr)	108	118	36					637		11	27	
Dilemma Vehicles (#)	0	13	0					39		0	2	
Queue Length 50th (ft)	207	230	0					205		28	9	
Queue Length 95th (ft)	324	#389	51					#310		m54	10	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	489	469	671					1135		1150	2830	
Starvation Cap Reductn	0	0	0					0		0	836	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.66	0.77	0.51					0.79		0.04	0.30	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 108.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 44.5% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	429	102	36	143	36	58	603	66	79	387	65
Future Volume (vph)	115	429	102	36	143	36	58	603	66	79	387	65
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	200		150	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1841	1580	1783	1726	1550	1801	3601	1550	1766	3532	1611
Flt Permitted	0.516			0.490			0.506			0.358		
Satd. Flow (perm)	978	1841	1580	920	1726	1550	959	3601	1550	666	3532	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			85			85			85
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			79.7			59.8	
Peak Hour Factor	0.90	0.90	0.90	0.78	0.78	0.78	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	3%	12%	6%	2%	2%	6%	4%	4%	2%
Adj. Flow (vph)	128	477	113	46	183	46	62	641	70	86	421	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	477	113	46	183	46	62	641	70	86	421	71
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	50.0	50.0	38.0	38.0	38.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	13.3%	55.6%	55.6%	42.2%	42.2%	42.2%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	26.9	24.9	24.9	16.3	16.3	16.3	21.9	21.9	21.9	21.9	21.9	21.9
Actuated g/C Ratio	0.46	0.42	0.42	0.28	0.28	0.28	0.37	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.24	0.62	0.15	0.18	0.39	0.09	0.17	0.48	0.11	0.35	0.32	0.11
Control Delay	10.6	17.4	3.2	20.6	21.8	2.1	15.6	16.5	3.5	20.0	15.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	17.4	3.2	20.6	21.8	2.1	15.6	16.5	3.5	20.0	15.0	3.5
LOS	B	B	A	C	C	A	B	B	A	C	B	A
Approach Delay		13.9			18.3			15.2			14.3	
Approach LOS		B			B			B			B	
Stops (vph)	58	305	14	29	109	2	40	429	8	57	256	8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	7	1	2	7	1	3	28	2	3	14	2
CO Emissions (g/hr)	102	499	47	122	482	89	186	1954	168	214	998	127
NOx Emissions (g/hr)	20	97	9	24	94	17	36	380	33	42	194	25
VOC Emissions (g/hr)	24	116	11	28	112	21	43	453	39	49	231	29
Dilemma Vehicles (#)	0	28	0	0	9	0	0	40	0	0	26	0
Queue Length 50th (ft)	23	116	0	12	52	0	15	91	0	22	55	0
Queue Length 95th (ft)	60	241	25	35	100	4	44	155	18	64	101	19
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170	200		150	210		160
Base Capacity (vph)	559	1401	1229	509	955	895	564	2117	946	391	2077	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.34	0.09	0.09	0.19	0.05	0.11	0.30	0.07	0.22	0.20	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 59
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 70.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: 107TH AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	808	51	27	315	222	72	514	172	184	319	76
Future Volume (vph)	158	808	51	27	315	222	72	514	172	184	319	76
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.991			0.938			0.962			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3532	0	1717	3206	0	1801	3464	0	1655	3442	0
Flt Permitted	0.282			0.178			0.485			0.206		
Satd. Flow (perm)	535	3532	0	322	3206	0	919	3464	0	359	3442	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			189			42			25	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.96	0.96	0.96	0.86	0.86	0.86
Heavy Vehicles (%)	2%	3%	4%	7%	5%	11%	2%	2%	2%	11%	4%	2%
Adj. Flow (vph)	172	878	55	31	358	252	75	535	179	214	371	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	933	0	31	610	0	75	714	0	214	459	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	49.0		12.0	49.0		14.0	39.0		10.0	35.0	
Total Split (%)	10.9%	44.5%		10.9%	44.5%		12.7%	35.5%		9.1%	31.8%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	50.4	42.9		45.4	37.1		43.0	33.0		47.1	38.0	
Actuated g/C Ratio	0.46	0.39		0.41	0.34		0.39	0.30		0.43	0.35	
v/c Ratio	0.51	0.68		0.15	0.51		0.18	0.67		0.77	0.38	
Control Delay	21.9	30.4		21.4	35.4		20.2	35.5		46.8	29.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	30.4		21.4	35.4		20.2	35.5		46.8	29.0	
LOS	C	C		C	D		C	D		D	C	
Approach Delay		29.1			34.7			34.1			34.6	
Approach LOS		C			C			C			C	
Stops (vph)	87	682		18	851		43	555		101	283	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	22		1	35		1	17		9	19	
CO Emissions (g/hr)	218	1512		91	2443		97	1197		650	1352	
NOx Emissions (g/hr)	42	294		18	475		19	233		126	263	
VOC Emissions (g/hr)	51	350		21	566		22	277		151	313	
Dilemma Vehicles (#)	0	39		0	63		0	31		0	18	
Queue Length 50th (ft)	67	287		16	172		30	221		95	126	
Queue Length 95th (ft)	102	350		32	170		62	288		#247	179	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	337	1400		241	1349		462	1067		277	1206	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.51	0.67		0.13	0.45		0.16	0.67		0.77	0.38	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 32.6 Intersection LOS: C
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

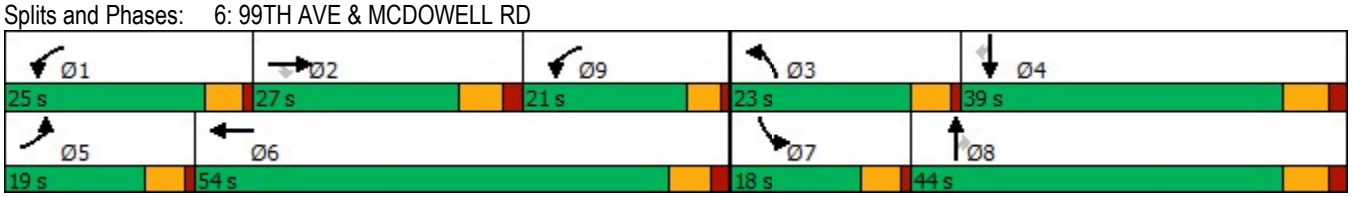
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	673	116	542	475	13	145	436	615	131	191	36
Future Volume (vph)	55	673	116	542	475	13	145	436	615	131	191	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202		2				634			200
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.84	0.84	0.84	0.94	0.94	0.94	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	3%	5%	3%	8%	8%	3%	6%	9%	4%	3%
Adj. Flow (vph)	65	801	138	577	505	14	149	449	634	135	197	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	801	138	577	519	0	149	449	634	135	197	37
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	19.0	27.0	27.0		54.0		23.0	44.0	44.0	18.0	39.0	39.0
Total Split (%)	14.1%	20.0%	20.0%		40.0%		17.0%	32.6%	32.6%	13.3%	28.9%	28.9%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	None	None	None
Act Effct Green (s)	8.0	40.3	40.3	30.3	70.2		11.4	22.2	22.2	10.6	21.3	21.3
Actuated g/C Ratio	0.06	0.31	0.31	0.23	0.53		0.09	0.17	0.17	0.08	0.16	0.16
v/c Ratio	0.31	0.74	0.22	0.75	0.28		0.53	0.53	0.65	0.52	0.24	0.09
Control Delay	66.0	47.4	1.5	30.8	18.9		66.0	52.7	6.9	67.4	49.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	47.4	1.5	30.8	18.9		66.0	52.7	6.9	67.4	49.5	0.4
LOS	E	D	A	C	B		E	D	A	E	D	A
Approach Delay		42.3			25.2			30.7			51.1	
Approach LOS		D			C			C			D	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	25.0	21.0
Total Split (%)	19%	16%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	50	586	2	474	260		132	384	44	120	159	0
Fuel Used(gal)	3	37	4	13	8		4	12	5	5	6	0
CO Emissions (g/hr)	226	2568	281	892	576		311	840	352	341	435	31
NOx Emissions (g/hr)	44	500	55	173	112		60	163	69	66	85	6
VOC Emissions (g/hr)	52	595	65	207	133		72	195	82	79	101	7
Dilemma Vehicles (#)	0	25	0	0	15		0	13	0	0	6	0
Queue Length 50th (ft)	28	327	0	113	129		64	130	0	58	54	0
Queue Length 95th (ft)	53	423	0	168	198		107	178	55	101	85	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	368	1084	620	919	1860		446	1442	1220	319	1237	539
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.74	0.22	0.63	0.28		0.33	0.31	0.52	0.42	0.16	0.07

Intersection Summary	
Area Type: Other	
Cycle Length: 135	
Actuated Cycle Length: 131.6	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 34.3	Intersection LOS: C
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: 99TH AVE & MCDOWELL RD



Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	335	251	173	171	1107	0	0	774	69
Future Volume (vph)	0	0	0	335	251	173	171	1107	0	0	774	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.994	0.850					0.988	
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1381	2866	1379	1466	4868	0	0	6012	0
Flt Permitted				0.950	0.983		0.950					
Satd. Flow (perm)	0	0	0	1381	2866	1379	1466	4868	0	0	6012	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	54					10	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.96	0.96	0.96	0.94	0.94	0.94	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	15%	4%	3%	19%	3%	0%	0%	4%	2%
Adj. Flow (vph)	0	0	0	349	261	180	182	1178	0	0	900	80
Shared Lane Traffic (%)				41%		10%						
Lane Group Flow (vph)	0	0	0	206	422	162	182	1178	0	0	980	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							10.0				20.0	
Minimum Split (s)							47.8				28.9	
Total Split (s)							48.0				46.0	
Total Split (%)							27.4%				26.3%	
Yellow Time (s)							3.9				4.7	
All-Red Time (s)							1.9				1.2	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							5.8				5.9	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				C-Min	
Act Effct Green (s)				50.2	50.2	50.2	59.1	113.0			48.2	
Actuated g/C Ratio				0.29	0.29	0.29	0.34	0.65			0.28	
v/c Ratio				0.52	0.51	0.37	0.37	0.37			0.59	
Control Delay				58.4	54.7	35.8	11.4	5.3			56.5	
Queue Delay				0.0	0.0	0.0	0.0	0.7			0.0	
Total Delay				58.4	54.7	35.8	11.4	6.0			56.5	
LOS				E	D	D	B	A			E	
Approach Delay					51.8			6.7			56.5	
Approach LOS					D			A			E	
Stops (vph)				165	331	84	64	641			711	

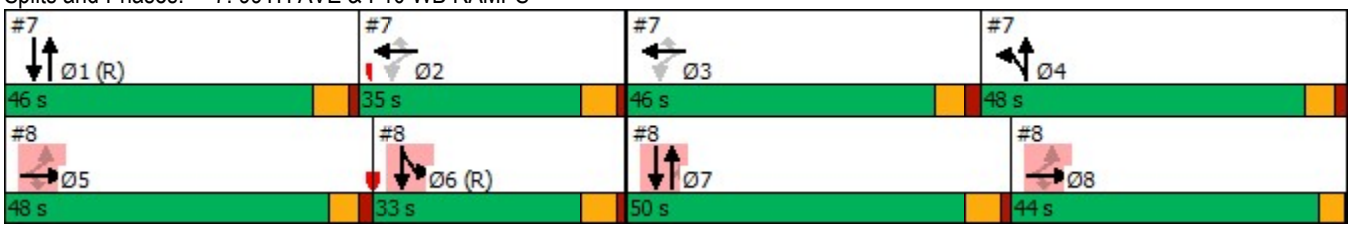
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	8.0	10.0	5.0	20.0	5.0
Minimum Split (s)	30.0	45.8	47.8	30.0	28.9	30.0
Total Split (s)	35.0	46.0	48.0	33.0	50.0	44.0
Total Split (%)	20%	26%	27%	19%	29%	25%
Yellow Time (s)	4.7	3.9	3.9	4.7	4.7	3.5
All-Red Time (s)	1.2	1.9	1.9	1.2	1.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				7	13	4	2	13			24	
CO Emissions (g/hr)				460	914	272	125	909			1643	
NOx Emissions (g/hr)				89	178	53	24	177			320	
VOC Emissions (g/hr)				107	212	63	29	211			381	
Dilemma Vehicles (#)				0	9	0	0	2			24	
Queue Length 50th (ft)				226	242	110	37	98			281	
Queue Length 95th (ft)				314	295	185	m127	397			321	
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				628	1305	656	494	3144			1662	
Starvation Cap Reductn				0	0	0	0	1472			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.33	0.32	0.25	0.37	0.70			0.59	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 33.7 Intersection LOS: C
Intersection Capacity Utilization 44.0% ICU Level of Service A
Analysis Period (min) 15
Description: WB I-10 Off ramp
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	353	90	258	0	0	0	0	884	206	85	1066	0
Future Volume (vph)	353	90	258	0	0	0	0	884	206	85	1066	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		140	0		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.977								0.950		
Satd. Flow (prot)	1557	2845	1292	0	0	0	0	4686	1334	1711	4643	0
Flt Permitted	0.950	0.977								0.950		
Satd. Flow (perm)	1557	2845	1292	0	0	0	0	4686	1334	1711	4643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26	54						193			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			8.1	
Peak Hour Factor	0.91	0.91	0.91	0.25	0.25	0.25	0.96	0.96	0.96	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	7%	17%	2%	8%	0%
Adj. Flow (vph)	388	99	284	0	0	0	0	921	215	97	1211	0
Shared Lane Traffic (%)	48%		37%									
Lane Group Flow (vph)	202	390	179	0	0	0	0	921	215	97	1211	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								20.0	20.0	5.0		
Minimum Split (s)								28.9	28.9	30.0		
Total Split (s)								50.0	50.0	33.0		
Total Split (%)								28.6%	28.6%	18.9%		
Yellow Time (s)								4.7	4.7	4.7		
All-Red Time (s)								1.2	1.2	1.2		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.9	5.9	5.9		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	C-Max		
Act Effct Green (s)	42.6	42.6	42.6					42.9	42.9	71.9	120.7	
Actuated g/C Ratio	0.24	0.24	0.24					0.25	0.25	0.41	0.69	
v/c Ratio	0.53	0.55	0.50					0.80	0.46	0.14	0.38	
Control Delay	61.9	55.9	43.1					68.1	12.3	10.2	7.0	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.5	
Total Delay	61.9	55.9	43.1					68.1	12.3	10.2	7.4	
LOS	E	E	D					E	B	B	A	
Approach Delay		54.5						57.5			7.6	
Approach LOS		D						E			A	
Stops (vph)	156	282	97					817	31	25	689	

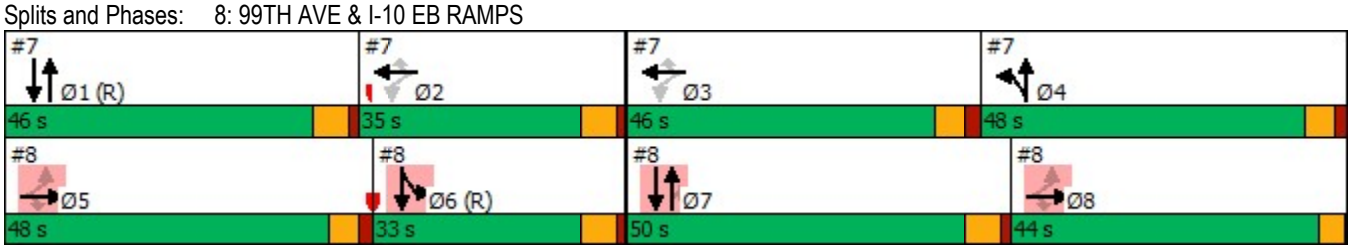
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	10.0	5.0
Minimum Split (s)	28.9	30.0	45.8	47.8	47.8	30.0
Total Split (s)	46.0	35.0	46.0	48.0	48.0	44.0
Total Split (%)	26%	20%	26%	27%	27%	25%
Yellow Time (s)	4.7	4.7	3.9	3.9	3.9	3.5
All-Red Time (s)	1.2	1.2	1.9	1.9	1.9	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	12	5					45	6	1	14	
CO Emissions (g/hr)	448	817	317					3113	423	55	963	
NOx Emissions (g/hr)	87	159	62					606	82	11	187	
VOC Emissions (g/hr)	104	189	74					722	98	13	223	
Dilemma Vehicles (#)	0	8	0					23	0	0	1	
Queue Length 50th (ft)	224	215	137					364	19	17	341	
Queue Length 95th (ft)	300	258	215					420	100	47	392	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						140			
Base Capacity (vph)	658	1218	577					1180	480	702	3233	
Starvation Cap Reductn	0	0	0					0	0	0	1412	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.31	0.32	0.31					0.78	0.45	0.14	0.67	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 36.5 Intersection LOS: D
Intersection Capacity Utilization 44.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	368	64	86	119	139	87	639	196	178	442	89
Future Volume (vph)	120	368	64	86	119	139	87	639	196	178	442	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1586	1801	1280	1711	3323	1531	1601	4600	1487	1711	2983	1290
Flt Permitted	0.642			0.428			0.299			0.272		
Satd. Flow (perm)	1072	1801	1280	771	3323	1531	504	4600	1487	490	2983	1290
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			191			190			190
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.94	0.94	0.94	0.77	0.77	0.77	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	10%	2%	22%	2%	5%	2%	9%	9%	5%	2%	17%	21%
Adj. Flow (vph)	128	391	68	112	155	181	96	702	215	193	480	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	391	68	112	155	181	96	702	215	193	480	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	53.0	53.0	14.0	53.0	53.0	16.0	59.0	59.0	14.0	57.0	57.0
Total Split (%)	10.0%	37.9%	37.9%	10.0%	37.9%	37.9%	11.4%	42.1%	42.1%	10.0%	40.7%	40.7%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	70.5	61.3	61.3	68.1	60.2	60.2	35.9	29.3	29.3	32.3	27.5	27.5
Actuated g/C Ratio	0.50	0.44	0.44	0.49	0.43	0.43	0.26	0.21	0.21	0.23	0.20	0.20
v/c Ratio	0.22	0.50	0.10	0.26	0.11	0.24	0.53	0.73	0.47	1.25	0.82	0.24
Control Delay	17.3	32.8	0.3	11.0	13.8	3.0	46.6	55.9	11.7	192.9	65.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	32.8	0.3	11.0	13.8	3.0	46.6	55.9	11.7	192.9	65.4	1.4
LOS	B	C	A	B	B	A	D	E	B	F	E	A
Approach Delay		25.7			8.8			45.7			89.3	
Approach LOS		C			A			D			F	
Stops (vph)	62	266	0	36	64	38	69	578	33	154	413	0

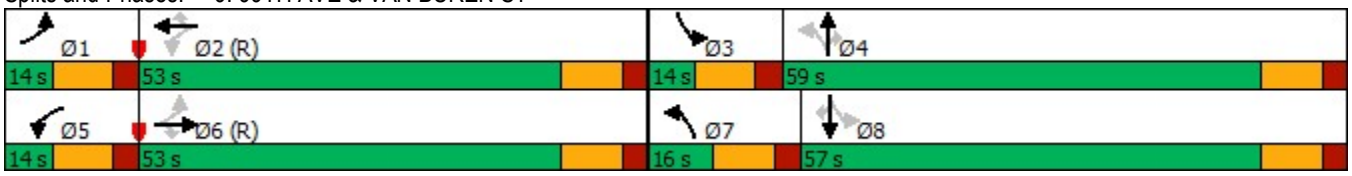
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	18	2	4	6	6	5	37	8	13	22	2
CO Emissions (g/hr)	371	1286	154	288	408	445	328	2553	534	934	1543	157
NOx Emissions (g/hr)	72	250	30	56	79	86	64	497	104	182	300	31
VOC Emissions (g/hr)	86	298	36	67	95	103	76	592	124	216	358	36
Dilemma Vehicles (#)	0	13	0	0	2	0	0	18	0	0	13	0
Queue Length 50th (ft)	54	252	0	18	33	30	64	220	19	~176	223	0
Queue Length 95th (ft)	101	404	0	m26	m42	m34	103	250	86	#296	270	0
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	573	788	667	429	1427	767	183	1636	651	155	1018	565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.50	0.10	0.26	0.11	0.24	0.52	0.43	0.33	1.25	0.47	0.17

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 47.5 Intersection LOS: D
Intersection Capacity Utilization 66.7% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	1028	60	37	296	141	129	614	129	131	257	71
Future Volume (vph)	176	1028	60	37	296	141	129	614	129	131	257	71
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.992				0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3506	0	1655	3251	1217	1801	3490	0	1446	1841	1580
Flt Permitted	0.499			0.097			0.537			0.118		
Satd. Flow (perm)	946	3506	0	169	3251	1217	1018	3490	0	180	1841	1580
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				164		22				116
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4799			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.88	0.88	0.88	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	11%	13%	35%	2%	2%	5%	27%	5%	4%
Adj. Flow (vph)	196	1142	67	43	344	164	147	698	147	135	265	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	1209	0	43	344	164	147	845	0	135	265	73
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0
Total Split (s)	10.0	47.0		10.0	47.0	47.0	12.0	35.0		18.0	41.0	41.0
Total Split (%)	9.1%	42.7%		9.1%	42.7%	42.7%	10.9%	31.8%		16.4%	37.3%	37.3%
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4		3.0	4.4	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4		4.0	6.4	6.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effct Green (s)	51.7	45.4		49.4	41.1	41.1	40.1	30.0		46.9	33.8	33.8
Actuated g/C Ratio	0.47	0.41		0.45	0.37	0.37	0.36	0.27		0.43	0.31	0.31
v/c Ratio	0.40	0.83		0.29	0.28	0.29	0.35	0.87		0.65	0.47	0.13
Control Delay	13.7	29.0		23.0	19.7	5.4	21.9	48.7		35.3	33.8	1.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	13.7	29.0		23.0	19.7	5.4	21.9	48.7		35.3	33.8	1.9
LOS	B	C		C	B	A	C	D		D	C	A
Approach Delay		26.9			15.7			44.7			29.3	
Approach LOS		C			B			D			C	
Stops (vph)	66	956		25	149	28	85	649		82	203	3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	58		2	13	5	3	22		6	13	3
CO Emissions (g/hr)	518	4026		125	931	369	191	1520		453	920	176
NOx Emissions (g/hr)	101	783		24	181	72	37	296		88	179	34
VOC Emissions (g/hr)	120	933		29	216	85	44	352		105	213	41
Dilemma Vehicles (#)	0	21		0	4	0	0	32		0	9	0
Queue Length 50th (ft)	45	471		17	82	0	61	291		57	149	0
Queue Length 95th (ft)	m72	#586		32	67	17	101	#400		110	228	11
Internal Link Dist (ft)		5209			4719			274			849	
Turn Bay Length (ft)	160			170		250	190			250		250
Base Capacity (vph)	493	1449		157	1215	557	430	967		239	579	576
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.40	0.83		0.27	0.28	0.29	0.34	0.87		0.56	0.46	0.13

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 34 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 30.6 Intersection LOS: C
Intersection Capacity Utilization 69.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85

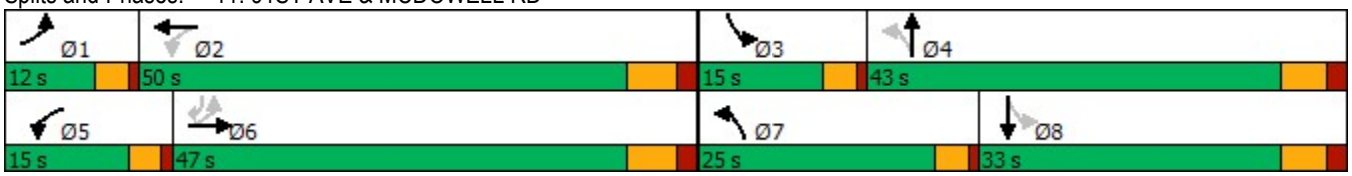
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	527	196	148	319	76	322	706	203	131	497	64
Future Volume (vph)	106	527	196	148	319	76	322	706	203	131	497	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.959			0.971			0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3226	0	1662	3258	0	1711	3308	0	1711	3355	1531
Flt Permitted	0.442			0.145			0.219			0.149		
Satd. Flow (perm)	796	3226	0	254	3258	0	394	3308	0	268	3355	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			27			32				136
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			14.5			54.8	
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.96	0.96	0.96	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	3%	5%	4%	4%	2%	2%	2%	2%	4%	2%
Adj. Flow (vph)	126	627	233	180	389	93	335	735	211	151	571	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	860	0	180	482	0	335	946	0	151	571	74
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	12.0	47.0		15.0	50.0		25.0	43.0		15.0	33.0	47.0
Total Split (%)	10.0%	39.2%		12.5%	41.7%		20.8%	35.8%		12.5%	27.5%	39.2%
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4		4.0	6.4		4.0	6.0		4.0	6.0	6.4
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min		None	None		None	None	Min
Act Effct Green (s)	47.0	37.0		52.9	40.0		51.7	36.0		38.6	26.9	37.0
Actuated g/C Ratio	0.41	0.33		0.46	0.35		0.45	0.32		0.34	0.24	0.33
v/c Ratio	0.32	0.80		0.73	0.42		0.85	0.89		0.71	0.72	0.13
Control Delay	20.0	39.5		36.1	27.8		42.7	47.7		42.3	47.2	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	20.0	39.5		36.1	27.8		42.7	47.7		42.3	47.2	0.4
LOS	B	D		D	C		D	D		D	D	A
Approach Delay		37.0			30.0			46.4			41.9	
Approach LOS		D			C			D			D	
Stops (vph)	61	604		81	270		206	786		90	445	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	31		7	19		6	20		4	18	1
CO Emissions (g/hr)	268	2191		499	1333		425	1371		312	1273	91
NOx Emissions (g/hr)	52	426		97	259		83	267		61	248	18
VOC Emissions (g/hr)	62	508		116	309		99	318		72	295	21
Dilemma Vehicles (#)	0	29		0	14		0	37		0	20	0
Queue Length 50th (ft)	53	295		79	136		174	359		69	218	0
Queue Length 95th (ft)	84	338		113	164		#308	#483		#134	273	0
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	396	1190		255	1274		423	1105		234	808	637
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.32	0.72		0.71	0.38		0.79	0.86		0.65	0.71	0.12

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 113.8
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 40.0 Intersection LOS: D
Intersection Capacity Utilization 73.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	168	4	175	92	939	0	0	674	76
Future Volume (vph)	0	0	0	168	4	175	92	939	0	0	674	76
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.917	0.850					0.985	
Flt Protected				0.950	0.980		0.950					
Satd. Flow (prot)	0	0	0	1694	1519	1487	1749	3601	0	0	3509	0
Flt Permitted				0.950	0.980		0.229					
Satd. Flow (perm)	0	0	0	1694	1519	1487	422	3601	0	0	3509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					45	128					17	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			14.5	
Peak Hour Factor	0.25	0.25	0.25	0.86	0.86	0.86	0.97	0.97	0.97	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	3%	2%	5%	5%	2%	0%	0%	3%	4%
Adj. Flow (vph)	0	0	0	195	5	203	95	968	0	0	741	84
Shared Lane Traffic (%)				28%		37%						
Lane Group Flow (vph)	0	0	0	140	135	128	95	968	0	0	825	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				30.0	30.0	30.0	15.0					
Total Split (%)				24.0%	24.0%	24.0%	12.0%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				24.4	24.4	24.4	45.0	50.1			67.5	
Actuated g/C Ratio				0.21	0.21	0.21	0.38	0.43			0.57	
v/c Ratio				0.40	0.39	0.31	0.35	0.63			0.41	
Control Delay				45.9	31.5	9.4	21.8	18.7			14.2	
Queue Delay				0.0	0.0	0.0	0.0	0.4			0.0	
Total Delay				45.9	31.5	9.4	21.8	19.2			14.2	
LOS				D	C	A	C	B			B	
Approach Delay					29.5			19.4			14.2	
Approach LOS					C			B			B	
Stops (vph)				101	66	16	39	390			383	

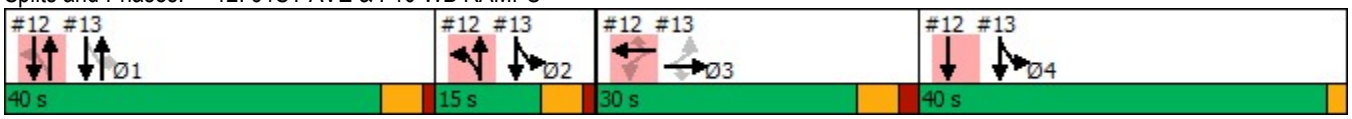
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	40.0	40.0
Total Split (%)	32%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	3	2	1	10			9	
CO Emissions (g/hr)				253	193	108	73	697			635	
NOx Emissions (g/hr)				49	38	21	14	136			124	
VOC Emissions (g/hr)				59	45	25	17	161			147	
Dilemma Vehicles (#)				0	5	0	0	0			32	
Queue Length 50th (ft)				97	63	0	26	137			170	
Queue Length 95th (ft)				166	131	49	m43	168			212	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				350	349	409	272	1530			1995	
Starvation Cap Reductn				0	0	0	0	184			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.40	0.39	0.31	0.35	0.72			0.41	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 43.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	348	8	224	0	0	0	0	676	143	94	760	0
Future Volume (vph)	348	8	224	0	0	0	0	676	143	94	760	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	0		240	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.968	0.850						0.850			
Flt Protected	0.950	0.964								0.950		
Satd. Flow (prot)	1711	1606	1516	0	0	0	0	3601	1611	1717	3532	0
Flt Permitted	0.950	0.964								0.200		
Satd. Flow (perm)	1711	1606	1516	0	0	0	0	3601	1611	361	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10	183						151			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.99	0.99	0.99	0.25	0.25	0.25	0.95	0.95	0.95	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	0%	0%	0%	0%	2%	2%	7%	4%	0%
Adj. Flow (vph)	352	8	226	0	0	0	0	712	151	107	864	0
Shared Lane Traffic (%)	42%		19%									
Lane Group Flow (vph)	204	199	183	0	0	0	0	712	151	107	864	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					40.0	40.0			
Total Split (%)	24.0%	24.0%	24.0%					32.0%	32.0%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	24.4	24.4	24.4					35.0	35.0	72.3	82.6	
Actuated g/C Ratio	0.21	0.21	0.21					0.30	0.30	0.61	0.70	
v/c Ratio	0.58	0.59	0.40					0.67	0.26	0.16	0.35	
Control Delay	50.8	49.2	8.8					40.8	6.5	3.8	3.9	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.1	
Total Delay	50.8	49.2	8.8					40.8	6.5	3.8	4.0	
LOS	D	D	A					D	A	A	A	
Approach Delay		37.2						34.8			4.0	
Approach LOS		D						C			A	
Stops (vph)	179	167	23					578	17	21	151	

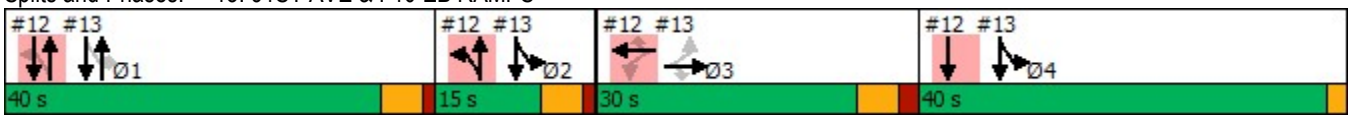
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	15.0	40.0
Total Split (%)	12%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	6	3					30	5	1	5	
CO Emissions (g/hr)	464	441	188					2096	318	40	316	
NOx Emissions (g/hr)	90	86	37					408	62	8	62	
VOC Emissions (g/hr)	107	102	43					486	74	9	73	
Dilemma Vehicles (#)	0	8	0					29	0	0	2	
Queue Length 50th (ft)	148	143	0					250	0	17	73	
Queue Length 95th (ft)	248	248	65					343	50	29	91	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	354	340	459					1070	584	749	2452	
Starvation Cap Reductn	0	0	0					0	0	0	614	
Spillback Cap Reductn	0	0	0					5	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.58	0.59	0.40					0.67	0.26	0.14	0.47	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 43.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	287	85	65	208	115	106	542	131	140	465	144
Future Volume (vph)	198	287	85	65	208	115	106	542	131	140	465	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1749	1531	1558	1749	1516	1678	3421	1432	1678	3323	1516
Flt Permitted	0.255			0.387			0.436			0.367		
Satd. Flow (perm)	459	1749	1531	635	1749	1516	770	3421	1432	648	3323	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			102			155			127			132
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.94	0.94	0.94	0.91	0.91	0.91
Heavy Vehicles (%)	2%	5%	2%	12%	5%	3%	4%	2%	9%	4%	5%	3%
Adj. Flow (vph)	239	346	102	88	281	155	113	577	139	154	511	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	346	102	88	281	155	113	577	139	154	511	158
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	25.0	35.0	35.0	25.0	35.0	35.0	25.0	55.0	55.0	25.0	55.0	55.0
Total Split (%)	17.9%	25.0%	25.0%	17.9%	25.0%	25.0%	17.9%	39.3%	39.3%	17.9%	39.3%	39.3%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	52.2	33.5	33.5	39.3	24.6	24.6	74.1	60.9	60.9	77.6	62.7	62.7
Actuated g/C Ratio	0.37	0.24	0.24	0.28	0.18	0.18	0.53	0.44	0.44	0.55	0.45	0.45
v/c Ratio	0.71	0.83	0.23	0.37	0.92	0.39	0.24	0.39	0.20	0.35	0.34	0.21
Control Delay	44.7	59.5	10.5	33.1	89.8	10.1	16.4	29.2	6.4	17.6	27.2	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	59.5	10.5	33.1	89.8	10.1	16.4	29.2	6.4	17.6	27.2	7.1
LOS	D	E	B	C	F	B	B	C	A	B	C	A
Approach Delay		47.1			56.7			23.6			21.5	
Approach LOS		D			E			C			C	
Stops (vph)	139	214	23	46	191	16	52	365	17	66	299	22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	17	4	3	13	5	5	27	5	5	19	5
CO Emissions (g/hr)	775	1188	281	233	928	351	337	1874	373	360	1301	324
NOx Emissions (g/hr)	151	231	55	45	181	68	66	365	73	70	253	63
VOC Emissions (g/hr)	180	275	65	54	215	81	78	434	86	83	301	75
Dilemma Vehicles (#)	0	0	0	0	0	0	0	19	0	0	17	0
Queue Length 50th (ft)	146	220	4	51	251	0	48	192	6	67	163	14
Queue Length 95th (ft)	m186	m297	m29	72	285	29	82	260	51	109	222	61
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	358	418	443	365	323	406	575	1489	695	524	1488	752
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.83	0.23	0.24	0.87	0.38	0.20	0.39	0.20	0.29	0.34	0.21

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 61 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 34.7 Intersection LOS: C
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: 91ST AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	927	98	45	342	131	101	616	47	120	443	91
Future Volume (vph)	116	927	98	45	342	131	101	616	47	120	443	91
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.986			0.958			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	4764	0	1531	4140	0	1749	5110	0	1749	3566	1508
Flt Permitted	0.421			0.188			0.353			0.223		
Satd. Flow (perm)	720	4764	0	303	4140	0	650	5110	0	411	3566	1508
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			106			11				114
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		445			470			399			4882	
Travel Time (s)		6.1			6.4			6.0			74.0	
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	13%	10%	2%	20%	26%	12%	5%	2%	4%	5%	3%	9%
Adj. Flow (vph)	129	1030	109	51	384	147	122	742	57	126	466	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	1139	0	51	531	0	122	799	0	126	466	96
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	9.0	48.0		12.0	51.0		11.0	40.0		10.0	39.0	39.0
Total Split (%)	8.2%	43.6%		10.9%	46.4%		10.0%	36.4%		9.1%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	59.0	50.7		56.9	48.2		36.9	27.6		35.7	27.0	27.0
Actuated g/C Ratio	0.54	0.46		0.52	0.44		0.34	0.25		0.32	0.25	0.25
v/c Ratio	0.29	0.52		0.23	0.28		0.42	0.62		0.59	0.53	0.21
Control Delay	11.1	15.9		21.5	21.7		27.6	37.8		36.0	37.8	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	11.1	15.9		21.5	21.7		27.6	37.8		36.0	37.8	4.9
LOS	B	B		C	C		C	D		D	D	A
Approach Delay		15.4			21.7			36.5			32.9	
Approach LOS		B			C			D			C	
Stops (vph)	36	587		26	517		67	558		86	369	9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	46		2	25		2	17		6	23	3
CO Emissions (g/hr)	327	3245		145	1782		155	1218		425	1624	235
NOx Emissions (g/hr)	64	631		28	347		30	237		83	316	46
VOC Emissions (g/hr)	76	752		33	413		36	282		99	376	55
Dilemma Vehicles (#)	0	78		0	42		0	26		0	16	0
Queue Length 50th (ft)	26	120		10	58		59	182		61	152	0
Queue Length 95th (ft)	m40	m153		51	109		85	188		96	188	28
Internal Link Dist (ft)		365			390			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	443	2206		251	1874		291	1577		212	1063	529
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.29	0.52		0.20	0.28		0.42	0.51		0.59	0.44	0.18

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 94 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 51.6% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	857	89	216	304	60	89	581	227	229	591	36
Future Volume (vph)	66	857	89	216	304	60	89	581	227	229	591	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.986				0.850		0.958			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3331	0	1678	3355	1516	1646	4612	0	1711	4824	0
Flt Permitted	0.560			0.084			0.360			0.127		
Satd. Flow (perm)	1008	3331	0	148	3355	1516	624	4612	0	229	4824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				99		78			7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.77	0.77	0.77	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93
Heavy Vehicles (%)	2%	3%	6%	4%	4%	3%	6%	5%	2%	2%	3%	3%
Adj. Flow (vph)	86	1113	116	225	317	63	98	638	249	246	635	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	1229	0	225	317	63	98	887	0	246	674	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9		11.0	32.9	
Total Split (s)	20.0	45.0		20.0	45.0	45.0	20.0	35.0		20.0	35.0	
Total Split (%)	16.7%	37.5%		16.7%	37.5%	37.5%	16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6		1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9		4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	52.9	43.4		63.6	52.0	52.0	38.3	27.4		48.3	33.5	
Actuated g/C Ratio	0.44	0.36		0.53	0.43	0.43	0.32	0.23		0.40	0.28	
v/c Ratio	0.18	1.01		0.87	0.22	0.09	0.36	0.80		0.88	0.50	
Control Delay	16.0	67.8		67.6	26.3	8.1	20.0	32.5		61.2	37.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	16.0	67.8		67.6	26.3	8.1	20.0	32.5		61.2	37.4	
LOS	B	E		E	C	A	B	C		E	D	
Approach Delay		64.5			39.8			31.3			43.8	
Approach LOS		E			D			C			D	
Stops (vph)	37	774		198	186	22	35	643		157	505	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	55		13	14	2	1	18		9	23	
CO Emissions (g/hr)	205	3847		901	1009	171	90	1245		644	1616	
NOx Emissions (g/hr)	40	749		175	196	33	18	242		125	314	
VOC Emissions (g/hr)	48	892		209	234	40	21	288		149	375	
Dilemma Vehicles (#)	0	35		0	40	0	0	39		0	21	
Queue Length 50th (ft)	32	~549		149	61	1	30	178		135	157	
Queue Length 95th (ft)	52	#544		#254	141	m25	51	208		#270	201	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	604	1212		287	1453	712	371	1177		289	1351	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.14	1.01		0.78	0.22	0.09	0.26	0.75		0.85	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 47.0 Intersection LOS: D
Intersection Capacity Utilization 78.5% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: 83rd ave & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	238	6	244	316	845	0	0	526	285
Future Volume (vph)	0	0	0	238	6	244	316	845	0	0	526	285
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.919	0.850						0.850
Flt Protected				0.950	0.979		0.950					
Satd. Flow (prot)	0	0	0	1479	1406	1446	2921	3566	0	0	5124	1611
Flt Permitted				0.950	0.979		0.950					
Satd. Flow (perm)	0	0	0	1479	1406	1446	2921	3566	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					48	147						356
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.92	0.92	0.92	0.88	0.88	0.88	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	18%	17%	8%	22%	3%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	259	7	265	359	960	0	0	658	356
Shared Lane Traffic (%)				29%		36%						
Lane Group Flow (vph)	0	0	0	184	177	170	359	960	0	0	658	356
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				30.0	30.0
Total Split (%)							42.5%				25.0%	25.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				34.0	34.0	34.0	44.8	74.4			23.5	23.5
Actuated g/C Ratio				0.28	0.28	0.28	0.37	0.62			0.20	0.20
v/c Ratio				0.44	0.41	0.33	0.33	0.43			0.66	0.59
Control Delay				39.8	28.9	9.7	10.0	2.8			34.6	14.0
Queue Delay				0.0	0.0	0.0	0.0	0.6			0.0	0.0
Total Delay				39.8	28.9	9.7	10.0	3.3			34.6	14.0
LOS				D	C	A	B	A			C	B
Approach Delay					26.5			5.1			27.4	
Approach LOS					C			A			C	
Stops (vph)				138	96	28	78	298			449	134

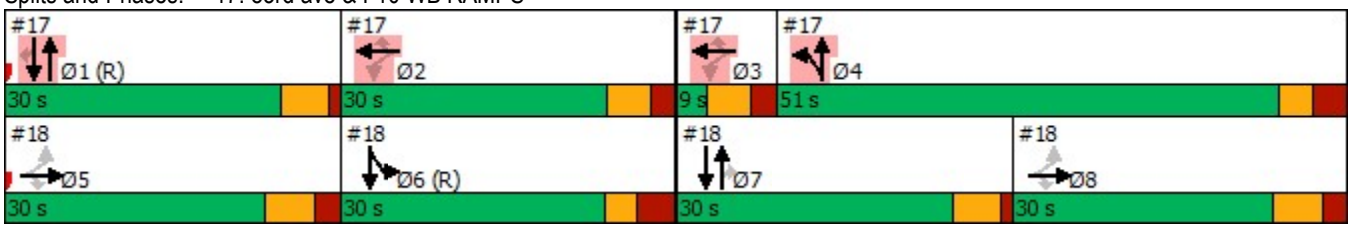
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (%)	25%	8%	25%	25%	25%	25%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	4	2	3	7			12	4
CO Emissions (g/hr)				338	268	159	186	488			852	284
NOx Emissions (g/hr)				66	52	31	36	95			166	55
VOC Emissions (g/hr)				78	62	37	43	113			198	66
Dilemma Vehicles (#)				0	7	0	0	9			17	0
Queue Length 50th (ft)				125	89	13	21	7			163	129
Queue Length 95th (ft)				201	164	72	m35	12			m185	m161
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				418	432	514	1090	2218			1054	614
Starvation Cap Reductn				0	0	0	0	780			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.44	0.41	0.33	0.33	0.67			0.62	0.58

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 17.0 Intersection LOS: B
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	13	828	0	0	0	0	812	117	137	641	0
Future Volume (vph)	365	13	828	0	0	0	0	812	117	137	641	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.867	0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1711	1381	1406	0	0	0	0	4798	1284	3493	3401	0
Flt Permitted	0.950	0.996								0.950		
Satd. Flow (perm)	1711	1381	1406	0	0	0	0	4798	1284	3493	3401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		107	137						154			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			54.4			7.7	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.93	0.93	0.93	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	11%	0%	0%	0%	0%	10%	28%	2%	8%	0%
Adj. Flow (vph)	420	15	952	0	0	0	0	873	126	167	782	0
Shared Lane Traffic (%)	10%		47%									
Lane Group Flow (vph)	378	504	505	0	0	0	0	873	126	167	782	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								30.0	30.0	30.0		
Total Split (%)								25.0%	25.0%	25.0%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	48.3	48.3	48.3					24.7	24.7	28.4	58.5	
Actuated g/C Ratio	0.40	0.40	0.40					0.21	0.21	0.24	0.49	
v/c Ratio	0.55	0.81	0.78					0.88	0.33	0.20	0.47	
Control Delay	30.1	35.7	30.9					36.8	6.6	15.8	17.3	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.6	
Total Delay	30.1	35.7	30.9					36.8	6.6	15.8	17.9	
LOS	C	D	C					D	A	B	B	
Approach Delay		32.4						33.0			17.5	
Approach LOS		C						C			B	
Stops (vph)	242	315	289					758	57	98	567	

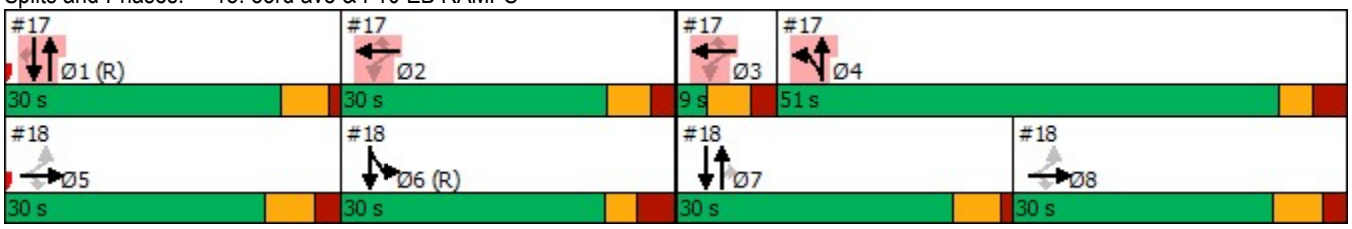
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	9.0	51.0	30.0	30.0
Total Split (%)	25%	25%	8%	43%	25%	25%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	12	11					34	4	2	11	
CO Emissions (g/hr)	615	847	797					2406	251	148	799	
NOx Emissions (g/hr)	120	165	155					468	49	29	156	
VOC Emissions (g/hr)	143	196	185					558	58	34	185	
Dilemma Vehicles (#)	0	17	0					27	0	0	1	
Queue Length 50th (ft)	224	294	256					243	35	51	299	
Queue Length 95th (ft)	296	414	367					#315	61	78	327	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	767	678	706					993	388	828	1660	
Starvation Cap Reductn	0	0	0					0	0	0	463	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.49	0.74	0.72					0.88	0.32	0.20	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 28.4 Intersection LOS: C
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	461	30	46	85	97	7	648	91	391	867	96
Future Volume (vph)	122	461	30	46	85	97	7	648	91	391	867	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.991			0.920			0.982			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3327	0	1312	2684	0	1531	4466	0	1586	3192	0
Flt Permitted	0.543			0.399			0.245			0.154		
Satd. Flow (perm)	875	3327	0	551	2684	0	395	4466	0	257	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			139			23			10	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			54.4	
Peak Hour Factor	0.90	0.90	0.90	0.70	0.70	0.70	0.89	0.89	0.89	0.95	0.95	0.95
Heavy Vehicles (%)	14%	4%	3%	33%	18%	21%	14%	10%	12%	10%	8%	5%
Adj. Flow (vph)	136	512	33	66	121	139	8	728	102	412	913	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	545	0	66	260	0	8	830	0	412	1014	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0		20.0	30.0		20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0		25.0	45.0		25.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%		20.8%	37.5%		20.8%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	60.9	49.4		55.5	45.1		32.7	25.3		52.8	48.6	
Actuated g/C Ratio	0.51	0.41		0.46	0.38		0.27	0.21		0.44	0.40	
v/c Ratio	0.27	0.40		0.22	0.24		0.05	0.86		1.16	0.78	
Control Delay	18.3	27.3		31.7	31.5		19.6	54.3		122.3	38.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.3	27.3		31.7	31.5		19.6	54.3		122.3	38.4	
LOS	B	C		C	C		B	D		F	D	
Approach Delay		25.5			31.5			54.0			62.6	
Approach LOS		C			C			D			E	
Stops (vph)	66	341		36	250		6	678		303	934	

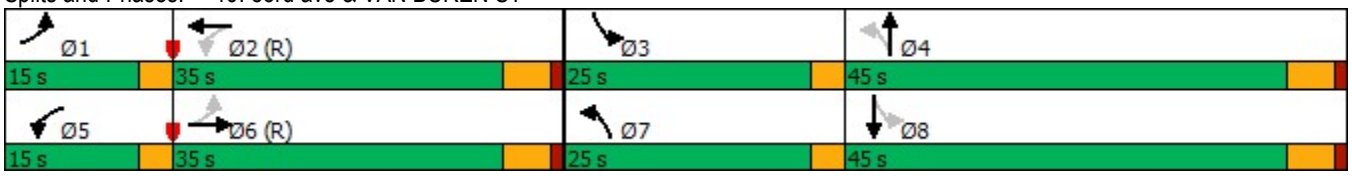
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	24		2	10		0	42		23	42	
CO Emissions (g/hr)	404	1712		161	725		24	2937		1581	2906	
NOx Emissions (g/hr)	79	333		31	141		5	571		308	565	
VOC Emissions (g/hr)	94	397		37	168		6	681		366	674	
Dilemma Vehicles (#)	0	21		0	6		0	25		0	5	
Queue Length 50th (ft)	55	156		39	60		3	221		~310	426	
Queue Length 95th (ft)	101	228		m58	67		12	258		#500	506	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250			230		
Base Capacity (vph)	514	1371		347	1095		372	1485		356	1299	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.40		0.19	0.24		0.02	0.56		1.16	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 49 (41%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 49.6 Intersection LOS: D
Intersection Capacity Utilization 63.1% ICU Level of Service B
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



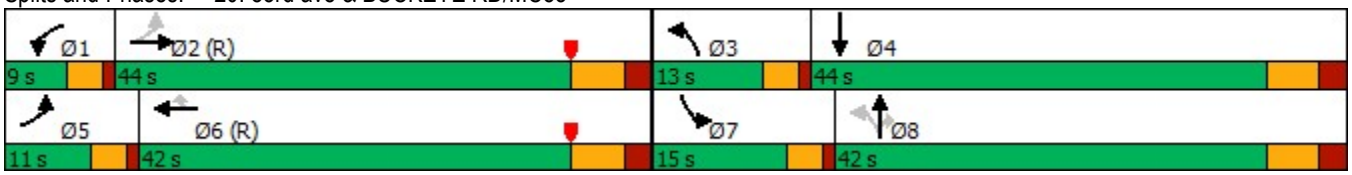
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	1196	34	13	280	111	63	438	113	171	344	172
Future Volume (vph)	177	1196	34	13	280	111	63	438	113	171	344	172
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.996				0.850			0.850		0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	4910	0	2897	4435	1358	1801	3566	1580	3098	4558	0
Flt Permitted	0.516			0.950			0.449			0.950		
Satd. Flow (perm)	891	4910	0	2897	4435	1358	851	3566	1580	3098	4558	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				118			126		125	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		461			432			976			409	
Travel Time (s)		6.3			5.9			14.8			6.2	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90	0.99	0.99	0.99
Heavy Vehicles (%)	12%	7%	9%	23%	19%	21%	2%	3%	4%	15%	7%	16%
Adj. Flow (vph)	190	1286	37	14	298	118	70	487	126	173	347	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	190	1323	0	14	298	118	70	487	126	173	521	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	11.0	44.0		9.0	42.0	42.0	13.0	42.0	42.0	15.0	44.0	
Total Split (%)	10.0%	40.0%		8.2%	38.2%	38.2%	11.8%	38.2%	38.2%	13.6%	40.0%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	61.5	54.9		5.1	44.6	44.6	33.9	24.1	24.1	9.7	28.5	
Actuated g/C Ratio	0.56	0.50		0.05	0.41	0.41	0.31	0.22	0.22	0.09	0.26	
v/c Ratio	0.34	0.54		0.10	0.17	0.19	0.22	0.62	0.28	0.63	0.41	
Control Delay	7.6	12.6		51.6	23.0	5.7	22.7	42.0	7.3	58.9	26.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.6	12.6		51.6	23.0	5.7	22.7	42.0	7.3	58.9	26.1	
LOS	A	B		D	C	A	C	D	A	E	C	
Approach Delay		12.0			19.2			33.6			34.3	
Approach LOS		B			B			C			C	
Stops (vph)	36	691		16	179	15	40	381	15	161	314	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	54		1	13	4	1	11	1	10	24	
CO Emissions (g/hr)	462	3773		57	935	283	83	787	75	696	1710	
NOx Emissions (g/hr)	90	734		11	182	55	16	153	15	135	333	
VOC Emissions (g/hr)	107	875		13	217	66	19	182	17	161	396	
Dilemma Vehicles (#)	0	43		0	13	0	0	16	0	0	19	
Queue Length 50th (ft)	26	80		5	49	0	32	165	0	61	85	
Queue Length 95th (ft)	45	321		15	79	41	56	202	44	97	111	
Internal Link Dist (ft)		381			352			896			329	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	567	2452		139	1797	620	354	1144	592	309	1628	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.34	0.54		0.10	0.17	0.19	0.20	0.43	0.21	0.56	0.32	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 61 (55%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 52.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



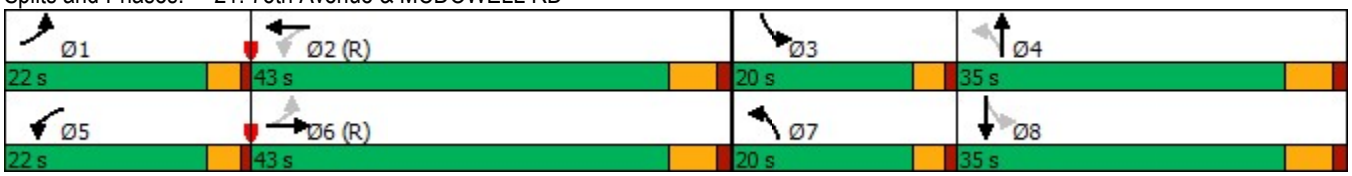
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	730	246	238	355	129	90	748	163	157	663	44
Future Volume (vph)	97	730	246	238	355	129	90	748	163	157	663	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.962			0.960			0.973			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4717	0	1711	4652	0	1711	4670	0	1711	4827	0
Flt Permitted	0.422			0.131			0.239			0.123		
Satd. Flow (perm)	760	4717	0	236	4652	0	430	4670	0	221	4827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		74			79			38			8	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.87	0.87	0.87	0.83	0.83	0.83	0.90	0.90	0.90	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	3%	2%	4%	2%	2%	5%	2%	2%	3%	2%
Adj. Flow (vph)	111	839	283	287	428	155	100	831	181	183	771	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	1122	0	287	583	0	100	1012	0	183	822	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2		6.0	48.2		10.0	30.8		10.0	30.8	
Total Split (s)	22.0	43.0		22.0	43.0		20.0	35.0		20.0	35.0	
Total Split (%)	18.3%	35.8%		18.3%	35.8%		16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8		4.0	5.8		4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	52.4	42.1		64.6	50.4		39.5	28.8		47.1	32.6	
Actuated g/C Ratio	0.44	0.35		0.54	0.42		0.33	0.24		0.39	0.27	
v/c Ratio	0.28	0.66		0.86	0.29		0.42	0.88		0.75	0.62	
Control Delay	10.4	19.3		62.7	31.3		28.3	52.0		44.7	40.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.4	19.3		62.7	31.3		28.3	52.0		44.7	40.1	
LOS	B	B		E	C		C	D		D	D	
Approach Delay		18.5			41.7			49.9			40.9	
Approach LOS		B			D			D			D	
Stops (vph)	31	442		211	653		59	813		106	597	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	43		14	28		2	25		4	17	
CO Emissions (g/hr)	275	3006		959	1929		123	1735		249	1177	
NOx Emissions (g/hr)	54	585		187	375		24	337		48	229	
VOC Emissions (g/hr)	64	697		222	447		28	402		58	273	
Dilemma Vehicles (#)	0	59		0	52		0	35		0	24	
Queue Length 50th (ft)	29	153		200	110		47	261		92	196	
Queue Length 95th (ft)	m31	m110		m#291	154		83	#326		147	234	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	532	1703		351	1998		335	1190		285	1329	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.66		0.82	0.29		0.30	0.85		0.64	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 36.9 Intersection LOS: D
Intersection Capacity Utilization 70.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	316	0	309	226	804	0	0	847	305
Future Volume (vph)	0	0	0	316	0	309	226	804	0	0	847	305
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.920	0.850						0.850
Flt Protected				0.950	0.977		0.950					
Satd. Flow (prot)	0	0	0	1544	1461	1501	1611	5075	0	0	5124	1611
Flt Permitted				0.950	0.977		0.950					
Satd. Flow (perm)	0	0	0	1544	1461	1501	1611	5075	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					146	191						310
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.94	0.94	0.94	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	13%	2%	4%	14%	4%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	363	0	355	240	855	0	0	1020	367
Shared Lane Traffic (%)				31%		36%						
Lane Group Flow (vph)	0	0	0	250	241	227	240	855	0	0	1020	367
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							68.0				40.0	40.0
Total Split (%)							42.5%				25.0%	25.0%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				39.9	39.9	39.9	66.3	108.6			34.7	34.7
Actuated g/C Ratio				0.25	0.25	0.25	0.41	0.68			0.22	0.22
v/c Ratio				0.65	0.51	0.44	0.36	0.25			0.92	0.62
Control Delay				61.5	22.5	12.0	10.7	0.6			74.4	15.0
Queue Delay				1.6	0.4	0.0	0.0	0.0			24.0	0.0
Total Delay				63.1	22.9	12.0	10.7	0.6			98.4	15.0
LOS				E	C	B	B	A			F	B
Approach Delay					33.5			2.8			76.4	
Approach LOS					C			A			E	
Stops (vph)				191	70	35	65	66			795	56

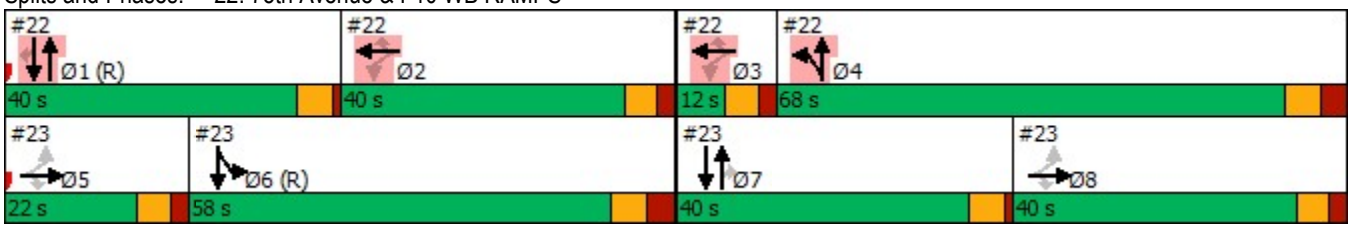
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	40.0	12.0	22.0	58.0	40.0	40.0
Total Split (%)	25%	8%	14%	36%	25%	25%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				8	4	3	2	4			27	3
CO Emissions (g/hr)				525	290	216	145	255			1917	232
NOx Emissions (g/hr)				102	56	42	28	50			373	45
VOC Emissions (g/hr)				122	67	50	34	59			444	54
Dilemma Vehicles (#)				0	6	0	0	0			26	0
Queue Length 50th (ft)				245	90	30	31	0			386	49
Queue Length 95th (ft)				325	169	96	m74	m0			402	116
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				389	478	521	668	3445			1111	592
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				45	48	0	0	0			134	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.73	0.56	0.44	0.36	0.25			1.04	0.62

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 41.6 Intersection LOS: D
Intersection Capacity Utilization 66.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	205	827	0	0	0	0	616	165	243	989	0
Future Volume (vph)	319	205	827	0	0	0	0	616	165	243	989	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	0		150	0		0
Storage Lanes	1		1	0		0	0		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt		0.914	0.850						0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1662	1518	1446	0	0	0	0	3339	1369	3493	3465	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1662	1518	1446	0	0	0	0	3339	1369	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46	147						163			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.89	0.89	0.89	0.25	0.25	0.25	0.84	0.84	0.84	0.83	0.83	0.83
Heavy Vehicles (%)	5%	2%	8%	0%	0%	0%	0%	10%	20%	2%	6%	0%
Adj. Flow (vph)	358	230	929	0	0	0	0	733	196	293	1192	0
Shared Lane Traffic (%)	10%		38%									
Lane Group Flow (vph)	322	619	576	0	0	0	0	733	196	293	1192	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								40.0	40.0	58.0		
Total Split (%)								25.0%	25.0%	36.3%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	56.8	56.8	56.8					39.6	39.6	44.3	89.2	
Actuated g/C Ratio	0.36	0.36	0.36					0.25	0.25	0.28	0.56	
v/c Ratio	0.55	1.09	0.95					0.89	0.43	0.30	0.62	
Control Delay	45.9	108.7	62.9					71.2	14.6	15.1	19.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	35.4	
Total Delay	45.9	108.7	62.9					71.2	14.6	15.1	54.7	
LOS	D	F	E					E	B	B	D	
Approach Delay		78.0						59.2			46.9	
Approach LOS		E						E			D	
Stops (vph)	228	441	362					535	33	133	933	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	40.0	40.0	12.0	68.0	22.0	40.0
Total Split (%)	25%	25%	8%	43%	14%	25%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	23	16					30	5	3	19	
CO Emissions (g/hr)	590	1628	1140					2124	340	225	1318	
NOx Emissions (g/hr)	115	317	222					413	66	44	257	
VOC Emissions (g/hr)	137	377	264					492	79	52	306	
Dilemma Vehicles (#)	0	15	0					17	0	0	3	
Queue Length 50th (ft)	287	~773	501					392	27	72	638	
Queue Length 95th (ft)	391	#1026	#754					#491	86	m78	615	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	589	568	608					826	461	1095	1920	
Starvation Cap Reductn	0	0	0					0	0	0	801	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.55	1.09	0.95					0.89	0.43	0.27	1.07	

Intersection Summary

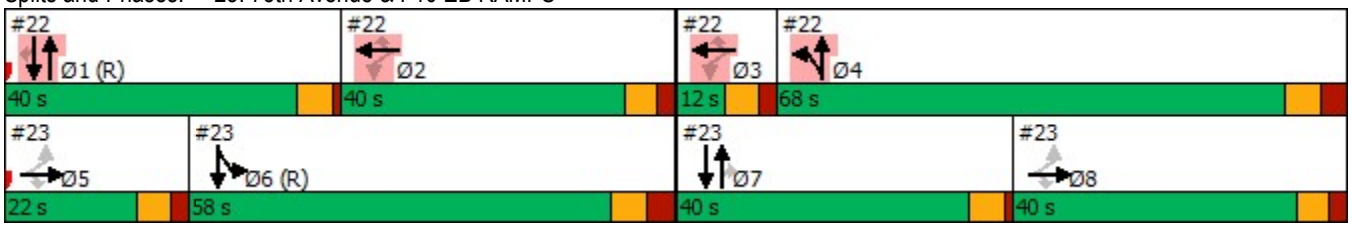
Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 61.8 Intersection LOS: E
Intersection Capacity Utilization 66.2% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	643	137	58	148	59	35	648	229	218	1047	57
Future Volume (vph)	58	643	137	58	148	59	35	648	229	218	1047	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		270	250		0	220		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.974				0.850		0.961			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1302	3118	0	1442	1597	1229	1491	3007	0	1531	3221	0
Flt Permitted	0.535			0.120			0.123			0.086		
Satd. Flow (perm)	733	3118	0	182	1597	1229	193	3007	0	139	3221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				139		44			6	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.83	0.83	0.83	0.76	0.76	0.76	0.83	0.83	0.83	0.89	0.89	0.89
Heavy Vehicles (%)	34%	9%	9%	21%	15%	27%	17%	11%	13%	14%	7%	16%
Adj. Flow (vph)	70	775	165	76	195	78	42	781	276	245	1176	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	940	0	76	195	78	42	1057	0	245	1240	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		2.0	15.0	
Minimum Split (s)	9.5	52.0		9.5	52.0	52.0	9.5	34.0		16.0	50.0	
Total Split (s)	12.0	38.0		12.0	38.0	38.0	12.0	44.0		26.0	58.0	
Total Split (%)	10.0%	31.7%		10.0%	31.7%	31.7%	10.0%	36.7%		21.7%	48.3%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	5.3		4.0	5.3	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes	Yes		Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	41.9	35.1		41.9	35.1	35.1	50.7	43.1		66.0	55.4	
Actuated g/C Ratio	0.35	0.29		0.35	0.29	0.29	0.42	0.36		0.55	0.46	
v/c Ratio	0.24	1.02		0.55	0.42	0.17	0.27	0.95		0.88	0.83	
Control Delay	29.6	76.1		49.6	49.7	8.8	26.8	58.2		59.6	34.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	29.6	76.1		49.6	49.7	8.8	26.8	58.2		59.6	34.9	
LOS	C	E		D	D	A	C	E		E	C	
Approach Delay		72.9			40.6			57.0			39.0	
Approach LOS		E			D			E			D	
Stops (vph)	40	1100		48	137	21	24	577		156	926	

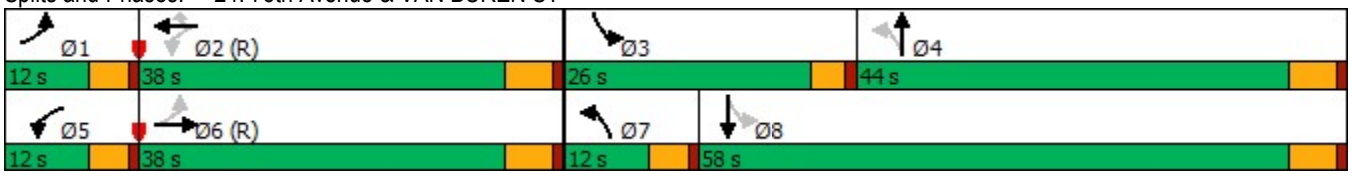
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	52		3	8	2	2	48		10	46	
CO Emissions (g/hr)	196	3624		225	586	170	119	3342		687	3208	
NOx Emissions (g/hr)	38	705		44	114	33	23	650		134	624	
VOC Emissions (g/hr)	46	840		52	136	39	27	775		159	743	
Dilemma Vehicles (#)	0	0		0	1	0	0	84		0	40	
Queue Length 50th (ft)	33	~384		51	148	0	20	338		139	446	
Queue Length 95th (ft)	m40	m#228		m69	191	m10	m31	m#477		#245	542	
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200			200		270	250			220		
Base Capacity (vph)	291	926		141	467	458	163	1108		331	1491	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	1.02		0.54	0.42	0.17	0.26	0.95		0.74	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 52.8 Intersection LOS: D
Intersection Capacity Utilization 73.3% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	1105	118	29	277	130	73	572	170	222	420	39
Future Volume (vph)	164	1105	118	29	277	130	73	572	170	222	420	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		0	260		0	270		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.952			0.966			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3401	1454	1670	2945	0	1505	3283	0	1597	3331	0
Flt Permitted	0.375			0.107			0.466			0.122		
Satd. Flow (perm)	704	3401	1454	188	2945	0	738	3283	0	205	3331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105		65			31			9	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4818			2586			1298			2861	
Travel Time (s)		65.7			35.3			19.7			43.3	
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	3%	8%	13%	10%	21%	14%	22%	9%	5%	15%	8%	18%
Adj. Flow (vph)	178	1201	128	35	334	157	79	622	185	244	462	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	1201	128	35	491	0	79	807	0	244	505	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		
Detector Phase	1	6	6	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0		17.0	30.0		17.0	30.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		15.0	35.0		25.0	45.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		12.5%	29.2%		20.8%	37.5%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	61.8	53.0	53.0	53.4	44.5		39.0	29.3		52.2	41.0	
Actuated g/C Ratio	0.52	0.44	0.44	0.44	0.37		0.32	0.24		0.44	0.34	
v/c Ratio	0.38	0.80	0.18	0.23	0.43		0.28	0.98		0.84	0.44	
Control Delay	19.3	35.7	7.7	20.0	26.8		22.6	69.9		65.8	26.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.3	35.7	7.7	20.0	26.8		22.6	69.9		65.8	26.3	
LOS	B	D	A	C	C		C	E		E	C	
Approach Delay		31.4			26.3			65.7			39.2	
Approach LOS		C			C			E			D	
Stops (vph)	87	886	22	15	338		48	647		172	445	

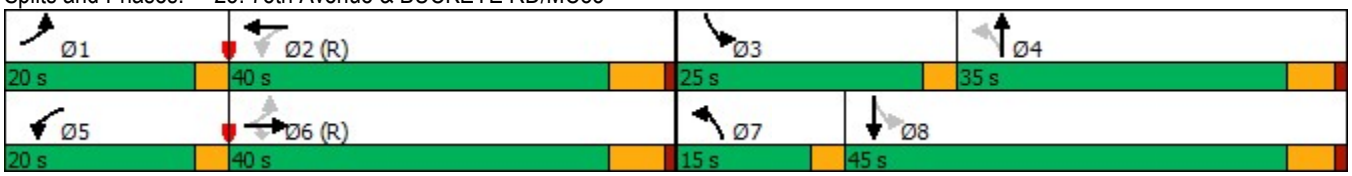
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	58	4	1	21		2	25		13	24	
CO Emissions (g/hr)	520	4085	311	92	1469		108	1738		893	1668	
NOx Emissions (g/hr)	101	795	61	18	286		21	338		174	324	
VOC Emissions (g/hr)	121	947	72	21	341		25	403		207	387	
Dilemma Vehicles (#)	0	44	0	0	45		0	28		0	29	
Queue Length 50th (ft)	73	438	11	10	107		35	316		156	97	
Queue Length 95th (ft)	125	#633	54	30	174		63	#451		m187	m118	
Internal Link Dist (ft)		4738			2506			1218			2781	
Turn Bay Length (ft)	260		190	270			260			270		
Base Capacity (vph)	515	1501	700	306	1133		346	830		344	1151	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.80	0.18	0.11	0.43		0.23	0.97		0.71	0.44	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 79 (66%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 40.5 Intersection LOS: D
Intersection Capacity Utilization 74.0% ICU Level of Service D
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	677	244	228	533	129	160	577	71	124	755	88
Future Volume (vph)	160	677	244	228	533	129	160	577	71	124	755	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.960				0.850		0.984			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3221	0	1711	3388	1531	1711	4700	0	1711	4795	0
Flt Permitted	0.361			0.122			0.144			0.251		
Satd. Flow (perm)	650	3221	0	220	3388	1531	259	4700	0	452	4795	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45				161		16			15	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.94	0.94	0.94	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	2%	4%	4%	2%	3%	2%	2%	4%	13%	2%	3%	2%
Adj. Flow (vph)	170	720	260	285	666	161	176	634	78	139	848	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	980	0	285	666	161	176	712	0	139	947	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		8.0	15.0	
Minimum Split (s)	11.0	50.3		9.0	48.3	48.3	9.0	33.0		12.0	28.3	
Total Split (s)	23.0	45.0		23.0	45.0	45.0	20.0	32.0		20.0	32.0	
Total Split (%)	19.2%	37.5%		19.2%	37.5%	37.5%	16.7%	26.7%		16.7%	26.7%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		Min	Ped	
Act Effct Green (s)	57.1	44.9		67.7	51.5	51.5	42.3	27.7		38.3	25.7	
Actuated g/C Ratio	0.48	0.37		0.56	0.43	0.43	0.35	0.23		0.32	0.21	
v/c Ratio	0.42	0.79		0.85	0.46	0.22	0.70	0.65		0.53	0.91	
Control Delay	13.2	27.4		46.8	27.0	4.6	36.7	40.0		33.0	59.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.2	27.4		46.8	27.0	4.6	36.7	40.0		33.0	59.0	
LOS	B	C		D	C	A	D	D		C	E	
Approach Delay		25.3			28.8			39.3			55.6	
Approach LOS		C			C			D			E	
Stops (vph)	53	754		138	375	13	128	608		86	776	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	46		6	12	1	3	15		4	35	
CO Emissions (g/hr)	455	3195		400	831	92	237	1052		298	2470	
NOx Emissions (g/hr)	89	622		78	162	18	46	205		58	481	
VOC Emissions (g/hr)	105	741		93	193	21	55	244		69	572	
Dilemma Vehicles (#)	0	6		0	22	0	0	7		0	31	
Queue Length 50th (ft)	45	356		141	197	0	111	198		70	254	
Queue Length 95th (ft)	m66	#502		204	234	30	178	248		115	#314	
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	518	1234		362	1453	748	287	1125		327	1085	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.33	0.79		0.79	0.46	0.22	0.61	0.63		0.43	0.87	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 36.9 Intersection LOS: D
Intersection Capacity Utilization 75.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	217	200	254	222	515	0	0	974	218
Future Volume (vph)	0	0	0	217	200	254	222	515	0	0	974	218
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.957	0.850						0.850
Flt Protected				0.950	0.994		0.950					
Satd. Flow (prot)	0	0	0	1441	2384	1424	1655	5075	0	0	5175	1611
Flt Permitted				0.950	0.994		0.950					
Satd. Flow (perm)	0	0	0	1441	2384	1424	1655	5075	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					40	167						227
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	16%	50%	5%	11%	4%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	233	215	273	236	548	0	0	1015	227
Shared Lane Traffic (%)				20%		39%						
Lane Group Flow (vph)	0	0	0	186	368	167	236	548	0	0	1015	227
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				30.0	30.0
Total Split (%)							42.5%				25.0%	25.0%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				32.7	32.7	32.7	39.6	75.7			28.3	28.3
Actuated g/C Ratio				0.27	0.27	0.27	0.33	0.63			0.24	0.24
v/c Ratio				0.47	0.54	0.33	0.43	0.17			0.83	0.41
Control Delay				41.3	36.5	6.9	12.2	0.5			60.7	20.7
Queue Delay				0.2	0.1	0.0	0.0	0.0			0.0	0.0
Total Delay				41.4	36.6	6.9	12.2	0.5			60.7	20.7
LOS				D	D	A	B	A			E	C
Approach Delay					31.0			4.0			53.4	
Approach LOS					C			A			D	
Stops (vph)				141	256	19	45	9			755	143

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	30.0	9.0	30.0	30.0	35.0	25.0
Total Split (%)	25%	8%	25%	25%	29%	21%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	9	2	2	2			25	4
CO Emissions (g/hr)				330	609	126	125	138			1760	252
NOx Emissions (g/hr)				64	118	25	24	27			342	49
VOC Emissions (g/hr)				76	141	29	29	32			408	58
Dilemma Vehicles (#)				0	14	0	0	1			123	0
Queue Length 50th (ft)				132	126	0	21	2			253	43
Queue Length 95th (ft)				214	183	58	m36	2			m#356	m77
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				393	679	509	597	3155			1222	553
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				16	27	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.49	0.56	0.33	0.40	0.17			0.83	0.41

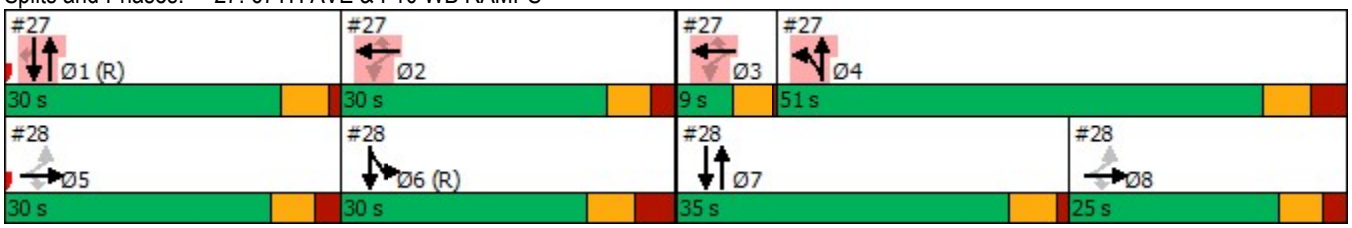
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 33.4 Intersection LOS: C
Intersection Capacity Utilization 50.8% ICU Level of Service A
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	10	500	0	0	0	0	673	189	286	887	0
Future Volume (vph)	170	10	500	0	0	0	0	673	189	286	887	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	0.91	0.97	0.95	1.00
Frt		0.865	0.850					0.967				
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1639	2739	1424	0	0	0	0	4761	0	3493	3465	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1639	2739	1424	0	0	0	0	4761	0	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77	130					56				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.89	0.89	0.89	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	5%	0%	0%	0%	0%	5%	15%	2%	6%	0%
Adj. Flow (vph)	200	12	588	0	0	0	0	756	212	304	944	0
Shared Lane Traffic (%)	10%		50%									
Lane Group Flow (vph)	180	326	294	0	0	0	0	968	0	304	944	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								35.0		30.0		
Total Split (%)								29.2%		25.0%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	31.4	31.4	31.4					28.8		40.2	74.3	
Actuated g/C Ratio	0.26	0.26	0.26					0.24		0.34	0.62	
v/c Ratio	0.42	0.42	0.63					0.82		0.26	0.44	
Control Delay	38.9	28.5	26.8					65.7		6.4	7.5	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.7	
Total Delay	38.9	28.5	26.8					65.7		6.4	8.2	
LOS	D	C	C					E		A	A	
Approach Delay		30.2						65.7			7.8	
Approach LOS		C						E			A	
Stops (vph)	122	167	123					817		100	651	

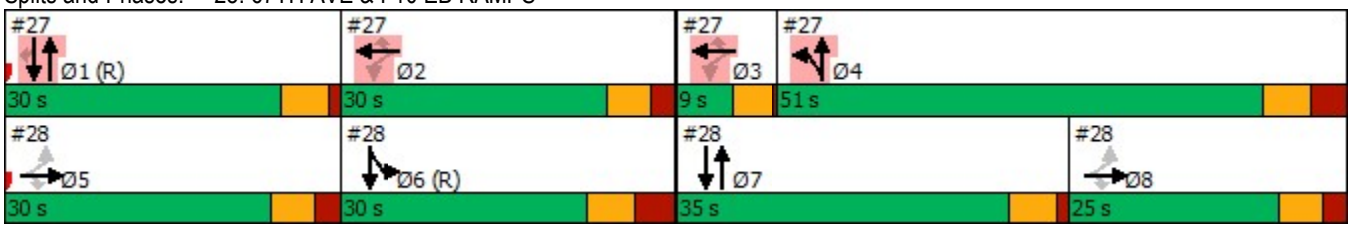
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	9.0	51.0	30.0	25.0
Total Split (%)	25%	25%	8%	43%	25%	21%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	7	6					42		2	11	
CO Emissions (g/hr)	303	461	386					2920		166	763	
NOx Emissions (g/hr)	59	90	75					568		32	148	
VOC Emissions (g/hr)	70	107	89					677		39	177	
Dilemma Vehicles (#)	0	9	0					10		0	0	
Queue Length 50th (ft)	125	90	120					278		4	337	
Queue Length 95th (ft)	173	118	187					m294		m72	427	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	606	1062	609					1220		1169	2170	
Starvation Cap Reductn	0	0	0					0		0	822	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.30	0.31	0.48					0.79		0.26	0.70	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 32.3 Intersection LOS: C
Intersection Capacity Utilization 50.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

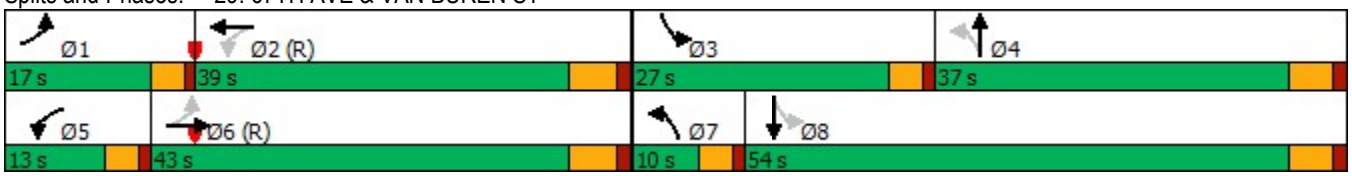
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	736	132	110	188	83	110	615	282	196	701	50
Future Volume (vph)	158	736	132	110	188	83	110	615	282	196	701	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		0	250		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.977			0.954			0.953			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3011	0	1601	3959	0	1662	3022	0	1586	3152	0
Flt Permitted	0.512			0.118			0.259			0.098		
Satd. Flow (perm)	825	3011	0	199	3959	0	453	3022	0	164	3152	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			90			60			7	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	14%	12%	20%	9%	19%	25%	5%	11%	8%	10%	9%	18%
Adj. Flow (vph)	168	783	140	120	204	90	118	661	303	228	815	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	923	0	120	294	0	118	964	0	228	873	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	9.0	52.0		9.0	52.0		9.0	50.0		9.0	50.0	
Total Split (s)	17.0	43.0		13.0	39.0		10.0	37.0		27.0	54.0	
Total Split (%)	14.2%	35.8%		10.8%	32.5%		8.3%	30.8%		22.5%	45.0%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7		4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes			Yes			Yes	
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	51.4	37.4		44.6	33.9		44.4	37.0		60.0	48.6	
Actuated g/C Ratio	0.43	0.31		0.37	0.28		0.37	0.31		0.50	0.40	
v/c Ratio	0.39	0.97		0.67	0.25		0.52	0.99		0.78	0.68	
Control Delay	15.6	38.8		42.7	23.5		41.9	76.1		55.6	41.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.6	38.8		42.7	23.5		41.9	76.1		55.6	41.1	
LOS	B	D		D	C		D	E		E	D	
Approach Delay		35.2			29.1			72.4			44.1	
Approach LOS		D			C			E			D	
Stops (vph)	54	663		71	141		111	1171		192	605	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	45		3	7		6	57		9	32	
CO Emissions (g/hr)	468	3178		243	494		415	4001		640	2207	
NOx Emissions (g/hr)	91	618		47	96		81	778		124	429	
VOC Emissions (g/hr)	109	737		56	114		96	927		148	512	
Dilemma Vehicles (#)	0	38		0	11		0	82		0	19	
Queue Length 50th (ft)	55	247		56	44		67	354		152	276	
Queue Length 95th (ft)	m59	m#286		#125	69		m98	m#561		225	306	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250			250			250			260		
Base Capacity (vph)	433	949		179	1183		227	972		354	1280	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.39	0.97		0.67	0.25		0.52	0.99		0.64	0.68	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 48.1 Intersection LOS: D
Intersection Capacity Utilization 78.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	1043	77	74	303	72	130	625	187	112	478	226
Future Volume (vph)	264	1043	77	74	303	72	130	625	187	112	478	226
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		0	200		0	260		260
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.990			0.971			0.965				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	3270	0	1701	2923	0	1717	3442	0	1640	3433	1494
Flt Permitted	0.409			0.098			0.306			0.106		
Satd. Flow (perm)	706	3270	0	175	2923	0	553	3442	0	183	3433	1494
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			26			32				279
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.85	0.85	0.85	0.81	0.81	0.81
Heavy Vehicles (%)	12%	11%	14%	8%	23%	18%	7%	3%	3%	12%	7%	10%
Adj. Flow (vph)	290	1146	85	82	337	80	153	735	220	138	590	279
Shared Lane Traffic (%)												
Lane Group Flow (vph)	290	1231	0	82	417	0	153	955	0	138	590	279
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0		12.0	32.0		17.0	37.0	37.0
Total Split (s)	18.0	50.0		13.0	45.0		14.0	37.0		20.0	43.0	43.0
Total Split (%)	15.0%	41.7%		10.8%	37.5%		11.7%	30.8%		16.7%	35.8%	35.8%
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2		0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5		3.0	5.2		3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	Ped
Act Effct Green (s)	60.6	48.6		51.5	40.7		49.0	36.5		51.4	37.9	37.9
Actuated g/C Ratio	0.50	0.40		0.43	0.34		0.41	0.30		0.43	0.32	0.32
v/c Ratio	0.62	0.93		0.46	0.41		0.47	0.89		0.62	0.54	0.42
Control Delay	15.4	30.0		25.0	30.4		25.4	50.7		49.8	31.4	6.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	15.4	30.0		25.0	30.4		25.4	50.7		49.8	31.4	6.8
LOS	B	C		C	C		C	D		D	C	A
Approach Delay		27.2			29.5			47.2			27.1	
Approach LOS		C			C			D			C	
Stops (vph)	95	681		42	265		80	692		80	250	49

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	54		2	11		2	21		6	22	9
CO Emissions (g/hr)	770	3743		138	775		169	1481		412	1571	616
NOx Emissions (g/hr)	150	728		27	151		33	288		80	306	120
VOC Emissions (g/hr)	179	868		32	180		39	343		96	364	143
Dilemma Vehicles (#)	0	35		0	15		0	31		0	40	0
Queue Length 50th (ft)	63	506		32	123		70	356		78	131	15
Queue Length 95th (ft)	m81	m#275		61	171		107	#474		m121	m171	m53
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250			200			260		260
Base Capacity (vph)	472	1328		205	1007		335	1068		287	1085	662
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.61	0.93		0.40	0.41		0.46	0.89		0.48	0.54	0.42

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 32 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 32.8 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85

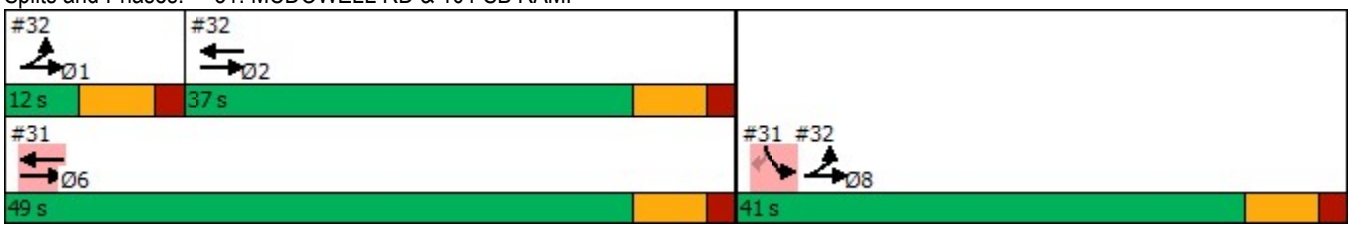
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1300	600	0	600	400		
Future Volume (vph)	0	1300	600	0	600	400		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	1	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6520	3601	0	1801	2836		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6520	3601	0	1801	2836		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						307		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1413	652	0	652	435		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1413	652	0	652	435		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		49.0	49.0		41.0	41.0	12.0	37.0
Total Split (%)		54.4%	54.4%		45.6%	45.6%	13%	41%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		42.0	42.0		34.0	34.0		
Actuated g/C Ratio		0.47	0.47		0.38	0.38		
v/c Ratio		0.46	0.39		0.96	0.34		
Control Delay		17.0	10.4		54.8	6.7		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		17.0	10.4		54.8	6.7		
LOS		B	B		D	A		
Approach Delay		17.0	10.4		35.6			
Approach LOS		B	B		D			
Stops (vph)		839	166		511	84		
Fuel Used(gal)		23	5		22	8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		1615	357		1551	537		
NOx Emissions (g/hr)		314	69		302	104		
VOC Emissions (g/hr)		374	83		359	124		
Dilemma Vehicles (#)		64	72		0	0		
Queue Length 50th (ft)		152	62		355	26		
Queue Length 95th (ft)		183	m61		#581	61		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3042	1680		680	1262		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.46	0.39		0.96	0.34		

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 22.0	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: MCDOWELL RD & 101 SB RAMP



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	500	1400	600	500	0	0			
Future Volume (vph)	500	1400	600	500	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.932						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	3021	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	3021	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			251						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	543	1522	652	543	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	543	1522	1195	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			37.0				12.0	49.0	41.0
Total Split (%)			41.1%				13%	54%	46%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	46.0	90.0	30.0						
Actuated g/C Ratio	0.51	1.00	0.33						
v/c Ratio	0.34	0.47	1.02						
Control Delay	24.0	2.2	55.8						
Queue Delay	0.0	0.0	0.0						
Total Delay	24.0	2.2	55.8						
LOS	C	A	E						
Approach Delay		7.9	55.8						
Approach LOS		A	E						
Stops (vph)	361	271	796						
Fuel Used(gal)	8	8	50						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	588	569	3482						
NOx Emissions (g/hr)	114	111	677						
VOC Emissions (g/hr)	136	132	807						
Dilemma Vehicles (#)	0	0	56						
Queue Length 50th (ft)	119	78	~311						
Queue Length 95th (ft)	m146	m72	#459						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1606	3241	1174						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.34	0.47	1.02						

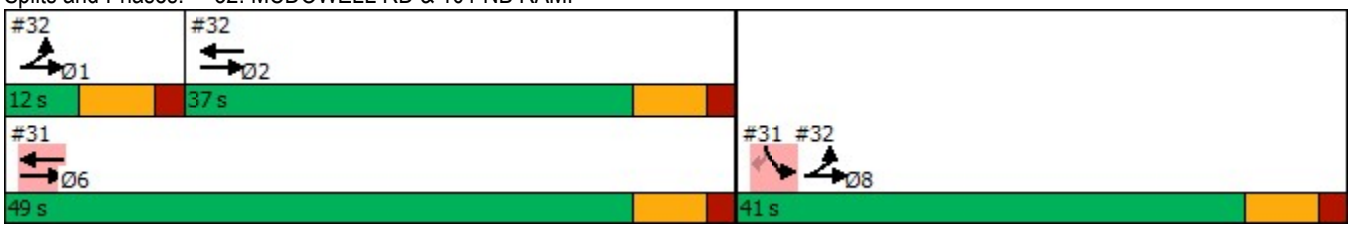
Intersection Summary	
Area Type: CBD	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 25.5	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 32: MCDOWELL RD & 101 NB RAMP



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	570	125	423	613	153	167	526	251	170	355	155
Future Volume (vph)	97	570	125	423	613	153	167	526	251	170	355	155
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	230		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.970				0.850		0.954	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	5175	1611	3493	5009	0	1801	3601	1611	1801	3436	0
Flt Permitted	0.338			0.950			0.283			0.201		
Satd. Flow (perm)	628	5175	1611	3493	5009	0	536	3601	1611	381	3436	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130		52				179		48	
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			15.2			9.3			23.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.89	0.89	0.89	0.91	0.91	0.91
Heavy Vehicles (%)	4%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	101	594	130	441	639	159	188	591	282	187	390	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	594	130	441	798	0	188	591	282	187	560	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	13.0	42.0	42.0	39.0	68.0		15.0	45.0	45.0	19.0	49.0	
Total Split (%)	9.0%	29.0%	29.0%	26.9%	46.9%		10.3%	31.0%	31.0%	13.1%	33.8%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	46.7	36.1	36.1	20.1	48.0		38.5	26.1	26.1	42.6	28.2	
Actuated g/C Ratio	0.41	0.31	0.31	0.17	0.42		0.33	0.23	0.23	0.37	0.24	
v/c Ratio	0.30	0.37	0.22	0.73	0.38		0.63	0.72	0.56	0.63	0.64	
Control Delay	18.5	33.4	7.0	53.3	23.1		35.7	47.2	19.3	34.2	39.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.5	33.4	7.0	53.3	23.1		35.7	47.2	19.3	34.2	39.0	
LOS	B	C	A	D	C		D	D	B	C	D	
Approach Delay		27.4			33.9			37.7			37.8	
Approach LOS		C			C			D			D	
Stops (vph)	58	429	16	385	474		120	465	82	110	399	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	12	1	24	36		4	14	4	3	11	
CO Emissions (g/hr)	106	820	65	1664	2490		265	997	255	242	797	
NOx Emissions (g/hr)	21	159	13	324	485		52	194	50	47	155	
VOC Emissions (g/hr)	25	190	15	386	577		61	231	59	56	185	
Dilemma Vehicles (#)	0	24	0	0	26		0	18	0	0	16	
Queue Length 50th (ft)	35	124	0	160	139		93	215	64	93	178	
Queue Length 95th (ft)	75	196	50	238	202		158	297	156	160	254	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160	230			120		120	150		
Base Capacity (vph)	349	1622	594	1073	2737		303	1245	674	334	1339	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.29	0.37	0.22	0.41	0.29		0.62	0.47	0.42	0.56	0.42	

Intersection Summary

Area Type: Other
Cycle Length: 145
Actuated Cycle Length: 115.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 34.3 — Intersection LOS: C
Intersection Capacity Utilization 56.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	131	11	45	281	896	0	0	528	345
Future Volume (vph)	0	0	0	131	11	45	281	896	0	0	528	345
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.991	0.850					0.941	
Flt Protected				0.950	0.962		0.950					
Satd. Flow (prot)	0	0	0	1694	1632	1531	1749	3601	0	0	4869	0
Flt Permitted				0.950	0.962		0.950					
Satd. Flow (perm)	0	0	0	1694	1632	1531	1749	3601	0	0	4869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					98	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		12.3			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	3%	2%	2%	5%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	151	13	52	312	996	0	0	562	367
Shared Lane Traffic (%)				44%		10%						
Lane Group Flow (vph)	0	0	0	85	84	47	312	996	0	0	929	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				40.0	40.0	40.0					36.0	
Total Split (%)				26.7%	26.7%	26.7%					24.0%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				13.8	13.8	13.8	54.2	89.9			30.3	
Actuated g/C Ratio				0.12	0.12	0.12	0.47	0.79			0.27	
v/c Ratio				0.42	0.42	0.17	0.38	0.35			0.68	
Control Delay				55.4	54.6	1.3	21.0	1.2			38.0	
Queue Delay				0.0	0.0	0.0	4.5	0.9			0.0	
Total Delay				55.4	54.6	1.3	25.5	2.1			38.0	
LOS				E	D	A	C	A			D	
Approach Delay					43.3			7.7			38.0	
Approach LOS					D			A			D	
Stops (vph)				64	63	0	196	37			685	

Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	45.0	29.0
Total Split (%)	30%	19%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				2	2	0	4	3			21	
CO Emissions (g/hr)				144	141	18	299	190			1465	
NOx Emissions (g/hr)				28	27	3	58	37			285	
VOC Emissions (g/hr)				33	33	4	69	44			339	
Dilemma Vehicles (#)				0	2	0	0	35			38	
Queue Length 50th (ft)				61	61	0	169	8			199	
Queue Length 95th (ft)				124	125	0	m279	42			305	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				534	515	554	841	2858			1365	
Starvation Cap Reductn				0	0	0	446	1480			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.16	0.16	0.08	0.79	0.72			0.68	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 114.2
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS

Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	351	37	208	0	0	0	0	829	153	63	600	0
Future Volume (vph)	351	37	208	0	0	0	0	829	153	63	600	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.982	0.850					0.977				
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4	210					22				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.95	0.95	0.95	0.89	0.89	0.89
Heavy Vehicles (%)	2%	5%	7%	0%	0%	0%	0%	2%	3%	2%	2%	0%
Adj. Flow (vph)	403	43	239	0	0	0	0	873	161	71	674	0
Shared Lane Traffic (%)	41%		12%									
Lane Group Flow (vph)	238	237	210	0	0	0	0	1034	0	71	674	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	29.0	29.0	29.0					36.0				
Total Split (%)	19.3%	19.3%	19.3%					24.0%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	22.4	22.4	22.4					30.3		38.5	79.5	
Actuated g/C Ratio	0.20	0.20	0.20					0.27		0.34	0.70	
v/c Ratio	0.71	0.74	0.46					0.76		0.12	0.27	
Control Delay	57.6	59.3	9.6					43.6		16.6	0.9	
Queue Delay	0.0	0.0	0.0					0.1		0.0	0.1	
Total Delay	57.6	59.3	9.6					43.7		16.6	1.1	
LOS	E	E	A					D		B	A	
Approach Delay		43.5						43.7			2.5	
Approach LOS		D						D			A	
Stops (vph)	179	175	23					840		46	24	

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	45.0	40.0
Total Split (%)	30%	27%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	6	2					44		1	2	
CO Emissions (g/hr)	402	402	113					3099		65	125	
NOx Emissions (g/hr)	78	78	22					603		13	24	
VOC Emissions (g/hr)	93	93	26					718		15	29	
Dilemma Vehicles (#)	0	8	0					42		0	2	
Queue Length 50th (ft)	170	175	0					249		40	8	
Queue Length 95th (ft)	#328	#351	65					#387		m73	9	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	347	331	463					1357		1186	2965	
Starvation Cap Reductn	0	0	0					0		0	1211	
Spillback Cap Reductn	0	0	0					20		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.69	0.72	0.45					0.77		0.06	0.38	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 114.2
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS

Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	206	72	114	474	120	73	630	52	26	590	145
Future Volume (vph)	77	206	72	114	474	120	73	630	52	26	590	145
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	200		150	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1774	1580	1783	1877	1565	1783	3566	1611	1640	3601	1611
Flt Permitted	0.239			0.617			0.330			0.320		
Satd. Flow (perm)	453	1774	1580	1158	1877	1565	619	3566	1611	552	3601	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			124			69			158
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			79.7			59.8	
Peak Hour Factor	0.91	0.91	0.91	0.97	0.97	0.97	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	9%	4%	3%	3%	5%	3%	3%	2%	12%	2%	2%
Adj. Flow (vph)	85	226	79	118	489	124	76	656	54	28	641	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	226	79	118	489	124	76	656	54	28	641	158
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	66.0	66.0	54.0	54.0	54.0	44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	10.9%	60.0%	60.0%	49.1%	49.1%	49.1%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	36.2	34.0	34.0	26.0	26.0	26.0	25.1	25.1	25.1	25.1	25.1	25.1
Actuated g/C Ratio	0.50	0.47	0.47	0.36	0.36	0.36	0.35	0.35	0.35	0.35	0.35	0.35
v/c Ratio	0.24	0.27	0.10	0.28	0.72	0.19	0.35	0.53	0.09	0.15	0.51	0.24
Control Delay	11.0	12.1	3.1	19.8	27.5	4.5	27.2	22.6	4.4	22.8	22.3	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	12.1	3.1	19.8	27.5	4.5	27.2	22.6	4.4	22.8	22.3	4.9
LOS	B	B	A	B	C	A	C	C	A	C	C	A
Approach Delay		10.0			22.4			21.8			19.0	
Approach LOS		B			C			C			B	
Stops (vph)	32	103	8	71	374	15	54	468	6	20	436	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	3	0	5	24	4	4	30	2	1	23	4
CO Emissions (g/hr)	63	186	32	367	1648	309	250	2113	133	72	1623	285
NOx Emissions (g/hr)	12	36	6	71	321	60	49	411	26	14	316	55
VOC Emissions (g/hr)	15	43	7	85	382	72	58	490	31	17	376	66
Dilemma Vehicles (#)	0	11	0	0	26	0	0	35	0	0	32	0
Queue Length 50th (ft)	16	50	0	35	174	0	25	120	0	8	116	0
Queue Length 95th (ft)	48	120	21	92	360	34	80	234	19	35	227	42
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170	200		150	210		160
Base Capacity (vph)	387	1483	1334	821	1331	1145	349	2013	939	311	2033	978
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.15	0.06	0.14	0.37	0.11	0.22	0.33	0.06	0.09	0.32	0.16

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 72
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 19.4 Intersection LOS: B
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: 107TH AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	338	96	129	802	188	82	334	49	122	525	162
Future Volume (vph)	119	338	96	129	802	188	82	334	49	122	525	162
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.967			0.971			0.981			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3482	0	1801	3425	0	1801	3533	0	1749	3467	0
Flt Permitted	0.107			0.424			0.266			0.432		
Satd. Flow (perm)	203	3482	0	804	3425	0	504	3533	0	795	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			29			15			38	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.93	0.93	0.93	0.98	0.98	0.98	0.89	0.89	0.89	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	3%	9%	2%	2%	2%	5%	2%	3%
Adj. Flow (vph)	128	363	103	132	818	192	92	375	55	126	541	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	466	0	132	1010	0	92	430	0	126	708	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	46.0		12.0	46.0		12.0	40.0		12.0	40.0	
Total Split (%)	10.9%	41.8%		10.9%	41.8%		10.9%	36.4%		10.9%	36.4%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	48.8	38.6		48.9	38.6		44.9	35.0		46.3	37.1	
Actuated g/C Ratio	0.44	0.35		0.44	0.35		0.41	0.32		0.42	0.34	
v/c Ratio	0.65	0.37		0.31	0.83		0.32	0.38		0.32	0.59	
Control Delay	32.8	25.3		8.6	17.7		21.5	29.8		21.1	32.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.8	25.3		8.6	17.7		21.5	29.8		21.1	32.1	
LOS	C	C		A	B		C	C		C	C	
Approach Delay		26.9			16.7			28.3			30.5	
Approach LOS		C			B			C			C	
Stops (vph)	68	287		27	350		48	281		74	537	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	10		5	42		2	9		6	35	
CO Emissions (g/hr)	185	670		347	2947		111	613		392	2421	
NOx Emissions (g/hr)	36	130		68	573		22	119		76	471	
VOC Emissions (g/hr)	43	155		80	683		26	142		91	561	
Dilemma Vehicles (#)	0	20		0	71		0	17		0	31	
Queue Length 50th (ft)	48	116		20	92		38	122		53	216	
Queue Length 95th (ft)	#95	160		m28	146		69	165		92	282	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	207	1268		432	1244		303	1132		403	1193	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.62	0.37		0.31	0.81		0.30	0.38		0.31	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 30 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 24.3 Intersection LOS: C
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

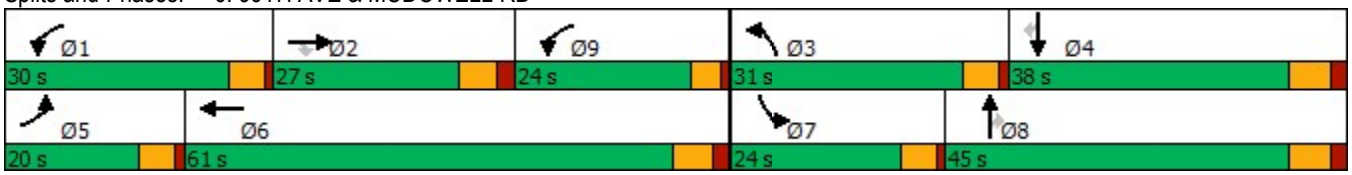
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	633	153	559	967	76	350	505	556	139	602	114
Future Volume (vph)	81	633	153	559	967	76	350	505	556	139	602	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.989				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		6				562			217
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.98	0.98	0.98	0.99	0.99	0.99	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	90	703	170	570	987	78	354	510	562	149	647	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	703	170	570	1065	0	354	510	562	149	647	123
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	20.0	27.0	27.0		61.0		31.0	45.0	45.0	24.0	38.0	38.0
Total Split (%)	13.3%	18.0%	18.0%		40.7%		20.7%	30.0%	30.0%	16.0%	25.3%	25.3%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	Min	None	None
Act Effct Green (s)	9.3	40.5	40.5	33.6	69.8		20.1	33.4	33.4	11.9	25.2	25.2
Actuated g/C Ratio	0.06	0.27	0.27	0.23	0.47		0.14	0.23	0.23	0.08	0.17	0.17
v/c Ratio	0.42	0.73	0.29	0.74	0.64		0.76	0.44	0.53	0.55	0.75	0.27
Control Delay	75.5	55.8	3.0	33.8	32.8		73.6	50.9	5.5	75.1	64.8	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.5	55.8	3.0	33.8	32.8		73.6	50.9	5.5	75.1	64.8	1.5
LOS	E	E	A	C	C		E	D	A	E	E	A
Approach Delay		48.3			33.1			38.6			58.0	
Approach LOS		D			C			D			E	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	30.0	24.0
Total Split (%)	20%	16%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	76	556	5	489	766		326	418	34	129	555	0
Fuel Used(gal)	5	36	5	14	23		11	13	4	5	22	1
CO Emissions (g/hr)	346	2495	376	944	1620		794	937	302	379	1550	99
NOx Emissions (g/hr)	67	485	73	184	315		155	182	59	74	301	19
VOC Emissions (g/hr)	80	578	87	219	375		184	217	70	88	359	23
Dilemma Vehicles (#)	0	21	0	0	28		0	13	0	0	17	0
Queue Length 50th (ft)	43	327	0	140	405		171	154	0	72	218	0
Queue Length 95th (ft)	81	476	21	205	565		252	217	53	122	298	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	352	969	591	1014	1657		611	1357	1156	442	1093	510
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.73	0.29	0.56	0.64		0.58	0.38	0.49	0.34	0.59	0.24

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 147.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 42.3	Intersection LOS: D
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: 99TH AVE & MCDOWELL RD



Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	196	735	346	265	1124	0	0	884	442
Future Volume (vph)	0	0	0	196	735	346	265	1124	0	0	884	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.993	0.850					0.950	
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1443	3039	1393	1586	4916	0	0	5885	0
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1443	3039	1393	1586	4916	0	0	5885	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	90					69	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.89	0.89	0.89	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	10%	3%	2%	10%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	211	790	372	298	1263	0	0	1016	508
Shared Lane Traffic (%)				10%		10%						
Lane Group Flow (vph)	0	0	0	190	848	335	298	1263	0	0	1524	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							10.0				20.0	
Minimum Split (s)							47.8				28.9	
Total Split (s)							48.0				51.0	
Total Split (%)							27.4%				29.1%	
Yellow Time (s)							3.9				4.7	
All-Red Time (s)							1.9				1.2	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							5.8				5.9	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				C-Min	
Act Effct Green (s)				64.4	64.4	64.4	42.4	98.8			50.6	
Actuated g/C Ratio				0.37	0.37	0.37	0.24	0.56			0.29	
v/c Ratio				0.36	0.76	0.59	0.78	0.45			1.02dr	
Control Delay				41.5	52.8	35.6	33.9	23.8			62.7	
Queue Delay				0.0	0.0	0.0	0.7	2.4			0.0	
Total Delay				41.5	52.8	35.6	34.6	26.1			62.7	
LOS				D	D	D	C	C			E	
Approach Delay					47.0			27.8			62.7	
Approach LOS					D			C			E	
Stops (vph)				126	673	184	236	1039			1144	

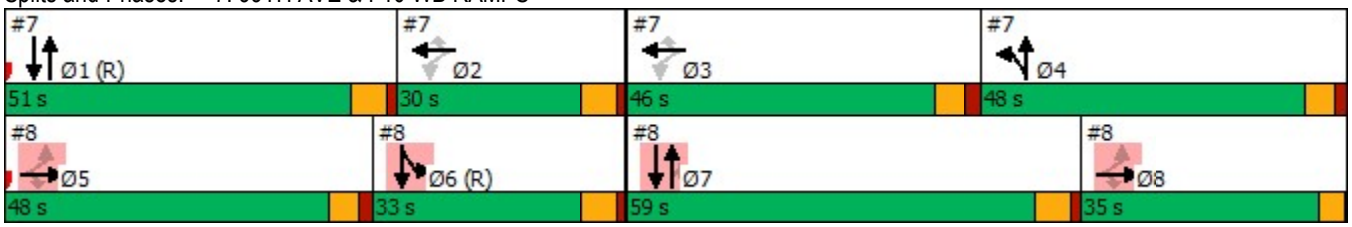
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	8.0	10.0	5.0	20.0	5.0
Minimum Split (s)	30.0	45.8	47.8	30.0	28.9	30.0
Total Split (s)	30.0	46.0	48.0	33.0	59.0	35.0
Total Split (%)	17%	26%	27%	19%	34%	20%
Yellow Time (s)	4.7	3.9	3.9	4.7	4.7	3.5
All-Red Time (s)	1.2	1.9	1.9	1.2	1.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	26	8	6	22			39	
CO Emissions (g/hr)				350	1783	558	397	1556			2724	
NOx Emissions (g/hr)				68	347	108	77	303			530	
VOC Emissions (g/hr)				81	413	129	92	361			631	
Dilemma Vehicles (#)				0	20	0	0	0			37	
Queue Length 50th (ft)				172	487	248	307	516			475	
Queue Length 95th (ft)				243	558	358	m366	575			#520	
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				578	1219	611	386	2750			1749	
Starvation Cap Reductn				0	0	0	11	1308			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.33	0.70	0.55	0.79	0.88			0.87	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 45.6 Intersection LOS: D
Intersection Capacity Utilization 64.5% ICU Level of Service C
Analysis Period (min) 15
Description: WB I-10 Off ramp
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	136	181	0	0	0	0	1304	475	236	935	0
Future Volume (vph)	273	136	181	0	0	0	0	1304	475	236	935	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		140	0		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.978	0.850						0.850			
Flt Protected	0.950	0.980								0.950		
Satd. Flow (prot)	1557	2828	1146	0	0	0	0	4775	1473	1711	4686	0
Flt Permitted	0.950	0.980								0.950		
Satd. Flow (perm)	1557	2828	1146	0	0	0	0	4775	1473	1711	4686	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13	91						323			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.25	0.25	0.25	0.98	0.98	0.98	0.87	0.87	0.87
Heavy Vehicles (%)	2%	6%	24%	0%	0%	0%	0%	5%	6%	2%	7%	0%
Adj. Flow (vph)	294	146	195	0	0	0	0	1331	485	271	1075	0
Shared Lane Traffic (%)	45%		25%									
Lane Group Flow (vph)	162	327	146	0	0	0	0	1331	485	271	1075	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								20.0	20.0	5.0		
Minimum Split (s)								28.9	28.9	30.0		
Total Split (s)								59.0	59.0	33.0		
Total Split (%)								33.7%	33.7%	18.9%		
Yellow Time (s)								4.7	4.7	4.7		
All-Red Time (s)								1.2	1.2	1.2		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.9	5.9	5.9		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	C-Max		
Act Effct Green (s)	39.5	39.5	39.5					53.1	53.1	64.8	123.8	
Actuated g/C Ratio	0.23	0.23	0.23					0.30	0.30	0.37	0.71	
v/c Ratio	0.46	0.50	0.44					0.92	0.72	0.43	0.32	
Control Delay	62.1	58.8	25.8					69.7	24.1	14.5	3.7	
Queue Delay	0.1	0.0	0.0					1.0	0.0	0.0	0.7	
Total Delay	62.2	58.9	25.8					70.7	24.1	14.5	4.4	
LOS	E	E	C					E	C	B	A	
Approach Delay		52.1						58.2			6.4	
Approach LOS		D						E			A	
Stops (vph)	128	249	46					1215	164	110	390	

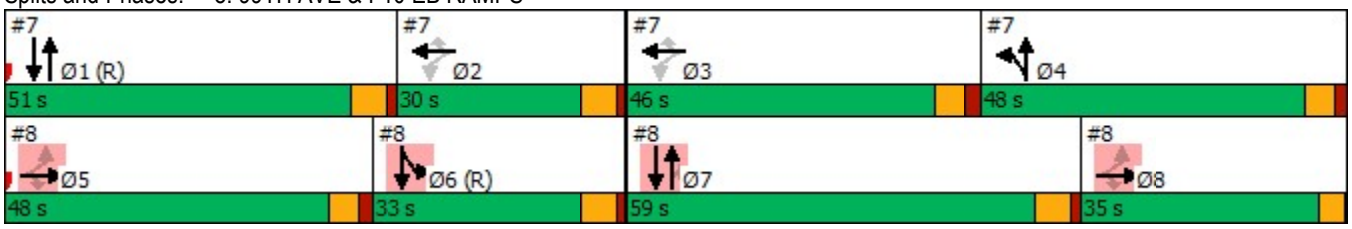
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	10.0	5.0
Minimum Split (s)	28.9	30.0	45.8	47.8	47.8	30.0
Total Split (s)	51.0	30.0	46.0	48.0	48.0	35.0
Total Split (%)	29%	17%	26%	27%	27%	20%
Yellow Time (s)	4.7	4.7	3.9	3.9	3.9	3.5
All-Red Time (s)	1.2	1.2	1.9	1.9	1.9	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	10	3					66	16	3	9	
CO Emissions (g/hr)	368	719	201					4630	1136	201	615	
NOx Emissions (g/hr)	72	140	39					901	221	39	120	
VOC Emissions (g/hr)	85	167	47					1073	263	47	142	
Dilemma Vehicles (#)	0	7	0					37	0	0	3	
Queue Length 50th (ft)	175	182	57					544	174	98	95	
Queue Length 95th (ft)	257	236	135					609	326	m159	114	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						140			
Base Capacity (vph)	633	1159	520					1448	671	633	3314	
Starvation Cap Reductn	0	0	0					0	0	0	1749	
Spillback Cap Reductn	76	93	0					28	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.29	0.31	0.28					0.94	0.72	0.43	0.69	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 38.8 Intersection LOS: D
Intersection Capacity Utilization 64.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

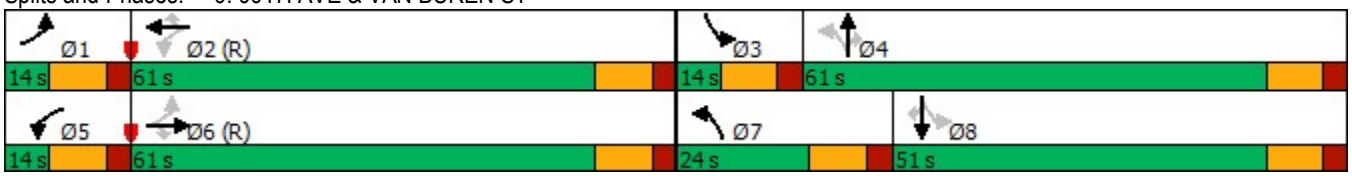
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	116	57	85	417	178	112	839	62	142	668	152
Future Volume (vph)	97	116	57	85	417	178	112	839	62	142	668	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1454	1766	1459	1711	3421	1531	1616	4775	1531	1711	3292	1432
Flt Permitted	0.453			0.676			0.156			0.246		
Satd. Flow (perm)	693	1766	1459	1217	3421	1531	265	4775	1531	443	3292	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			245			245			177			244
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.96	0.96	0.96	0.99	0.99	0.99
Heavy Vehicles (%)	20%	4%	7%	2%	2%	2%	8%	5%	2%	2%	6%	9%
Adj. Flow (vph)	105	126	62	90	444	189	117	874	65	143	675	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	126	62	90	444	189	117	874	65	143	675	154
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	61.0	61.0	14.0	61.0	61.0	24.0	61.0	61.0	14.0	51.0	51.0
Total Split (%)	9.3%	40.7%	40.7%	9.3%	40.7%	40.7%	16.0%	40.7%	40.7%	9.3%	34.0%	34.0%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	67.2	60.0	60.0	65.8	59.3	59.3	53.3	42.1	42.1	40.4	35.6	35.6
Actuated g/C Ratio	0.45	0.40	0.40	0.44	0.40	0.40	0.36	0.28	0.28	0.27	0.24	0.24
v/c Ratio	0.30	0.18	0.08	0.16	0.33	0.25	0.60	0.65	0.12	0.90	0.87	0.29
Control Delay	26.4	32.2	0.2	23.6	33.8	1.8	42.9	49.3	0.4	90.5	66.9	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	32.2	0.2	23.6	33.8	1.8	42.9	49.3	0.4	90.5	66.9	1.4
LOS	C	C	A	C	C	A	D	D	A	F	E	A
Approach Delay		23.4			24.2			45.6			60.0	
Approach LOS		C			C			D			E	
Stops (vph)	65	76	0	55	288	4	72	714	0	131	626	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	6	2	4	22	8	6	46	2	8	34	4
CO Emissions (g/hr)	326	398	137	306	1567	553	401	3234	150	545	2348	269
NOx Emissions (g/hr)	63	77	27	60	305	108	78	629	29	106	457	52
VOC Emissions (g/hr)	75	92	32	71	363	128	93	749	35	126	544	62
Dilemma Vehicles (#)	0	4	0	0	14	0	0	22	0	0	19	0
Queue Length 50th (ft)	54	81	0	46	163	0	76	275	0	94	335	0
Queue Length 95th (ft)	104	140	0	89	222	16	113	297	0	#174	392	0
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	347	707	731	555	1352	753	232	1648	644	159	917	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.18	0.08	0.16	0.33	0.25	0.50	0.53	0.10	0.90	0.74	0.27

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 43.0 Intersection LOS: D
Intersection Capacity Utilization 61.9% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



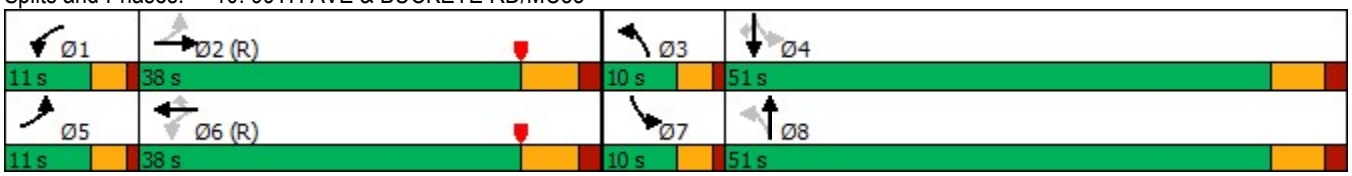
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	323	49	116	818	282	148	531	59	122	541	170
Future Volume (vph)	133	323	49	116	818	282	148	531	59	122	541	170
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.980				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3385	0	1801	3566	1381	1801	3456	0	1413	1895	1611
Flt Permitted	0.117			0.429			0.146			0.297		
Satd. Flow (perm)	220	3385	0	813	3566	1381	277	3456	0	442	1895	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				248		13				185
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4797			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	2%	2%	3%	19%	2%	5%	2%	30%	2%	2%
Adj. Flow (vph)	166	404	61	127	899	310	168	603	67	133	588	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	465	0	127	899	310	168	670	0	133	588	185
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0
Total Split (s)	11.0	38.0		11.0	38.0	38.0	10.0	51.0		10.0	51.0	51.0
Total Split (%)	10.0%	34.5%		10.0%	34.5%	34.5%	9.1%	46.4%		9.1%	46.4%	46.4%
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4		3.0	4.4	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4		4.0	6.4	6.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effct Green (s)	46.0	34.7		43.2	33.4	33.4	49.6	40.9		49.2	40.7	40.7
Actuated g/C Ratio	0.42	0.32		0.39	0.30	0.30	0.45	0.37		0.45	0.37	0.37
v/c Ratio	0.78	0.43		0.33	0.83	0.52	0.79	0.52		0.53	0.84	0.26
Control Delay	63.1	30.4		14.0	31.1	5.7	44.8	27.5		24.4	43.0	4.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	63.1	30.4		14.0	31.1	5.7	44.8	27.5		24.4	43.0	4.0
LOS	E	C		B	C	A	D	C		C	D	A
Approach Delay		39.0			23.6			30.9			32.3	
Approach LOS		D			C			C			C	
Stops (vph)	108	229		38	691	58	80	430		72	479	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	18		5	43	11	4	14		6	29	6
CO Emissions (g/hr)	547	1279		334	3005	741	252	954		399	2053	435
NOx Emissions (g/hr)	106	249		65	585	144	49	186		78	400	85
VOC Emissions (g/hr)	127	296		77	697	172	58	221		93	476	101
Dilemma Vehicles (#)	0	52		0	37	0	0	21		0	22	0
Queue Length 50th (ft)	98	113		25	286	17	62	181		49	360	0
Queue Length 95th (ft)	#160	151		51	#411	22	#127	223		84	495	43
Internal Link Dist (ft)		5209			4717			274			849	
Turn Bay Length (ft)	160			170		250	190			250		250
Base Capacity (vph)	213	1078		387	1081	591	212	1408		251	768	763
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.78	0.43		0.33	0.83	0.52	0.79	0.48		0.53	0.77	0.24

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 71 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 30.0 Intersection LOS: C
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85



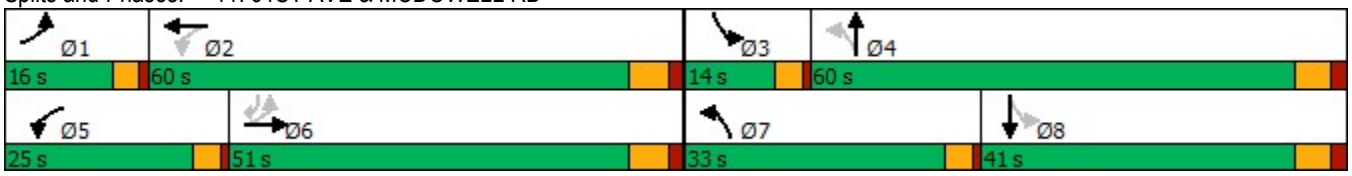
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	438	212	187	683	155	287	718	151	94	589	112
Future Volume (vph)	118	438	212	187	683	155	287	718	151	94	589	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.951			0.972			0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3243	0	1711	3325	0	1711	3332	0	1711	3421	1531
Flt Permitted	0.152			0.201			0.190			0.193		
Satd. Flow (perm)	274	3243	0	362	3325	0	342	3332	0	348	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			20			19				138
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			12.7			47.9	
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	130	481	233	210	767	174	305	764	161	100	627	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	714	0	210	941	0	305	925	0	100	627	119
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	16.0	51.0		25.0	60.0		33.0	60.0		14.0	41.0	51.0
Total Split (%)	10.7%	34.0%		16.7%	40.0%		22.0%	40.0%		9.3%	27.3%	34.0%
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4		4.0	6.4		4.0	6.0		4.0	6.0	6.4
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min		None	None		None	None	Min
Act Effct Green (s)	53.5	41.2		62.4	46.3		60.7	46.1		43.4	33.0	41.2
Actuated g/C Ratio	0.41	0.31		0.47	0.35		0.46	0.35		0.33	0.25	0.31
v/c Ratio	0.60	0.68		0.65	0.80		0.80	0.78		0.50	0.73	0.21
Control Delay	33.4	41.2		31.4	44.4		42.4	43.7		32.6	52.9	4.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	33.4	41.2		31.4	44.4		42.4	43.7		32.6	52.9	4.7
LOS	C	D		C	D		D	D		C	D	A
Approach Delay		40.0			42.0			43.4			43.7	
Approach LOS		D			D			D			D	
Stops (vph)	70	508		107	713		186	737		61	522	8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	28		9	45		6	19		3	23	2
CO Emissions (g/hr)	323	1957		623	3144		402	1355		211	1587	162
NOx Emissions (g/hr)	63	381		121	612		78	264		41	309	32
VOC Emissions (g/hr)	75	454		144	729		93	314		49	368	38
Dilemma Vehicles (#)	0	21		0	28		0	28		0	18	0
Queue Length 50th (ft)	66	273		113	397		180	390		52	275	0
Queue Length 95th (ft)	113	380		175	501		291	496		93	380	34
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	251	1189		393	1404		468	1417		226	956	633
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.52	0.60		0.53	0.67		0.65	0.65		0.44	0.66	0.19

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 131.6
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 42.4 Intersection LOS: D
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	147	13	191	191	978	0	0	894	207
Future Volume (vph)	0	0	0	147	13	191	191	978	0	0	894	207
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.899	0.850					0.972	
Flt Protected				0.950	0.989		0.950					
Satd. Flow (prot)	0	0	0	1711	1524	1531	1801	3601	0	0	3500	0
Flt Permitted				0.950	0.989		0.089					
Satd. Flow (perm)	0	0	0	1711	1524	1531	169	3601	0	0	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					64	125					31	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			12.7	
Peak Hour Factor	0.25	0.25	0.25	0.90	0.90	0.90	0.96	0.96	0.96	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	8%	2%	2%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	163	14	212	199	1019	0	0	982	227
Shared Lane Traffic (%)				17%		41%						
Lane Group Flow (vph)	0	0	0	135	129	125	199	1019	0	0	1209	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				30.0	30.0	30.0	30.0					
Total Split (%)				21.4%	21.4%	21.4%	21.4%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				24.3	24.3	24.3	67.3	72.4			75.0	
Actuated g/C Ratio				0.18	0.18	0.18	0.49	0.53			0.55	
v/c Ratio				0.45	0.40	0.34	0.57	0.54			0.63	
Control Delay				56.8	30.4	10.7	28.4	5.9			23.3	
Queue Delay				0.0	0.0	0.0	0.0	0.9			0.6	
Total Delay				56.8	30.4	10.7	28.4	6.7			23.9	
LOS				E	C	B	C	A			C	
Approach Delay					33.2			10.3			23.9	
Approach LOS					C			B			C	
Stops (vph)				108	54	16	163	109			723	

Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	50.0	30.0
Total Split (%)	36%	21%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	3	2	3	6			18	
CO Emissions (g/hr)				281	181	112	212	390			1249	
NOx Emissions (g/hr)				55	35	22	41	76			243	
VOC Emissions (g/hr)				65	42	26	49	90			290	
Dilemma Vehicles (#)				0	4	0	0	0			40	
Queue Length 50th (ft)				117	57	0	141	58			387	
Queue Length 95th (ft)				190	129	60	m166	m65			462	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				302	322	373	381	1961			1920	
Starvation Cap Reductn				0	0	0	0	603			338	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.45	0.40	0.34	0.52	0.75			0.76	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 137.6
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 54.7% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS

Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	4	88	0	0	0	0	1045	179	217	814	0
Future Volume (vph)	128	4	88	0	0	0	0	1045	179	217	814	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	0		240	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.967								0.950		
Satd. Flow (prot)	1678	1556	1446	0	0	0	0	3601	1611	1801	3601	0
Flt Permitted	0.950	0.967								0.089		
Satd. Flow (perm)	1678	1556	1446	0	0	0	0	3601	1611	169	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11	76						131			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.90	0.90	0.90	0.25	0.25	0.25	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	4%	2%	8%	0%	0%	0%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	142	4	98	0	0	0	0	1077	185	231	866	0
Shared Lane Traffic (%)	40%		22%									
Lane Group Flow (vph)	85	83	76	0	0	0	0	1077	185	231	866	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					50.0	50.0			
Total Split (%)	21.4%	21.4%	21.4%					35.7%	35.7%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	24.3	24.3	24.3					44.9	44.9	92.3	102.5	
Actuated g/C Ratio	0.18	0.18	0.18					0.33	0.33	0.67	0.74	
v/c Ratio	0.29	0.29	0.24					0.92	0.30	0.34	0.32	
Control Delay	53.1	46.5	12.2					57.6	12.7	17.0	2.5	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.2	
Total Delay	53.1	46.5	12.2					57.6	12.7	17.0	2.8	
LOS	D	D	B					E	B	B	A	
Approach Delay		38.1						51.0			5.8	
Approach LOS		D						D			A	
Stops (vph)	65	56	13					945	44	108	111	

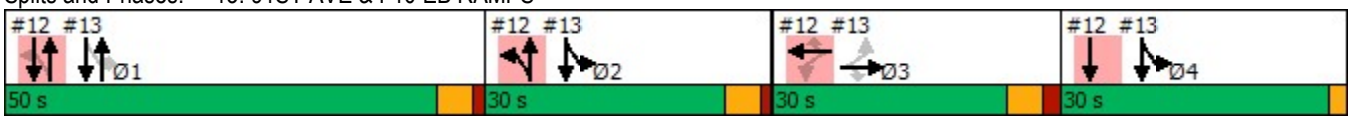
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	30.0	30.0
Total Split (%)	21%	21%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	2	1					50	6	2	4	
CO Emissions (g/hr)	175	158	78					3518	426	165	297	
NOx Emissions (g/hr)	34	31	15					685	83	32	58	
VOC Emissions (g/hr)	41	37	18					815	99	38	69	
Dilemma Vehicles (#)	0	3	0					37	0	0	1	
Queue Length 50th (ft)	71	63	0					500	35	72	59	
Queue Length 95th (ft)	128	120	48					#635	95	144	70	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	296	284	318					1175	614	707	2747	
Starvation Cap Reductn	0	0	0					0	0	0	1029	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.29	0.29	0.24					0.92	0.30	0.33	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 137.6
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 30.7 Intersection LOS: C
Intersection Capacity Utilization 54.7% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	227	98	120	354	270	78	708	161	72	519	101
Future Volume (vph)	171	227	98	120	354	270	78	708	161	72	519	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1801	1531	1711	1801	1531	1711	3421	1487	1694	3421	1516
Flt Permitted	0.121			0.518			0.399			0.271		
Satd. Flow (perm)	218	1801	1531	933	1801	1531	718	3421	1487	483	3421	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133			271			124			141
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.91	0.91	0.91	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	3%	2%	3%
Adj. Flow (vph)	197	261	113	135	398	303	86	778	177	75	541	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	261	113	135	398	303	86	778	177	75	541	105
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	25.0	38.0	38.0	25.0	38.0	38.0	25.0	58.0	58.0	19.0	52.0	52.0
Total Split (%)	17.9%	27.1%	27.1%	17.9%	27.1%	27.1%	17.9%	41.4%	41.4%	13.6%	37.1%	37.1%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	54.6	34.0	34.0	45.6	28.9	28.9	73.7	61.6	61.6	73.0	61.2	61.2
Actuated g/C Ratio	0.39	0.24	0.24	0.33	0.21	0.21	0.53	0.44	0.44	0.52	0.44	0.44
v/c Ratio	0.75	0.60	0.24	0.37	1.07	0.57	0.20	0.52	0.24	0.24	0.36	0.14
Control Delay	49.8	53.4	5.3	30.9	119.1	12.5	16.8	30.7	9.6	17.5	28.1	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	53.4	5.3	30.9	119.1	12.5	16.8	30.7	9.6	17.5	28.1	2.0
LOS	D	D	A	C	F	B	B	C	A	B	C	A
Approach Delay		42.7			66.3			26.0			23.2	
Approach LOS		D			E			C			C	
Stops (vph)	119	197	8	83	302	43	37	506	35	36	342	4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	13	4	6	25	12	4	35	7	3	21	3
CO Emissions (g/hr)	682	928	311	425	1719	834	248	2480	473	186	1462	214
NOx Emissions (g/hr)	133	181	61	83	335	162	48	482	92	36	284	42
VOC Emissions (g/hr)	158	215	72	99	398	193	57	575	110	43	339	50
Dilemma Vehicles (#)	0	0	0	0	0	0	0	25	0	0	19	0
Queue Length 50th (ft)	122	212	0	80	~401	24	36	266	28	31	171	0
Queue Length 95th (ft)	187	296	31	122	#597	111	68	358	84	61	239	17
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	309	436	472	473	371	531	545	1505	723	396	1495	742
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.60	0.24	0.29	1.07	0.57	0.16	0.52	0.24	0.19	0.36	0.14

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 39.0 Intersection LOS: D
Intersection Capacity Utilization 65.7% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: 91ST AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	338	65	91	851	145	171	511	30	118	437	155
Future Volume (vph)	101	338	65	91	851	145	171	511	30	118	437	155
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.976			0.978			0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1717	4695	0	1766	4851	0	1733	5111	0	1717	3601	1550
Flt Permitted	0.184			0.495			0.316			0.356		
Satd. Flow (perm)	332	4695	0	920	4851	0	576	5111	0	643	3601	1550
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			34			8				167
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		447			450			399			4882	
Travel Time (s)		6.1			6.1			6.0			74.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	7%	11%	3%	4%	7%	3%	6%	2%	10%	7%	2%	6%
Adj. Flow (vph)	106	356	68	101	946	161	182	544	32	127	470	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	424	0	101	1107	0	182	576	0	127	470	167
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	10.0	46.0		10.0	46.0		15.0	39.0		15.0	39.0	39.0
Total Split (%)	9.1%	41.8%		9.1%	41.8%		13.6%	35.5%		13.6%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	57.4	47.6		57.0	47.4		37.9	25.2		35.7	24.0	24.0
Actuated g/C Ratio	0.52	0.43		0.52	0.43		0.34	0.23		0.32	0.22	0.22
v/c Ratio	0.40	0.21		0.19	0.52		0.59	0.49		0.42	0.60	0.36
Control Delay	28.2	26.0		8.3	12.8		31.5	37.3		26.8	41.3	7.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	28.2	26.0		8.3	12.8		31.5	37.3		26.8	41.3	7.1
LOS	C	C		A	B		C	D		C	D	A
Approach Delay		26.4			12.4			35.9			31.4	
Approach LOS		C			B			D			C	
Stops (vph)	70	556		24	302		117	446		77	378	19

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	24		3	40		4	14		6	23	6
CO Emissions (g/hr)	350	1683		245	2782		276	982		396	1636	409
NOx Emissions (g/hr)	68	327		48	541		54	191		77	318	80
VOC Emissions (g/hr)	81	390		57	645		64	228		92	379	95
Dilemma Vehicles (#)	0	67		0	35		0	20		0	16	0
Queue Length 50th (ft)	49	72		20	90		89	128		60	158	0
Queue Length 95th (ft)	106	110		37	106		129	154		93	195	50
Internal Link Dist (ft)		367			370			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	267	2054		534	2110		317	1529		325	1073	579
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.40	0.21		0.19	0.52		0.57	0.38		0.39	0.44	0.29

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 7 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 56.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85

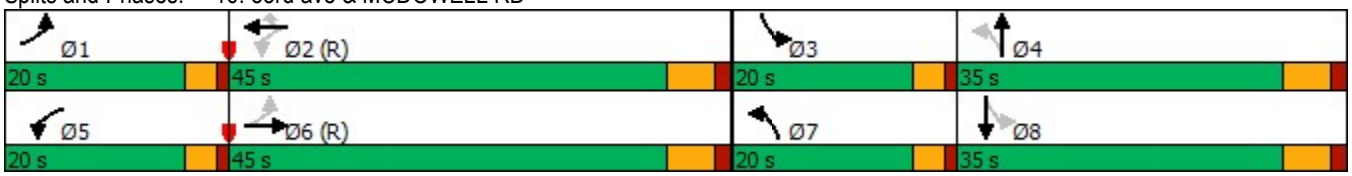
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	552	110	273	888	300	197	886	171	167	739	125
Future Volume (vph)	145	552	110	273	888	300	197	886	171	167	739	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.975				0.850		0.976			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3336	0	1711	3421	1531	1711	4798	0	1711	4808	0
Flt Permitted	0.159			0.219			0.138			0.137		
Satd. Flow (perm)	286	3336	0	394	3421	1531	248	4798	0	247	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				314		31			26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	161	613	122	297	965	326	212	953	184	178	786	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	735	0	297	965	326	212	1137	0	178	919	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9		11.0	32.9	
Total Split (s)	20.0	45.0		20.0	45.0	45.0	20.0	35.0		20.0	35.0	
Total Split (%)	16.7%	37.5%		16.7%	37.5%	37.5%	16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6		1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9		4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	55.5	42.3		62.0	45.9	45.9	46.2	30.4		43.5	29.1	
Actuated g/C Ratio	0.46	0.35		0.52	0.38	0.38	0.38	0.25		0.36	0.24	
v/c Ratio	0.61	0.62		0.81	0.74	0.42	0.80	0.92		0.74	0.78	
Control Delay	26.1	34.8		42.1	23.2	1.5	49.5	54.7		43.6	46.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.1	34.8		42.1	23.2	1.5	49.5	54.7		43.6	46.4	
LOS	C	C		D	C	A	D	D		D	D	
Approach Delay		33.2			22.3			53.9			45.9	
Approach LOS		C			C			D			D	
Stops (vph)	81	527		190	649	13	135	936		114	768	
Fuel Used(gal)	7	34		14	43	11	5	29		6	34	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	471	2368		987	2999	741	332	2045		427	2400	
NOx Emissions (g/hr)	92	461		192	584	144	65	398		83	467	
VOC Emissions (g/hr)	109	549		229	695	172	77	474		99	556	
Dilemma Vehicles (#)	0	28		0	8	0	0	39		0	32	
Queue Length 50th (ft)	65	250		103	306	4	106	300		87	234	
Queue Length 95th (ft)	107	320		m#213	m#370	m9	#210	#409		153	290	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	333	1189		378	1309	779	293	1243		290	1201	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.48	0.62		0.79	0.74	0.42	0.72	0.91		0.61	0.77	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 38.2 Intersection LOS: D
Intersection Capacity Utilization 75.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: 83rd ave & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	181	10	410	583	1078	0	0	649	497
Future Volume (vph)	0	0	0	181	10	410	583	1078	0	0	649	497
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.869	0.850						0.850
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1586	1481	1531	3330	3601	0	0	5124	1611
Flt Permitted				0.950	0.996		0.950					
Satd. Flow (perm)	0	0	0	1586	1481	1531	3330	3601	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					99	164						473
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.88	0.88	0.88	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	10%	6%	2%	7%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	206	11	466	641	1185	0	0	729	558
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	185	251	247	641	1185	0	0	729	558
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							60.0				37.0	37.0
Total Split (%)							42.9%				26.4%	26.4%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				31.9	31.9	31.9	58.7	96.5			31.6	31.6
Actuated g/C Ratio				0.23	0.23	0.23	0.42	0.69			0.23	0.23
v/c Ratio				0.51	0.61	0.52	0.46	0.48			0.63	0.76
Control Delay				52.2	34.9	19.6	11.5	2.8			51.7	16.3
Queue Delay				0.0	0.0	0.0	0.0	1.5			0.0	0.0
Total Delay				52.2	34.9	19.6	11.5	4.3			51.7	16.3
LOS				D	C	B	B	A			D	B
Approach Delay					34.0			6.8			36.4	
Approach LOS					C			A			D	
Stops (vph)				139	122	67	212	439			573	103

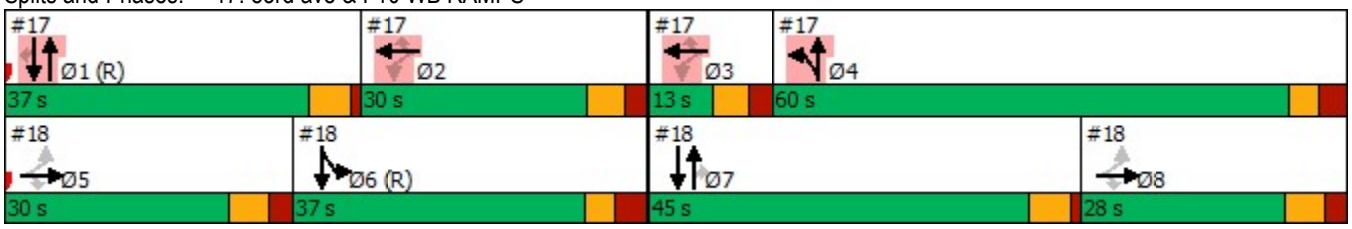
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	30.0	13.0	30.0	37.0	45.0	28.0
Total Split (%)	21%	9%	21%	26%	32%	20%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	5	4	6	10			18	6
CO Emissions (g/hr)				360	376	276	414	674			1227	397
NOx Emissions (g/hr)				70	73	54	81	131			239	77
VOC Emissions (g/hr)				83	87	64	96	156			284	92
Dilemma Vehicles (#)				0	7	0	0	1			23	0
Queue Length 50th (ft)				157	138	66	58	1			221	64
Queue Length 95th (ft)				223	223	144	m129	1			264	209
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				356	409	470	1396	2484			1160	730
Starvation Cap Reductn				0	0	0	0	1044			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.52	0.61	0.53	0.46	0.82			0.63	0.76

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 21.7 Intersection LOS: C
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	3	423	0	0	0	0	1267	423	228	683	0
Future Volume (vph)	420	3	423	0	0	0	0	1267	423	228	683	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.919	0.850						0.850			
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1711	1453	1369	0	0	0	0	5075	1454	3493	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1711	1453	1369	0	0	0	0	5075	1454	3493	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48	186						360			
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			61.2			7.7	
Peak Hour Factor	0.86	0.86	0.86	0.25	0.25	0.25	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	33%	14%	0%	0%	0%	0%	4%	13%	2%	5%	0%
Adj. Flow (vph)	488	3	492	0	0	0	0	1408	470	243	727	0
Shared Lane Traffic (%)	30%		36%									
Lane Group Flow (vph)	342	326	315	0	0	0	0	1408	470	243	727	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								45.0	45.0	37.0		
Total Split (%)								32.1%	32.1%	26.4%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	41.1	41.1	41.1					43.7	43.7	36.7	85.7	
Actuated g/C Ratio	0.29	0.29	0.29					0.31	0.31	0.26	0.61	
v/c Ratio	0.68	0.71	0.59					0.89	0.67	0.27	0.34	
Control Delay	50.2	45.4	20.2					54.0	15.4	14.9	12.0	
Queue Delay	0.0	0.0	0.0					0.7	0.0	0.0	0.7	
Total Delay	50.2	45.4	20.2					54.7	15.4	14.9	12.8	
LOS	D	D	C					D	B	B	B	
Approach Delay		39.0						44.9			13.3	
Approach LOS		D						D			B	
Stops (vph)	252	210	95					1125	108	147	529	

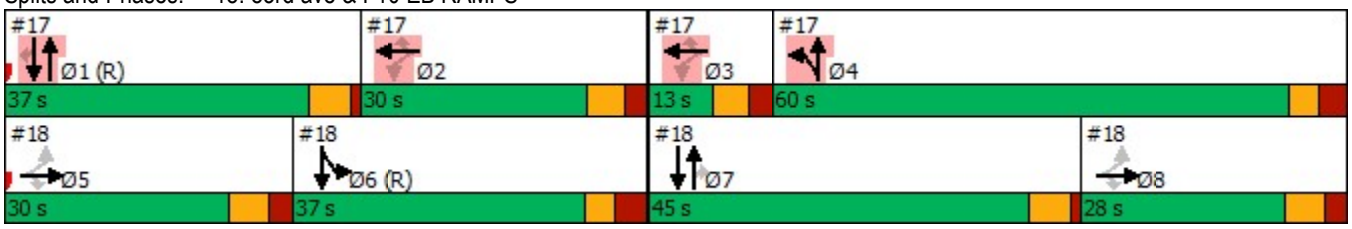
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	37.0	30.0	13.0	60.0	30.0	28.0
Total Split (%)	26%	21%	9%	43%	21%	20%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	8	5					56	13	3	11	
CO Emissions (g/hr)	665	588	378					3903	887	229	735	
NOx Emissions (g/hr)	129	114	74					759	173	45	143	
VOC Emissions (g/hr)	154	136	88					904	205	53	170	
Dilemma Vehicles (#)	0	9	0					42	0	0	1	
Queue Length 50th (ft)	292	253	104					444	79	57	278	
Queue Length 95th (ft)	344	315	169					#573	223	140	372	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	610	549	608					1584	701	915	2140	
Starvation Cap Reductn	0	0	0					0	0	0	1015	
Spillback Cap Reductn	0	0	0					38	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.56	0.59	0.52					0.91	0.67	0.27	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 35.4 Intersection LOS: D
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	194	56	145	420	426	73	888	49	116	852	156
Future Volume (vph)	174	194	56	145	420	426	73	888	49	116	852	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.966			0.924			0.992			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3194	0	1586	3041	0	1631	4688	0	1363	3226	0
Flt Permitted	0.112			0.574			0.109			0.151		
Satd. Flow (perm)	189	3194	0	958	3041	0	187	4688	0	217	3226	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			203			7			19	
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			61.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	9%	6%	4%	10%	3%	9%	7%	6%	8%	28%	6%	4%
Adj. Flow (vph)	202	226	65	169	488	495	86	1045	58	127	936	171
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	291	0	169	983	0	86	1103	0	127	1107	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0		20.0	30.0		20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0		25.0	45.0		25.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%		20.8%	37.5%		20.8%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	52.2	36.4		47.6	33.6		56.1	44.9		59.5	48.1	
Actuated g/C Ratio	0.44	0.30		0.40	0.28		0.47	0.37		0.50	0.40	
v/c Ratio	0.81	0.29		0.38	0.99		0.45	0.63		0.62	0.85	
Control Delay	53.4	31.5		21.6	45.6		22.1	32.1		28.6	39.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.4	31.5		21.6	45.6		22.1	32.1		28.6	39.4	
LOS	D	C		C	D		C	C		C	D	
Approach Delay		40.5			42.1			31.4			38.3	
Approach LOS		D			D			C			D	
Stops (vph)	108	172		70	542		37	735		60	879	

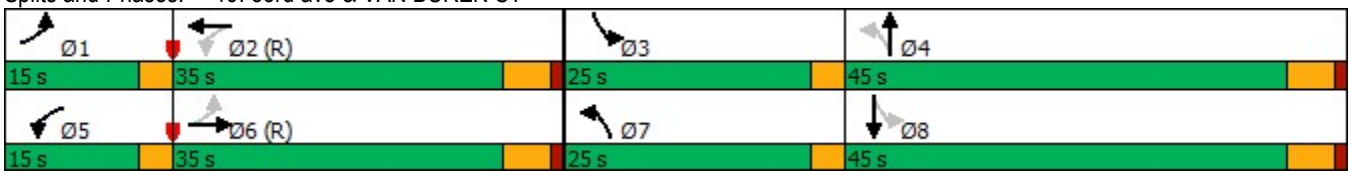
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	13		6	43		3	48		4	41	
CO Emissions (g/hr)	668	888		450	3019		231	3322		286	2881	
NOx Emissions (g/hr)	130	173		87	587		45	646		56	561	
VOC Emissions (g/hr)	155	206		104	700		53	770		66	668	
Dilemma Vehicles (#)	0	10		0	41		0	31		0	34	
Queue Length 50th (ft)	102	83		67	~221		33	248		51	405	
Queue Length 95th (ft)	#248	123		m77	m#227		52	270		79	480	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250			230		
Base Capacity (vph)	250	989		455	997		359	1770		319	1305	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.81	0.29		0.37	0.99		0.24	0.62		0.40	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 71 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 37.6 Intersection LOS: D
Intersection Capacity Utilization 78.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



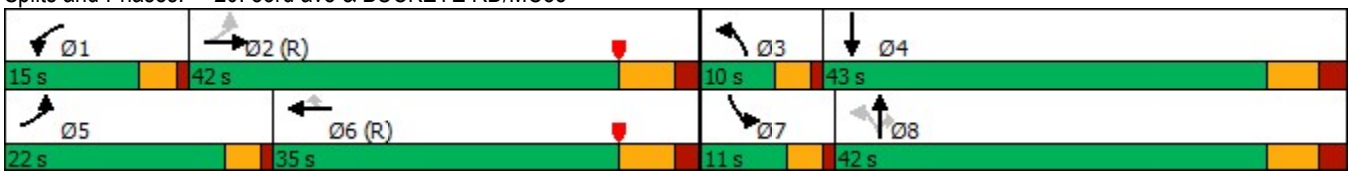
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	315	91	105	824	186	91	473	29	101	736	170
Future Volume (vph)	166	315	91	105	824	186	91	473	29	101	736	170
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.966				0.850			0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	4645	0	3493	4887	1454	1801	3566	1536	2897	4921	0
Flt Permitted	0.239			0.950			0.186			0.950		
Satd. Flow (perm)	444	4645	0	3493	4887	1454	353	3566	1536	2897	4921	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70				194			156		51	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		460			509			976			400	
Travel Time (s)		6.3			6.9			14.8			6.1	
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	4%	12%	2%	2%	8%	13%	2%	3%	7%	23%	2%	14%
Adj. Flow (vph)	171	325	94	109	858	194	101	526	32	105	767	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	419	0	109	858	194	101	526	32	105	944	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	22.0	42.0		15.0	35.0	35.0	10.0	42.0	42.0	11.0	43.0	
Total Split (%)	20.0%	38.2%		13.6%	31.8%	31.8%	9.1%	38.2%	38.2%	10.0%	39.1%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	55.9	42.9		7.8	40.3	40.3	40.0	31.2	31.2	6.7	31.8	
Actuated g/C Ratio	0.51	0.39		0.07	0.37	0.37	0.36	0.28	0.28	0.06	0.29	
v/c Ratio	0.49	0.23		0.44	0.48	0.30	0.48	0.52	0.06	0.59	0.65	
Control Delay	25.0	16.1		54.2	29.2	5.5	27.9	34.6	0.2	64.4	34.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.0	16.1		54.2	29.2	5.5	27.9	34.6	0.2	64.4	34.1	
LOS	C	B		D	C	A	C	C	A	E	C	
Approach Delay		18.7			27.6			31.9			37.1	
Approach LOS		B			C			C			D	
Stops (vph)	126	199		98	623	21	57	382	0	98	724	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	18		6	42	7	2	11	0	6	47	
CO Emissions (g/hr)	574	1235		430	2929	470	126	775	13	422	3256	
NOx Emissions (g/hr)	112	240		84	570	91	25	151	3	82	634	
VOC Emissions (g/hr)	133	286		100	679	109	29	180	3	98	755	
Dilemma Vehicles (#)	0	4		0	37	0	0	17	0	0	35	
Queue Length 50th (ft)	61	49		38	169	0	44	163	0	37	199	
Queue Length 95th (ft)	129	61		65	237	53	75	206	0	67	234	
Internal Link Dist (ft)		380			429			896			320	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	448	1852		349	1790	655	210	1144	598	184	1658	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.38	0.23		0.31	0.48	0.30	0.48	0.46	0.05	0.57	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 54 (49%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 57.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	539	132	238	1033	286	231	915	149	265	786	135
Future Volume (vph)	123	539	132	238	1033	286	231	915	149	265	786	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.970			0.967			0.979			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4768	0	1694	4754	0	1711	4813	0	1711	4808	0
Flt Permitted	0.098			0.269			0.137			0.135		
Satd. Flow (perm)	176	4768	0	480	4754	0	247	4813	0	243	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			60			24			26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	132	580	142	253	1099	304	260	1028	167	294	873	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	722	0	253	1403	0	260	1195	0	294	1023	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2		6.0	48.2		10.0	30.8		10.0	30.8	
Total Split (s)	22.0	43.0		22.0	43.0		20.0	35.0		20.0	35.0	
Total Split (%)	18.3%	35.8%		18.3%	35.8%		16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8		4.0	5.8		4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	52.5	40.7		60.7	45.2		46.5	29.2		47.5	29.7	
Actuated g/C Ratio	0.44	0.34		0.51	0.38		0.39	0.24		0.40	0.25	
v/c Ratio	0.64	0.44		0.65	0.77		0.92	1.01		1.01	0.85	
Control Delay	41.7	46.6		25.1	18.2		66.2	71.8		88.5	49.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.7	46.6		25.1	18.2		66.2	71.8		88.5	49.7	
LOS	D	D		C	B		E	E		F	D	
Approach Delay		45.9			19.2			70.8			58.3	
Approach LOS		D			B			E			E	
Stops (vph)	100	1328		128	902		155	947		174	825	

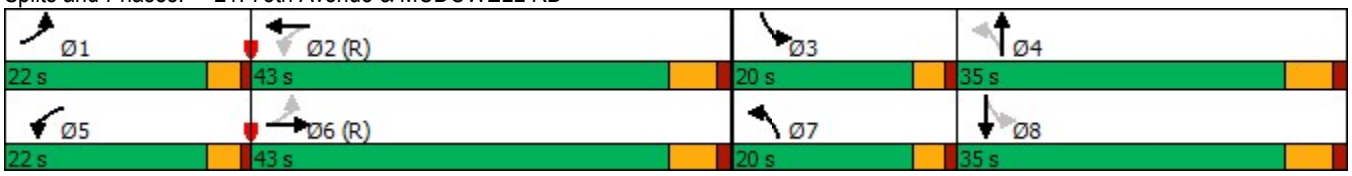
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	46		11	61		6	33		8	24	
CO Emissions (g/hr)	457	3218		760	4248		442	2324		581	1701	
NOx Emissions (g/hr)	89	626		148	827		86	452		113	331	
VOC Emissions (g/hr)	106	746		176	985		102	539		135	394	
Dilemma Vehicles (#)	0	27		0	47		0	42		0	35	
Queue Length 50th (ft)	82	202		60	109		146	~338		~182	272	
Queue Length 95th (ft)	m127	m247		m113	m211		#294	#435		#366	329	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	317	1651		425	1827		291	1189		291	1209	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.42	0.44		0.60	0.77		0.89	1.01		1.01	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 47.5 Intersection LOS: D
Intersection Capacity Utilization 79.7% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	170	10	454	377	1220	0	0	774	354
Future Volume (vph)	0	0	0	170	10	454	377	1220	0	0	774	354
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.867	0.850						0.850
Flt Protected				0.950	0.997		0.950					
Satd. Flow (prot)	0	0	0	1572	1482	1531	1655	5175	0	0	5124	1611
Flt Permitted				0.950	0.997		0.950					
Satd. Flow (perm)	0	0	0	1572	1482	1531	1655	5175	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					74	130						366
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	11%	2%	2%	11%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	202	12	540	414	1341	0	0	841	385
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	182	286	286	414	1341	0	0	841	385
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							75.0				50.0	50.0
Total Split (%)							41.7%				27.8%	27.8%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				40.1	40.1	40.1	78.5	128.4			42.3	42.3
Actuated g/C Ratio				0.22	0.22	0.22	0.44	0.71			0.24	0.24
v/c Ratio				0.52	0.74	0.65	0.57	0.36			0.70	0.59
Control Delay				65.9	58.8	39.9	21.6	1.0			66.2	10.0
Queue Delay				0.0	0.0	0.0	3.1	0.6			0.1	0.0
Total Delay				65.9	58.8	39.9	24.7	1.5			66.3	10.0
LOS				E	E	D	C	A			E	A
Approach Delay					53.3			7.0			48.6	
Approach LOS					D			A			D	
Stops (vph)				131	168	122	197	154			694	38

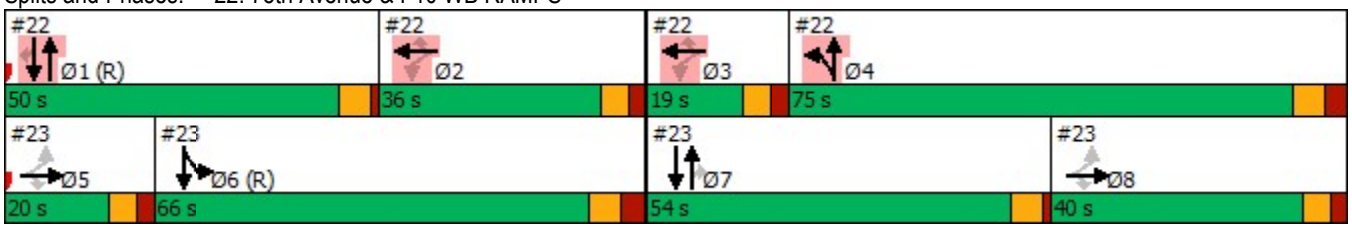
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	36.0	19.0	20.0	66.0	54.0	40.0
Total Split (%)	20%	11%	11%	37%	30%	22%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	8	6	5	6			23	3
CO Emissions (g/hr)				375	532	427	377	440			1633	221
NOx Emissions (g/hr)				73	103	83	73	86			318	43
VOC Emissions (g/hr)				87	123	99	87	102			379	51
Dilemma Vehicles (#)				0	6	0	0	0			21	0
Queue Length 50th (ft)				197	259	177	184	0			330	17
Queue Length 95th (ft)				253	331	245	m395	m105			383	119
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				395	427	481	721	3759			1272	675
Starvation Cap Reductn				0	0	0	206	1829			0	0
Spillback Cap Reductn				0	0	0	0	0			28	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.46	0.67	0.59	0.80	0.69			0.68	0.57

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 30.0 Intersection LOS: C
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	644	4	451	0	0	0	0	983	242	316	682	0
Future Volume (vph)	644	4	451	0	0	0	0	983	242	316	682	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	0		150	0		0
Storage Lanes	1		1	0		0	0		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt		0.957	0.850						0.850			
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1551	1394	0	0	0	0	3532	1536	3493	3465	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1551	1394	0	0	0	0	3532	1536	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12	243						145			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.95	0.95	0.95	0.25	0.25	0.25	0.91	0.91	0.91	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	12%	0%	0%	0%	0%	4%	7%	2%	6%	0%
Adj. Flow (vph)	678	4	475	0	0	0	0	1080	266	333	718	0
Shared Lane Traffic (%)	41%		24%									
Lane Group Flow (vph)	400	396	361	0	0	0	0	1080	266	333	718	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								54.0	54.0	66.0		
Total Split (%)								30.0%	30.0%	36.7%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	52.4	52.4	52.4					54.4	54.4	53.9	113.6	
Actuated g/C Ratio	0.29	0.29	0.29					0.30	0.30	0.30	0.63	
v/c Ratio	0.80	0.86	0.62					1.01	0.47	0.32	0.33	
Control Delay	72.3	77.2	22.0					90.4	26.7	9.7	9.2	
Queue Delay	0.0	0.0	0.0					6.7	0.0	0.0	1.5	
Total Delay	72.3	77.2	22.0					97.1	26.7	9.7	10.7	
LOS	E	E	C					F	C	A	B	
Approach Delay		58.3						83.2			10.4	
Approach LOS		E						F			B	
Stops (vph)	349	335	105					819	94	159	529	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	50.0	36.0	19.0	75.0	20.0	40.0
Total Split (%)	28%	20%	11%	42%	11%	22%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	14	14	6					52	8	4	10	
CO Emissions (g/hr)	966	972	443					3628	580	257	711	
NOx Emissions (g/hr)	188	189	86					706	113	50	138	
VOC Emissions (g/hr)	224	225	103					841	134	59	165	
Dilemma Vehicles (#)	0	9	0					24	0	0	0	
Queue Length 50th (ft)	458	472	125					~775	120	81	360	
Queue Length 95th (ft)	607	#665	254					#916	220	110	425	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	511	471	587					1066	565	1129	2181	
Starvation Cap Reductn	0	0	0					0	0	0	1223	
Spillback Cap Reductn	0	0	0					22	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.78	0.84	0.61					1.03	0.47	0.29	0.75	

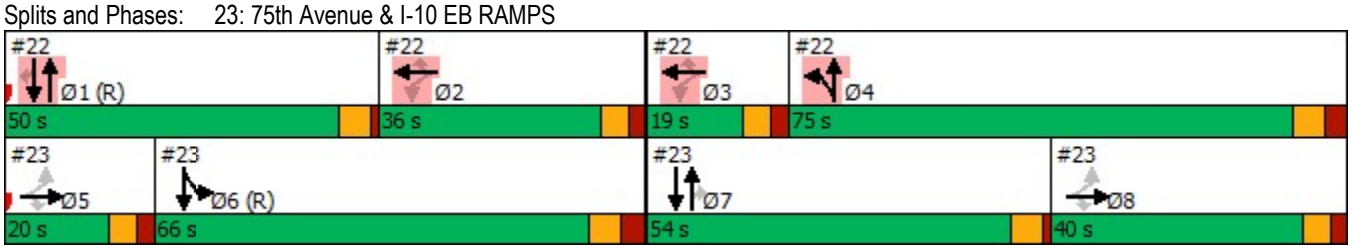
Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 53.6 Intersection LOS: D
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	219	56	123	661	217	133	738	99	137	786	128
Future Volume (vph)	33	219	56	123	661	217	133	738	99	137	786	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		270	250		0	220		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.969				0.850		0.982			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3008	0	1631	1733	1473	1531	3233	0	1504	3110	0
Flt Permitted	0.094			0.493			0.101			0.114		
Satd. Flow (perm)	158	3008	0	846	1733	1473	163	3233	0	180	3110	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30				168		13			16	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	9%	11%	18%	7%	6%	6%	14%	6%	6%	16%	10%	9%
Adj. Flow (vph)	38	249	64	132	711	233	149	829	111	152	873	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	313	0	132	711	233	149	940	0	152	1015	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		2.0	15.0	
Minimum Split (s)	9.5	52.0		9.5	52.0	52.0	9.5	34.0		16.0	50.0	
Total Split (s)	12.0	48.0		12.0	48.0	48.0	16.0	44.0		16.0	44.0	
Total Split (%)	10.0%	40.0%		10.0%	40.0%	40.0%	13.3%	36.7%		13.3%	36.7%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	5.3		4.0	5.3	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes	Yes		Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	50.3	42.7		52.9	47.6	47.6	51.7	39.8		51.3	39.1	
Actuated g/C Ratio	0.42	0.36		0.44	0.40	0.40	0.43	0.33		0.43	0.33	
v/c Ratio	0.26	0.29		0.31	1.03	0.34	0.76	0.87		0.77	0.99	
Control Delay	34.8	33.8		7.8	58.2	1.0	54.7	36.9		49.3	66.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	34.8	33.8		7.8	58.2	1.0	54.7	36.9		49.3	66.4	
LOS	C	C		A	E	A	D	D		D	E	
Approach Delay		33.9			39.6			39.3			64.2	
Approach LOS		C			D			D			E	
Stops (vph)	25	385		22	508	3	122	781		83	801	

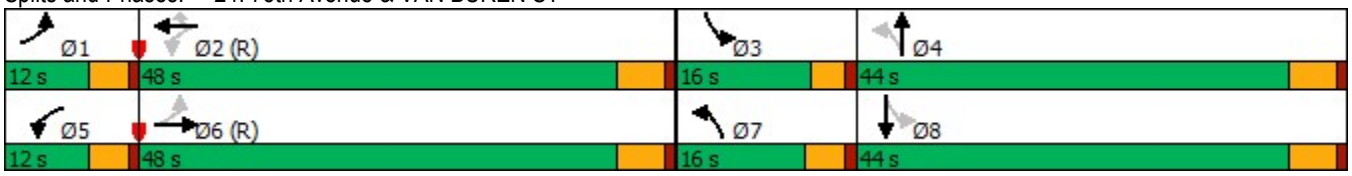
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	16		5	37	8	8	45		6	44	
CO Emissions (g/hr)	116	1110		334	2606	536	530	3136		398	3096	
NOx Emissions (g/hr)	23	216		65	507	104	103	610		78	602	
VOC Emissions (g/hr)	27	257		77	604	124	123	727		92	717	
Dilemma Vehicles (#)	0	36		0	8	0	0	17		0	35	
Queue Length 50th (ft)	18	71		18	~647	0	52	384		68	~408	
Queue Length 95th (ft)	m51	151		m26	m#888	m1	m#127	#479		#163	#561	
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200			200		270	250			220		
Base Capacity (vph)	157	1089		422	687	685	201	1080		211	1023	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.29		0.31	1.03	0.34	0.74	0.87		0.72	0.99	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 111 (93%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 46.8 Intersection LOS: D
Intersection Capacity Utilization 81.6% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	335	85	151	887	128	97	486	54	143	556	85
Future Volume (vph)	47	335	85	151	887	128	97	486	54	143	556	85
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		0	260		0	270		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.981			0.985			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	3113	1442	1685	3317	0	1685	3269	0	1640	3345	0
Flt Permitted	0.156			0.453			0.211			0.135		
Satd. Flow (perm)	267	3113	1442	803	3317	0	374	3269	0	233	3345	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104		13			10			14	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4741			2586			1298			2861	
Travel Time (s)		64.7			35.3			19.7			43.3	
Peak Hour Factor	0.82	0.82	0.82	0.91	0.91	0.91	0.78	0.78	0.78	0.95	0.95	0.95
Heavy Vehicles (%)	13%	18%	14%	9%	8%	13%	9%	10%	17%	12%	8%	5%
Adj. Flow (vph)	57	409	104	166	975	141	124	623	69	151	585	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	409	104	166	1116	0	124	692	0	151	674	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		
Detector Phase	1	6	6	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0		17.0	30.0		17.0	30.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		20.0	40.0		20.0	40.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		16.7%	33.3%		16.7%	33.3%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	60.9	51.3	51.3	67.9	56.8		40.2	28.6		45.9	31.4	
Actuated g/C Ratio	0.51	0.43	0.43	0.57	0.47		0.34	0.24		0.38	0.26	
v/c Ratio	0.27	0.31	0.15	0.31	0.71		0.55	0.88		0.66	0.76	
Control Delay	17.7	25.7	6.0	14.5	22.8		32.7	56.6		38.2	51.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.7	25.7	6.0	14.5	22.8		32.7	56.6		38.2	51.8	
LOS	B	C	A	B	C		C	E		D	D	
Approach Delay		21.3			21.8			53.0			49.3	
Approach LOS		C			C			D			D	
Stops (vph)	24	222	11	49	425		63	500		125	916	

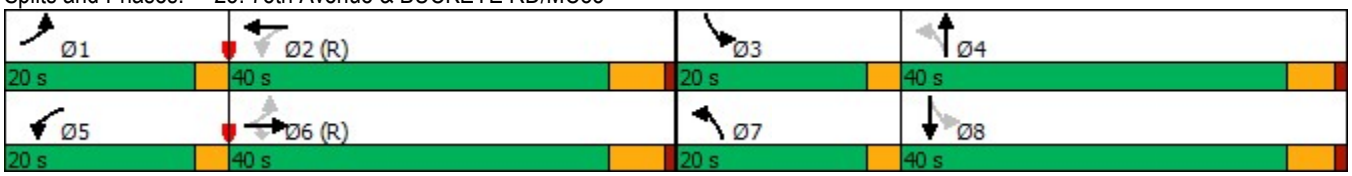
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	16	3	6	45		2	17		8	40	
CO Emissions (g/hr)	147	1141	217	436	3155		157	1188		531	2811	
NOx Emissions (g/hr)	29	222	42	85	614		31	231		103	547	
VOC Emissions (g/hr)	34	264	50	101	731		36	275		123	651	
Dilemma Vehicles (#)	0	14	0	0	65		0	19		0	6	
Queue Length 50th (ft)	19	108	0	32	143		63	268		106	284	
Queue Length 95th (ft)	42	161	32	m79	#544		79	266		m117	m300	
Internal Link Dist (ft)		4661			2506			1218			2781	
Turn Bay Length (ft)	260		190	270			260			270		
Base Capacity (vph)	342	1330	675	579	1576		328	946		288	989	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.31	0.15	0.29	0.71		0.38	0.73		0.52	0.68	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 35.5 Intersection LOS: D
Intersection Capacity Utilization 62.8% ICU Level of Service B
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



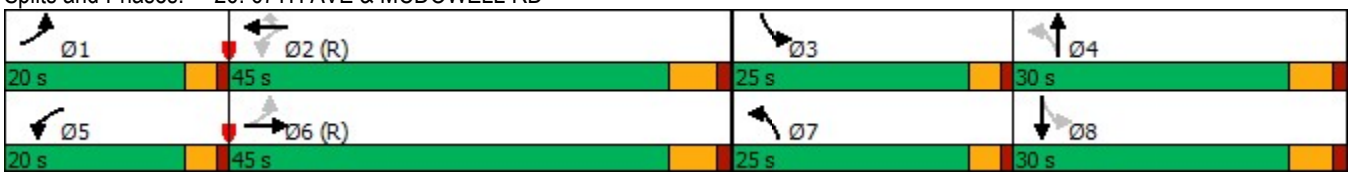
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	538	151	196	1096	277	219	802	86	179	720	157
Future Volume (vph)	147	538	151	196	1096	277	219	802	86	179	720	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.967				0.850		0.985			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3308	0	1711	3421	1531	1711	4842	0	1711	4783	0
Flt Permitted	0.089			0.241			0.138			0.148		
Satd. Flow (perm)	160	3308	0	434	3421	1531	248	4842	0	266	4783	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				236		14			36	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	158	578	162	211	1178	298	241	881	95	203	818	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	740	0	211	1178	298	241	976	0	203	996	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		8.0	15.0	
Minimum Split (s)	11.0	50.3		9.0	48.3	48.3	9.0	33.0		12.0	28.3	
Total Split (s)	20.0	45.0		20.0	45.0	45.0	25.0	30.0		25.0	30.0	
Total Split (%)	16.7%	37.5%		16.7%	37.5%	37.5%	20.8%	25.0%		20.8%	25.0%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		Min	Ped	
Act Effct Green (s)	58.0	45.1		60.4	46.3	46.3	46.6	28.9		43.0	27.1	
Actuated g/C Ratio	0.48	0.38		0.50	0.39	0.39	0.39	0.24		0.36	0.23	
v/c Ratio	0.71	0.59		0.60	0.89	0.40	0.82	0.83		0.75	0.90	
Control Delay	44.8	44.8		23.8	45.4	8.8	50.5	49.9		44.5	55.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	44.8	44.8		23.8	45.4	8.8	50.5	49.9		44.5	55.3	
LOS	D	D		C	D	A	D	D		D	E	
Approach Delay		44.8			36.2			50.0			53.5	
Approach LOS		D			D			D			D	
Stops (vph)	118	829		107	906	53	159	772		127	763	
Fuel Used(gal)	8	40		4	30	3	5	22		7	36	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	544	2788		270	2114	237	357	1526		462	2491	
NOx Emissions (g/hr)	106	542		53	411	46	69	297		90	485	
VOC Emissions (g/hr)	126	646		63	490	55	83	354		107	577	
Dilemma Vehicles (#)	0	82		0	43	0	0	31		0	32	
Queue Length 50th (ft)	95	228		89	457	31	124	251		101	260	
Queue Length 95th (ft)	m133	m309		138	#660	109	221	#368		169	#359	
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	289	1264		394	1321	736	355	1175		358	1108	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.55	0.59		0.54	0.89	0.40	0.68	0.83		0.57	0.90	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 45.3 Intersection LOS: D
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	139	400	388	404	767	0	0	732	246
Future Volume (vph)	0	0	0	139	400	388	404	767	0	0	732	246
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.962	0.850						0.850
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1533	3128	1466	1733	5175	0	0	5175	1611
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1533	3128	1466	1733	5175	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					34	137						185
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.89	0.89	0.89	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	9%	2%	2%	6%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	165	476	462	454	862	0	0	787	265
Shared Lane Traffic (%)				10%		36%						
Lane Group Flow (vph)	0	0	0	148	659	296	454	862	0	0	787	265
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							45.0				30.0	30.0
Total Split (%)							34.6%				23.1%	23.1%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				40.2	40.2	40.2	45.9	78.2			24.6	24.6
Actuated g/C Ratio				0.31	0.31	0.31	0.35	0.60			0.19	0.19
v/c Ratio				0.31	0.66	0.54	0.74	0.28			0.81	0.58
Control Delay				35.3	40.0	22.5	23.4	2.2			57.7	20.8
Queue Delay				0.0	0.0	0.0	2.4	0.0			0.0	0.0
Total Delay				35.3	40.0	22.5	25.8	2.2			57.7	20.8
LOS				D	D	C	C	A			E	C
Approach Delay					34.7			10.4			48.4	
Approach LOS					C			B			D	
Stops (vph)				91	446	109	258	183			685	75

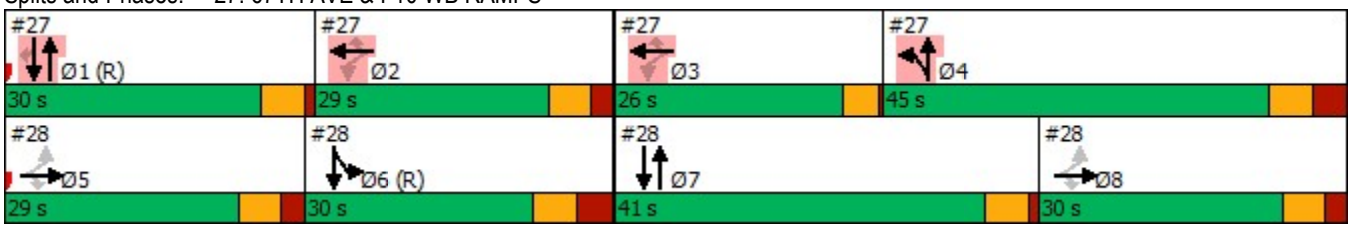
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	29.0	26.0	29.0	30.0	41.0	30.0
Total Split (%)	22%	20%	22%	23%	32%	23%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				3	15	5	6	5			20	3
CO Emissions (g/hr)				217	1042	326	412	341			1373	225
NOx Emissions (g/hr)				42	203	64	80	66			267	44
VOC Emissions (g/hr)				50	241	76	96	79			318	52
Dilemma Vehicles (#)				0	7	0	0	2			28	0
Queue Length 50th (ft)				106	272	121	196	9			234	58
Queue Length 95th (ft)				143	284	176	m371	m98			285	151
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				578	1202	638	611	3117			983	455
Starvation Cap Reductn				0	0	0	70	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.26	0.55	0.46	0.84	0.28			0.80	0.58

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 29.6 Intersection LOS: C
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	500	250	275	0	0	0	0	1208	159	252	580	0
Future Volume (vph)	500	250	275	0	0	0	0	1208	159	252	580	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	0.91	0.97	0.95	1.00
Frt		0.988	0.850					0.983				
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1639	3131	1359	0	0	0	0	5003	0	3493	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1639	3131	1359	0	0	0	0	5003	0	3493	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7	199					18				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	3%	9%	2%	5%	0%
Adj. Flow (vph)	588	294	324	0	0	0	0	1313	173	274	630	0
Shared Lane Traffic (%)	48%		15%									
Lane Group Flow (vph)	306	625	275	0	0	0	0	1486	0	274	630	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								41.0		30.0		
Total Split (%)								31.5%		23.1%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	40.4	40.4	40.4					35.8		34.1	75.3	
Actuated g/C Ratio	0.31	0.31	0.31					0.28		0.26	0.58	
v/c Ratio	0.60	0.64	0.49					1.07		0.30	0.31	
Control Delay	42.8	40.9	12.9					88.8		8.5	7.5	
Queue Delay	0.0	0.0	0.0					4.4		0.0	0.0	
Total Delay	42.9	40.9	12.9					93.2		8.5	7.5	
LOS	D	D	B					F		A	A	
Approach Delay		35.0						93.2			7.8	
Approach LOS		D						F			A	
Stops (vph)	215	438	57					1203		158	443	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	29.0	26.0	45.0	29.0	30.0
Total Split (%)	23%	22%	20%	35%	22%	23%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

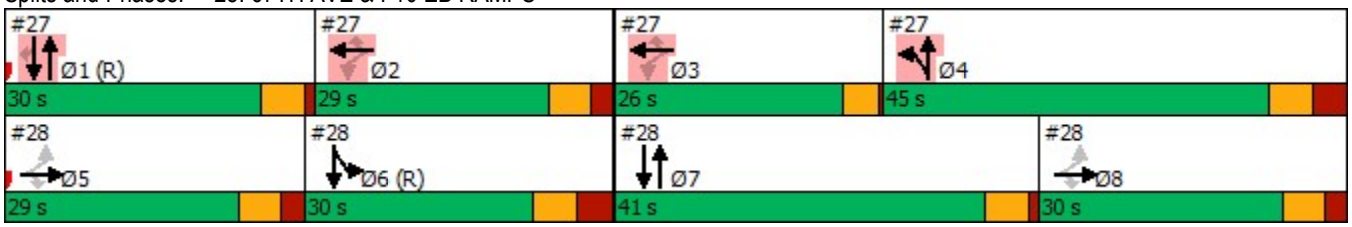
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	15	4					72		3	7	
CO Emissions (g/hr)	536	1080	264					5015		202	510	
NOx Emissions (g/hr)	104	210	51					976		39	99	
VOC Emissions (g/hr)	124	250	61					1162		47	118	
Dilemma Vehicles (#)	0	16	0					48		0	0	
Queue Length 50th (ft)	247	268	52					~504		5	0	
Queue Length 95th (ft)	294	280	110					#604		m112	311	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	648	1243	658					1391		917	2025	
Starvation Cap Reductn	0	0	0					0		0	0	
Spillback Cap Reductn	10	20	0					14		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.48	0.51	0.42					1.08		0.30	0.31	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 52.2 Intersection LOS: D
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	352	96	204	773	131	177	902	107	88	440	82
Future Volume (vph)	114	352	96	204	773	131	177	902	107	88	440	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		0	250		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.968			0.978			0.984			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3077	0	1646	4601	0	1572	3251	0	1572	3096	0
Flt Permitted	0.138			0.263			0.340			0.086		
Satd. Flow (perm)	222	3077	0	456	4601	0	563	3251	0	142	3096	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			25			13			23	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91
Heavy Vehicles (%)	14%	10%	9%	6%	6%	10%	11%	5%	11%	11%	10%	10%
Adj. Flow (vph)	133	409	112	234	889	151	203	1037	123	97	484	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	521	0	234	1040	0	203	1160	0	97	574	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	9.0	52.0		9.0	52.0		9.0	50.0		9.0	50.0	
Total Split (s)	15.0	32.0		15.0	32.0		15.0	58.0		15.0	58.0	
Total Split (%)	12.5%	26.7%		12.5%	26.7%		12.5%	48.3%		12.5%	48.3%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7		4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes			Yes			Yes	
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	42.3	29.0		47.4	32.0		59.7	47.3		57.7	46.3	
Actuated g/C Ratio	0.35	0.24		0.40	0.27		0.50	0.39		0.48	0.39	
v/c Ratio	0.65	0.68		0.72	0.83		0.55	0.90		0.52	0.48	
Control Delay	41.7	45.5		42.1	48.5		25.0	43.7		26.9	27.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.7	45.5		42.1	48.5		25.0	43.7		26.9	27.3	
LOS	D	D		D	D		C	D		C	C	
Approach Delay		44.7			47.4			40.9			27.2	
Approach LOS		D			D			D			C	
Stops (vph)	79	396		135	749		95	681		45	358	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	25		6	32		8	51		3	20	
CO Emissions (g/hr)	415	1730		452	2218		567	3598		223	1388	
NOx Emissions (g/hr)	81	337		88	431		110	700		43	270	
VOC Emissions (g/hr)	96	401		105	514		132	834		52	322	
Dilemma Vehicles (#)	0	6		0	35		0	89		0	16	
Queue Length 50th (ft)	72	196		125	284		80	342		36	163	
Queue Length 95th (ft)	m113	m242		#226	#375		m113	384		74	200	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250			250			250			260		
Base Capacity (vph)	209	764		324	1246		372	1432		200	1369	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.64	0.68		0.72	0.83		0.55	0.81		0.48	0.42	

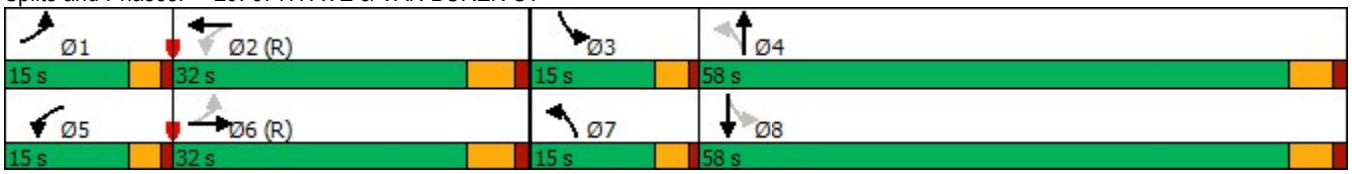
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 41.3 Intersection LOS: D
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	431	86	143	895	112	102	558	52	58	485	173
Future Volume (vph)	119	431	86	143	895	112	102	558	52	58	485	173
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		0	200		0	260		260
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.975			0.983			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1701	3101	0	1749	3202	0	1783	3445	0	1371	3465	1480
Flt Permitted	0.133			0.321			0.264			0.143		
Satd. Flow (perm)	238	3101	0	591	3202	0	496	3445	0	206	3465	1480
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			13			8				178
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.79	0.79	0.79	0.97	0.97	0.97
Heavy Vehicles (%)	8%	17%	8%	5%	12%	19%	3%	5%	8%	34%	6%	11%
Adj. Flow (vph)	153	553	110	155	973	122	129	706	66	60	500	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	663	0	155	1095	0	129	772	0	60	500	178
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0		12.0	32.0		17.0	37.0	37.0
Total Split (s)	14.0	43.0		21.0	50.0		18.0	38.0		18.0	38.0	38.0
Total Split (%)	11.7%	35.8%		17.5%	41.7%		15.0%	31.7%		15.0%	31.7%	31.7%
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2		0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5		3.0	5.2		3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	Ped
Act Effct Green (s)	67.2	53.9		66.8	53.8		43.5	31.6		38.4	27.4	27.4
Actuated g/C Ratio	0.56	0.45		0.56	0.45		0.36	0.26		0.32	0.23	0.23
v/c Ratio	0.58	0.47		0.36	0.76		0.43	0.84		0.40	0.63	0.37
Control Delay	34.1	20.5		15.4	33.4		29.0	50.9		35.1	52.1	10.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.1	20.5		15.4	33.4		29.0	50.9		35.1	52.1	10.5
LOS	C	C		B	C		C	D		D	D	B
Approach Delay		23.0			31.1			47.7			40.7	
Approach LOS		C			C			D			D	
Stops (vph)	95	237		67	795		66	559		40	401	62

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	23		3	31		2	16		3	26	7
CO Emissions (g/hr)	424	1590		235	2196		140	1142		200	1838	498
NOx Emissions (g/hr)	83	309		46	427		27	222		39	358	97
VOC Emissions (g/hr)	98	369		55	509		32	265		46	426	115
Dilemma Vehicles (#)	0	16		0	41		0	21		0	39	0
Queue Length 50th (ft)	49	130		53	371		67	301		32	183	13
Queue Length 95th (ft)	116	145		102	#553		86	296		m49	194	m43
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250			200			260		260
Base Capacity (vph)	278	1404		518	1443		342	967		219	951	535
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.55	0.47		0.30	0.76		0.38	0.80		0.27	0.53	0.33

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 35.3 Intersection LOS: D
Intersection Capacity Utilization 62.8% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1300	600	0	500	1000		
Future Volume (vph)	0	1300	600	0	500	1000		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	1	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6520	3601	0	1801	2836		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6520	3601	0	1801	2836		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						362		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1413	652	0	543	1087		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1413	652	0	543	1087		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		53.0	53.0		37.0	37.0	13.0	40.0
Total Split (%)		58.9%	58.9%		41.1%	41.1%	14%	44%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		46.0	46.0		30.0	30.0		
Actuated g/C Ratio		0.51	0.51		0.33	0.33		
v/c Ratio		0.42	0.35		0.91	0.92		
Control Delay		14.2	8.7		49.8	32.4		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		14.2	8.7		49.8	32.4		
LOS		B	A		D	C		
Approach Delay		14.2	8.7		38.2			
Approach LOS		B	A		D			
Stops (vph)		765	156		431	642		
Fuel Used(gal)		21	5		18	30		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		1500	333		1261	2083		
NOx Emissions (g/hr)		292	65		245	405		
VOC Emissions (g/hr)		348	77		292	483		
Dilemma Vehicles (#)		61	59		0	0		
Queue Length 50th (ft)		138	58		292	236		
Queue Length 95th (ft)		165	m57		#486	#386		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3332	1840		600	1186		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.42	0.35		0.91	0.92		

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 23.8	Intersection LOS: C
Intersection Capacity Utilization 100.6%	ICU Level of Service G
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: MCDOWELL RD & 101 SB RAMP

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	400	1400	600	600	0	0			
Future Volume (vph)	400	1400	600	600	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.925						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	2998	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	2998	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			317						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	435	1522	652	652	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	435	1522	1304	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			40.0				13.0	53.0	37.0
Total Split (%)			44.4%				14%	59%	41%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	43.0	90.0	33.0						
Actuated g/C Ratio	0.48	1.00	0.37						
v/c Ratio	0.29	0.47	1.00						
Control Delay	26.5	2.4	48.6						
Queue Delay	0.0	0.0	0.0						
Total Delay	26.5	2.4	48.6						
LOS	C	A	D						
Approach Delay		7.7	48.6						
Approach LOS		A	D						
Stops (vph)	298	301	851						
Fuel Used(gal)	7	9	52						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	492	598	3663						
NOx Emissions (g/hr)	96	116	713						
VOC Emissions (g/hr)	114	139	849						
Dilemma Vehicles (#)	0	0	62						
Queue Length 50th (ft)	101	87	~315						
Queue Length 95th (ft)	m129	m94	#479						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1502	3241	1300						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.29	0.47	1.00						

Intersection Summary	
Area Type: CBD	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 100.6%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 101: MCDOWELL RD & 101 NB RAMP

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	511	71	193	255	55	62	444	270	101	412	93
Future Volume (vph)	72	511	71	193	255	55	62	444	270	101	412	93
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	230		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.973				0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	5124	1595	3493	4874	0	1801	3601	1611	1701	3494	0
Flt Permitted	0.553			0.950			0.304			0.239		
Satd. Flow (perm)	1009	5124	1595	3493	4874	0	576	3601	1611	428	3494	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		44				240		19	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			15.2			9.3			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.98	0.98	0.98	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles (%)	6%	3%	3%	2%	5%	7%	2%	2%	2%	8%	2%	3%
Adj. Flow (vph)	76	538	75	197	260	56	65	467	284	104	425	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	538	75	197	316	0	65	467	284	104	521	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	20.0	55.0	55.0	20.0	55.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	16.0%	44.0%	44.0%	16.0%	44.0%		16.0%	24.0%	24.0%	16.0%	24.0%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	58.9	49.0	49.0	12.0	55.6		29.9	20.0	20.0	34.6	24.2	
Actuated g/C Ratio	0.53	0.44	0.44	0.11	0.50		0.27	0.18	0.18	0.31	0.22	
v/c Ratio	0.13	0.24	0.10	0.52	0.13		0.26	0.72	0.59	0.41	0.67	
Control Delay	11.4	21.0	3.3	53.2	14.6		29.2	50.4	14.1	32.2	44.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	11.4	21.0	3.3	53.2	14.6		29.2	50.4	14.1	32.2	44.2	
LOS	B	C	A	D	B		C	D	B	C	D	
Approach Delay		18.0			29.5			36.1			42.2	
Approach LOS		B			C			D			D	
Stops (vph)	34	308	6	175	139		42	403	54	68	433	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	8	0	11	13		1	12	3	2	14	
CO Emissions (g/hr)	63	578	30	758	925		90	871	224	159	964	
NOx Emissions (g/hr)	12	112	6	148	180		18	169	44	31	188	
VOC Emissions (g/hr)	15	134	7	176	214		21	202	52	37	223	
Dilemma Vehicles (#)	0	23	0	0	11		0	17	0	0	18	
Queue Length 50th (ft)	21	85	0	69	38		32	165	27	53	177	
Queue Length 95th (ft)	49	134	22	114	66		67	240	115	99	253	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160	230			120		120	150		
Base Capacity (vph)	706	2254	753	504	2455		360	793	542	322	819	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.11	0.24	0.10	0.39	0.13		0.18	0.59	0.52	0.32	0.64	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 111.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 44.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	81	3	30	216	747	0	0	475	183
Future Volume (vph)	0	0	0	81	3	30	216	747	0	0	475	183
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.991	0.850					0.958	
Flt Protected				0.950	0.958		0.950					
Satd. Flow (prot)	0	0	0	1662	1596	1531	1685	3601	0	0	4957	0
Flt Permitted				0.950	0.958		0.950					
Satd. Flow (perm)	0	0	0	1662	1596	1531	1685	3601	0	0	4957	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					55	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		12.3			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.89	0.89	0.89	0.93	0.93	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	2%	2%	9%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	91	3	34	232	803	0	0	516	199
Shared Lane Traffic (%)				47%		10%						
Lane Group Flow (vph)	0	0	0	48	49	31	232	803	0	0	715	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				40.0	40.0	40.0					30.0	
Total Split (%)				26.7%	26.7%	26.7%					20.0%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				13.6	13.6	13.6	55.1	84.6			24.1	
Actuated g/C Ratio				0.13	0.13	0.13	0.51	0.78			0.22	
v/c Ratio				0.23	0.24	0.11	0.27	0.29			0.63	
Control Delay				47.2	46.1	0.8	15.2	0.9			38.9	
Queue Delay				0.0	0.0	0.0	1.4	0.7			0.0	
Total Delay				47.2	46.1	0.8	16.6	1.7			38.9	
LOS				D	D	A	B	A			D	
Approach Delay					35.5			5.0			38.9	
Approach LOS					D			A			D	
Stops (vph)				38	37	0	142	26			535	

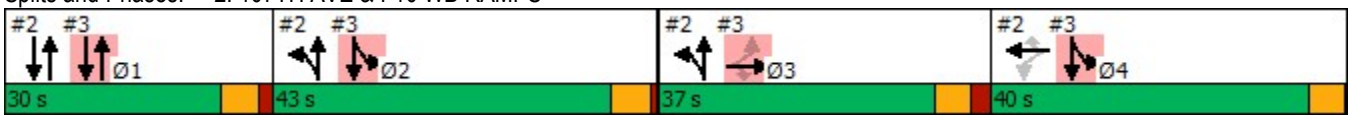
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	43.0	37.0
Total Split (%)	29%	25%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				1	1	0	3	2			16	
CO Emissions (g/hr)				79	79	12	205	152			1129	
NOx Emissions (g/hr)				15	15	2	40	30			220	
VOC Emissions (g/hr)				18	18	3	47	35			262	
Dilemma Vehicles (#)				0	1	0	0	21			30	
Queue Length 50th (ft)				31	32	0	114	7			152	
Queue Length 95th (ft)				74	78	0	m177	26			224	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				547	526	574	854	2802			1143	
Starvation Cap Reductn				0	0	0	438	1564			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.09	0.09	0.05	0.56	0.65			0.63	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 108.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 20.0 Intersection LOS: C
Intersection Capacity Utilization 44.5% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	117	433	0	0	0	0	655	214	43	525	0
Future Volume (vph)	298	117	433	0	0	0	0	655	214	43	525	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.924	0.850					0.963				
Flt Protected	0.950	0.995								0.950		
Satd. Flow (prot)	1711	1564	1501	0	0	0	0	4947	0	1717	3601	0
Flt Permitted	0.950	0.995								0.950		
Satd. Flow (perm)	1711	1564	1501	0	0	0	0	4947	0	1717	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31	339					47				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.97	0.97	0.97	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	4%	0%	0%	0%	0%	3%	2%	7%	2%	0%
Adj. Flow (vph)	359	141	522	0	0	0	0	675	221	48	590	0
Shared Lane Traffic (%)	10%		35%									
Lane Group Flow (vph)	323	360	339	0	0	0	0	896	0	48	590	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	37.0	37.0	37.0					30.0				
Total Split (%)	24.7%	24.7%	24.7%					20.0%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	31.1	31.1	31.1					24.1		30.6	65.4	
Actuated g/C Ratio	0.29	0.29	0.29					0.22		0.28	0.60	
v/c Ratio	0.66	0.77	0.51					0.79		0.10	0.27	
Control Delay	43.5	46.1	6.6					44.6		15.5	1.4	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.1	
Total Delay	43.5	46.1	6.6					44.6		15.5	1.5	
LOS	D	D	A					D		B	A	
Approach Delay		32.2						44.6			2.6	
Approach LOS		C						D			A	
Stops (vph)	231	234	28					738		35	27	

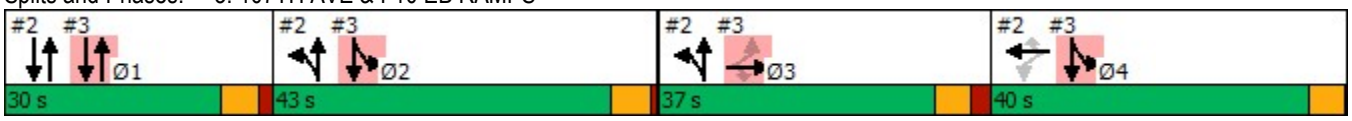
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	43.0	40.0
Total Split (%)	29%	27%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	7	2					39		1	2	
CO Emissions (g/hr)	466	510	155					2749		47	118	
NOx Emissions (g/hr)	91	99	30					535		9	23	
VOC Emissions (g/hr)	108	118	36					637		11	27	
Dilemma Vehicles (#)	0	13	0					39		0	2	
Queue Length 50th (ft)	207	230	0					205		28	9	
Queue Length 95th (ft)	324	#389	51					#310		m54	10	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	489	469	671					1135		1150	2830	
Starvation Cap Reductn	0	0	0					0		0	836	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.66	0.77	0.51					0.79		0.04	0.30	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 108.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 44.5% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	429	102	36	143	36	58	603	66	79	387	65
Future Volume (vph)	115	429	102	36	143	36	58	603	66	79	387	65
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	200		150	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1841	1580	1783	1726	1550	1801	3601	1550	1766	3532	1611
Flt Permitted	0.516			0.490			0.506			0.358		
Satd. Flow (perm)	978	1841	1580	920	1726	1550	959	3601	1550	666	3532	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			85			85			85
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			79.7			59.8	
Peak Hour Factor	0.90	0.90	0.90	0.78	0.78	0.78	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	3%	12%	6%	2%	2%	6%	4%	4%	2%
Adj. Flow (vph)	128	477	113	46	183	46	62	641	70	86	421	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	477	113	46	183	46	62	641	70	86	421	71
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	50.0	50.0	38.0	38.0	38.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	13.3%	55.6%	55.6%	42.2%	42.2%	42.2%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	26.9	24.9	24.9	16.3	16.3	16.3	21.9	21.9	21.9	21.9	21.9	21.9
Actuated g/C Ratio	0.46	0.42	0.42	0.28	0.28	0.28	0.37	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.24	0.62	0.15	0.18	0.39	0.09	0.17	0.48	0.11	0.35	0.32	0.11
Control Delay	10.6	17.4	3.2	20.6	21.8	2.1	15.6	16.5	3.5	20.0	15.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	17.4	3.2	20.6	21.8	2.1	15.6	16.5	3.5	20.0	15.0	3.5
LOS	B	B	A	C	C	A	B	B	A	C	B	A
Approach Delay		13.9			18.3			15.2			14.3	
Approach LOS		B			B			B			B	
Stops (vph)	58	305	14	29	109	2	40	429	8	57	256	8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	7	1	2	7	1	3	28	2	3	14	2
CO Emissions (g/hr)	102	499	47	122	482	89	186	1954	168	214	998	127
NOx Emissions (g/hr)	20	97	9	24	94	17	36	380	33	42	194	25
VOC Emissions (g/hr)	24	116	11	28	112	21	43	453	39	49	231	29
Dilemma Vehicles (#)	0	28	0	0	9	0	0	40	0	0	26	0
Queue Length 50th (ft)	23	116	0	12	52	0	15	91	0	22	55	0
Queue Length 95th (ft)	60	241	25	35	100	4	44	155	18	64	101	19
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170	200		150	210		160
Base Capacity (vph)	559	1401	1229	509	955	895	564	2117	946	391	2077	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.34	0.09	0.09	0.19	0.05	0.11	0.30	0.07	0.22	0.20	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 59
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 70.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: 107TH AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	808	51	27	315	222	72	514	172	184	319	76
Future Volume (vph)	158	808	51	27	315	222	72	514	172	184	319	76
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.991			0.938			0.962			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3532	0	1717	3206	0	1801	3464	0	1655	3442	0
Flt Permitted	0.282			0.178			0.485			0.206		
Satd. Flow (perm)	535	3532	0	322	3206	0	919	3464	0	359	3442	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			189			42			25	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.96	0.96	0.96	0.86	0.86	0.86
Heavy Vehicles (%)	2%	3%	4%	7%	5%	11%	2%	2%	2%	11%	4%	2%
Adj. Flow (vph)	172	878	55	31	358	252	75	535	179	214	371	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	933	0	31	610	0	75	714	0	214	459	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	49.0		12.0	49.0		14.0	39.0		10.0	35.0	
Total Split (%)	10.9%	44.5%		10.9%	44.5%		12.7%	35.5%		9.1%	31.8%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	50.4	42.9		45.4	37.1		43.0	33.0		47.1	38.0	
Actuated g/C Ratio	0.46	0.39		0.41	0.34		0.39	0.30		0.43	0.35	
v/c Ratio	0.51	0.68		0.15	0.51		0.18	0.67		0.77	0.38	
Control Delay	21.9	30.4		21.2	35.3		20.2	35.5		46.8	29.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	30.4		21.2	35.3		20.2	35.5		46.8	29.0	
LOS	C	C		C	D		C	D		D	C	
Approach Delay		29.1			34.6			34.1			34.6	
Approach LOS		C			C			C			C	
Stops (vph)	87	682		18	898		43	555		101	283	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	22		1	36		1	17		9	19	
CO Emissions (g/hr)	218	1512		91	2493		97	1197		650	1352	
NOx Emissions (g/hr)	42	294		18	485		19	233		126	263	
VOC Emissions (g/hr)	51	350		21	578		22	277		151	313	
Dilemma Vehicles (#)	0	39		0	65		0	31		0	18	
Queue Length 50th (ft)	67	287		16	171		30	221		95	126	
Queue Length 95th (ft)	102	350		32	170		62	288		#247	179	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	337	1400		241	1349		462	1067		277	1206	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.51	0.67		0.13	0.45		0.16	0.67		0.77	0.38	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 32.6 Intersection LOS: C
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

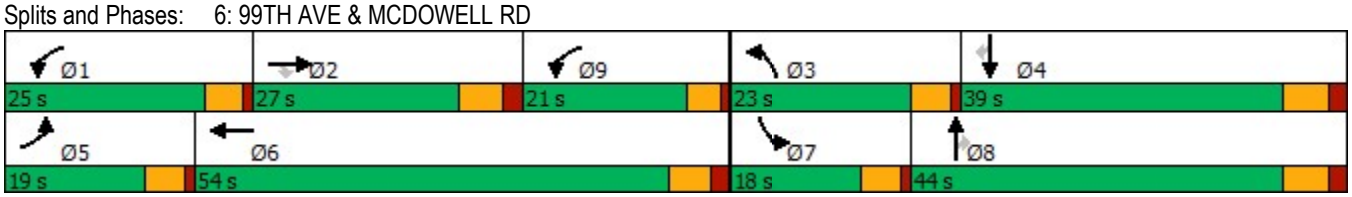
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	673	116	542	475	13	145	436	615	131	191	36
Future Volume (vph)	55	673	116	542	475	13	145	436	615	131	191	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202		2				634			200
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.84	0.84	0.84	0.94	0.94	0.94	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	3%	5%	3%	8%	8%	3%	6%	9%	4%	3%
Adj. Flow (vph)	65	801	138	577	505	14	149	449	634	135	197	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	801	138	577	519	0	149	449	634	135	197	37
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	19.0	27.0	27.0		54.0		23.0	44.0	44.0	18.0	39.0	39.0
Total Split (%)	14.1%	20.0%	20.0%		40.0%		17.0%	32.6%	32.6%	13.3%	28.9%	28.9%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	None	None	None
Act Effct Green (s)	8.0	40.3	40.3	30.3	70.2		11.4	22.2	22.2	10.6	21.3	21.3
Actuated g/C Ratio	0.06	0.31	0.31	0.23	0.53		0.09	0.17	0.17	0.08	0.16	0.16
v/c Ratio	0.31	0.74	0.22	0.75	0.28		0.53	0.53	0.65	0.52	0.24	0.09
Control Delay	66.0	47.4	1.5	30.8	18.9		66.0	52.7	6.9	67.4	49.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	47.4	1.5	30.8	18.9		66.0	52.7	6.9	67.4	49.5	0.4
LOS	E	D	A	C	B		E	D	A	E	D	A
Approach Delay		42.3			25.2			30.7			51.1	
Approach LOS		D			C			C			D	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	25.0	21.0
Total Split (%)	19%	16%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	50	586	2	474	260		132	384	44	120	159	0
Fuel Used(gal)	3	37	4	13	8		4	12	5	5	6	0
CO Emissions (g/hr)	226	2568	281	892	576		311	840	352	341	435	31
NOx Emissions (g/hr)	44	500	55	173	112		60	163	69	66	85	6
VOC Emissions (g/hr)	52	595	65	207	133		72	195	82	79	101	7
Dilemma Vehicles (#)	0	25	0	0	15		0	13	0	0	6	0
Queue Length 50th (ft)	28	327	0	113	129		64	130	0	58	54	0
Queue Length 95th (ft)	53	423	0	168	198		107	178	55	101	85	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	368	1084	620	919	1860		446	1442	1220	319	1237	539
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.74	0.22	0.63	0.28		0.33	0.31	0.52	0.42	0.16	0.07

Intersection Summary	
Area Type: Other	
Cycle Length: 135	
Actuated Cycle Length: 131.6	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 34.3	Intersection LOS: C
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: 99TH AVE & MCDOWELL RD



Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	335	251	173	171	1107	0	0	774	69
Future Volume (vph)	0	0	0	335	251	173	171	1107	0	0	774	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.994	0.850					0.988	
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1381	2866	1379	1466	4868	0	0	6012	0
Flt Permitted				0.950	0.983		0.950					
Satd. Flow (perm)	0	0	0	1381	2866	1379	1466	4868	0	0	6012	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	54					10	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.96	0.96	0.96	0.94	0.94	0.94	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	15%	4%	3%	19%	3%	0%	0%	4%	2%
Adj. Flow (vph)	0	0	0	349	261	180	182	1178	0	0	900	80
Shared Lane Traffic (%)				41%		10%						
Lane Group Flow (vph)	0	0	0	206	422	162	182	1178	0	0	980	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							10.0				20.0	
Minimum Split (s)							47.8				28.9	
Total Split (s)							48.0				38.0	
Total Split (%)							27.4%				21.7%	
Yellow Time (s)							3.9				4.7	
All-Red Time (s)							1.9				1.2	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							5.8				5.9	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				C-Min	
Act Effct Green (s)				53.5	53.5	53.5	60.1	109.7			43.8	
Actuated g/C Ratio				0.31	0.31	0.31	0.34	0.63			0.25	
v/c Ratio				0.49	0.48	0.35	0.36	0.39			0.65	
Control Delay				54.3	51.3	33.3	10.4	4.6			61.5	
Queue Delay				0.0	0.0	0.0	0.0	0.6			0.0	
Total Delay				54.3	51.3	33.3	10.4	5.1			61.5	
LOS				D	D	C	B	A			E	
Approach Delay					48.4			5.9			61.5	
Approach LOS					D			A			E	
Stops (vph)				160	321	82	54	631			740	

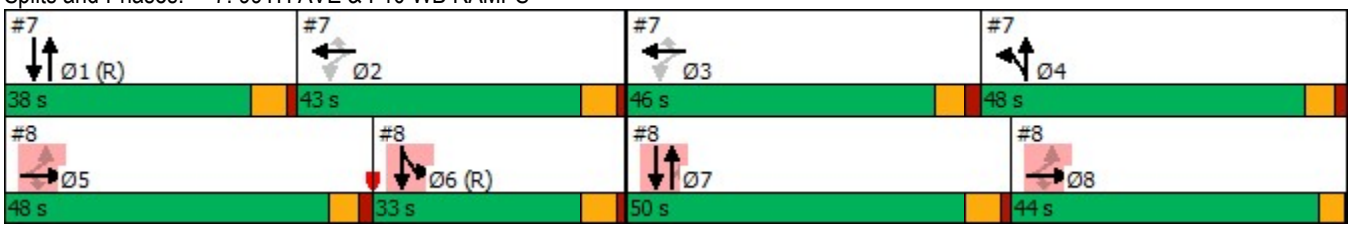
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	8.0	10.0	5.0	20.0	5.0
Minimum Split (s)	30.0	45.8	47.8	30.0	28.9	30.0
Total Split (s)	43.0	46.0	48.0	33.0	50.0	44.0
Total Split (%)	25%	26%	27%	19%	29%	25%
Yellow Time (s)	4.7	3.9	3.9	4.7	4.7	3.5
All-Red Time (s)	1.2	1.9	1.9	1.2	1.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	13	4	2	13			25	
CO Emissions (g/hr)				444	886	265	114	889			1728	
NOx Emissions (g/hr)				86	172	52	22	173			336	
VOC Emissions (g/hr)				103	205	61	26	206			401	
Dilemma Vehicles (#)				0	9	0	0	2			24	
Queue Length 50th (ft)				216	232	106	37	104			293	
Queue Length 95th (ft)				307	288	181	m76	224			341	
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				662	1376	690	503	3052			1512	
Starvation Cap Reductn				0	0	0	0	1334			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.31	0.31	0.23	0.36	0.69			0.65	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 34.0 Intersection LOS: C
Intersection Capacity Utilization 44.0% ICU Level of Service A
Analysis Period (min) 15
Description: WB I-10 Off ramp
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	353	90	258	0	0	0	0	884	206	85	1066	0
Future Volume (vph)	353	90	258	0	0	0	0	884	206	85	1066	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		140	0		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.977								0.950		
Satd. Flow (prot)	1557	2845	1292	0	0	0	0	4686	1334	1711	4643	0
Flt Permitted	0.950	0.977								0.950		
Satd. Flow (perm)	1557	2845	1292	0	0	0	0	4686	1334	1711	4643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26	54						193			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			8.1	
Peak Hour Factor	0.91	0.91	0.91	0.25	0.25	0.25	0.96	0.96	0.96	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	7%	17%	2%	8%	0%
Adj. Flow (vph)	388	99	284	0	0	0	0	921	215	97	1211	0
Shared Lane Traffic (%)	48%		37%									
Lane Group Flow (vph)	202	390	179	0	0	0	0	921	215	97	1211	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								20.0	20.0	5.0		
Minimum Split (s)								28.9	28.9	30.0		
Total Split (s)								50.0	50.0	33.0		
Total Split (%)								28.6%	28.6%	18.9%		
Yellow Time (s)								4.7	4.7	4.7		
All-Red Time (s)								1.2	1.2	1.2		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.9	5.9	5.9		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	C-Max		
Act Effct Green (s)	42.6	42.6	42.6					42.9	42.9	71.9	120.7	
Actuated g/C Ratio	0.24	0.24	0.24					0.25	0.25	0.41	0.69	
v/c Ratio	0.53	0.55	0.50					0.80	0.46	0.14	0.38	
Control Delay	61.9	55.9	43.1					68.1	12.3	7.0	7.2	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.5	
Total Delay	61.9	55.9	43.1					68.1	12.3	7.0	7.7	
LOS	E	E	D					E	B	A	A	
Approach Delay		54.5						57.5			7.6	
Approach LOS		D						E			A	
Stops (vph)	156	282	97					817	31	22	714	

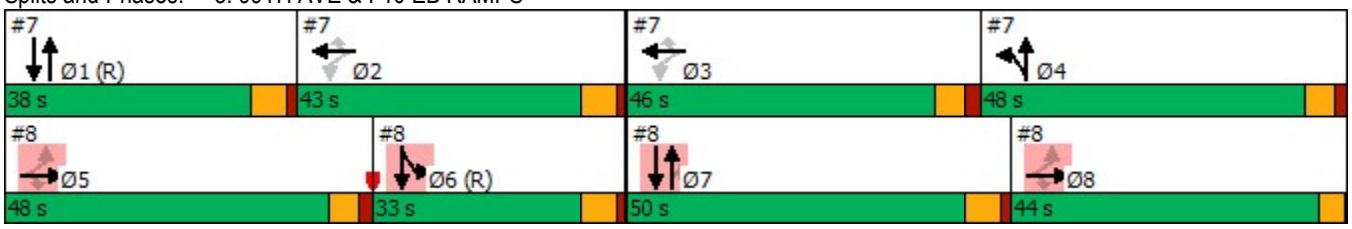
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	10.0	5.0
Minimum Split (s)	28.9	30.0	45.8	47.8	47.8	30.0
Total Split (s)	38.0	43.0	46.0	48.0	48.0	44.0
Total Split (%)	22%	25%	26%	27%	27%	25%
Yellow Time (s)	4.7	4.7	3.9	3.9	3.9	3.5
All-Red Time (s)	1.2	1.2	1.9	1.9	1.9	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	12	5					45	6	1	14	
CO Emissions (g/hr)	448	817	317					3113	423	48	988	
NOx Emissions (g/hr)	87	159	62					606	82	9	192	
VOC Emissions (g/hr)	104	189	74					722	98	11	229	
Dilemma Vehicles (#)	0	8	0					23	0	0	1	
Queue Length 50th (ft)	224	215	137					364	19	17	355	
Queue Length 95th (ft)	300	258	215					420	100	m31	408	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						140			
Base Capacity (vph)	658	1218	577					1180	480	702	3233	
Starvation Cap Reductn	0	0	0					0	0	0	1398	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.31	0.32	0.31					0.78	0.45	0.14	0.66	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 36.5 Intersection LOS: D
Intersection Capacity Utilization 44.0% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

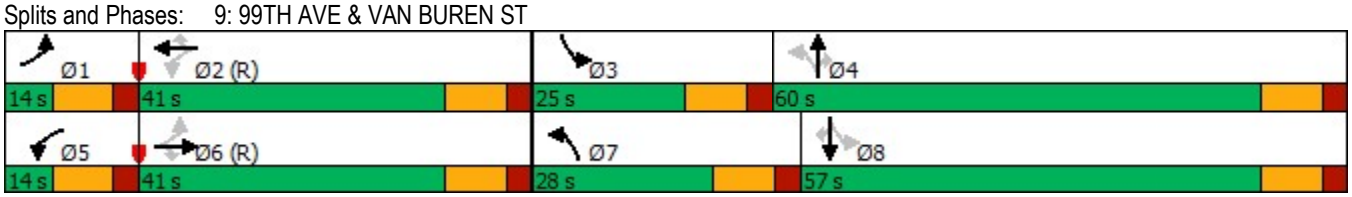
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	368	64	86	119	139	87	639	196	178	442	89
Future Volume (vph)	120	368	64	86	119	139	87	639	196	178	442	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1586	1801	1280	1711	3323	1531	1601	4600	1487	1711	2983	1290
Flt Permitted	0.651			0.377			0.425			0.203		
Satd. Flow (perm)	1087	1801	1280	679	3323	1531	716	4600	1487	366	2983	1290
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			191			190			190
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.94	0.94	0.94	0.77	0.77	0.77	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	10%	2%	22%	2%	5%	2%	9%	9%	5%	2%	17%	21%
Adj. Flow (vph)	128	391	68	112	155	181	96	702	215	193	480	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	391	68	112	155	181	96	702	215	193	480	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	41.0	41.0	14.0	41.0	41.0	28.0	60.0	60.0	25.0	57.0	57.0
Total Split (%)	10.0%	29.3%	29.3%	10.0%	29.3%	29.3%	20.0%	42.9%	42.9%	17.9%	40.7%	40.7%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	62.0	52.2	52.2	61.6	52.0	52.0	36.3	27.3	27.3	46.8	32.5	32.5
Actuated g/C Ratio	0.44	0.37	0.37	0.44	0.37	0.37	0.26	0.20	0.20	0.33	0.23	0.23
v/c Ratio	0.25	0.58	0.11	0.30	0.13	0.26	0.40	0.78	0.49	0.75	0.69	0.22
Control Delay	21.8	41.6	0.4	22.6	32.0	5.1	34.4	59.9	12.6	49.1	54.5	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	41.6	0.4	22.6	32.0	5.1	34.4	59.9	12.6	49.1	54.5	1.1
LOS	C	D	A	C	C	A	C	E	B	D	D	A
Approach Delay		32.5			18.8			47.4			46.4	
Approach LOS		C			B			D			D	
Stops (vph)	70	297	0	51	79	12	63	592	33	126	395	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	19	2	4	6	6	4	37	8	8	21	2
CO Emissions (g/hr)	386	1359	154	307	443	441	307	2601	537	545	1459	157
NOx Emissions (g/hr)	75	265	30	60	86	86	60	506	104	106	284	31
VOC Emissions (g/hr)	89	315	36	71	103	102	71	603	124	126	338	36
Dilemma Vehicles (#)	0	13	0	0	4	0	0	18	0	0	13	0
Queue Length 50th (ft)	62	290	0	54	49	0	58	225	19	124	209	0
Queue Length 95th (ft)	112	443	0	83	73	23	93	260	89	175	265	0
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	516	671	597	369	1234	688	354	1669	660	277	1018	565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.58	0.11	0.30	0.13	0.26	0.27	0.42	0.33	0.70	0.47	0.17

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 39.5 Intersection LOS: D
Intersection Capacity Utilization 66.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	1028	60	37	296	141	129	614	129	131	257	71
Future Volume (vph)	176	1028	60	37	296	141	129	614	129	131	257	71
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.992				0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3506	0	1655	3251	1217	1801	3490	0	1446	1841	1580
Flt Permitted	0.499			0.097			0.537			0.118		
Satd. Flow (perm)	946	3506	0	169	3251	1217	1018	3490	0	180	1841	1580
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				164		22				116
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4799			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.88	0.88	0.88	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	11%	13%	35%	2%	2%	5%	27%	5%	4%
Adj. Flow (vph)	196	1142	67	43	344	164	147	698	147	135	265	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	1209	0	43	344	164	147	845	0	135	265	73
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0
Total Split (s)	10.0	47.0		10.0	47.0	47.0	12.0	35.0		18.0	41.0	41.0
Total Split (%)	9.1%	42.7%		9.1%	42.7%	42.7%	10.9%	31.8%		16.4%	37.3%	37.3%
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4		3.0	4.4	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4		4.0	6.4	6.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effct Green (s)	51.7	45.4		49.4	41.1	41.1	40.1	30.0		46.9	33.8	33.8
Actuated g/C Ratio	0.47	0.41		0.45	0.37	0.37	0.36	0.27		0.43	0.31	0.31
v/c Ratio	0.40	0.83		0.29	0.28	0.29	0.35	0.87		0.65	0.47	0.13
Control Delay	13.7	29.0		23.3	20.7	6.4	21.9	48.7		35.3	33.8	1.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	13.7	29.0		23.3	20.7	6.4	21.9	48.7		35.3	33.8	1.9
LOS	B	C		C	C	A	C	D		D	C	A
Approach Delay		26.9			16.7			44.7			29.3	
Approach LOS		C			B			D			C	
Stops (vph)	66	956		25	151	34	85	649		82	203	3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	58		2	13	5	3	22		6	13	3
CO Emissions (g/hr)	518	4026		125	937	377	191	1520		453	920	176
NOx Emissions (g/hr)	101	783		24	182	73	37	296		88	179	34
VOC Emissions (g/hr)	120	933		29	217	87	44	352		105	213	41
Dilemma Vehicles (#)	0	21		0	4	0	0	32		0	9	0
Queue Length 50th (ft)	45	471		19	85	0	61	291		57	149	0
Queue Length 95th (ft)	m72	#586		33	72	22	101	#400		110	228	11
Internal Link Dist (ft)		5209			4719			274			849	
Turn Bay Length (ft)	160			170		250	190			250		250
Base Capacity (vph)	493	1449		157	1215	557	430	967		239	579	576
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.40	0.83		0.27	0.28	0.29	0.34	0.87		0.56	0.46	0.13

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 34 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 30.7 Intersection LOS: C
Intersection Capacity Utilization 69.7% ICU Level of Service C
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85

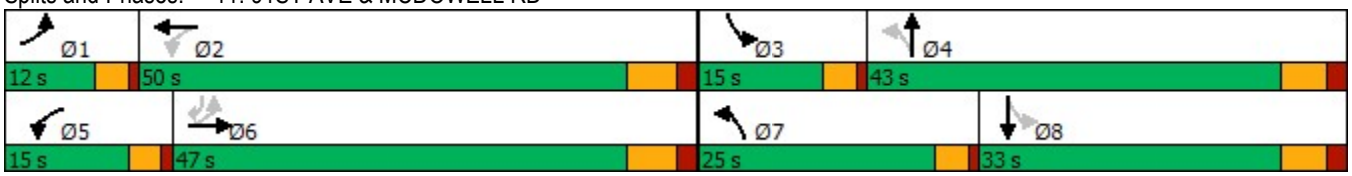
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	527	196	148	319	76	322	706	203	131	497	64
Future Volume (vph)	106	527	196	148	319	76	322	706	203	131	497	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.959			0.971			0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3226	0	1662	3258	0	1711	3308	0	1711	3355	1531
Flt Permitted	0.442			0.145			0.219			0.149		
Satd. Flow (perm)	796	3226	0	254	3258	0	394	3308	0	268	3355	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			27			32				136
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			14.5			54.8	
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.96	0.96	0.96	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	3%	5%	4%	4%	2%	2%	2%	2%	4%	2%
Adj. Flow (vph)	126	627	233	180	389	93	335	735	211	151	571	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	860	0	180	482	0	335	946	0	151	571	74
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	12.0	47.0		15.0	50.0		25.0	43.0		15.0	33.0	47.0
Total Split (%)	10.0%	39.2%		12.5%	41.7%		20.8%	35.8%		12.5%	27.5%	39.2%
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4		4.0	6.4		4.0	6.0		4.0	6.0	6.4
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min		None	None		None	None	Min
Act Effct Green (s)	47.0	37.0		52.9	40.0		51.7	36.0		38.6	26.9	37.0
Actuated g/C Ratio	0.41	0.33		0.46	0.35		0.45	0.32		0.34	0.24	0.33
v/c Ratio	0.32	0.80		0.73	0.42		0.85	0.89		0.71	0.72	0.13
Control Delay	20.0	39.5		36.1	27.8		42.7	47.7		42.3	47.2	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	20.0	39.5		36.1	27.8		42.7	47.7		42.3	47.2	0.4
LOS	B	D		D	C		D	D		D	D	A
Approach Delay		37.0			30.0			46.4			41.9	
Approach LOS		D			C			D			D	
Stops (vph)	61	604		81	270		206	786		90	445	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	31		7	19		6	20		4	18	1
CO Emissions (g/hr)	268	2191		499	1333		425	1371		312	1273	91
NOx Emissions (g/hr)	52	426		97	259		83	267		61	248	18
VOC Emissions (g/hr)	62	508		116	309		99	318		72	295	21
Dilemma Vehicles (#)	0	29		0	14		0	37		0	20	0
Queue Length 50th (ft)	53	295		79	136		174	359		69	218	0
Queue Length 95th (ft)	84	338		113	164		#308	#483		#134	273	0
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	396	1190		255	1274		423	1105		234	808	637
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.32	0.72		0.71	0.38		0.79	0.86		0.65	0.71	0.12

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 113.8
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 40.0 Intersection LOS: D
Intersection Capacity Utilization 73.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	168	4	175	92	939	0	0	674	76
Future Volume (vph)	0	0	0	168	4	175	92	939	0	0	674	76
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.917	0.850					0.985	
Flt Protected				0.950	0.980		0.950					
Satd. Flow (prot)	0	0	0	1694	1519	1487	1749	3601	0	0	3509	0
Flt Permitted				0.950	0.980		0.229					
Satd. Flow (perm)	0	0	0	1694	1519	1487	422	3601	0	0	3509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					45	128					17	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			14.5	
Peak Hour Factor	0.25	0.25	0.25	0.86	0.86	0.86	0.97	0.97	0.97	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	3%	2%	5%	5%	2%	0%	0%	3%	4%
Adj. Flow (vph)	0	0	0	195	5	203	95	968	0	0	741	84
Shared Lane Traffic (%)				28%		37%						
Lane Group Flow (vph)	0	0	0	140	135	128	95	968	0	0	825	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				30.0	30.0	30.0	15.0					
Total Split (%)				24.0%	24.0%	24.0%	12.0%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				24.4	24.4	24.4	45.0	50.1			67.5	
Actuated g/C Ratio				0.21	0.21	0.21	0.38	0.43			0.57	
v/c Ratio				0.40	0.39	0.31	0.35	0.63			0.41	
Control Delay				45.9	31.5	9.4	21.8	18.7			14.2	
Queue Delay				0.0	0.0	0.0	0.0	0.4			0.0	
Total Delay				45.9	31.5	9.4	21.8	19.2			14.2	
LOS				D	C	A	C	B			B	
Approach Delay					29.5			19.4			14.2	
Approach LOS					C			B			B	
Stops (vph)				101	66	16	39	390			383	

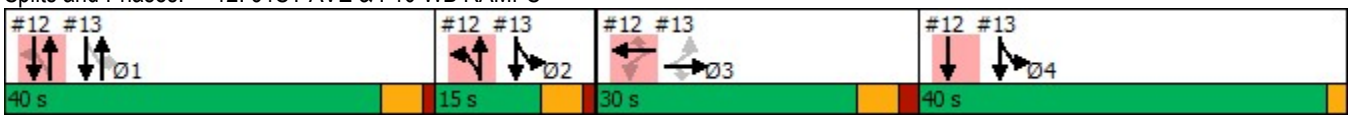
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	40.0	40.0
Total Split (%)	32%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	3	2	1	10			9	
CO Emissions (g/hr)				253	193	108	73	697			635	
NOx Emissions (g/hr)				49	38	21	14	136			124	
VOC Emissions (g/hr)				59	45	25	17	161			147	
Dilemma Vehicles (#)				0	5	0	0	0			32	
Queue Length 50th (ft)				97	63	0	26	137			170	
Queue Length 95th (ft)				166	131	49	m43	168			212	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				350	349	409	272	1530			1995	
Starvation Cap Reductn				0	0	0	0	184			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.40	0.39	0.31	0.35	0.72			0.41	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 43.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	348	8	224	0	0	0	0	676	143	94	760	0
Future Volume (vph)	348	8	224	0	0	0	0	676	143	94	760	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	0		240	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.968	0.850						0.850			
Flt Protected	0.950	0.964								0.950		
Satd. Flow (prot)	1711	1606	1516	0	0	0	0	3601	1611	1717	3532	0
Flt Permitted	0.950	0.964								0.200		
Satd. Flow (perm)	1711	1606	1516	0	0	0	0	3601	1611	361	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10	183						151			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.99	0.99	0.99	0.25	0.25	0.25	0.95	0.95	0.95	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	0%	0%	0%	0%	2%	2%	7%	4%	0%
Adj. Flow (vph)	352	8	226	0	0	0	0	712	151	107	864	0
Shared Lane Traffic (%)	42%		19%									
Lane Group Flow (vph)	204	199	183	0	0	0	0	712	151	107	864	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					40.0	40.0			
Total Split (%)	24.0%	24.0%	24.0%					32.0%	32.0%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	24.4	24.4	24.4					35.0	35.0	72.3	82.6	
Actuated g/C Ratio	0.21	0.21	0.21					0.30	0.30	0.61	0.70	
v/c Ratio	0.58	0.59	0.40					0.67	0.26	0.16	0.35	
Control Delay	50.8	49.2	8.8					40.8	6.5	3.8	3.9	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.1	
Total Delay	50.8	49.2	8.8					40.8	6.5	3.8	4.0	
LOS	D	D	A					D	A	A	A	
Approach Delay		37.2						34.8			4.0	
Approach LOS		D						C			A	
Stops (vph)	179	167	23					578	17	21	151	

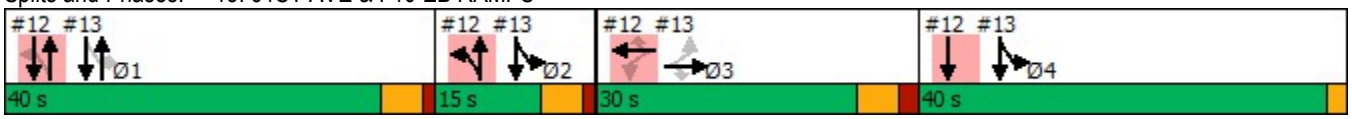
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	15.0	40.0
Total Split (%)	12%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	6	3					30	5	1	5	
CO Emissions (g/hr)	464	441	188					2096	318	40	316	
NOx Emissions (g/hr)	90	86	37					408	62	8	62	
VOC Emissions (g/hr)	107	102	43					486	74	9	73	
Dilemma Vehicles (#)	0	8	0					29	0	0	2	
Queue Length 50th (ft)	148	143	0					250	0	17	73	
Queue Length 95th (ft)	248	248	65					343	50	29	91	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	354	340	459					1070	584	749	2452	
Starvation Cap Reductn	0	0	0					0	0	0	614	
Spillback Cap Reductn	0	0	0					5	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.58	0.59	0.40					0.67	0.26	0.14	0.47	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 43.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

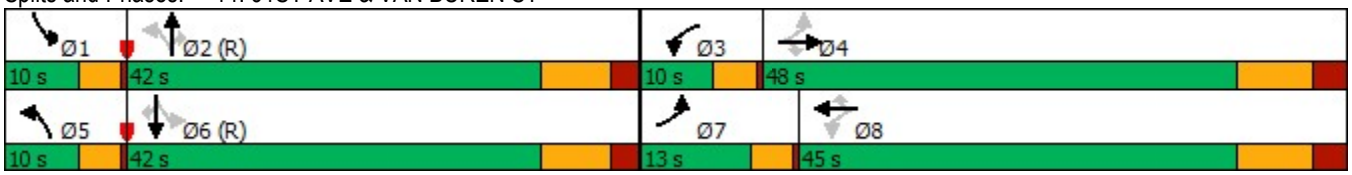
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	287	85	65	208	115	106	542	131	140	465	144
Future Volume (vph)	198	287	85	65	208	115	106	542	131	140	465	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1749	1531	1558	1749	1516	1678	3421	1432	1678	3323	1516
Flt Permitted	0.372			0.422			0.429			0.385		
Satd. Flow (perm)	670	1749	1531	692	1749	1516	758	3421	1432	680	3323	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130			155			140			158
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.94	0.94	0.94	0.91	0.91	0.91
Heavy Vehicles (%)	2%	5%	2%	12%	5%	3%	4%	2%	9%	4%	5%	3%
Adj. Flow (vph)	239	346	102	88	281	155	113	577	139	154	511	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	346	102	88	281	155	113	577	139	154	511	158
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	13.0	48.0	48.0	10.0	45.0	45.0	10.0	42.0	42.0	10.0	42.0	42.0
Total Split (%)	11.8%	43.6%	43.6%	9.1%	40.9%	40.9%	9.1%	38.2%	38.2%	9.1%	38.2%	38.2%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	41.5	29.2	29.2	35.3	24.2	24.2	55.7	45.6	45.6	55.7	45.6	45.6
Actuated g/C Ratio	0.38	0.27	0.27	0.32	0.22	0.22	0.51	0.41	0.41	0.51	0.41	0.41
v/c Ratio	0.71	0.75	0.20	0.33	0.73	0.34	0.26	0.41	0.21	0.39	0.37	0.22
Control Delay	36.2	47.3	3.3	24.0	50.4	6.9	8.4	11.0	0.9	18.3	24.7	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	47.3	3.3	24.0	50.4	6.9	8.4	11.0	0.9	18.3	24.7	4.8
LOS	D	D	A	C	D	A	A	B	A	B	C	A
Approach Delay		36.9			33.1			9.0			19.7	
Approach LOS		D			C			A			B	
Stops (vph)	138	255	5	43	187	15	23	197	3	80	318	16

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	16	4	3	12	5	4	24	5	5	19	5
CO Emissions (g/hr)	751	1150	267	223	810	345	310	1646	356	369	1294	317
NOx Emissions (g/hr)	146	224	52	43	158	67	60	320	69	72	252	62
VOC Emissions (g/hr)	174	266	62	52	188	80	72	381	82	85	300	73
Dilemma Vehicles (#)	0	0	0	0	0	0	0	10	0	0	21	0
Queue Length 50th (ft)	120	231	0	40	186	0	13	48	1	52	128	0
Queue Length 95th (ft)	143	269	16	52	196	23	39	78	4	106	200	45
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	338	618	625	269	570	599	434	1418	675	399	1377	720
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.56	0.16	0.33	0.49	0.26	0.26	0.41	0.21	0.39	0.37	0.22

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 14: 91ST AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	927	98	45	342	131	101	616	47	120	443	91
Future Volume (vph)	116	927	98	45	342	131	101	616	47	120	443	91
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.986			0.958			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	4764	0	1531	4140	0	1749	5110	0	1749	3566	1508
Flt Permitted	0.421			0.188			0.353			0.223		
Satd. Flow (perm)	720	4764	0	303	4140	0	650	5110	0	411	3566	1508
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			106			11				114
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		445			470			399			4882	
Travel Time (s)		6.1			6.4			6.0			74.0	
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	13%	10%	2%	20%	26%	12%	5%	2%	4%	5%	3%	9%
Adj. Flow (vph)	129	1030	109	51	384	147	122	742	57	126	466	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	1139	0	51	531	0	122	799	0	126	466	96
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	9.0	48.0		12.0	51.0		11.0	40.0		10.0	39.0	39.0
Total Split (%)	8.2%	43.6%		10.9%	46.4%		10.0%	36.4%		9.1%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	59.0	50.7		56.9	48.2		36.9	27.6		35.7	27.0	27.0
Actuated g/C Ratio	0.54	0.46		0.52	0.44		0.34	0.25		0.32	0.25	0.25
v/c Ratio	0.29	0.52		0.23	0.28		0.42	0.62		0.59	0.53	0.21
Control Delay	11.1	15.9		21.5	21.7		27.6	37.8		39.1	40.7	16.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	11.1	15.9		21.5	21.7		27.6	37.8		39.1	40.7	16.1
LOS	B	B		C	C		C	D		D	D	B
Approach Delay		15.4			21.7			36.5			37.0	
Approach LOS		B			C			D			D	
Stops (vph)	36	587		26	517		67	558		118	414	39

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	46		2	25		2	17		7	24	4
CO Emissions (g/hr)	327	3245		145	1782		155	1218		457	1680	275
NOx Emissions (g/hr)	64	631		28	347		30	237		89	327	53
VOC Emissions (g/hr)	76	752		33	413		36	282		106	389	64
Dilemma Vehicles (#)	0	78		0	42		0	26		0	4	0
Queue Length 50th (ft)	26	120		10	58		59	182		80	177	18
Queue Length 95th (ft)	m40	m153		51	109		85	188		125	213	70
Internal Link Dist (ft)		365			390			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	443	2206		251	1874		291	1577		212	1063	529
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.29	0.52		0.20	0.28		0.42	0.51		0.59	0.44	0.18

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 94 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 26.4 Intersection LOS: C
Intersection Capacity Utilization 51.6% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	857	89	216	304	60	89	581	227	229	591	36
Future Volume (vph)	66	857	89	216	304	60	89	581	227	229	591	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.986				0.850		0.958			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3331	0	1678	3355	1516	1646	4612	0	1711	4824	0
Flt Permitted	0.560			0.084			0.371			0.129		
Satd. Flow (perm)	1008	3331	0	148	3355	1516	643	4612	0	232	4824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				99		76			7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.77	0.77	0.77	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93
Heavy Vehicles (%)	2%	3%	6%	4%	4%	3%	6%	5%	2%	2%	3%	3%
Adj. Flow (vph)	86	1113	116	225	317	63	98	638	249	246	635	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	1229	0	225	317	63	98	887	0	246	674	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9		11.0	32.9	
Total Split (s)	20.0	47.0		18.0	45.0	45.0	20.0	33.0		22.0	35.0	
Total Split (%)	16.7%	39.2%		15.0%	37.5%	37.5%	16.7%	27.5%		18.3%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6		1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9		4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	53.3	43.8		63.2	51.6	51.6	37.9	27.0		48.8	33.9	
Actuated g/C Ratio	0.44	0.36		0.53	0.43	0.43	0.32	0.22		0.41	0.28	
v/c Ratio	0.18	1.01		0.90	0.22	0.09	0.35	0.81		0.85	0.49	
Control Delay	16.2	65.6		79.8	15.8	1.6	19.8	33.6		54.6	36.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	16.2	65.6		79.8	15.8	1.6	19.8	33.6		54.6	36.9	
LOS	B	E		E	B	A	B	C		D	D	
Approach Delay		62.3			38.1			32.2			41.7	
Approach LOS		E			D			C			D	
Stops (vph)	37	791		226	132	4	38	656		159	502	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	55		14	13	2	1	18		9	23	
CO Emissions (g/hr)	205	3831		963	916	150	93	1268		624	1609	
NOx Emissions (g/hr)	40	745		187	178	29	18	247		121	313	
VOC Emissions (g/hr)	48	888		223	212	35	21	294		145	373	
Dilemma Vehicles (#)	0	36		0	24	0	0	38		0	21	
Queue Length 50th (ft)	33	~554		153	48	0	29	190		132	155	
Queue Length 95th (ft)	52	#520		#274	88	m1	51	238		#250	201	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	609	1222		259	1441	708	374	1100		316	1368	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.14	1.01		0.87	0.22	0.09	0.26	0.81		0.78	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 45.8 Intersection LOS: D
Intersection Capacity Utilization 78.5% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: 83rd ave & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	238	6	244	316	845	0	0	526	285
Future Volume (vph)	0	0	0	238	6	244	316	845	0	0	526	285
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.919	0.850						0.850
Flt Protected				0.950	0.979		0.950					
Satd. Flow (prot)	0	0	0	1479	1406	1446	2921	3566	0	0	5124	1611
Flt Permitted				0.950	0.979		0.950					
Satd. Flow (perm)	0	0	0	1479	1406	1446	2921	3566	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					48	147						356
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.92	0.92	0.92	0.88	0.88	0.88	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	18%	17%	8%	22%	3%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	259	7	265	359	960	0	0	658	356
Shared Lane Traffic (%)				29%		36%						
Lane Group Flow (vph)	0	0	0	184	177	170	359	960	0	0	658	356
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				30.0	30.0
Total Split (%)							42.5%				25.0%	25.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				34.0	34.0	34.0	44.8	74.4			23.5	23.5
Actuated g/C Ratio				0.28	0.28	0.28	0.37	0.62			0.20	0.20
v/c Ratio				0.44	0.41	0.33	0.33	0.43			0.66	0.59
Control Delay				39.8	28.9	9.7	10.0	2.7			34.6	13.9
Queue Delay				0.0	0.0	0.0	0.0	0.6			0.0	0.0
Total Delay				39.8	28.9	9.7	10.0	3.3			34.6	13.9
LOS				D	C	A	B	A			C	B
Approach Delay					26.5			5.1			27.4	
Approach LOS					C			A			C	
Stops (vph)				138	96	28	78	298			449	133

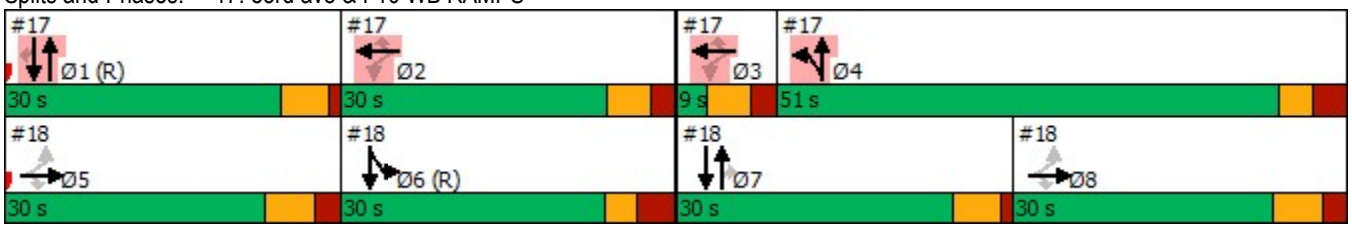
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (%)	25%	8%	25%	25%	25%	25%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	4	2	3	7			12	4
CO Emissions (g/hr)				338	268	159	186	488			853	282
NOx Emissions (g/hr)				66	52	31	36	95			166	55
VOC Emissions (g/hr)				78	62	37	43	113			198	65
Dilemma Vehicles (#)				0	7	0	0	9			17	0
Queue Length 50th (ft)				125	89	13	21	7			164	128
Queue Length 95th (ft)				201	164	72	m35	12			m183	m160
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				418	432	514	1090	2218			1054	614
Starvation Cap Reductn				0	0	0	0	780			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.44	0.41	0.33	0.33	0.67			0.62	0.58

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 17.0 Intersection LOS: B
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	13	828	0	0	0	0	812	117	137	641	0
Future Volume (vph)	365	13	828	0	0	0	0	812	117	137	641	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.867	0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1711	1381	1406	0	0	0	0	4798	1284	3493	3401	0
Flt Permitted	0.950	0.996								0.950		
Satd. Flow (perm)	1711	1381	1406	0	0	0	0	4798	1284	3493	3401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		107	137						154			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			54.4			7.7	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.93	0.93	0.93	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	11%	0%	0%	0%	0%	10%	28%	2%	8%	0%
Adj. Flow (vph)	420	15	952	0	0	0	0	873	126	167	782	0
Shared Lane Traffic (%)	10%		47%									
Lane Group Flow (vph)	378	504	505	0	0	0	0	873	126	167	782	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								30.0	30.0	30.0		
Total Split (%)								25.0%	25.0%	25.0%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	48.3	48.3	48.3					24.7	24.7	28.4	58.5	
Actuated g/C Ratio	0.40	0.40	0.40					0.21	0.21	0.24	0.49	
v/c Ratio	0.55	0.81	0.78					0.88	0.33	0.20	0.47	
Control Delay	30.1	35.7	30.9					35.3	3.3	15.8	17.3	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.6	
Total Delay	30.1	35.7	30.9					35.3	3.3	15.8	17.9	
LOS	C	D	C					D	A	B	B	
Approach Delay		32.4						31.3			17.5	
Approach LOS		C						C			B	
Stops (vph)	242	315	289					762	26	98	568	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	9.0	51.0	30.0	30.0
Total Split (%)	25%	25%	8%	43%	25%	25%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	12	11					34	3	2	11	
CO Emissions (g/hr)	615	847	797					2393	219	148	800	
NOx Emissions (g/hr)	120	165	155					466	43	29	156	
VOC Emissions (g/hr)	143	196	185					555	51	34	185	
Dilemma Vehicles (#)	0	17	0					18	0	0	1	
Queue Length 50th (ft)	224	294	256					255	5	51	298	
Queue Length 95th (ft)	296	414	367					#320	m7	77	326	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	767	678	706					993	388	828	1660	
Starvation Cap Reductn	0	0	0					0	0	0	463	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.49	0.74	0.72					0.88	0.32	0.20	0.65	

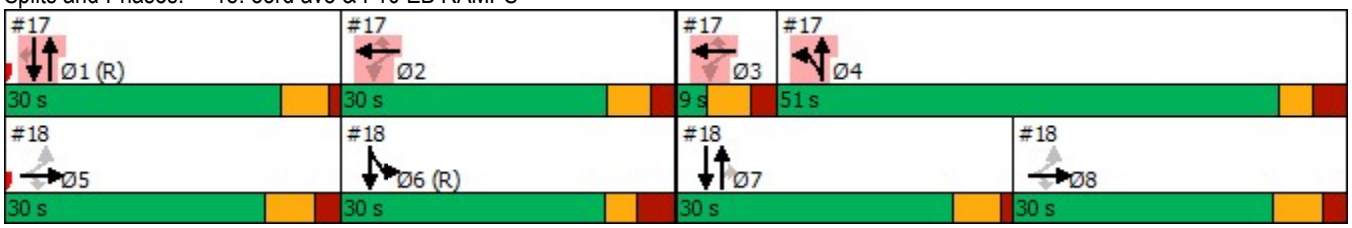
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 27.8 Intersection LOS: C
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	461	30	46	85	97	7	648	91	391	867	96
Future Volume (vph)	122	461	30	46	85	97	7	648	91	391	867	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.991			0.920			0.982			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3327	0	1312	2684	0	1531	4466	0	1586	3192	0
Flt Permitted	0.527			0.368			0.283			0.155		
Satd. Flow (perm)	849	3327	0	508	2684	0	456	4466	0	259	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			139			20			10	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			54.4	
Peak Hour Factor	0.90	0.90	0.90	0.70	0.70	0.70	0.89	0.89	0.89	0.95	0.95	0.95
Heavy Vehicles (%)	14%	4%	3%	33%	18%	21%	14%	10%	12%	10%	8%	5%
Adj. Flow (vph)	136	512	33	66	121	139	8	728	102	412	913	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	545	0	66	260	0	8	830	0	412	1014	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0		20.0	30.0		20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0		25.0	36.0		34.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%		20.8%	30.0%		28.3%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	54.0	42.5		49.6	38.8		32.7	25.3		59.3	55.1	
Actuated g/C Ratio	0.45	0.35		0.41	0.32		0.27	0.21		0.49	0.46	
v/c Ratio	0.31	0.46		0.25	0.27		0.05	0.87		0.93	0.69	
Control Delay	23.7	34.0		39.3	33.7		16.9	54.6		53.3	34.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.7	34.0		39.3	33.7		16.9	54.6		53.3	34.7	
LOS	C	C		D	C		B	D		D	C	
Approach Delay		31.9			34.8			54.2			40.1	
Approach LOS		C			C			D			D	
Stops (vph)	74	379		36	253		6	678		348	916	

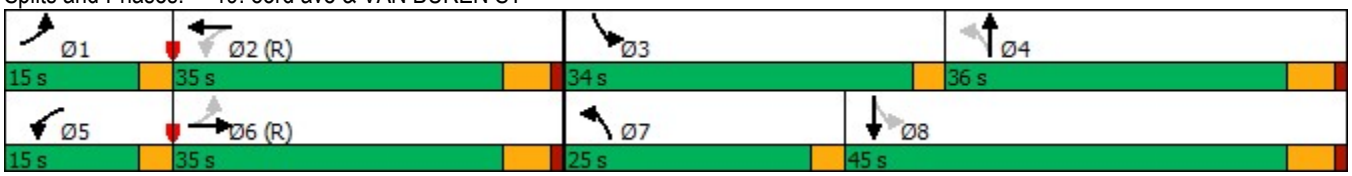
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	25		2	10		0	42		18	41	
CO Emissions (g/hr)	416	1772		166	733		24	2940		1236	2840	
NOx Emissions (g/hr)	81	345		32	143		5	572		240	553	
VOC Emissions (g/hr)	96	411		38	170		5	681		286	658	
Dilemma Vehicles (#)	0	21		0	3		0	27		0	26	
Queue Length 50th (ft)	64	177		41	58		3	223		308	422	
Queue Length 95th (ft)	118	262		m60	67		10	257		#397	483	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250			230		
Base Capacity (vph)	452	1180		304	961		386	1150		470	1471	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.30	0.46		0.22	0.27		0.02	0.72		0.88	0.69	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 49 (41%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 41.5 Intersection LOS: D
Intersection Capacity Utilization 63.1% ICU Level of Service B
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



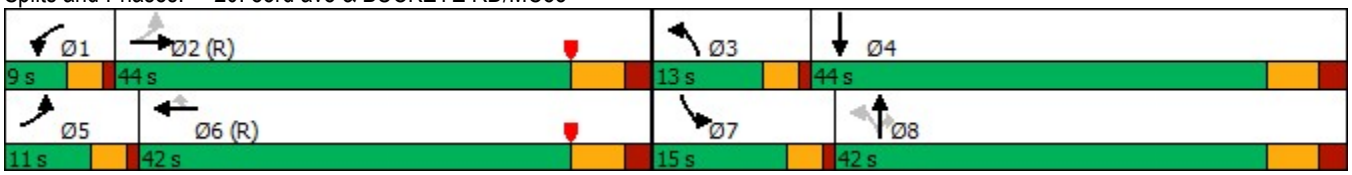
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	1196	34	13	280	111	63	438	113	171	344	172
Future Volume (vph)	177	1196	34	13	280	111	63	438	113	171	344	172
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.996				0.850			0.850		0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	4910	0	2897	4435	1358	1801	3566	1580	3098	4558	0
Flt Permitted	0.516			0.950			0.449			0.950		
Satd. Flow (perm)	891	4910	0	2897	4435	1358	851	3566	1580	3098	4558	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				118			126		125	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		461			432			976			409	
Travel Time (s)		6.3			5.9			14.8			6.2	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90	0.99	0.99	0.99
Heavy Vehicles (%)	12%	7%	9%	23%	19%	21%	2%	3%	4%	15%	7%	16%
Adj. Flow (vph)	190	1286	37	14	298	118	70	487	126	173	347	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	190	1323	0	14	298	118	70	487	126	173	521	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	11.0	44.0		9.0	42.0	42.0	13.0	42.0	42.0	15.0	44.0	
Total Split (%)	10.0%	40.0%		8.2%	38.2%	38.2%	11.8%	38.2%	38.2%	13.6%	40.0%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	61.5	54.9		5.1	44.6	44.6	33.9	24.1	24.1	9.7	28.5	
Actuated g/C Ratio	0.56	0.50		0.05	0.41	0.41	0.31	0.22	0.22	0.09	0.26	
v/c Ratio	0.34	0.54		0.10	0.17	0.19	0.22	0.62	0.28	0.63	0.41	
Control Delay	7.6	12.7		51.6	23.0	5.7	22.7	42.0	7.3	58.9	26.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.6	12.7		51.6	23.0	5.7	22.7	42.0	7.3	58.9	26.1	
LOS	A	B		D	C	A	C	D	A	E	C	
Approach Delay		12.0			19.2			33.6			34.3	
Approach LOS		B			B			C			C	
Stops (vph)	35	689		16	179	15	40	381	15	161	314	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	54		1	13	4	1	11	1	10	24	
CO Emissions (g/hr)	461	3773		57	935	283	83	787	75	696	1710	
NOx Emissions (g/hr)	90	734		11	182	55	16	153	15	135	333	
VOC Emissions (g/hr)	107	874		13	217	66	19	182	17	161	396	
Dilemma Vehicles (#)	0	46		0	13	0	0	16	0	0	19	
Queue Length 50th (ft)	26	80		5	49	0	32	165	0	61	85	
Queue Length 95th (ft)	45	321		15	79	41	56	202	44	97	111	
Internal Link Dist (ft)		381			352			896			329	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	567	2452		139	1797	620	354	1144	592	309	1628	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.34	0.54		0.10	0.17	0.19	0.20	0.43	0.21	0.56	0.32	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 61 (55%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 52.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



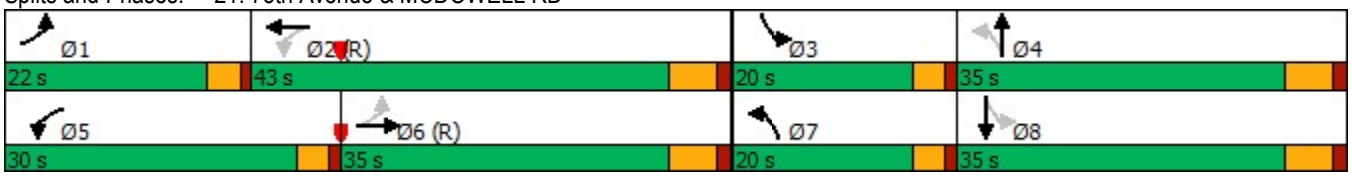
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	730	246	238	355	129	90	748	163	157	663	44
Future Volume (vph)	97	730	246	238	355	129	90	748	163	157	663	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.962			0.960			0.973			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4717	0	1711	4652	0	1711	4670	0	1711	4827	0
Flt Permitted	0.422			0.125			0.239			0.123		
Satd. Flow (perm)	760	4717	0	225	4652	0	430	4670	0	221	4827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67			79			38			8	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.87	0.87	0.87	0.83	0.83	0.83	0.90	0.90	0.90	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	3%	2%	4%	2%	2%	5%	2%	2%	3%	2%
Adj. Flow (vph)	111	839	283	287	428	155	100	831	181	183	771	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	1122	0	287	583	0	100	1012	0	183	822	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2		6.0	48.2		10.0	30.8		10.0	30.8	
Total Split (s)	22.0	35.0		30.0	43.0		20.0	35.0		20.0	35.0	
Total Split (%)	18.3%	29.2%		25.0%	35.8%		16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8		4.0	5.8		4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	51.0	40.8		64.6	50.4		39.5	28.8		47.1	32.6	
Actuated g/C Ratio	0.42	0.34		0.54	0.42		0.33	0.24		0.39	0.27	
v/c Ratio	0.28	0.68		0.83	0.29		0.42	0.88		0.75	0.62	
Control Delay	14.6	28.1		54.8	35.1		28.3	52.0		44.7	40.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.6	28.1		54.8	35.1		28.3	52.0		44.7	40.1	
LOS	B	C		D	D		C	D		D	D	
Approach Delay		26.9			41.6			49.9			40.9	
Approach LOS		C			D			D			D	
Stops (vph)	40	684		211	605		59	813		106	597	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	48		13	27		2	25		4	17	
CO Emissions (g/hr)	289	3340		933	1914		123	1735		249	1177	
NOx Emissions (g/hr)	56	650		181	372		24	337		48	229	
VOC Emissions (g/hr)	67	774		216	444		28	402		58	273	
Dilemma Vehicles (#)	0	72		0	31		0	35		0	24	
Queue Length 50th (ft)	39	153		200	124		47	261		92	196	
Queue Length 95th (ft)	m40	m253		m271	166		83	#326		147	234	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	520	1646		443	1998		335	1190		285	1329	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.68		0.65	0.29		0.30	0.85		0.64	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 39.3 Intersection LOS: D
Intersection Capacity Utilization 70.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	316	0	309	226	804	0	0	847	305
Future Volume (vph)	0	0	0	316	0	309	226	804	0	0	847	305
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.920	0.850						0.850
Flt Protected				0.950	0.977		0.950					
Satd. Flow (prot)	0	0	0	1544	1461	1501	1611	5075	0	0	5124	1611
Flt Permitted				0.950	0.977		0.950					
Satd. Flow (perm)	0	0	0	1544	1461	1501	1611	5075	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					128	175						367
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.94	0.94	0.94	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	13%	2%	4%	14%	4%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	363	0	355	240	855	0	0	1020	367
Shared Lane Traffic (%)				31%		36%						
Lane Group Flow (vph)	0	0	0	250	241	227	240	855	0	0	1020	367
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							46.0				39.0	39.0
Total Split (%)							35.4%				30.0%	30.0%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				39.5	39.5	39.5	38.6	79.0			32.7	32.7
Actuated g/C Ratio				0.30	0.30	0.30	0.30	0.61			0.25	0.25
v/c Ratio				0.53	0.45	0.39	0.50	0.28			0.79	0.54
Control Delay				42.9	19.8	11.6	26.5	1.5			50.5	6.9
Queue Delay				5.3	1.6	0.0	0.0	0.0			0.2	0.0
Total Delay				48.2	21.4	11.6	26.5	1.5			50.7	6.9
LOS				D	C	B	C	A			D	A
Approach Delay					27.6			7.0			39.1	
Approach LOS					C			A			D	
Stops (vph)				179	81	43	136	91			772	27

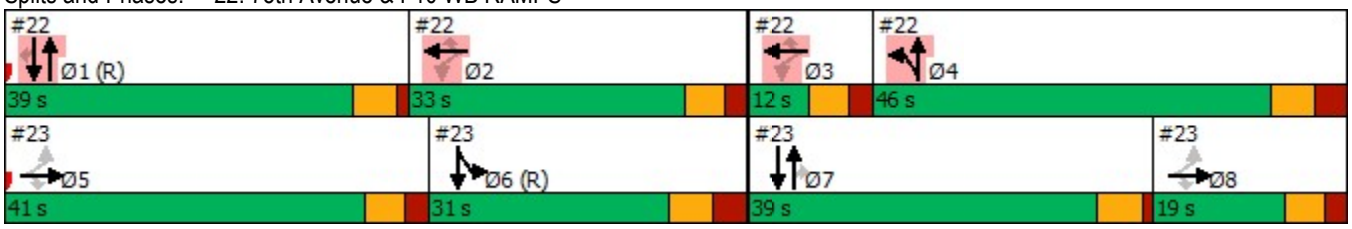
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	33.0	12.0	41.0	31.0	39.0	19.0
Total Split (%)	25%	9%	32%	24%	30%	15%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				7	4	3	4	4			23	2
CO Emissions (g/hr)				457	291	222	257	287			1609	172
NOx Emissions (g/hr)				89	57	43	50	56			313	33
VOC Emissions (g/hr)				106	68	51	60	67			373	40
Dilemma Vehicles (#)				0	7	0	0	9			33	0
Queue Length 50th (ft)				186	81	33	97	6			292	0
Queue Length 95th (ft)				268	158	97	m136	9			312	49
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				471	535	580	478	3119			1328	689
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				160	154	0	0	0			38	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.80	0.63	0.39	0.50	0.27			0.79	0.53

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 66.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	15	827	0	0	0	0	616	165	243	989	0
Future Volume (vph)	319	15	827	0	0	0	0	616	165	243	989	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	0		150	0		0
Storage Lanes	1		1	0		0	0		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt		0.866	0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1662	1411	1446	0	0	0	0	3339	1369	3493	3465	0
Flt Permitted	0.950	0.996								0.950		
Satd. Flow (perm)	1662	1411	1446	0	0	0	0	3339	1369	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38	137						149			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.89	0.89	0.89	0.25	0.25	0.25	0.84	0.84	0.84	0.83	0.83	0.83
Heavy Vehicles (%)	5%	2%	8%	0%	0%	0%	0%	10%	20%	2%	6%	0%
Adj. Flow (vph)	358	17	929	0	0	0	0	733	196	293	1192	0
Shared Lane Traffic (%)	10%		47%									
Lane Group Flow (vph)	322	490	492	0	0	0	0	733	196	293	1192	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								39.0	39.0	31.0		
Total Split (%)								30.0%	30.0%	23.8%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	50.4	50.4	50.4					33.0	33.0	27.2	65.6	
Actuated g/C Ratio	0.39	0.39	0.39					0.25	0.25	0.21	0.50	
v/c Ratio	0.50	0.86	0.76					0.86	0.43	0.40	0.68	
Control Delay	32.6	49.1	32.6					57.9	14.1	26.5	31.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	13.8	
Total Delay	32.6	49.1	32.6					57.9	14.1	26.5	45.7	
LOS	C	D	C					E	B	C	D	
Approach Delay		38.8						48.7			41.9	
Approach LOS		D						D			D	
Stops (vph)	210	362	286					567	40	204	957	

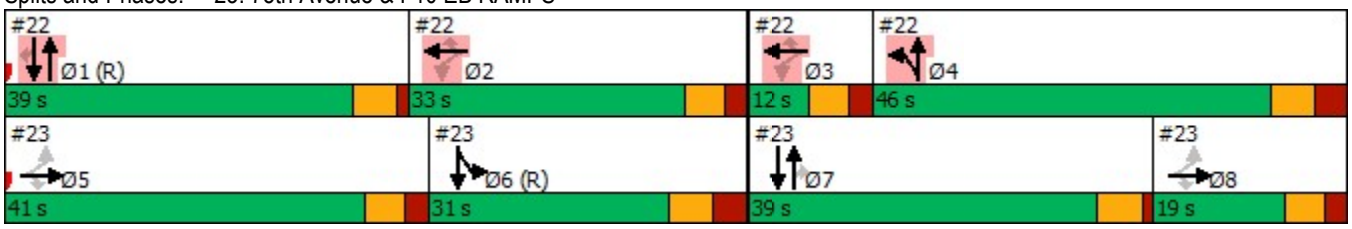
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	39.0	33.0	12.0	46.0	41.0	19.0
Total Split (%)	30%	25%	9%	35%	32%	15%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	13	11					29	5	5	22	
CO Emissions (g/hr)	521	930	764					2035	345	327	1515	
NOx Emissions (g/hr)	101	181	149					396	67	64	295	
VOC Emissions (g/hr)	121	216	177					472	80	76	351	
Dilemma Vehicles (#)	0	15	0					23	0	0	4	
Queue Length 50th (ft)	205	368	267					310	31	111	548	
Queue Length 95th (ft)	293	#534	408					354	84	144	573	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	696	613	685					865	465	731	1765	
Starvation Cap Reductn	0	0	0					0	0	0	574	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.46	0.80	0.72					0.85	0.42	0.40	1.00	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 42.5 Intersection LOS: D
Intersection Capacity Utilization 66.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	643	137	58	148	59	35	648	229	218	1047	57
Future Volume (vph)	58	643	137	58	148	59	35	648	229	218	1047	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		270	250		0	220		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.974				0.850		0.961			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1302	3118	0	1442	1597	1229	1491	3007	0	1531	3221	0
Flt Permitted	0.574			0.111			0.127			0.085		
Satd. Flow (perm)	787	3118	0	168	1597	1229	199	3007	0	137	3221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				139		45			6	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.83	0.83	0.83	0.76	0.76	0.76	0.83	0.83	0.83	0.89	0.89	0.89
Heavy Vehicles (%)	34%	9%	9%	21%	15%	27%	17%	11%	13%	14%	7%	16%
Adj. Flow (vph)	70	775	165	76	195	78	42	781	276	245	1176	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	940	0	76	195	78	42	1057	0	245	1240	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		2.0	15.0	
Minimum Split (s)	9.5	52.0		9.5	52.0	52.0	9.5	34.0		16.0	50.0	
Total Split (s)	10.0	38.0		12.0	40.0	40.0	10.0	46.0		24.0	60.0	
Total Split (%)	8.3%	31.7%		10.0%	33.3%	33.3%	8.3%	38.3%		20.0%	50.0%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	5.3		4.0	5.3	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes	Yes		Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	41.3	36.1		44.5	37.7	37.7	48.7	42.4		65.0	55.7	
Actuated g/C Ratio	0.34	0.30		0.37	0.31	0.31	0.41	0.35		0.54	0.46	
v/c Ratio	0.24	0.99		0.55	0.39	0.16	0.30	0.97		0.89	0.83	
Control Delay	27.4	66.9		52.4	49.6	10.9	20.5	57.7		63.3	34.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	27.4	66.9		52.4	49.6	10.9	20.5	57.7		63.3	34.0	
LOS	C	E		D	D	B	C	E		E	C	
Approach Delay		64.2			41.5			56.3			38.8	
Approach LOS		E			D			E			D	
Stops (vph)	34	568		52	136	28	20	738		153	933	

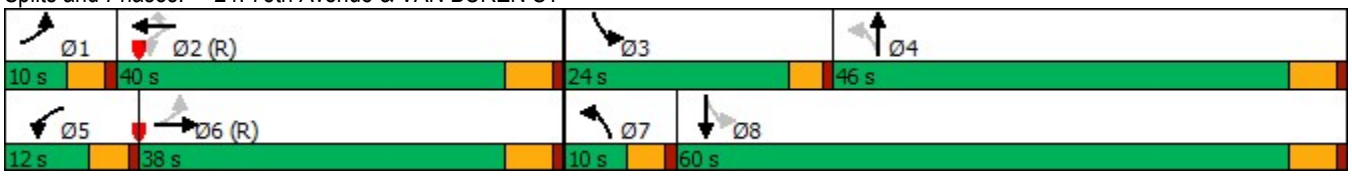
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	44		3	8	3	2	50		10	46	
CO Emissions (g/hr)	190	3080		230	585	178	112	3476		696	3200	
NOx Emissions (g/hr)	37	599		45	114	35	22	676		135	623	
VOC Emissions (g/hr)	44	714		53	135	41	26	806		161	742	
Dilemma Vehicles (#)	0	0		0	1	0	0	33		0	39	
Queue Length 50th (ft)	29	~338		52	148	1	15	414		139	434	
Queue Length 95th (ft)	m42	#304		m80	194	m12	30	#493		#264	525	
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200			200		270	250			220		
Base Capacity (vph)	294	951		141	501	481	140	1092		306	1498	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.99		0.54	0.39	0.16	0.30	0.97		0.80	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 50.4 Intersection LOS: D
Intersection Capacity Utilization 73.3% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	1105	118	29	277	130	73	572	170	222	420	39
Future Volume (vph)	164	1105	118	29	277	130	73	572	170	222	420	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		0	260		0	270		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.952			0.966			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3401	1454	1670	2945	0	1505	3283	0	1597	3331	0
Flt Permitted	0.381			0.113			0.466			0.142		
Satd. Flow (perm)	715	3401	1454	199	2945	0	738	3283	0	239	3331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			98		79			34			9	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4818			2586			1298			2861	
Travel Time (s)		65.7			35.3			19.7			43.3	
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	3%	8%	13%	10%	21%	14%	22%	9%	5%	15%	8%	18%
Adj. Flow (vph)	178	1201	128	35	334	157	79	622	185	244	462	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	1201	128	35	491	0	79	807	0	244	505	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		
Detector Phase	1	6	6	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0		17.0	30.0		17.0	30.0	
Total Split (s)	18.0	47.0	47.0	11.0	40.0		17.0	30.0		17.0	30.0	
Total Split (%)	17.1%	44.8%	44.8%	10.5%	38.1%		16.2%	28.6%		16.2%	28.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	55.4	46.8	46.8	47.9	39.2		33.9	24.5		43.6	32.6	
Actuated g/C Ratio	0.53	0.45	0.45	0.46	0.37		0.32	0.23		0.42	0.31	
v/c Ratio	0.37	0.79	0.18	0.21	0.43		0.27	1.02		0.89	0.49	
Control Delay	15.6	30.9	7.1	15.6	22.3		21.9	75.7		57.6	31.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.6	30.9	7.1	15.6	22.3		21.9	75.7		57.6	31.6	
LOS	B	C	A	B	C		C	E		E	C	
Approach Delay		27.0			21.8			70.9			40.1	
Approach LOS		C			C			E			D	
Stops (vph)	83	904	24	17	251		48	631		144	361	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	58	4	1	19		2	26		12	23	
CO Emissions (g/hr)	507	4027	312	92	1350		107	1785		842	1629	
NOx Emissions (g/hr)	99	784	61	18	263		21	347		164	317	
VOC Emissions (g/hr)	118	933	72	21	313		25	414		195	378	
Dilemma Vehicles (#)	0	52	0	0	19		0	32		0	18	
Queue Length 50th (ft)	60	377	12	11	106		32	~285		111	143	
Queue Length 95th (ft)	100	#498	50	24	144		63	#418		#253	204	
Internal Link Dist (ft)		4738			2506			1218			2781	
Turn Bay Length (ft)	260		190	270			260			270		
Base Capacity (vph)	530	1515	702	207	1149		390	792		280	1040	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.79	0.18	0.17	0.43		0.20	1.02		0.87	0.49	

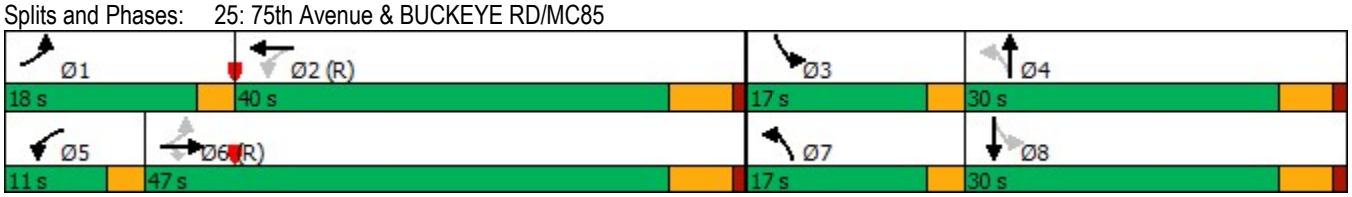
Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 39.5 Intersection LOS: D
Intersection Capacity Utilization 74.0% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



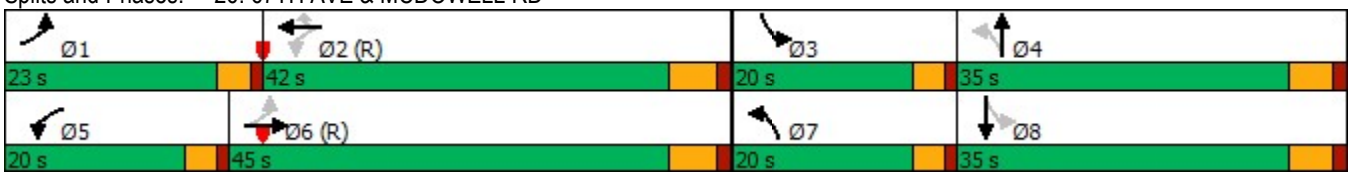
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	677	244	228	533	129	160	577	71	124	755	88
Future Volume (vph)	160	677	244	228	533	129	160	577	71	124	755	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.960				0.850		0.984			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3221	0	1711	3388	1531	1711	4700	0	1711	4795	0
Flt Permitted	0.361			0.111			0.139			0.259		
Satd. Flow (perm)	650	3221	0	200	3388	1531	250	4700	0	466	4795	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45				161		17			16	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.94	0.94	0.94	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	2%	4%	4%	2%	3%	2%	2%	4%	13%	2%	3%	2%
Adj. Flow (vph)	170	720	260	285	666	161	176	634	78	139	848	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	980	0	285	666	161	176	712	0	139	947	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		8.0	15.0	
Minimum Split (s)	11.0	50.3		9.0	48.3	48.3	9.0	33.0		12.0	28.3	
Total Split (s)	23.0	45.0		20.0	42.0	42.0	20.0	35.0		20.0	35.0	
Total Split (%)	19.2%	37.5%		16.7%	35.0%	35.0%	16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		Min	Ped	
Act Effct Green (s)	55.5	43.1		65.9	50.3	50.3	43.4	28.8		39.3	26.7	
Actuated g/C Ratio	0.46	0.36		0.55	0.42	0.42	0.36	0.24		0.33	0.22	
v/c Ratio	0.43	0.83		0.85	0.47	0.22	0.70	0.63		0.52	0.88	
Control Delay	13.6	29.0		51.0	28.4	5.0	34.4	37.0		31.4	54.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.6	29.0		51.0	28.4	5.0	34.4	37.0		31.4	54.2	
LOS	B	C		D	C	A	C	D		C	D	
Approach Delay		26.7			30.8			36.5			51.3	
Approach LOS		C			C			D			D	
Stops (vph)	60	747		132	384	14	126	602		84	782	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	46		6	12	1	3	15		4	35	
CO Emissions (g/hr)	462	3210		409	850	94	231	1021		294	2417	
NOx Emissions (g/hr)	90	625		80	165	18	45	199		57	470	
VOC Emissions (g/hr)	107	744		95	197	22	53	237		68	560	
Dilemma Vehicles (#)	0	58		0	22	0	0	8		0	32	
Queue Length 50th (ft)	38	378		148	196	0	106	193		71	254	
Queue Length 95th (ft)	m58	#498		#267	246	32	167	245		109	297	
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	513	1187		334	1418	734	288	1215		334	1194	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.33	0.83		0.85	0.47	0.22	0.61	0.59		0.42	0.79	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 36.1 Intersection LOS: D
Intersection Capacity Utilization 75.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	217	200	254	222	515	0	0	974	218
Future Volume (vph)	0	0	0	217	200	254	222	515	0	0	974	218
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.957	0.850						0.850
Flt Protected				0.950	0.994		0.950					
Satd. Flow (prot)	0	0	0	1441	2384	1424	1655	5075	0	0	5175	1611
Flt Permitted				0.950	0.994		0.950					
Satd. Flow (perm)	0	0	0	1441	2384	1424	1655	5075	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					40	167						227
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	16%	50%	5%	11%	4%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	233	215	273	236	548	0	0	1015	227
Shared Lane Traffic (%)				20%		39%						
Lane Group Flow (vph)	0	0	0	186	368	167	236	548	0	0	1015	227
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				32.0	32.0
Total Split (%)							42.5%				26.7%	26.7%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				31.5	31.5	31.5	39.6	76.9			29.6	29.6
Actuated g/C Ratio				0.26	0.26	0.26	0.33	0.64			0.25	0.25
v/c Ratio				0.49	0.56	0.34	0.43	0.17			0.80	0.40
Control Delay				43.2	38.1	7.2	12.2	0.5			50.7	14.6
Queue Delay				0.1	0.1	0.0	0.0	0.0			0.0	0.0
Total Delay				43.3	38.2	7.2	12.2	0.5			50.7	14.6
LOS				D	D	A	B	A			D	B
Approach Delay					32.3			4.0			44.1	
Approach LOS					C			A			D	
Stops (vph)				145	261	19	45	9			697	102

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	28.0	9.0	30.0	30.0	35.0	25.0
Total Split (%)	23%	8%	25%	25%	29%	21%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	9	2	2	2			23	3
CO Emissions (g/hr)				338	621	127	125	138			1582	205
NOx Emissions (g/hr)				66	121	25	24	27			308	40
VOC Emissions (g/hr)				78	144	29	29	32			367	48
Dilemma Vehicles (#)				0	14	0	0	1			124	0
Queue Length 50th (ft)				136	129	0	21	2			212	20
Queue Length 95th (ft)				218	187	59	m36	2			#290	m63
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				378	655	496	597	3207			1275	567
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				12	21	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.51	0.58	0.34	0.40	0.17			0.80	0.40

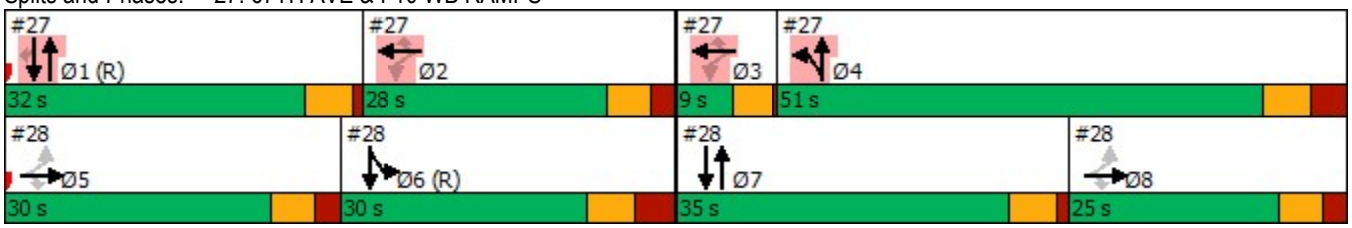
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 29.6 Intersection LOS: C
Intersection Capacity Utilization 50.8% ICU Level of Service A
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	10	500	0	0	0	0	673	189	286	887	0
Future Volume (vph)	170	10	500	0	0	0	0	673	189	286	887	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	0.91	0.97	0.95	1.00
Frt		0.865	0.850					0.967				
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1639	2739	1424	0	0	0	0	4761	0	3493	3465	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1639	2739	1424	0	0	0	0	4761	0	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77	130					56				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.89	0.89	0.89	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	5%	0%	0%	0%	0%	5%	15%	2%	6%	0%
Adj. Flow (vph)	200	12	588	0	0	0	0	756	212	304	944	0
Shared Lane Traffic (%)	10%		50%									
Lane Group Flow (vph)	180	326	294	0	0	0	0	968	0	304	944	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								35.0		30.0		
Total Split (%)								29.2%		25.0%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	31.4	31.4	31.4					28.8		40.2	74.3	
Actuated g/C Ratio	0.26	0.26	0.26					0.24		0.34	0.62	
v/c Ratio	0.42	0.42	0.63					0.82		0.26	0.44	
Control Delay	38.9	28.5	26.8					69.3		7.4	6.9	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.7	
Total Delay	38.9	28.5	26.8					69.3		7.4	7.6	
LOS	D	C	C					E		A	A	
Approach Delay		30.2						69.3			7.5	
Approach LOS		C						E			A	
Stops (vph)	122	167	123					816		99	613	

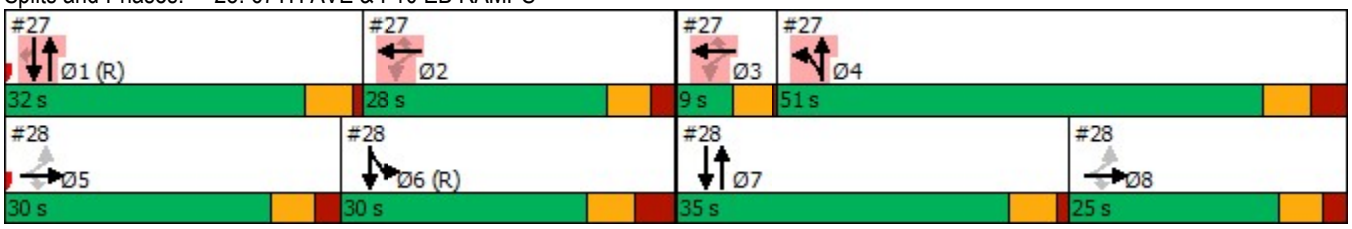
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	32.0	28.0	9.0	51.0	30.0	25.0
Total Split (%)	27%	23%	8%	43%	25%	21%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	7	6					42		2	10	
CO Emissions (g/hr)	303	461	386					2963		170	729	
NOx Emissions (g/hr)	59	90	75					576		33	142	
VOC Emissions (g/hr)	70	107	89					687		39	169	
Dilemma Vehicles (#)	0	9	0					42		0	0	
Queue Length 50th (ft)	125	90	120					279		7	311	
Queue Length 95th (ft)	173	118	187					m315		m73	416	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	606	1062	609					1220		1169	2170	
Starvation Cap Reductn	0	0	0					0		0	813	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.30	0.31	0.48					0.79		0.26	0.70	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 33.4 Intersection LOS: C
Intersection Capacity Utilization 50.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	736	132	110	188	83	110	615	282	196	701	50
Future Volume (vph)	158	736	132	110	188	83	110	615	282	196	701	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		0	250		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.977			0.954			0.953			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3011	0	1601	3959	0	1662	3022	0	1586	3152	0
Flt Permitted	0.517			0.120			0.233			0.094		
Satd. Flow (perm)	833	3011	0	202	3959	0	408	3022	0	157	3152	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			89			67			8	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	14%	12%	20%	9%	19%	25%	5%	11%	8%	10%	9%	18%
Adj. Flow (vph)	168	783	140	120	204	90	118	661	303	228	815	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	923	0	120	294	0	118	964	0	228	873	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	9.0	52.0		9.0	52.0		9.0	50.0		9.0	50.0	
Total Split (s)	17.0	39.0		13.0	35.0		12.0	46.0		22.0	56.0	
Total Split (%)	14.2%	32.5%		10.8%	29.2%		10.0%	38.3%		18.3%	46.7%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7		4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes			Yes			Yes	
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	50.5	36.5		44.4	33.5		47.9	38.5		60.6	47.2	
Actuated g/C Ratio	0.42	0.30		0.37	0.28		0.40	0.32		0.50	0.39	
v/c Ratio	0.40	1.00		0.66	0.25		0.48	0.95		0.82	0.70	
Control Delay	19.4	49.3		42.7	24.9		37.1	72.4		57.8	40.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.4	49.3		42.7	24.9		37.1	72.4		57.8	40.6	
LOS	B	D		D	C		D	E		E	D	
Approach Delay		44.7			30.1			68.6			44.1	
Approach LOS		D			C			E			D	
Stops (vph)	72	660		72	145		103	1459		187	580	

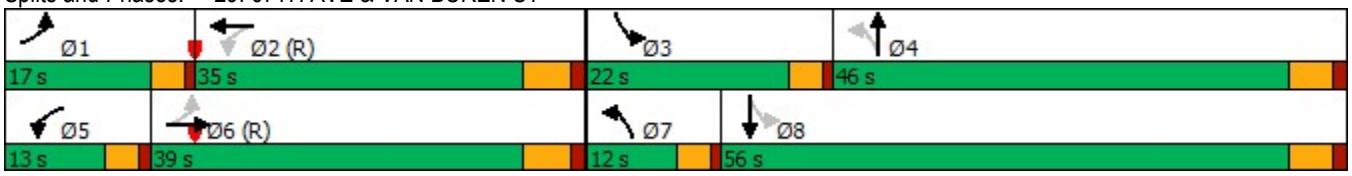
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	47		3	7		6	59		9	31	
CO Emissions (g/hr)	493	3305		244	503		402	4152		643	2184	
NOx Emissions (g/hr)	96	643		47	98		78	808		125	425	
VOC Emissions (g/hr)	114	766		57	116		93	962		149	506	
Dilemma Vehicles (#)	0	59		0	11		0	67		0	9	
Queue Length 50th (ft)	64	~403		59	46		69	352		152	275	
Queue Length 95th (ft)	m69	m#441		#134	73		m100	m#461		#238	305	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250			250			250			260		
Base Capacity (vph)	429	927		184	1168		246	1066		293	1333	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.39	1.00		0.65	0.25		0.48	0.90		0.78	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 49.9 Intersection LOS: D
Intersection Capacity Utilization 78.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	1043	77	74	303	72	130	625	187	112	478	226
Future Volume (vph)	264	1043	77	74	303	72	130	625	187	112	478	226
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		0	200		0	260		260
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.990			0.971			0.965				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	3270	0	1701	2923	0	1717	3442	0	1640	3433	1494
Flt Permitted	0.409			0.098			0.306			0.106		
Satd. Flow (perm)	706	3270	0	175	2923	0	553	3442	0	183	3433	1494
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			26			32				279
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.85	0.85	0.85	0.81	0.81	0.81
Heavy Vehicles (%)	12%	11%	14%	8%	23%	18%	7%	3%	3%	12%	7%	10%
Adj. Flow (vph)	290	1146	85	82	337	80	153	735	220	138	590	279
Shared Lane Traffic (%)												
Lane Group Flow (vph)	290	1231	0	82	417	0	153	955	0	138	590	279
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0		12.0	32.0		17.0	37.0	37.0
Total Split (s)	18.0	50.0		13.0	45.0		14.0	37.0		20.0	43.0	43.0
Total Split (%)	15.0%	41.7%		10.8%	37.5%		11.7%	30.8%		16.7%	35.8%	35.8%
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2		0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5		3.0	5.2		3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	Ped
Act Effct Green (s)	60.6	48.6		51.5	40.7		49.0	36.5		51.4	37.9	37.9
Actuated g/C Ratio	0.50	0.40		0.43	0.34		0.41	0.30		0.43	0.32	0.32
v/c Ratio	0.62	0.93		0.46	0.41		0.47	0.89		0.62	0.54	0.42
Control Delay	24.7	47.7		25.0	30.4		25.4	50.7		50.0	29.0	5.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	24.7	47.7		25.0	30.4		25.4	50.7		50.0	29.0	5.5
LOS	C	D		C	C		C	D		D	C	A
Approach Delay		43.3			29.5			47.2			25.4	
Approach LOS		D			C			D			C	
Stops (vph)	156	946		42	265		80	692		62	230	38

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	12	61		2	11		2	21		6	22	9
CO Emissions (g/hr)	859	4255		138	775		169	1481		400	1541	605
NOx Emissions (g/hr)	167	828		27	151		33	288		78	300	118
VOC Emissions (g/hr)	199	986		32	180		39	343		93	357	140
Dilemma Vehicles (#)	0	44		0	15		0	31		0	37	0
Queue Length 50th (ft)	132	487		32	123		70	356		76	119	9
Queue Length 95th (ft)	198	#665		61	171		107	#474		m120	m160	m40
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250			200			260		260
Base Capacity (vph)	472	1328		205	1007		335	1068		287	1085	662
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.61	0.93		0.40	0.41		0.46	0.89		0.48	0.54	0.42

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 32 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 38.3 Intersection LOS: D
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85

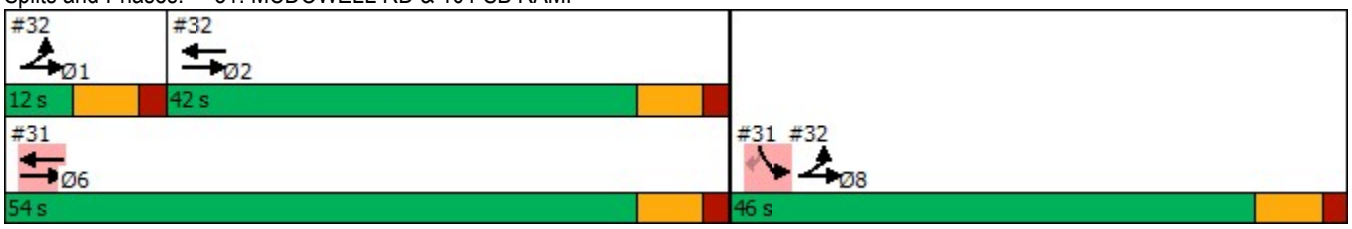
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1300	600	0	600	400		
Future Volume (vph)	0	1300	600	0	600	400		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	1	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6520	3601	0	1801	2836		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6520	3601	0	1801	2836		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						311		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1413	652	0	652	435		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1413	652	0	652	435		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		54.0	54.0		46.0	46.0	12.0	42.0
Total Split (%)		54.0%	54.0%		46.0%	46.0%	12%	42%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		47.0	47.0		39.0	39.0		
Actuated g/C Ratio		0.47	0.47		0.39	0.39		
v/c Ratio		0.46	0.39		0.93	0.34		
Control Delay		18.5	9.9		50.9	6.8		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		18.5	9.9		50.9	6.8		
LOS		B	A		D	A		
Approach Delay		18.5	9.9		33.2			
Approach LOS		B	A		C			
Stops (vph)		837	142		516	81		
Fuel Used(gal)		23	5		22	8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		1642	331		1521	535		
NOx Emissions (g/hr)		320	64		296	104		
VOC Emissions (g/hr)		381	77		353	124		
Dilemma Vehicles (#)		55	56		0	0		
Queue Length 50th (ft)		170	59		391	28		
Queue Length 95th (ft)		202	m62		#617	63		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3064	1692		702	1295		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.46	0.39		0.93	0.34		

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 21.8	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: MCDOWELL RD & 101 SB RAMP



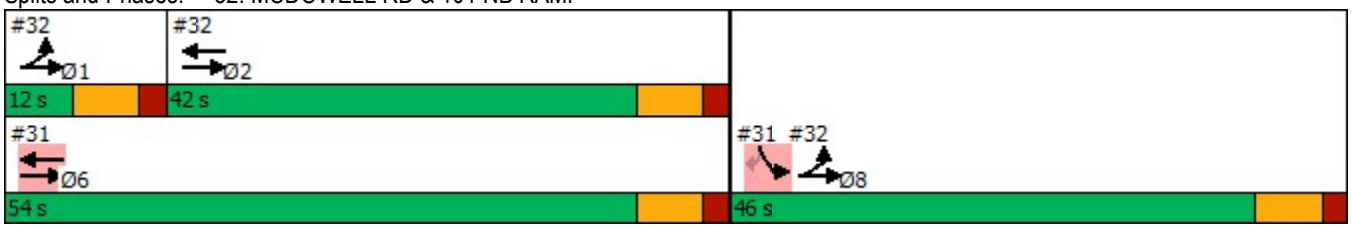
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	500	1400	600	500	0	0			
Future Volume (vph)	500	1400	600	500	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.932						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	3021	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	3021	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			231						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	543	1522	652	543	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	543	1522	1195	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			42.0				12.0	54.0	46.0
Total Split (%)			42.0%				12%	54%	46%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	51.0	100.0	35.0						
Actuated g/C Ratio	0.51	1.00	0.35						
v/c Ratio	0.34	0.47	0.99						
Control Delay	26.8	2.4	50.6						
Queue Delay	0.0	0.0	0.0						
Total Delay	26.8	2.4	50.6						
LOS	C	A	D						
Approach Delay		8.8	50.6						
Approach LOS		A	D						
Stops (vph)	365	277	824						
Fuel Used(gal)	9	8	49						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	611	577	3426						
NOx Emissions (g/hr)	119	112	667						
VOC Emissions (g/hr)	142	134	794						
Dilemma Vehicles (#)	0	0	52						
Queue Length 50th (ft)	132	90	335						
Queue Length 95th (ft)	m165	m87	#494						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1603	3241	1207						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.34	0.47	0.99						

Intersection Summary	
Area Type: CBD	
Cycle Length: 100	
Actuated Cycle Length: 100	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 24.1	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: MCDOWELL RD & 101 NB RAMP



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	570	125	423	613	153	167	526	251	170	355	155
Future Volume (vph)	97	570	125	423	613	153	167	526	251	170	355	155
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	230		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.970				0.850		0.954	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	5175	1611	3493	5009	0	1801	3601	1611	1801	3436	0
Flt Permitted	0.338			0.950			0.283			0.201		
Satd. Flow (perm)	628	5175	1611	3493	5009	0	536	3601	1611	381	3436	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130		52				179		48	
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			15.2			9.3			23.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.89	0.89	0.89	0.91	0.91	0.91
Heavy Vehicles (%)	4%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	101	594	130	441	639	159	188	591	282	187	390	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	594	130	441	798	0	188	591	282	187	560	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	13.0	42.0	42.0	39.0	68.0		15.0	45.0	45.0	19.0	49.0	
Total Split (%)	9.0%	29.0%	29.0%	26.9%	46.9%		10.3%	31.0%	31.0%	13.1%	33.8%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	46.7	36.1	36.1	20.1	48.0		38.5	26.1	26.1	42.6	28.2	
Actuated g/C Ratio	0.41	0.31	0.31	0.17	0.42		0.33	0.23	0.23	0.37	0.24	
v/c Ratio	0.30	0.37	0.22	0.73	0.38		0.63	0.72	0.56	0.63	0.64	
Control Delay	18.5	33.4	7.0	53.3	23.1		35.7	47.2	19.3	34.2	39.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.5	33.4	7.0	53.3	23.1		35.7	47.2	19.3	34.2	39.0	
LOS	B	C	A	D	C		D	D	B	C	D	
Approach Delay		27.4			33.9			37.7			37.8	
Approach LOS		C			C			D			D	
Stops (vph)	58	429	16	385	474		120	465	82	110	399	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	12	1	24	36		4	14	4	3	11	
CO Emissions (g/hr)	106	820	65	1664	2490		265	997	255	242	797	
NOx Emissions (g/hr)	21	159	13	324	485		52	194	50	47	155	
VOC Emissions (g/hr)	25	190	15	386	577		61	231	59	56	185	
Dilemma Vehicles (#)	0	24	0	0	26		0	18	0	0	16	
Queue Length 50th (ft)	35	124	0	160	139		93	215	64	93	178	
Queue Length 95th (ft)	75	196	50	238	202		158	297	156	160	254	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160	230			120		120	150		
Base Capacity (vph)	349	1622	594	1073	2737		303	1245	674	334	1339	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.29	0.37	0.22	0.41	0.29		0.62	0.47	0.42	0.56	0.42	

Intersection Summary

Area Type: Other
Cycle Length: 145
Actuated Cycle Length: 115.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 34.3 — Intersection LOS: C
Intersection Capacity Utilization 56.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	131	11	45	281	896	0	0	528	345
Future Volume (vph)	0	0	0	131	11	45	281	896	0	0	528	345
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.991	0.850					0.941	
Flt Protected				0.950	0.962		0.950					
Satd. Flow (prot)	0	0	0	1694	1632	1531	1749	3601	0	0	4869	0
Flt Permitted				0.950	0.962		0.950					
Satd. Flow (perm)	0	0	0	1694	1632	1531	1749	3601	0	0	4869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					94	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		12.3			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	3%	2%	2%	5%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	151	13	52	312	996	0	0	562	367
Shared Lane Traffic (%)				44%		10%						
Lane Group Flow (vph)	0	0	0	85	84	47	312	996	0	0	929	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				43.0	43.0	43.0					30.0	
Total Split (%)				28.7%	28.7%	28.7%					20.0%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				13.7	13.7	13.7	52.7	82.3			24.3	
Actuated g/C Ratio				0.13	0.13	0.13	0.49	0.77			0.23	
v/c Ratio				0.39	0.40	0.16	0.36	0.36			0.79	
Control Delay				50.1	49.4	1.2	17.4	1.5			41.5	
Queue Delay				0.0	0.0	0.0	3.2	1.4			0.0	
Total Delay				50.1	49.4	1.2	20.6	2.9			41.5	
LOS				D	D	A	C	A			D	
Approach Delay					39.2			7.1			41.5	
Approach LOS					D			A			D	
Stops (vph)				64	63	0	195	57			697	

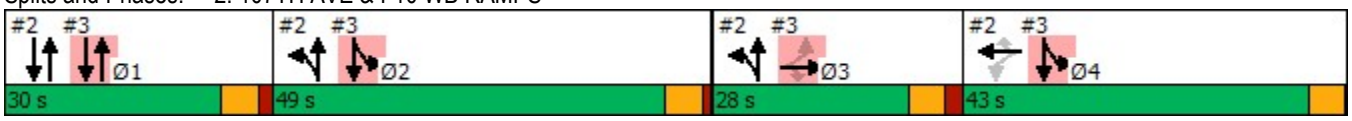
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	49.0	28.0
Total Split (%)	33%	19%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				2	2	0	4	3			22	
CO Emissions (g/hr)				139	136	17	284	212			1519	
NOx Emissions (g/hr)				27	26	3	55	41			296	
VOC Emissions (g/hr)				32	31	4	66	49			352	
Dilemma Vehicles (#)				0	3	0	0	37			40	
Queue Length 50th (ft)				55	56	0	157	8			194	
Queue Length 95th (ft)				115	118	0	m237	m41			#323	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				620	599	627	869	2791			1181	
Starvation Cap Reductn				0	0	0	448	1517			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.14	0.14	0.07	0.74	0.78			0.79	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 106.5
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	351	37	208	0	0	0	0	829	153	63	600	0
Future Volume (vph)	351	37	208	0	0	0	0	829	153	63	600	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.982	0.850					0.977				
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4	210					21				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.95	0.95	0.95	0.89	0.89	0.89
Heavy Vehicles (%)	2%	5%	7%	0%	0%	0%	0%	2%	3%	2%	2%	0%
Adj. Flow (vph)	403	43	239	0	0	0	0	873	161	71	674	0
Shared Lane Traffic (%)	41%		12%									
Lane Group Flow (vph)	238	237	210	0	0	0	0	1034	0	71	674	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	28.0	28.0	28.0					30.0				
Total Split (%)	18.7%	18.7%	18.7%					20.0%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	22.1	22.1	22.1					24.3		37.2	72.1	
Actuated g/C Ratio	0.21	0.21	0.21					0.23		0.35	0.68	
v/c Ratio	0.67	0.70	0.45					0.89		0.11	0.28	
Control Delay	51.6	52.9	9.1					50.5		13.2	0.9	
Queue Delay	0.0	0.0	0.0					0.3		0.0	0.1	
Total Delay	51.6	52.9	9.1					50.9		13.2	1.0	
LOS	D	D	A					D		B	A	
Approach Delay		39.0						50.9			2.2	
Approach LOS		D						D			A	
Stops (vph)	178	174	23					836		48	24	

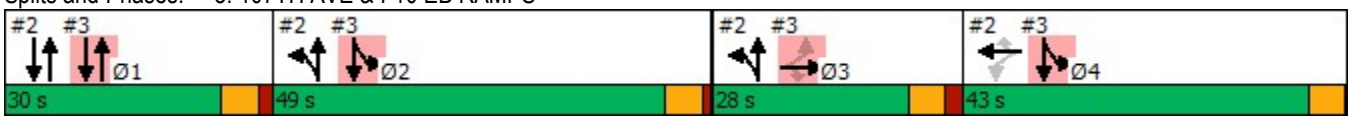
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	49.0	43.0
Total Split (%)	33%	29%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	5	2					46		1	2	
CO Emissions (g/hr)	383	382	111					3192		64	125	
NOx Emissions (g/hr)	75	74	22					621		12	24	
VOC Emissions (g/hr)	89	89	26					740		15	29	
Dilemma Vehicles (#)	0	9	0					43		0	3	
Queue Length 50th (ft)	154	159	0					241		37	8	
Queue Length 95th (ft)	#306	#327	63					#416		m62	9	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	355	339	469					1165		1391	3108	
Starvation Cap Reductn	0	0	0					0		0	1208	
Spillback Cap Reductn	0	0	0					11		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.67	0.70	0.45					0.90		0.05	0.35	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 106.5
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 32.9 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	206	72	114	474	120	73	630	52	26	590	145
Future Volume (vph)	77	206	72	114	474	120	73	630	52	26	590	145
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	200		150	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1774	1580	1783	1877	1565	1783	3566	1611	1640	3601	1611
Flt Permitted	0.239			0.617			0.330			0.320		
Satd. Flow (perm)	453	1774	1580	1158	1877	1565	619	3566	1611	552	3601	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			124			69			158
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			79.7			59.8	
Peak Hour Factor	0.91	0.91	0.91	0.97	0.97	0.97	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	9%	4%	3%	3%	5%	3%	3%	2%	12%	2%	2%
Adj. Flow (vph)	85	226	79	118	489	124	76	656	54	28	641	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	226	79	118	489	124	76	656	54	28	641	158
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	66.0	66.0	54.0	54.0	54.0	44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	10.9%	60.0%	60.0%	49.1%	49.1%	49.1%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	36.2	34.0	34.0	26.0	26.0	26.0	25.1	25.1	25.1	25.1	25.1	25.1
Actuated g/C Ratio	0.50	0.47	0.47	0.36	0.36	0.36	0.35	0.35	0.35	0.35	0.35	0.35
v/c Ratio	0.24	0.27	0.10	0.28	0.72	0.19	0.35	0.53	0.09	0.15	0.51	0.24
Control Delay	11.0	12.1	3.1	19.8	27.5	4.5	27.2	22.6	4.4	22.8	22.3	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	12.1	3.1	19.8	27.5	4.5	27.2	22.6	4.4	22.8	22.3	4.9
LOS	B	B	A	B	C	A	C	C	A	C	C	A
Approach Delay		10.0			22.4			21.8			19.0	
Approach LOS		B			C			C			B	
Stops (vph)	32	103	8	71	374	15	54	468	6	20	436	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	3	0	5	24	4	4	30	2	1	23	4
CO Emissions (g/hr)	63	186	32	367	1648	309	250	2113	133	72	1623	285
NOx Emissions (g/hr)	12	36	6	71	321	60	49	411	26	14	316	55
VOC Emissions (g/hr)	15	43	7	85	382	72	58	490	31	17	376	66
Dilemma Vehicles (#)	0	11	0	0	26	0	0	35	0	0	32	0
Queue Length 50th (ft)	16	50	0	35	174	0	25	120	0	8	116	0
Queue Length 95th (ft)	48	120	21	92	360	34	80	234	19	35	227	42
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170	200		150	210		160
Base Capacity (vph)	387	1483	1334	821	1331	1145	349	2013	939	311	2033	978
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.15	0.06	0.14	0.37	0.11	0.22	0.33	0.06	0.09	0.32	0.16

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 72
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 19.4 Intersection LOS: B
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: 107TH AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	338	96	129	802	188	82	334	49	122	525	162
Future Volume (vph)	119	338	96	129	802	188	82	334	49	122	525	162
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.967			0.971			0.981			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3482	0	1801	3425	0	1801	3533	0	1749	3467	0
Flt Permitted	0.107			0.424			0.266			0.432		
Satd. Flow (perm)	203	3482	0	804	3425	0	504	3533	0	795	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			29			15			38	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.93	0.93	0.93	0.98	0.98	0.98	0.89	0.89	0.89	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	3%	9%	2%	2%	2%	5%	2%	3%
Adj. Flow (vph)	128	363	103	132	818	192	92	375	55	126	541	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	466	0	132	1010	0	92	430	0	126	708	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	46.0		12.0	46.0		12.0	40.0		12.0	40.0	
Total Split (%)	10.9%	41.8%		10.9%	41.8%		10.9%	36.4%		10.9%	36.4%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	48.8	38.6		48.9	38.6		44.9	35.0		46.3	37.1	
Actuated g/C Ratio	0.44	0.35		0.44	0.35		0.41	0.32		0.42	0.34	
v/c Ratio	0.65	0.37		0.31	0.83		0.32	0.38		0.32	0.59	
Control Delay	32.8	25.3		8.7	20.1		21.5	29.8		21.1	32.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.8	25.3		8.7	20.1		21.5	29.8		21.1	32.1	
LOS	C	C		A	C		C	C		C	C	
Approach Delay		26.9			18.8			28.3			30.5	
Approach LOS		C			B			C			C	
Stops (vph)	68	287		27	372		48	281		74	537	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	10		5	43		2	9		6	35	
CO Emissions (g/hr)	185	670		347	3004		111	613		392	2421	
NOx Emissions (g/hr)	36	130		68	585		22	119		76	471	
VOC Emissions (g/hr)	43	155		81	696		26	142		91	561	
Dilemma Vehicles (#)	0	20		0	95		0	17		0	31	
Queue Length 50th (ft)	48	116		20	110		38	122		53	216	
Queue Length 95th (ft)	#95	160		m28	160		69	165		92	282	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	207	1268		432	1244		303	1132		403	1193	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.62	0.37		0.31	0.81		0.30	0.38		0.31	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 30 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 25.1 Intersection LOS: C
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	633	153	559	967	76	350	505	556	139	602	114
Future Volume (vph)	81	633	153	559	967	76	350	505	556	139	602	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.989				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		7				562			217
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.98	0.98	0.98	0.99	0.99	0.99	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	90	703	170	570	987	78	354	510	562	149	647	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	703	170	570	1065	0	354	510	562	149	647	123
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	14.0	48.0	48.0		71.0		23.0	49.0	49.0	16.0	42.0	42.0
Total Split (%)	9.3%	32.0%	32.0%		47.3%		15.3%	32.7%	32.7%	10.7%	28.0%	28.0%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	Min	None	None
Act Effct Green (s)	8.3	41.7	41.7	26.5	64.9		17.4	31.6	31.6	10.2	24.5	24.5
Actuated g/C Ratio	0.06	0.30	0.30	0.19	0.47		0.13	0.23	0.23	0.07	0.18	0.18
v/c Ratio	0.44	0.66	0.27	0.88	0.65		0.82	0.44	0.52	0.59	0.72	0.27
Control Delay	70.7	46.3	2.6	53.0	30.7		75.4	46.8	5.1	73.1	58.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.7	46.3	2.6	53.0	30.7		75.4	46.8	5.1	73.1	58.4	1.4
LOS	E	D	A	D	C		E	D	A	E	E	A
Approach Delay		40.9			38.5			37.5			53.2	
Approach LOS		D			D			D			D	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	25.0	12.0
Total Split (%)	17%	8%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	77	541	5	571	771		324	419	36	131	551	0
Fuel Used(gal)	5	34	5	17	23		11	13	4	5	21	1
CO Emissions (g/hr)	342	2397	375	1168	1593		802	909	301	377	1491	99
NOx Emissions (g/hr)	66	466	73	227	310		156	177	58	73	290	19
VOC Emissions (g/hr)	79	555	87	271	369		186	211	70	87	346	23
Dilemma Vehicles (#)	0	23	0	0	36		0	15	0	0	17	0
Queue Length 50th (ft)	41	294	0	172	383		163	146	0	68	204	0
Queue Length 95th (ft)	73	387	22	#294	496		#248	184	49	110	250	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	224	1067	630	666	1648		448	1564	1246	271	1305	567
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.66	0.27	0.86	0.65		0.79	0.33	0.45	0.55	0.50	0.22

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 138.1	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 41.4	Intersection LOS: D
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: 99TH AVE & MCDOWELL RD

Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	196	735	346	265	1124	0	0	884	442
Future Volume (vph)	0	0	0	196	735	346	265	1124	0	0	884	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.993	0.850					0.950	
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1443	3039	1393	1586	4916	0	0	5885	0
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1443	3039	1393	1586	4916	0	0	5885	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	90					69	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.89	0.89	0.89	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	10%	3%	2%	10%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	211	790	372	298	1263	0	0	1016	508
Shared Lane Traffic (%)				10%		10%						
Lane Group Flow (vph)	0	0	0	190	848	335	298	1263	0	0	1524	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							10.0				20.0	
Minimum Split (s)							47.8				28.9	
Total Split (s)							48.0				50.0	
Total Split (%)							27.4%				28.6%	
Yellow Time (s)							3.9				4.7	
All-Red Time (s)							1.9				1.2	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							5.8				5.9	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				C-Min	
Act Effct Green (s)				64.8	64.8	64.8	42.8	98.4			49.8	
Actuated g/C Ratio				0.37	0.37	0.37	0.24	0.56			0.28	
v/c Ratio				0.36	0.75	0.59	0.77	0.46			1.03dr	
Control Delay				41.0	52.2	35.2	33.1	23.3			63.9	
Queue Delay				0.0	0.0	0.0	0.7	2.4			0.0	
Total Delay				41.0	52.2	35.2	33.8	25.7			63.9	
LOS				D	D	D	C	C			E	
Approach Delay					46.5			27.3			63.9	
Approach LOS					D			C			E	
Stops (vph)				124	669	183	235	1033			1137	

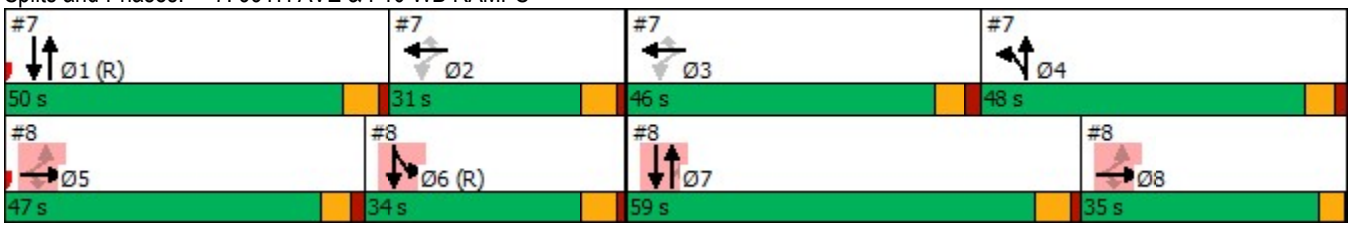
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	8.0	10.0	5.0	20.0	5.0
Minimum Split (s)	30.0	45.8	47.8	30.0	28.9	30.0
Total Split (s)	31.0	46.0	47.0	34.0	59.0	35.0
Total Split (%)	18%	26%	27%	19%	34%	20%
Yellow Time (s)	4.7	3.9	3.9	4.7	4.7	3.5
All-Red Time (s)	1.2	1.9	1.9	1.2	1.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	25	8	6	22			39	
CO Emissions (g/hr)				347	1773	555	393	1544			2741	
NOx Emissions (g/hr)				68	345	108	77	300			533	
VOC Emissions (g/hr)				80	411	129	91	358			635	
Dilemma Vehicles (#)				0	20	0	0	0			37	
Queue Length 50th (ft)				171	486	248	307	507			476	
Queue Length 95th (ft)				241	552	353	m366	575			#542	
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				586	1236	619	388	2732			1722	
Starvation Cap Reductn				0	0	0	11	1293			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.32	0.69	0.54	0.79	0.88			0.89	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 45.7 Intersection LOS: D
Intersection Capacity Utilization 64.5% ICU Level of Service C
Analysis Period (min) 15
Description: WB I-10 Off ramp
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	136	181	0	0	0	0	1304	475	236	935	0
Future Volume (vph)	273	136	181	0	0	0	0	1304	475	236	935	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		140	0		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.978	0.850						0.850			
Flt Protected	0.950	0.980								0.950		
Satd. Flow (prot)	1557	2828	1146	0	0	0	0	4775	1473	1711	4686	0
Flt Permitted	0.950	0.980								0.950		
Satd. Flow (perm)	1557	2828	1146	0	0	0	0	4775	1473	1711	4686	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13	91						323			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.25	0.25	0.25	0.98	0.98	0.98	0.87	0.87	0.87
Heavy Vehicles (%)	2%	6%	24%	0%	0%	0%	0%	5%	6%	2%	7%	0%
Adj. Flow (vph)	294	146	195	0	0	0	0	1331	485	271	1075	0
Shared Lane Traffic (%)	45%		25%									
Lane Group Flow (vph)	162	327	146	0	0	0	0	1331	485	271	1075	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								20.0	20.0	5.0		
Minimum Split (s)								28.9	28.9	30.0		
Total Split (s)								59.0	59.0	34.0		
Total Split (%)								33.7%	33.7%	19.4%		
Yellow Time (s)								4.7	4.7	4.7		
All-Red Time (s)								1.2	1.2	1.2		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.9	5.9	5.9		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	C-Max		
Act Effct Green (s)	39.3	39.3	39.3					53.1	53.1	65.0	124.0	
Actuated g/C Ratio	0.22	0.22	0.22					0.30	0.30	0.37	0.71	
v/c Ratio	0.46	0.51	0.45					0.92	0.72	0.43	0.32	
Control Delay	62.3	59.0	25.9					69.7	24.1	14.1	3.8	
Queue Delay	0.1	0.0	0.0					1.0	0.0	0.0	0.7	
Total Delay	62.4	59.1	25.9					70.7	24.1	14.1	4.5	
LOS	E	E	C					E	C	B	A	
Approach Delay		52.3						58.2			6.4	
Approach LOS		D						E			A	
Stops (vph)	128	249	46					1215	164	111	407	

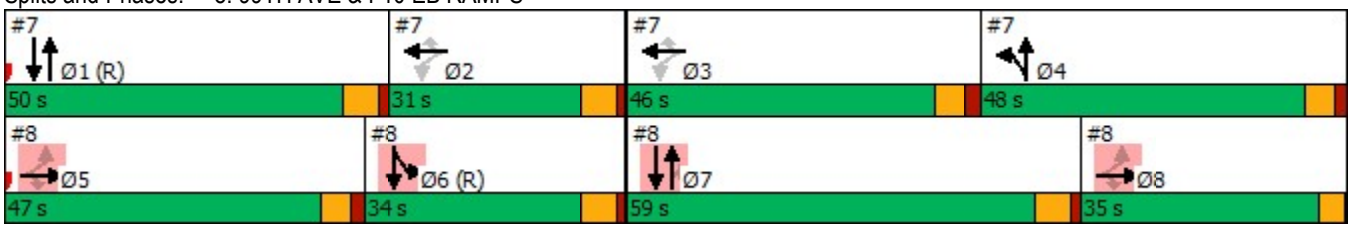
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	10.0	5.0
Minimum Split (s)	28.9	30.0	45.8	47.8	47.8	30.0
Total Split (s)	50.0	31.0	46.0	48.0	47.0	35.0
Total Split (%)	29%	18%	26%	27%	27%	20%
Yellow Time (s)	4.7	4.7	3.9	3.9	3.9	3.5
All-Red Time (s)	1.2	1.2	1.9	1.9	1.9	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	10	3					66	16	3	9	
CO Emissions (g/hr)	368	720	201					4630	1136	201	631	
NOx Emissions (g/hr)	72	140	39					901	221	39	123	
VOC Emissions (g/hr)	85	167	47					1073	263	47	146	
Dilemma Vehicles (#)	0	7	0					37	0	0	3	
Queue Length 50th (ft)	176	183	57					544	174	95	95	
Queue Length 95th (ft)	257	236	135					609	326	m157	122	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						140			
Base Capacity (vph)	625	1143	514					1448	671	634	3319	
Starvation Cap Reductn	0	0	0					0	0	0	1764	
Spillback Cap Reductn	72	88	0					28	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.29	0.31	0.28					0.94	0.72	0.43	0.69	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 38.9 Intersection LOS: D
Intersection Capacity Utilization 64.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

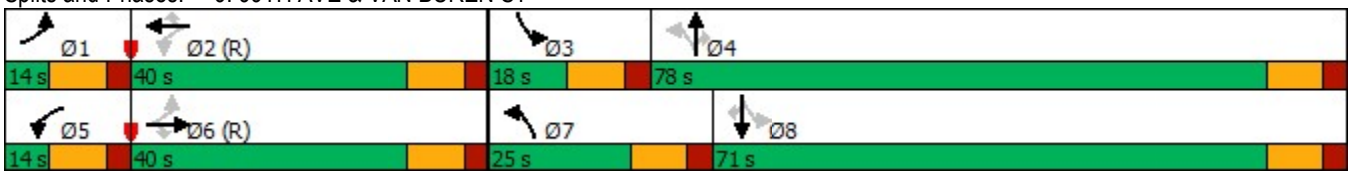
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	116	57	85	417	178	112	839	62	142	668	152
Future Volume (vph)	97	116	57	85	417	178	112	839	62	142	668	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1454	1766	1459	1711	3421	1531	1616	4775	1531	1711	3292	1432
Flt Permitted	0.433			0.676			0.188			0.210		
Satd. Flow (perm)	663	1766	1459	1217	3421	1531	320	4775	1531	378	3292	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			178			189			177			177
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.96	0.96	0.96	0.99	0.99	0.99
Heavy Vehicles (%)	20%	4%	7%	2%	2%	2%	8%	5%	2%	2%	6%	9%
Adj. Flow (vph)	105	126	62	90	444	189	117	874	65	143	675	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	126	62	90	444	189	117	874	65	143	675	154
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	40.0	40.0	14.0	40.0	40.0	25.0	78.0	78.0	18.0	71.0	71.0
Total Split (%)	9.3%	26.7%	26.7%	9.3%	26.7%	26.7%	16.7%	52.0%	52.0%	12.0%	47.3%	47.3%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	67.0	57.0	57.0	62.9	55.0	55.0	50.9	39.8	39.8	46.0	37.3	37.3
Actuated g/C Ratio	0.45	0.38	0.38	0.42	0.37	0.37	0.34	0.27	0.27	0.31	0.25	0.25
v/c Ratio	0.30	0.19	0.09	0.17	0.35	0.28	0.57	0.69	0.12	0.74	0.83	0.31
Control Delay	25.8	35.6	0.3	24.2	38.2	6.5	40.2	51.9	0.5	55.4	62.0	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	35.6	0.3	24.2	38.2	6.5	40.2	51.9	0.5	55.4	62.0	4.9
LOS	C	D	A	C	D	A	D	D	A	E	E	A
Approach Delay		24.6			28.2			47.4			52.0	
Approach LOS		C			C			D			D	
Stops (vph)	58	79	0	52	306	19	72	730	0	106	616	9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	6	2	4	23	8	6	47	2	6	33	4
CO Emissions (g/hr)	319	406	137	306	1598	569	397	3279	150	453	2293	284
NOx Emissions (g/hr)	62	79	27	59	311	111	77	638	29	88	446	55
VOC Emissions (g/hr)	74	94	32	71	370	132	92	760	35	105	531	66
Dilemma Vehicles (#)	0	4	0	0	14	0	0	22	0	0	18	0
Queue Length 50th (ft)	55	82	0	46	165	0	75	283	0	94	331	0
Queue Length 95th (ft)	110	157	0	94	257	64	106	294	0	126	376	37
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	348	671	664	537	1253	680	255	2190	798	194	1356	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.19	0.09	0.17	0.35	0.28	0.46	0.40	0.08	0.74	0.50	0.22

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 42.1 Intersection LOS: D
Intersection Capacity Utilization 61.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



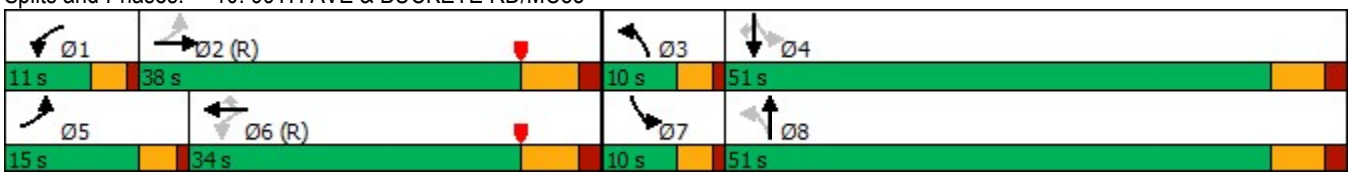
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	323	49	116	818	282	148	531	59	122	541	170
Future Volume (vph)	133	323	49	116	818	282	148	531	59	122	541	170
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.980				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3385	0	1801	3566	1381	1801	3456	0	1413	1895	1611
Flt Permitted	0.114			0.447			0.147			0.295		
Satd. Flow (perm)	214	3385	0	847	3566	1381	279	3456	0	439	1895	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				260		13				185
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4797			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	2%	2%	3%	19%	2%	5%	2%	30%	2%	2%
Adj. Flow (vph)	166	404	61	127	899	310	168	603	67	133	588	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	465	0	127	899	310	168	670	0	133	588	185
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0
Total Split (s)	15.0	38.0		11.0	34.0	34.0	10.0	51.0		10.0	51.0	51.0
Total Split (%)	13.6%	34.5%		10.0%	30.9%	30.9%	9.1%	46.4%		9.1%	46.4%	46.4%
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4		3.0	4.4	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4		4.0	6.4	6.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effct Green (s)	47.5	35.0		42.3	32.4	32.4	49.1	40.7		49.1	40.7	40.7
Actuated g/C Ratio	0.43	0.32		0.38	0.29	0.29	0.45	0.37		0.45	0.37	0.37
v/c Ratio	0.72	0.43		0.33	0.86	0.53	0.81	0.52		0.53	0.84	0.26
Control Delay	54.8	30.2		14.2	35.1	5.8	47.3	27.6		24.8	43.0	4.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	54.8	30.2		14.2	35.1	5.8	47.3	27.6		24.8	43.0	4.0
LOS	D	C		B	D	A	D	C		C	D	A
Approach Delay		36.7			26.3			31.5			32.4	
Approach LOS		D			C			C			C	
Stops (vph)	116	229		44	673	67	80	431		72	479	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	18		5	43	11	4	14		6	29	6
CO Emissions (g/hr)	540	1278		340	3032	751	257	955		400	2053	435
NOx Emissions (g/hr)	105	249		66	590	146	50	186		78	400	85
VOC Emissions (g/hr)	125	296		79	703	174	60	221		93	476	101
Dilemma Vehicles (#)	0	50		0	41	0	0	21		0	22	0
Queue Length 50th (ft)	98	113		25	342	17	62	181		49	360	0
Queue Length 95th (ft)	147	151		51	#463	20	#127	223		84	495	43
Internal Link Dist (ft)		5209			4717			274			849	
Turn Bay Length (ft)	160			170		250	190			250		250
Base Capacity (vph)	251	1087		391	1050	590	207	1408		249	768	763
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.66	0.43		0.32	0.86	0.53	0.81	0.48		0.53	0.77	0.24

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 71 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 30.7 Intersection LOS: C
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85



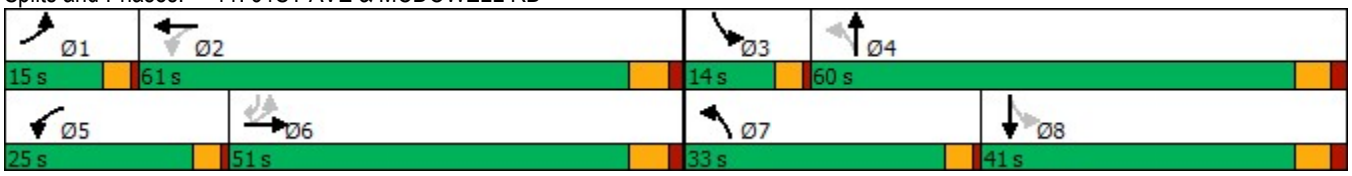
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	438	212	187	683	155	287	718	151	94	589	112
Future Volume (vph)	118	438	212	187	683	155	287	718	151	94	589	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.951			0.972			0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3243	0	1711	3325	0	1711	3332	0	1711	3421	1531
Flt Permitted	0.155			0.201			0.190			0.193		
Satd. Flow (perm)	279	3243	0	362	3325	0	342	3332	0	348	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			20			19				138
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			12.7			47.9	
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	130	481	233	210	767	174	305	764	161	100	627	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	714	0	210	941	0	305	925	0	100	627	119
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	15.0	51.0		25.0	61.0		33.0	60.0		14.0	41.0	51.0
Total Split (%)	10.0%	34.0%		16.7%	40.7%		22.0%	40.0%		9.3%	27.3%	34.0%
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4		4.0	6.4		4.0	6.0		4.0	6.0	6.4
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min		None	None		None	None	Min
Act Effct Green (s)	53.2	41.2		62.4	46.6		60.6	46.1		43.3	32.9	41.2
Actuated g/C Ratio	0.40	0.31		0.47	0.35		0.46	0.35		0.33	0.25	0.31
v/c Ratio	0.60	0.68		0.65	0.79		0.80	0.78		0.50	0.73	0.21
Control Delay	33.9	41.1		31.5	43.6		42.4	43.8		32.6	52.9	4.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	33.9	41.1		31.5	43.6		42.4	43.8		32.6	52.9	4.7
LOS	C	D		C	D		D	D		C	D	A
Approach Delay		40.0			41.4			43.4			43.7	
Approach LOS		D			D			D			D	
Stops (vph)	70	507		107	709		186	737		61	522	8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	28		9	45		6	19		3	23	2
CO Emissions (g/hr)	324	1955		623	3132		402	1355		211	1588	162
NOx Emissions (g/hr)	63	380		121	609		78	264		41	309	32
VOC Emissions (g/hr)	75	453		144	726		93	314		49	368	38
Dilemma Vehicles (#)	0	21		0	28		0	28		0	18	0
Queue Length 50th (ft)	66	273		112	396		180	390		52	275	0
Queue Length 95th (ft)	113	380		175	496		291	496		93	380	34
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	239	1190		394	1431		468	1418		226	956	633
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.54	0.60		0.53	0.66		0.65	0.65		0.44	0.66	0.19

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 131.5
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 42.2 Intersection LOS: D
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	147	13	191	191	978	0	0	894	207
Future Volume (vph)	0	0	0	147	13	191	191	978	0	0	894	207
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.899	0.850					0.972	
Flt Protected				0.950	0.989		0.950					
Satd. Flow (prot)	0	0	0	1711	1524	1531	1801	3601	0	0	3500	0
Flt Permitted				0.950	0.989		0.123					
Satd. Flow (perm)	0	0	0	1711	1524	1531	233	3601	0	0	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					66	125					33	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			12.7	
Peak Hour Factor	0.25	0.25	0.25	0.90	0.90	0.90	0.96	0.96	0.96	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	8%	2%	2%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	163	14	212	199	1019	0	0	982	227
Shared Lane Traffic (%)				17%		41%						
Lane Group Flow (vph)	0	0	0	135	129	125	199	1019	0	0	1209	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				32.0	32.0	32.0	23.0					
Total Split (%)				22.9%	22.9%	22.9%	16.4%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				26.3	26.3	26.3	76.8	81.9			79.9	
Actuated g/C Ratio				0.19	0.19	0.19	0.55	0.59			0.57	
v/c Ratio				0.42	0.38	0.32	0.63	0.48			0.60	
Control Delay				54.5	28.3	10.1	31.9	5.0			20.2	
Queue Delay				0.0	0.0	0.0	0.0	0.3			0.6	
Total Delay				54.5	28.3	10.1	31.9	5.2			20.8	
LOS				D	C	B	C	A			C	
Approach Delay					31.5			9.6			20.8	
Approach LOS					C			A			C	
Stops (vph)				106	51	16	165	109			671	

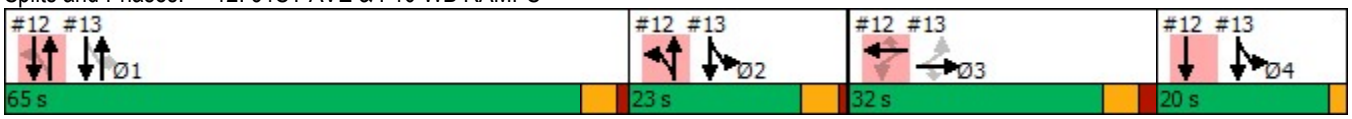
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	65.0	20.0
Total Split (%)	46%	14%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	3	2	3	5			17	
CO Emissions (g/hr)				275	175	111	223	378			1165	
NOx Emissions (g/hr)				54	34	22	43	73			227	
VOC Emissions (g/hr)				64	41	26	52	87			270	
Dilemma Vehicles (#)				0	4	0	0	0			39	
Queue Length 50th (ft)				115	53	0	92	58			354	
Queue Length 95th (ft)				187	125	58	180	67			422	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				323	341	391	332	2148			2026	
Starvation Cap Reductn				0	0	0	0	485			418	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.42	0.38	0.32	0.60	0.61			0.75	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 139
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 54.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	4	88	0	0	0	0	1045	179	217	814	0
Future Volume (vph)	128	4	88	0	0	0	0	1045	179	217	814	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	0		240	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.967								0.950		
Satd. Flow (prot)	1678	1556	1446	0	0	0	0	3601	1611	1801	3601	0
Flt Permitted	0.950	0.967								0.127		
Satd. Flow (perm)	1678	1556	1446	0	0	0	0	3601	1611	241	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11	76						155			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.90	0.90	0.90	0.25	0.25	0.25	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	4%	2%	8%	0%	0%	0%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	142	4	98	0	0	0	0	1077	185	231	866	0
Shared Lane Traffic (%)	40%		22%									
Lane Group Flow (vph)	85	83	76	0	0	0	0	1077	185	231	866	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	32.0	32.0	32.0					65.0	65.0			
Total Split (%)	22.9%	22.9%	22.9%					46.4%	46.4%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	26.3	26.3	26.3					59.9	59.9	91.7	101.9	
Actuated g/C Ratio	0.19	0.19	0.19					0.43	0.43	0.66	0.73	
v/c Ratio	0.27	0.27	0.23					0.69	0.24	0.45	0.33	
Control Delay	51.2	44.8	11.7					35.2	6.4	22.7	2.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.2	
Total Delay	51.2	44.8	11.7					35.2	6.4	22.7	3.0	
LOS	D	D	B					D	A	C	A	
Approach Delay		36.7						31.0			7.1	
Approach LOS		D						C			A	
Stops (vph)	64	55	13					829	25	134	112	

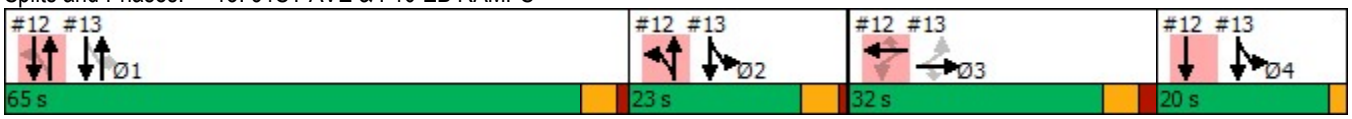
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	23.0	20.0
Total Split (%)	16%	14%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	2	1					45	6	3	4	
CO Emissions (g/hr)	172	156	77					3124	400	196	300	
NOx Emissions (g/hr)	33	30	15					608	78	38	58	
VOC Emissions (g/hr)	40	36	18					724	93	45	70	
Dilemma Vehicles (#)	0	3	0					37	0	0	1	
Queue Length 50th (ft)	70	62	0					415	16	67	59	
Queue Length 95th (ft)	126	118	47					497	63	144	70	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	317	303	335					1551	782	529	2666	
Starvation Cap Reductn	0	0	0					0	0	0	902	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.27	0.27	0.23					0.69	0.24	0.44	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 139
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 21.5 Intersection LOS: C
Intersection Capacity Utilization 54.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

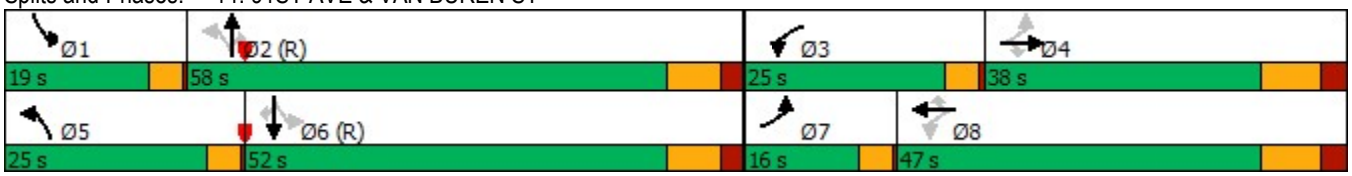
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	227	98	120	354	270	78	708	161	72	519	101
Future Volume (vph)	171	227	98	120	354	270	78	708	161	72	519	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1801	1531	1711	1801	1531	1711	3421	1487	1694	3421	1516
Flt Permitted	0.209			0.455			0.396			0.268		
Satd. Flow (perm)	376	1801	1531	819	1801	1531	713	3421	1487	478	3421	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			289			141			172
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.91	0.91	0.91	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	3%	2%	3%
Adj. Flow (vph)	197	261	113	135	398	303	86	778	177	75	541	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	261	113	135	398	303	86	778	177	75	541	105
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	16.0	38.0	38.0	25.0	47.0	47.0	25.0	58.0	58.0	19.0	52.0	52.0
Total Split (%)	11.4%	27.1%	27.1%	17.9%	33.6%	33.6%	17.9%	41.4%	41.4%	13.6%	37.1%	37.1%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	52.1	35.1	35.1	51.2	34.7	34.7	72.7	60.5	60.5	71.9	60.1	60.1
Actuated g/C Ratio	0.37	0.25	0.25	0.37	0.25	0.25	0.52	0.43	0.43	0.51	0.43	0.43
v/c Ratio	0.78	0.58	0.22	0.36	0.89	0.51	0.20	0.53	0.25	0.24	0.37	0.14
Control Delay	51.1	51.7	2.3	29.7	73.5	8.5	17.5	31.8	7.9	18.3	29.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	51.7	2.3	29.7	73.5	8.5	17.5	31.8	7.9	18.3	29.0	0.4
LOS	D	D	A	C	E	A	B	C	A	B	C	A
Approach Delay		41.7			42.9			26.5			23.7	
Approach LOS		D			D			C			C	
Stops (vph)	115	195	3	77	328	31	37	513	27	35	347	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	13	4	6	21	12	4	36	7	3	21	3
CO Emissions (g/hr)	684	922	305	421	1499	814	249	2494	465	186	1472	210
NOx Emissions (g/hr)	133	179	59	82	292	158	48	485	91	36	286	41
VOC Emissions (g/hr)	158	214	71	98	347	189	58	578	108	43	341	49
Dilemma Vehicles (#)	0	0	0	0	0	0	0	25	0	0	19	0
Queue Length 50th (ft)	116	203	0	77	342	9	38	281	20	33	180	0
Queue Length 95th (ft)	#175	296	8	122	#488	83	68	358	72	61	239	0
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	254	451	506	459	487	625	538	1478	722	390	1469	749
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.58	0.22	0.29	0.82	0.48	0.16	0.53	0.25	0.19	0.37	0.14

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 32.9 Intersection LOS: C
Intersection Capacity Utilization 65.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: 91ST AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	338	65	91	851	145	171	511	30	118	437	155
Future Volume (vph)	101	338	65	91	851	145	171	511	30	118	437	155
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.976			0.978			0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1717	4695	0	1766	4851	0	1733	5111	0	1717	3601	1550
Flt Permitted	0.184			0.495			0.316			0.356		
Satd. Flow (perm)	332	4695	0	920	4851	0	576	5111	0	643	3601	1550
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			34			8				167
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		447			450			399			4882	
Travel Time (s)		6.1			6.1			6.0			74.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	7%	11%	3%	4%	7%	3%	6%	2%	10%	7%	2%	6%
Adj. Flow (vph)	106	356	68	101	946	161	182	544	32	127	470	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	424	0	101	1107	0	182	576	0	127	470	167
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	10.0	46.0		10.0	46.0		15.0	39.0		15.0	39.0	39.0
Total Split (%)	9.1%	41.8%		9.1%	41.8%		13.6%	35.5%		13.6%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	57.4	47.6		57.0	47.4		37.9	25.2		35.7	24.0	24.0
Actuated g/C Ratio	0.52	0.43		0.52	0.43		0.34	0.23		0.32	0.22	0.22
v/c Ratio	0.40	0.21		0.19	0.52		0.59	0.49		0.42	0.60	0.36
Control Delay	28.2	26.0		8.3	12.8		31.5	37.3		26.8	41.3	7.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	28.2	26.0		8.3	12.8		31.5	37.3		26.8	41.3	7.1
LOS	C	C		A	B		C	D		C	D	A
Approach Delay		26.4			12.4			35.9			31.4	
Approach LOS		C			B			D			C	
Stops (vph)	69	556		24	302		117	446		77	378	19

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	24		3	40		4	14		6	23	6
CO Emissions (g/hr)	349	1683		245	2782		276	982		396	1636	409
NOx Emissions (g/hr)	68	327		48	541		54	191		77	318	80
VOC Emissions (g/hr)	81	390		57	645		64	228		92	379	95
Dilemma Vehicles (#)	0	69		0	35		0	20		0	16	0
Queue Length 50th (ft)	49	72		20	90		89	128		60	158	0
Queue Length 95th (ft)	106	110		37	106		129	154		93	195	50
Internal Link Dist (ft)		367			370			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	267	2054		534	2110		317	1529		325	1073	579
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.40	0.21		0.19	0.52		0.57	0.38		0.39	0.44	0.29

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 7 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 56.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85

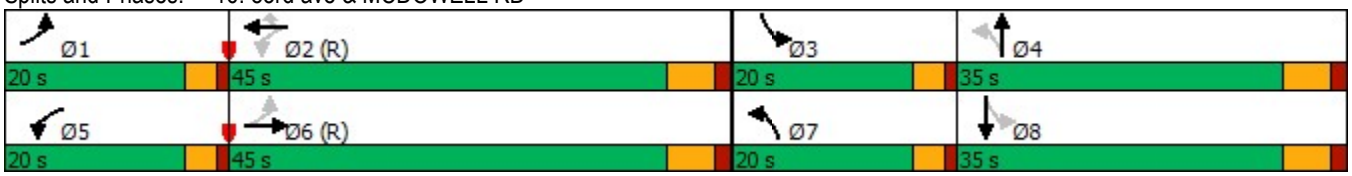
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	552	110	273	888	300	197	886	171	167	739	125
Future Volume (vph)	145	552	110	273	888	300	197	886	171	167	739	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.975				0.850		0.976			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3336	0	1711	3421	1531	1711	4798	0	1711	4808	0
Flt Permitted	0.159			0.219			0.138			0.137		
Satd. Flow (perm)	286	3336	0	394	3421	1531	248	4798	0	247	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				314		31			26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	161	613	122	297	965	326	212	953	184	178	786	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	735	0	297	965	326	212	1137	0	178	919	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9		11.0	32.9	
Total Split (s)	20.0	45.0		20.0	45.0	45.0	20.0	35.0		20.0	35.0	
Total Split (%)	16.7%	37.5%		16.7%	37.5%	37.5%	16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6		1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9		4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	55.5	42.3		62.0	45.9	45.9	46.2	30.4		43.5	29.1	
Actuated g/C Ratio	0.46	0.35		0.52	0.38	0.38	0.38	0.25		0.36	0.24	
v/c Ratio	0.61	0.62		0.81	0.74	0.42	0.80	0.92		0.74	0.78	
Control Delay	26.1	34.8		45.0	20.6	1.2	49.5	54.7		43.6	46.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.1	34.8		45.0	20.6	1.2	49.5	54.7		43.6	46.4	
LOS	C	C		D	C	A	D	D		D	D	
Approach Delay		33.2			21.2			53.9			45.9	
Approach LOS		C			C			D			D	
Stops (vph)	81	527		219	505	6	135	936		114	768	
Fuel Used(gal)	7	34		15	41	11	5	29		6	34	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	471	2368		1024	2842	734	332	2045		427	2400	
NOx Emissions (g/hr)	92	461		199	553	143	65	398		83	467	
VOC Emissions (g/hr)	109	549		237	659	170	77	474		99	556	
Dilemma Vehicles (#)	0	28		0	3	0	0	39		0	32	
Queue Length 50th (ft)	65	250		135	131	3	106	300		87	234	
Queue Length 95th (ft)	107	320		m186	m342	m1	#210	#409		153	290	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	333	1189		378	1309	779	293	1243		290	1201	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.48	0.62		0.79	0.74	0.42	0.72	0.91		0.61	0.77	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 75.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: 83rd ave & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	181	10	410	583	1078	0	0	649	497
Future Volume (vph)	0	0	0	181	10	410	583	1078	0	0	649	497
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.869	0.850						0.850
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1586	1481	1531	3330	3601	0	0	5124	1611
Flt Permitted				0.950	0.996		0.950					
Satd. Flow (perm)	0	0	0	1586	1481	1531	3330	3601	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					78	122						544
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.88	0.88	0.88	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	10%	6%	2%	7%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	206	11	466	641	1185	0	0	729	558
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	185	251	247	641	1185	0	0	729	558
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							54.0				35.0	35.0
Total Split (%)							38.6%				25.0%	25.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				33.7	33.7	33.7	58.3	94.7			30.2	30.2
Actuated g/C Ratio				0.24	0.24	0.24	0.42	0.68			0.22	0.22
v/c Ratio				0.49	0.60	0.54	0.46	0.49			0.66	0.72
Control Delay				49.7	38.0	26.7	15.1	2.4			53.6	10.4
Queue Delay				0.0	0.0	0.0	0.0	0.8			0.0	0.0
Total Delay				49.7	38.0	26.7	15.1	3.2			53.6	10.4
LOS				D	D	C	B	A			D	B
Approach Delay					37.1			7.4			34.9	
Approach LOS					D			A			C	
Stops (vph)				138	136	96	252	379			583	54

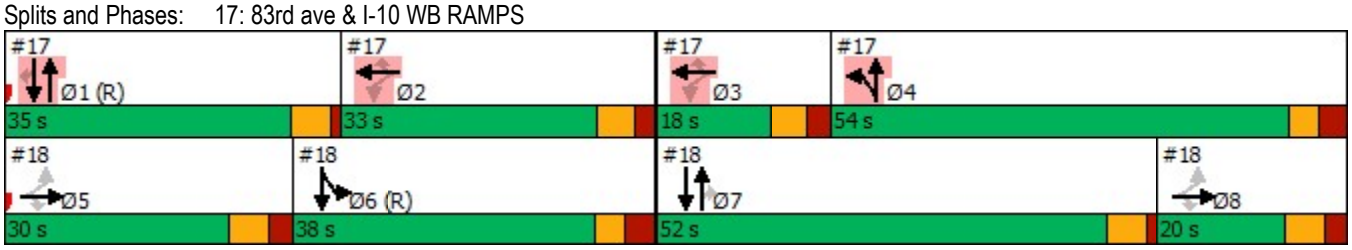
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	33.0	18.0	30.0	38.0	52.0	20.0
Total Split (%)	24%	13%	21%	27%	37%	14%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	6	5	7	9			18	4
CO Emissions (g/hr)				353	398	323	479	616			1253	312
NOx Emissions (g/hr)				69	77	63	93	120			244	61
VOC Emissions (g/hr)				82	92	75	111	143			290	72
Dilemma Vehicles (#)				0	6	0	0	3			23	0
Queue Length 50th (ft)				156	158	105	106	1			225	10
Queue Length 95th (ft)				215	236	178	169	3			269	121
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				439	466	512	1387	2436			1106	774
Starvation Cap Reductn				0	0	0	0	843			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.42	0.54	0.48	0.46	0.74			0.66	0.72

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	3	423	0	0	0	0	1267	423	228	683	0
Future Volume (vph)	420	3	423	0	0	0	0	1267	423	228	683	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.919	0.850						0.850			
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1711	1453	1369	0	0	0	0	5075	1454	3493	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1711	1453	1369	0	0	0	0	5075	1454	3493	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44	222						387			
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			61.2			7.7	
Peak Hour Factor	0.86	0.86	0.86	0.25	0.25	0.25	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	33%	14%	0%	0%	0%	0%	4%	13%	2%	5%	0%
Adj. Flow (vph)	488	3	492	0	0	0	0	1408	470	243	727	0
Shared Lane Traffic (%)	30%		36%									
Lane Group Flow (vph)	342	326	315	0	0	0	0	1408	470	243	727	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								52.0	52.0	38.0		
Total Split (%)								37.1%	37.1%	27.1%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	38.6	38.6	38.6					48.7	48.7	34.2	88.2	
Actuated g/C Ratio	0.28	0.28	0.28					0.35	0.35	0.24	0.63	
v/c Ratio	0.73	0.75	0.59					0.80	0.62	0.28	0.33	
Control Delay	55.0	51.2	16.9					45.3	10.9	15.8	14.5	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	1.1	
Total Delay	55.0	51.2	16.9					45.4	10.9	15.8	15.6	
LOS	E	D	B					D	B	B	B	
Approach Delay		41.5						36.7			15.7	
Approach LOS		D						D			B	
Stops (vph)	260	222	74					1116	80	155	561	

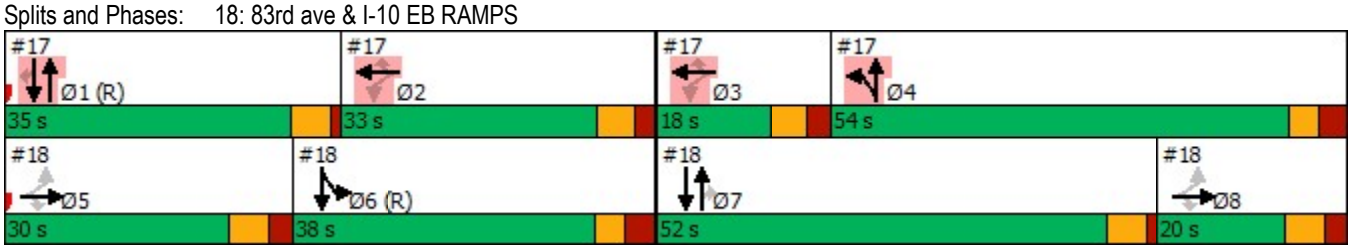
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	35.0	33.0	18.0	54.0	30.0	20.0
Total Split (%)	25%	24%	13%	39%	21%	14%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	9	5					53	12	3	11	
CO Emissions (g/hr)	692	622	347					3739	840	239	787	
NOx Emissions (g/hr)	135	121	67					728	164	46	153	
VOC Emissions (g/hr)	160	144	80					867	195	55	182	
Dilemma Vehicles (#)	0	9	0					42	0	0	1	
Queue Length 50th (ft)	294	259	70					400	49	96	289	
Queue Length 95th (ft)	376	350	151					495	175	138	381	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	560	505	597					1784	762	879	2178	
Starvation Cap Reductn	0	0	0					0	0	0	1142	
Spillback Cap Reductn	0	0	0					11	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.61	0.65	0.53					0.79	0.62	0.28	0.70	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 32.6 Intersection LOS: C
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	194	56	145	420	426	73	888	49	116	852	156
Future Volume (vph)	174	194	56	145	420	426	73	888	49	116	852	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.966			0.924			0.992			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3194	0	1586	3041	0	1631	4688	0	1363	3226	0
Flt Permitted	0.112			0.574			0.109			0.151		
Satd. Flow (perm)	189	3194	0	958	3041	0	187	4688	0	217	3226	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			203			7			19	
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			61.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	9%	6%	4%	10%	3%	9%	7%	6%	8%	28%	6%	4%
Adj. Flow (vph)	202	226	65	169	488	495	86	1045	58	127	936	171
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	291	0	169	983	0	86	1103	0	127	1107	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0		20.0	30.0		20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0		25.0	45.0		25.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%		20.8%	37.5%		20.8%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	52.2	36.4		47.6	33.6		56.1	44.9		59.5	48.1	
Actuated g/C Ratio	0.44	0.30		0.40	0.28		0.47	0.37		0.50	0.40	
v/c Ratio	0.81	0.29		0.38	0.99		0.45	0.63		0.62	0.85	
Control Delay	53.4	31.5		21.7	45.7		22.1	32.1		28.6	39.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.4	31.5		21.7	45.7		22.1	32.1		28.6	39.4	
LOS	D	C		C	D		C	C		C	D	
Approach Delay		40.5			42.2			31.4			38.3	
Approach LOS		D			D			C			D	
Stops (vph)	108	172		70	542		37	735		60	879	

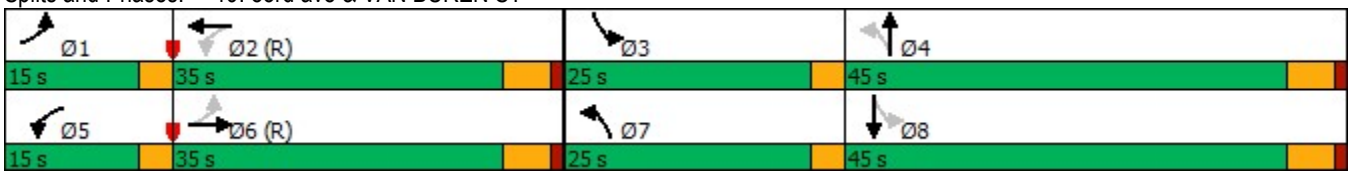
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	13		6	43		3	48		4	41	
CO Emissions (g/hr)	668	888		450	3021		231	3322		286	2881	
NOx Emissions (g/hr)	130	173		88	588		45	646		56	561	
VOC Emissions (g/hr)	155	206		104	700		53	770		66	668	
Dilemma Vehicles (#)	0	10		0	41		0	31		0	34	
Queue Length 50th (ft)	102	83		67	~221		33	248		51	405	
Queue Length 95th (ft)	#248	123		m76	m#238		52	270		79	480	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250			230		
Base Capacity (vph)	250	989		455	997		359	1770		319	1305	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.81	0.29		0.37	0.99		0.24	0.62		0.40	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 71 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 37.6 Intersection LOS: D
Intersection Capacity Utilization 78.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



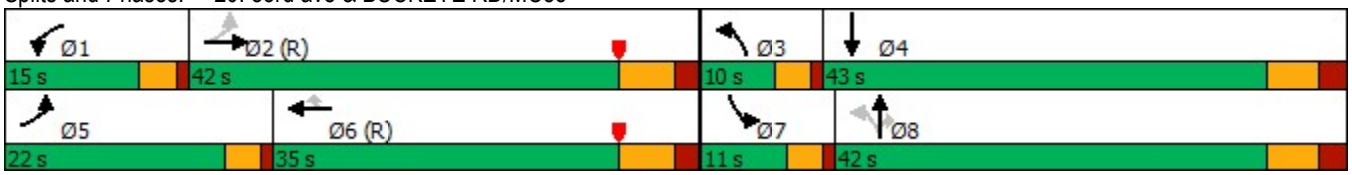
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	315	91	105	824	186	91	473	29	101	736	170
Future Volume (vph)	166	315	91	105	824	186	91	473	29	101	736	170
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.966				0.850			0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	4645	0	3493	4887	1454	1801	3566	1536	2897	4921	0
Flt Permitted	0.239			0.950			0.186			0.950		
Satd. Flow (perm)	444	4645	0	3493	4887	1454	353	3566	1536	2897	4921	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70				194			156		51	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		460			509			976			400	
Travel Time (s)		6.3			6.9			14.8			6.1	
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	4%	12%	2%	2%	8%	13%	2%	3%	7%	23%	2%	14%
Adj. Flow (vph)	171	325	94	109	858	194	101	526	32	105	767	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	419	0	109	858	194	101	526	32	105	944	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	22.0	42.0		15.0	35.0	35.0	10.0	42.0	42.0	11.0	43.0	
Total Split (%)	20.0%	38.2%		13.6%	31.8%	31.8%	9.1%	38.2%	38.2%	10.0%	39.1%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	55.9	42.9		7.8	40.3	40.3	40.0	31.2	31.2	6.7	31.8	
Actuated g/C Ratio	0.51	0.39		0.07	0.37	0.37	0.36	0.28	0.28	0.06	0.29	
v/c Ratio	0.49	0.23		0.44	0.48	0.30	0.48	0.52	0.06	0.59	0.65	
Control Delay	25.0	16.1		54.2	29.2	5.5	27.9	34.6	0.2	64.4	34.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.0	16.1		54.2	29.2	5.5	27.9	34.6	0.2	64.4	34.1	
LOS	C	B		D	C	A	C	C	A	E	C	
Approach Delay		18.7			27.6			31.9			37.1	
Approach LOS		B			C			C			D	
Stops (vph)	126	197		98	623	21	57	382	0	98	724	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	18		6	42	7	2	11	0	6	47	
CO Emissions (g/hr)	574	1232		430	2929	470	126	775	13	422	3256	
NOx Emissions (g/hr)	112	240		84	570	91	25	151	3	82	634	
VOC Emissions (g/hr)	133	286		100	679	109	29	180	3	98	755	
Dilemma Vehicles (#)	0	4		0	37	0	0	17	0	0	35	
Queue Length 50th (ft)	61	49		38	169	0	44	163	0	37	199	
Queue Length 95th (ft)	129	61		65	237	53	75	206	0	67	234	
Internal Link Dist (ft)		380			429			896			320	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	448	1852		349	1790	655	210	1144	598	184	1658	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.38	0.23		0.31	0.48	0.30	0.48	0.46	0.05	0.57	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 54 (49%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 57.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	539	132	238	1033	286	231	915	149	265	786	135
Future Volume (vph)	123	539	132	238	1033	286	231	915	149	265	786	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.970			0.967			0.979			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4768	0	1694	4754	0	1711	4813	0	1711	4808	0
Flt Permitted	0.104			0.282			0.147			0.114		
Satd. Flow (perm)	187	4768	0	503	4754	0	265	4813	0	205	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			60			24			26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	132	580	142	253	1099	304	260	1028	167	294	873	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	722	0	253	1403	0	260	1195	0	294	1023	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2		6.0	48.2		10.0	30.8		10.0	30.8	
Total Split (s)	13.0	44.0		11.0	42.0		30.0	35.0		30.0	35.0	
Total Split (%)	10.8%	36.7%		9.2%	35.0%		25.0%	29.2%		25.0%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8		4.0	5.8		4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	48.8	38.5		49.5	39.2		53.2	33.8		55.8	35.1	
Actuated g/C Ratio	0.41	0.32		0.41	0.33		0.44	0.28		0.46	0.29	
v/c Ratio	0.72	0.46		0.85	0.88		0.79	0.87		0.89	0.72	
Control Delay	54.8	47.7		55.0	44.8		42.2	48.6		57.3	40.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.8	47.7		55.0	44.8		42.2	48.6		57.3	40.8	
LOS	D	D		D	D		D	D		E	D	
Approach Delay		48.8			46.3			47.4			44.5	
Approach LOS		D			D			D			D	
Stops (vph)	98	1344		162	1123		155	918		198	778	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	46		13	71		5	28		7	22	
CO Emissions (g/hr)	478	3243		890	4940		363	1946		484	1544	
NOx Emissions (g/hr)	93	631		173	961		71	379		94	300	
VOC Emissions (g/hr)	111	752		206	1145		84	451		112	358	
Dilemma Vehicles (#)	0	24		0	53		0	40		0	32	
Queue Length 50th (ft)	88	204		130	375		123	307		166	243	
Queue Length 95th (ft)	m#144	m205		#292	#476		207	#435		264	328	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	190	1564		299	1592		440	1372		425	1425	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.69	0.46		0.85	0.88		0.59	0.87		0.69	0.72	

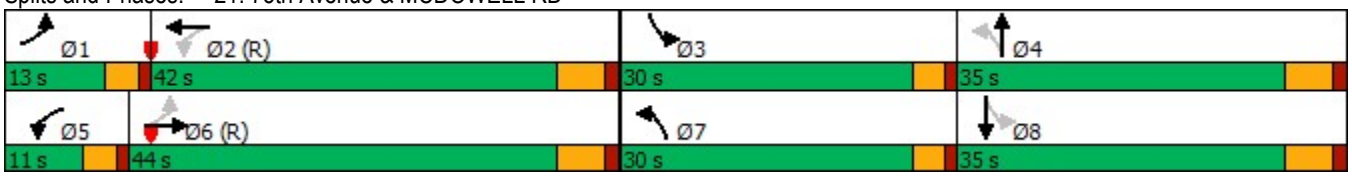
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 46.6 Intersection LOS: D
Intersection Capacity Utilization 79.7% ICU Level of Service D
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	170	10	454	377	1220	0	0	774	354
Future Volume (vph)	0	0	0	170	10	454	377	1220	0	0	774	354
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.867	0.850						0.850
Flt Protected				0.950	0.997		0.950					
Satd. Flow (prot)	0	0	0	1572	1482	1531	1655	5175	0	0	5124	1611
Flt Permitted				0.950	0.997		0.950					
Satd. Flow (perm)	0	0	0	1572	1482	1531	1655	5175	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					68	111						385
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	11%	2%	2%	11%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	202	12	540	414	1341	0	0	841	385
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	182	286	286	414	1341	0	0	841	385
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							68.0				34.0	34.0
Total Split (%)							45.3%				22.7%	22.7%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				41.1	41.1	41.1	61.1	97.4			28.7	28.7
Actuated g/C Ratio				0.27	0.27	0.27	0.41	0.65			0.19	0.19
v/c Ratio				0.42	0.63	0.57	0.62	0.40			0.86	0.62
Control Delay				48.1	42.6	32.8	27.7	1.2			68.5	9.5
Queue Delay				0.2	0.7	0.0	3.2	0.4			0.0	0.0
Total Delay				48.4	43.3	32.8	30.9	1.6			68.5	9.5
LOS				D	D	C	C	A			E	A
Approach Delay					40.5			8.5			49.9	
Approach LOS					D			A			D	
Stops (vph)				124	163	128	229	64			726	33

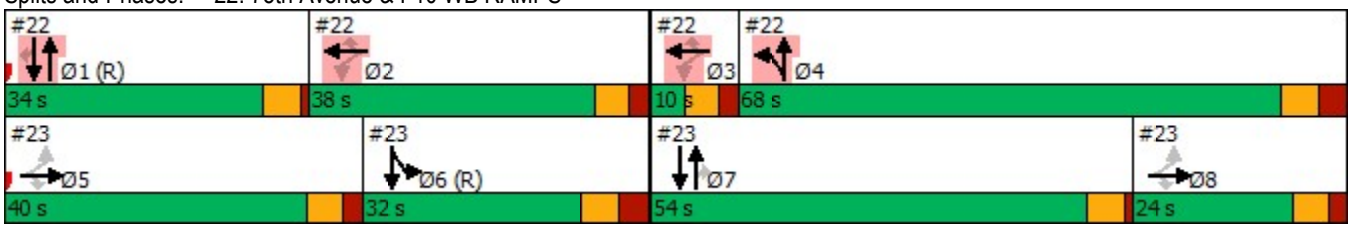
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	38.0	10.0	40.0	32.0	54.0	24.0
Total Split (%)	25%	7%	27%	21%	36%	16%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	7	6	6	5			24	3
CO Emissions (g/hr)				330	472	408	437	366			1686	214
NOx Emissions (g/hr)				64	92	79	85	71			328	42
VOC Emissions (g/hr)				77	109	95	101	85			391	50
Dilemma Vehicles (#)				0	8	0	0	13			26	0
Queue Length 50th (ft)				153	206	154	210	7			295	0
Queue Length 95th (ft)				215	289	229	m286	m19			350	97
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				417	443	488	673	3359			980	619
Starvation Cap Reductn				0	0	0	166	1297			0	0
Spillback Cap Reductn				31	29	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.47	0.69	0.59	0.82	0.65			0.86	0.62

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 28.6 Intersection LOS: C
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	644	4	451	0	0	0	0	983	242	316	682	0
Future Volume (vph)	644	4	451	0	0	0	0	983	242	316	682	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	0		150	0		0
Storage Lanes	1		1	0		0	0		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt		0.957	0.850						0.850			
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1551	1394	0	0	0	0	3532	1536	3493	3465	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1551	1394	0	0	0	0	3532	1536	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16	179						129			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.95	0.95	0.95	0.25	0.25	0.25	0.91	0.91	0.91	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	12%	0%	0%	0%	0%	4%	7%	2%	6%	0%
Adj. Flow (vph)	678	4	475	0	0	0	0	1080	266	333	718	0
Shared Lane Traffic (%)	41%		24%									
Lane Group Flow (vph)	400	396	361	0	0	0	0	1080	266	333	718	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								54.0	54.0	32.0		
Total Split (%)								36.0%	36.0%	21.3%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	48.7	48.7	48.7					48.9	48.9	33.2	87.3	
Actuated g/C Ratio	0.32	0.32	0.32					0.33	0.33	0.22	0.58	
v/c Ratio	0.72	0.77	0.63					0.94	0.45	0.43	0.36	
Control Delay	51.7	53.6	24.8					64.5	22.6	19.5	21.4	
Queue Delay	0.0	0.0	0.0					0.6	0.0	0.0	1.2	
Total Delay	51.7	53.6	24.8					65.1	22.6	19.5	22.7	
LOS	D	D	C					E	C	B	C	
Approach Delay		44.0						56.7			21.7	
Approach LOS		D						E			C	
Stops (vph)	325	318	150					898	100	251	623	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	34.0	38.0	10.0	68.0	40.0	24.0
Total Split (%)	23%	25%	7%	45%	27%	16%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

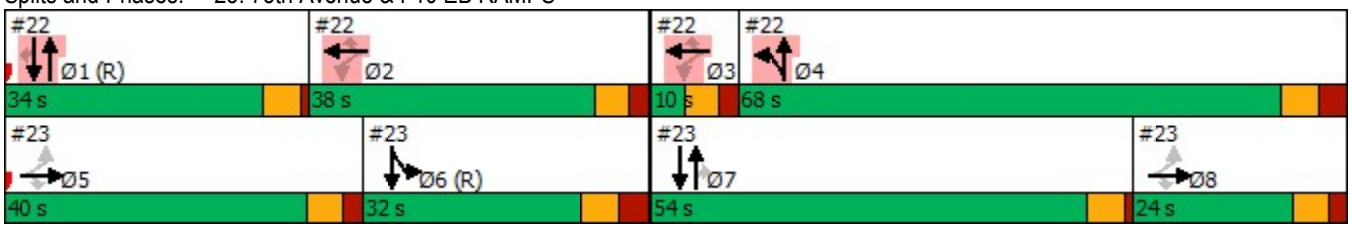
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	12	12	7					48	8	5	13	
CO Emissions (g/hr)	833	831	496					3335	571	381	912	
NOx Emissions (g/hr)	162	162	97					649	111	74	177	
VOC Emissions (g/hr)	193	193	115					773	132	88	211	
Dilemma Vehicles (#)	0	11	0					31	0	0	0	
Queue Length 50th (ft)	360	365	158					542	103	149	375	
Queue Length 95th (ft)	451	469	256					#680	190	m190	m448	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	671	618	655					1156	589	772	2023	
Starvation Cap Reductn	0	0	0					0	0	0	1026	
Spillback Cap Reductn	0	0	0					9	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.60	0.64	0.55					0.94	0.45	0.43	0.72	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 42.2 Intersection LOS: D
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	219	56	123	661	217	133	738	99	137	786	128
Future Volume (vph)	33	219	56	123	661	217	133	738	99	137	786	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		270	250		0	220		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.969				0.850		0.982			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3008	0	1631	1733	1473	1531	3233	0	1504	3110	0
Flt Permitted	0.092			0.495			0.101			0.110		
Satd. Flow (perm)	155	3008	0	850	1733	1473	163	3233	0	174	3110	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30				168		13			16	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	9%	11%	18%	7%	6%	6%	14%	6%	6%	16%	10%	9%
Adj. Flow (vph)	38	249	64	132	711	233	149	829	111	152	873	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	313	0	132	711	233	149	940	0	152	1015	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		2.0	15.0	
Minimum Split (s)	9.5	52.0		9.5	52.0	52.0	9.5	34.0		16.0	50.0	
Total Split (s)	12.0	48.0		12.0	48.0	48.0	14.0	45.0		15.0	46.0	
Total Split (%)	10.0%	40.0%		10.0%	40.0%	40.0%	11.7%	37.5%		12.5%	38.3%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	5.3		4.0	5.3	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes	Yes		Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	51.0	43.5		53.6	48.3	48.3	49.8	39.5		51.7	40.0	
Actuated g/C Ratio	0.42	0.36		0.45	0.40	0.40	0.42	0.33		0.43	0.33	
v/c Ratio	0.26	0.28		0.31	1.02	0.34	0.85	0.88		0.80	0.97	
Control Delay	34.9	33.6		7.6	53.3	0.9	70.1	37.7		53.5	60.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	34.9	33.6		7.6	53.3	0.9	70.1	37.7		53.5	60.6	
LOS	C	C		A	D	A	E	D		D	E	
Approach Delay		33.7			36.3			42.1			59.7	
Approach LOS		C			D			D			E	
Stops (vph)	25	385		21	502	1	120	789		81	816	

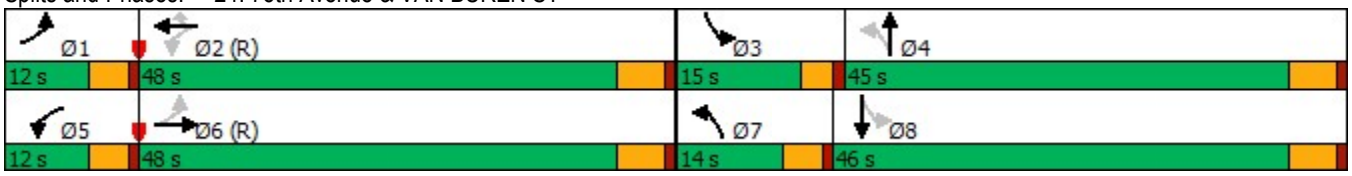
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	16		5	37	8	8	45		6	43	
CO Emissions (g/hr)	116	1109		332	2554	534	558	3152		405	3033	
NOx Emissions (g/hr)	23	216		65	497	104	108	613		79	590	
VOC Emissions (g/hr)	27	257		77	592	124	129	731		94	703	
Dilemma Vehicles (#)	0	36		0	8	0	0	16		0	35	
Queue Length 50th (ft)	18	71		18	~647	0	57	384		68	396	
Queue Length 95th (ft)	m51	151		m26	m#888	m1	m#169	#463		#172	#539	
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200			200		270	250			220		
Base Capacity (vph)	157	1108		428	697	693	176	1080		197	1065	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.28		0.31	1.02	0.34	0.85	0.87		0.77	0.95	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 111 (93%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 45.2 Intersection LOS: D
Intersection Capacity Utilization 81.6% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	335	85	151	887	128	97	486	54	143	556	85
Future Volume (vph)	47	335	85	151	887	128	97	486	54	143	556	85
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		0	260		0	270		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.981			0.985			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	3113	1442	1685	3317	0	1685	3269	0	1640	3345	0
Flt Permitted	0.157			0.454			0.203			0.142		
Satd. Flow (perm)	269	3113	1442	805	3317	0	360	3269	0	245	3345	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105		13			10			14	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4741			2586			1298			2861	
Travel Time (s)		64.7			35.3			19.7			43.3	
Peak Hour Factor	0.82	0.82	0.82	0.91	0.91	0.91	0.78	0.78	0.78	0.95	0.95	0.95
Heavy Vehicles (%)	13%	18%	14%	9%	8%	13%	9%	10%	17%	12%	8%	5%
Adj. Flow (vph)	57	409	104	166	975	141	124	623	69	151	585	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	409	104	166	1116	0	124	692	0	151	674	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		
Detector Phase	1	6	6	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0		17.0	30.0		17.0	30.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		20.0	44.0		16.0	40.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		16.7%	36.7%		13.3%	33.3%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1		0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1		3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	61.1	51.5	51.5	68.1	57.0		40.7	29.0		45.1	31.2	
Actuated g/C Ratio	0.51	0.43	0.43	0.57	0.48		0.34	0.24		0.38	0.26	
v/c Ratio	0.27	0.31	0.15	0.31	0.71		0.56	0.87		0.67	0.77	
Control Delay	17.4	25.4	5.7	13.8	21.9		33.1	55.0		41.3	53.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.4	25.4	5.7	13.8	21.9		33.1	55.0		41.3	53.3	
LOS	B	C	A	B	C		C	D		D	D	
Approach Delay		21.0			20.8			51.6			51.1	
Approach LOS		C			C			D			D	
Stops (vph)	24	222	11	47	432		63	498		127	1032	

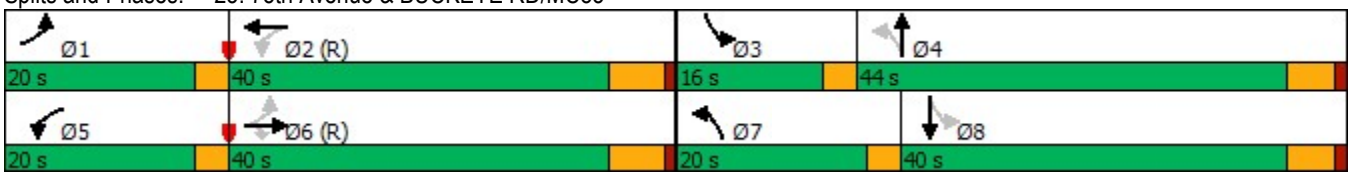
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	16	3	6	45		2	17		8	42	
CO Emissions (g/hr)	147	1139	217	432	3149		158	1173		539	2925	
NOx Emissions (g/hr)	29	222	42	84	613		31	228		105	569	
VOC Emissions (g/hr)	34	264	50	100	730		37	272		125	678	
Dilemma Vehicles (#)	0	14	0	0	64		0	18		0	6	
Queue Length 50th (ft)	19	108	0	32	143		62	268		106	283	
Queue Length 95th (ft)	41	158	31	m75	#397		81	263		m120	m310	
Internal Link Dist (ft)		4661			2506			1218			2781	
Turn Bay Length (ft)	260		190	270			260			270		
Base Capacity (vph)	344	1335	678	581	1581		325	1055		243	980	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.31	0.15	0.29	0.71		0.38	0.66		0.62	0.69	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 35.2 Intersection LOS: D
Intersection Capacity Utilization 62.8% ICU Level of Service B
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	538	151	196	1096	277	219	802	86	179	720	157
Future Volume (vph)	147	538	151	196	1096	277	219	802	86	179	720	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.967				0.850		0.985			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3308	0	1711	3421	1531	1711	4842	0	1711	4783	0
Flt Permitted	0.094			0.278			0.153			0.165		
Satd. Flow (perm)	169	3308	0	501	3421	1531	276	4842	0	297	4783	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41				298		17			43	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	158	578	162	211	1178	298	241	881	95	203	818	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	740	0	211	1178	298	241	976	0	203	996	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		8.0	15.0	
Minimum Split (s)	11.0	50.3		9.0	48.3	48.3	9.0	33.0		12.0	28.3	
Total Split (s)	10.0	48.0		9.0	47.0	47.0	17.0	33.0		15.0	31.0	
Total Split (%)	9.5%	45.7%		8.6%	44.8%	44.8%	16.2%	31.4%		14.3%	29.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		Min	Ped	
Act Effct Green (s)	51.8	42.7		49.6	41.6	41.6	40.3	26.2		36.3	24.2	
Actuated g/C Ratio	0.49	0.41		0.47	0.40	0.40	0.38	0.25		0.35	0.23	
v/c Ratio	0.83	0.54		0.69	0.87	0.38	0.86	0.80		0.82	0.88	
Control Delay	53.5	24.1		31.1	37.6	4.0	53.2	41.8		49.8	46.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.5	24.1		31.1	37.6	4.0	53.2	41.8		49.8	46.9	
LOS	D	C		C	D	A	D	D		D	D	
Approach Delay		29.3			30.9			44.1			47.4	
Approach LOS		C			C			D			D	
Stops (vph)	68	480		124	958	24	142	795		118	782	
Fuel Used(gal)	7	33		4	29	3	5	21		7	34	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	519	2283		305	2038	193	353	1440		469	2400	
NOx Emissions (g/hr)	101	444		59	397	38	69	280		91	467	
VOC Emissions (g/hr)	120	529		71	472	45	82	334		109	556	
Dilemma Vehicles (#)	0	33		0	51	0	0	35		0	38	
Queue Length 50th (ft)	55	185		77	378	0	108	218		88	224	
Queue Length 95th (ft)	#185	244		#147	#482	52	#238	269		#186	269	
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	191	1370		308	1355	786	284	1285		251	1198	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.83	0.54		0.69	0.87	0.38	0.85	0.76		0.81	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	139	400	388	404	767	0	0	732	246
Future Volume (vph)	0	0	0	139	400	388	404	767	0	0	732	246
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.962	0.850						0.850
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1533	3128	1466	1733	5175	0	0	5175	1611
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1533	3128	1466	1733	5175	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					34	137						185
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.89	0.89	0.89	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	9%	2%	2%	6%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	165	476	462	454	862	0	0	787	265
Shared Lane Traffic (%)				10%		36%						
Lane Group Flow (vph)	0	0	0	148	659	296	454	862	0	0	787	265
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							44.0				30.0	30.0
Total Split (%)							33.8%				23.1%	23.1%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				40.3	40.3	40.3	46.2	78.1			24.2	24.2
Actuated g/C Ratio				0.31	0.31	0.31	0.36	0.60			0.19	0.19
v/c Ratio				0.31	0.66	0.54	0.74	0.28			0.82	0.59
Control Delay				35.3	40.0	22.4	30.3	2.1			58.6	20.9
Queue Delay				0.0	0.0	0.0	3.4	0.0			0.0	0.0
Total Delay				35.3	40.0	22.4	33.8	2.1			58.6	20.9
LOS				D	D	C	C	A			E	C
Approach Delay					34.6			13.0			49.1	
Approach LOS					C			B			D	
Stops (vph)				91	446	109	295	149			687	76

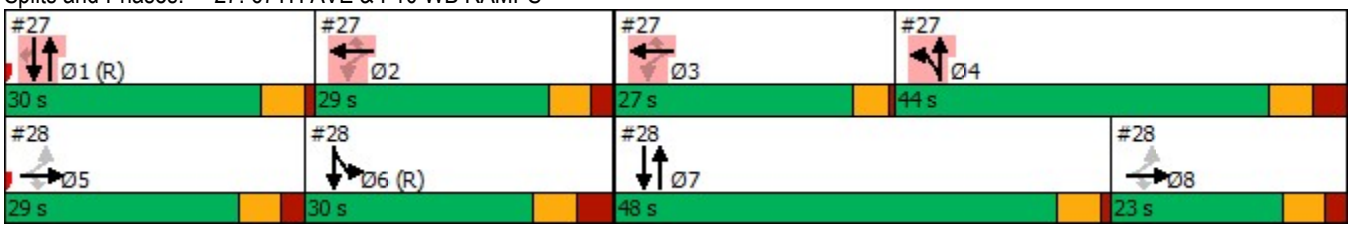
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	29.0	27.0	29.0	30.0	48.0	23.0
Total Split (%)	22%	21%	22%	23%	37%	18%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				3	15	5	7	5			20	3
CO Emissions (g/hr)				217	1041	326	478	316			1383	227
NOx Emissions (g/hr)				42	203	63	93	62			269	44
VOC Emissions (g/hr)				50	241	76	111	73			320	53
Dilemma Vehicles (#)				0	7	0	0	5			28	0
Queue Length 50th (ft)				106	272	121	264	8			234	58
Queue Length 95th (ft)				143	283	176	m#468	m95			285	151
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				590	1225	649	616	3129			983	455
Starvation Cap Reductn				0	0	0	89	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.25	0.54	0.46	0.86	0.28			0.80	0.58

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 30.8 Intersection LOS: C
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	500	250	275	0	0	0	0	1208	159	252	580	0
Future Volume (vph)	500	250	275	0	0	0	0	1208	159	252	580	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	0.91	0.97	0.95	1.00
Frt		0.988	0.850					0.983				
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1639	3131	1359	0	0	0	0	5003	0	3493	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1639	3131	1359	0	0	0	0	5003	0	3493	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7	237					19				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	3%	9%	2%	5%	0%
Adj. Flow (vph)	588	294	324	0	0	0	0	1313	173	274	630	0
Shared Lane Traffic (%)	48%		15%									
Lane Group Flow (vph)	306	625	275	0	0	0	0	1486	0	274	630	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								48.0		30.0		
Total Split (%)								36.9%		23.1%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	38.9	38.9	38.9					42.3		29.2	76.8	
Actuated g/C Ratio	0.30	0.30	0.30					0.33		0.22	0.59	
v/c Ratio	0.62	0.66	0.48					0.91		0.35	0.30	
Control Delay	44.8	42.7	9.2					50.2		12.8	11.7	
Queue Delay	0.0	0.0	0.0					0.6		0.0	0.0	
Total Delay	44.8	42.7	9.2					50.8		12.8	11.7	
LOS	D	D	A					D		B	B	
Approach Delay		35.6						50.8			12.0	
Approach LOS		D						D			B	
Stops (vph)	218	446	37					1240		203	490	

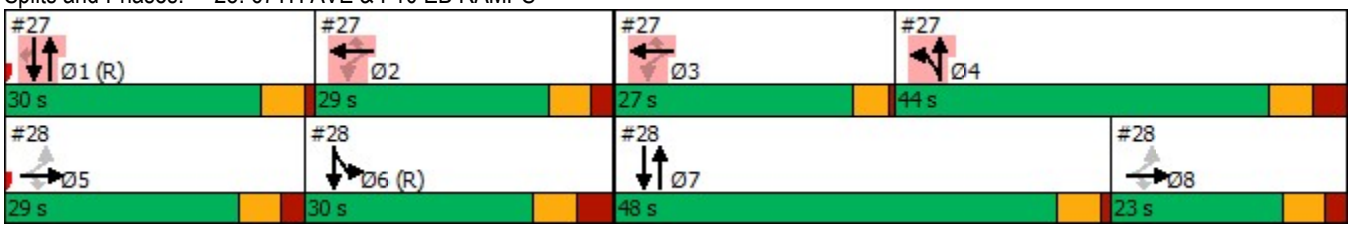
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	29.0	27.0	44.0	29.0	23.0
Total Split (%)	23%	22%	21%	34%	22%	18%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	16	3					61		4	8	
CO Emissions (g/hr)	546	1100	235					4291		248	578	
NOx Emissions (g/hr)	106	214	46					835		48	112	
VOC Emissions (g/hr)	127	255	54					994		58	134	
Dilemma Vehicles (#)	0	17	0					50		0	0	
Queue Length 50th (ft)	246	267	25					431		70	247	
Queue Length 95th (ft)	304	290	82					497		m145	330	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	582	1117	635					1656		784	2077	
Starvation Cap Reductn	0	0	0					0		0	0	
Spillback Cap Reductn	3	6	0					31		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.53	0.56	0.43					0.91		0.35	0.30	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 36.0 Intersection LOS: D
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

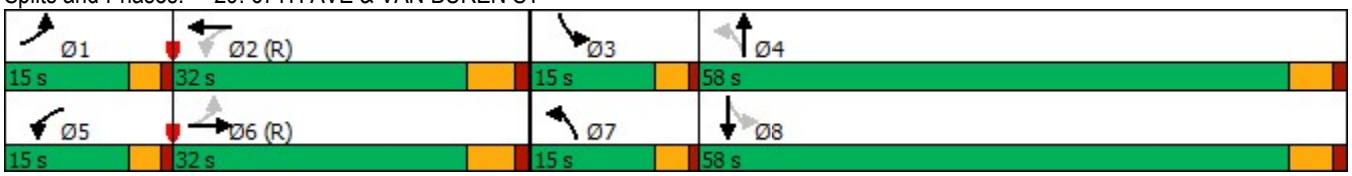
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	352	96	204	773	131	177	902	107	88	440	82
Future Volume (vph)	114	352	96	204	773	131	177	902	107	88	440	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		0	250		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.968			0.978			0.984			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3077	0	1646	4601	0	1572	3251	0	1572	3096	0
Flt Permitted	0.138			0.263			0.340			0.086		
Satd. Flow (perm)	222	3077	0	456	4601	0	563	3251	0	142	3096	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			25			13			23	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91
Heavy Vehicles (%)	14%	10%	9%	6%	6%	10%	11%	5%	11%	11%	10%	10%
Adj. Flow (vph)	133	409	112	234	889	151	203	1037	123	97	484	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	521	0	234	1040	0	203	1160	0	97	574	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	9.0	52.0		9.0	52.0		9.0	50.0		9.0	50.0	
Total Split (s)	15.0	32.0		15.0	32.0		15.0	58.0		15.0	58.0	
Total Split (%)	12.5%	26.7%		12.5%	26.7%		12.5%	48.3%		12.5%	48.3%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7		4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes			Yes			Yes			Yes	
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	42.3	29.0		47.4	32.0		59.7	47.3		57.7	46.3	
Actuated g/C Ratio	0.35	0.24		0.40	0.27		0.50	0.39		0.48	0.39	
v/c Ratio	0.65	0.68		0.72	0.83		0.55	0.90		0.52	0.48	
Control Delay	41.7	45.7		42.1	48.5		25.0	43.6		26.9	27.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.7	45.7		42.1	48.5		25.0	43.6		26.9	27.3	
LOS	D	D		D	D		C	D		C	C	
Approach Delay		44.9			47.4			40.8			27.2	
Approach LOS		D			D			D			C	
Stops (vph)	79	398		135	749		94	679		45	358	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	25		6	32		8	51		3	20	
CO Emissions (g/hr)	415	1733		452	2218		567	3595		223	1388	
NOx Emissions (g/hr)	81	337		88	431		110	699		43	270	
VOC Emissions (g/hr)	96	402		105	514		131	833		52	322	
Dilemma Vehicles (#)	0	6		0	35		0	89		0	16	
Queue Length 50th (ft)	72	197		125	284		80	342		36	163	
Queue Length 95th (ft)	m112	m242		#226	#375		m112	384		74	200	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250			250			250			260		
Base Capacity (vph)	209	764		324	1246		372	1432		200	1369	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.64	0.68		0.72	0.83		0.55	0.81		0.48	0.42	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 41.3 Intersection LOS: D
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	431	86	143	895	112	102	558	52	58	485	173
Future Volume (vph)	119	431	86	143	895	112	102	558	52	58	485	173
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		0	200		0	260		260
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.975			0.983			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1701	3101	0	1749	3202	0	1783	3445	0	1371	3465	1480
Flt Permitted	0.138			0.318			0.264			0.143		
Satd. Flow (perm)	247	3101	0	586	3202	0	496	3445	0	206	3465	1480
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			13			8				178
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.79	0.79	0.79	0.97	0.97	0.97
Heavy Vehicles (%)	8%	17%	8%	5%	12%	19%	3%	5%	8%	34%	6%	11%
Adj. Flow (vph)	153	553	110	155	973	122	129	706	66	60	500	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	663	0	155	1095	0	129	772	0	60	500	178
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0		12.0	32.0		17.0	37.0	37.0
Total Split (s)	11.0	43.0		21.0	53.0		18.0	38.0		18.0	38.0	38.0
Total Split (%)	9.2%	35.8%		17.5%	44.2%		15.0%	31.7%		15.0%	31.7%	31.7%
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2		0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5		3.0	5.2		3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	Ped
Act Effct Green (s)	66.6	53.9		66.8	54.4		43.5	31.6		38.4	27.4	27.4
Actuated g/C Ratio	0.56	0.45		0.56	0.45		0.36	0.26		0.32	0.23	0.23
v/c Ratio	0.59	0.47		0.36	0.75		0.43	0.84		0.40	0.63	0.37
Control Delay	33.6	20.4		15.4	32.4		29.0	50.9		35.1	52.1	10.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	33.6	20.4		15.4	32.4		29.0	50.9		35.1	52.1	10.5
LOS	C	C		B	C		C	D		D	D	B
Approach Delay		22.9			30.3			47.7			40.7	
Approach LOS		C			C			D			D	
Stops (vph)	86	237		67	807		66	559		40	401	62

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	23		3	31		2	16		3	26	7
CO Emissions (g/hr)	416	1590		235	2192		140	1142		200	1838	498
NOx Emissions (g/hr)	81	309		46	427		27	222		39	358	97
VOC Emissions (g/hr)	96	368		55	508		32	265		46	426	115
Dilemma Vehicles (#)	0	16		0	42		0	21		0	39	0
Queue Length 50th (ft)	47	130		53	370		67	301		32	183	13
Queue Length 95th (ft)	#116	145		102	495		86	296		m49	194	m43
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250			200			260		260
Base Capacity (vph)	260	1404		516	1458		342	967		219	951	535
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.59	0.47		0.30	0.75		0.38	0.80		0.27	0.53	0.33

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 35.0 Intersection LOS: C
Intersection Capacity Utilization 62.8% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1300	600	0	500	1000		
Future Volume (vph)	0	1300	600	0	500	1000		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	1	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6520	3601	0	1801	2836		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6520	3601	0	1801	2836		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						362		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1413	652	0	543	1087		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1413	652	0	543	1087		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		53.0	53.0		37.0	37.0	13.0	40.0
Total Split (%)		58.9%	58.9%		41.1%	41.1%	14%	44%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		46.0	46.0		30.0	30.0		
Actuated g/C Ratio		0.51	0.51		0.33	0.33		
v/c Ratio		0.42	0.35		0.91	0.92		
Control Delay		14.2	8.7		49.8	32.4		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		14.2	8.7		49.8	32.4		
LOS		B	A		D	C		
Approach Delay		14.2	8.7		38.2			
Approach LOS		B	A		D			
Stops (vph)		765	156		431	642		
Fuel Used(gal)		21	5		18	30		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		1500	333		1261	2083		
NOx Emissions (g/hr)		292	65		245	405		
VOC Emissions (g/hr)		348	77		292	483		
Dilemma Vehicles (#)		61	59		0	0		
Queue Length 50th (ft)		138	58		292	236		
Queue Length 95th (ft)		165	m57		#486	#386		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3332	1840		600	1186		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.42	0.35		0.91	0.92		

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 23.8	Intersection LOS: C
Intersection Capacity Utilization 100.6%	ICU Level of Service G
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: MCDOWELL RD & 101 SB RAMP

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	400	1400	600	600	0	0			
Future Volume (vph)	400	1400	600	600	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.925						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	2998	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	2998	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			317						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	435	1522	652	652	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	435	1522	1304	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			40.0				13.0	53.0	37.0
Total Split (%)			44.4%				14%	59%	41%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	43.0	90.0	33.0						
Actuated g/C Ratio	0.48	1.00	0.37						
v/c Ratio	0.29	0.47	1.00						
Control Delay	26.5	2.4	48.6						
Queue Delay	0.0	0.0	0.0						
Total Delay	26.5	2.4	48.6						
LOS	C	A	D						
Approach Delay		7.7	48.6						
Approach LOS		A	D						
Stops (vph)	298	301	851						
Fuel Used(gal)	7	9	52						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	492	598	3663						
NOx Emissions (g/hr)	96	116	713						
VOC Emissions (g/hr)	114	139	849						
Dilemma Vehicles (#)	0	0	62						
Queue Length 50th (ft)	101	87	~315						
Queue Length 95th (ft)	m129	m94	#479						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1502	3241	1300						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.29	0.47	1.00						

Intersection Summary	
Area Type: CBD	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 100.6%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 101: MCDOWELL RD & 101 NB RAMP

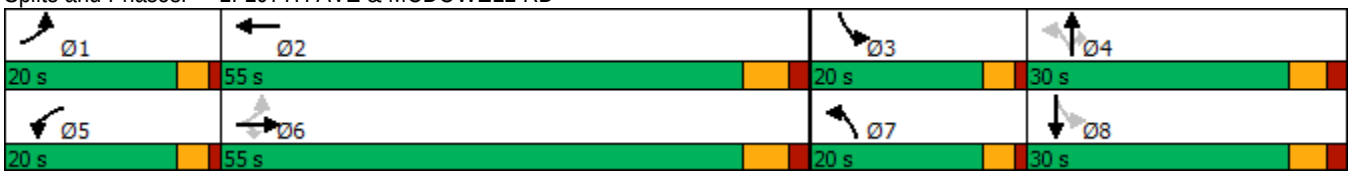
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	511	71	193	255	55	62	444	270	101	412	93
Future Volume (vph)	72	511	71	193	255	55	62	444	270	101	412	93
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	230		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.973				0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	5124	1595	3493	4874	0	1801	3601	1611	1701	3494	0
Flt Permitted	0.553			0.950			0.304			0.239		
Satd. Flow (perm)	1009	5124	1595	3493	4874	0	576	3601	1611	428	3494	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		44				240		19	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			15.2			9.3			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.98	0.98	0.98	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles (%)	6%	3%	3%	2%	5%	7%	2%	2%	2%	8%	2%	3%
Adj. Flow (vph)	76	538	75	197	260	56	65	467	284	104	425	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	538	75	197	316	0	65	467	284	104	521	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	20.0	55.0	55.0	20.0	55.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	16.0%	44.0%	44.0%	16.0%	44.0%		16.0%	24.0%	24.0%	16.0%	24.0%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	58.9	49.0	49.0	12.0	55.6		29.9	20.0	20.0	34.6	24.2	
Actuated g/C Ratio	0.53	0.44	0.44	0.11	0.50		0.27	0.18	0.18	0.31	0.22	
v/c Ratio	0.13	0.24	0.10	0.52	0.13		0.26	0.72	0.59	0.41	0.67	
Control Delay	11.4	21.0	3.3	53.2	14.6		29.2	50.4	14.1	32.2	44.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	11.4	21.0	3.3	53.2	14.6		29.2	50.4	14.1	32.2	44.2	
LOS	B	C	A	D	B		C	D	B	C	D	
Approach Delay		18.0			29.5			36.1			42.2	
Approach LOS		B			C			D			D	
Stops (vph)	34	308	6	175	139		42	403	54	68	433	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	8	0	11	13		1	12	3	2	14	
CO Emissions (g/hr)	63	578	30	758	925		90	871	224	159	964	
NOx Emissions (g/hr)	12	112	6	148	180		18	169	44	31	188	
VOC Emissions (g/hr)	15	134	7	176	214		21	202	52	37	223	
Dilemma Vehicles (#)	0	23	0	0	11		0	17	0	0	18	
Queue Length 50th (ft)	21	85	0	69	38		32	165	27	53	177	
Queue Length 95th (ft)	49	134	22	114	66		67	240	115	99	253	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160	230			120		120	150		
Base Capacity (vph)	706	2254	753	504	2455		360	793	542	322	819	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.11	0.24	0.10	0.39	0.13		0.18	0.59	0.52	0.32	0.64	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 111.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 44.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: 107TH AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	81	3	30	216	747	0	0	475	183
Future Volume (vph)	0	0	0	81	3	30	216	747	0	0	475	183
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.991	0.850					0.958	
Flt Protected				0.950	0.958		0.950					
Satd. Flow (prot)	0	0	0	1662	1596	1531	1685	3601	0	0	4957	0
Flt Permitted				0.950	0.958		0.950					
Satd. Flow (perm)	0	0	0	1662	1596	1531	1685	3601	0	0	4957	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					55	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		12.3			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.89	0.89	0.89	0.93	0.93	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	2%	2%	9%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	91	3	34	232	803	0	0	516	199
Shared Lane Traffic (%)				47%		10%						
Lane Group Flow (vph)	0	0	0	48	49	31	232	803	0	0	715	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				40.0	40.0	40.0					30.0	
Total Split (%)				26.7%	26.7%	26.7%					20.0%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				13.6	13.6	13.6	55.1	84.6			24.1	
Actuated g/C Ratio				0.13	0.13	0.13	0.51	0.78			0.22	
v/c Ratio				0.23	0.24	0.11	0.27	0.29			0.63	
Control Delay				47.2	46.1	0.8	15.2	0.9			38.9	
Queue Delay				0.0	0.0	0.0	1.4	0.7			0.0	
Total Delay				47.2	46.1	0.8	16.6	1.7			38.9	
LOS				D	D	A	B	A			D	
Approach Delay					35.5			5.0			38.9	
Approach LOS					D			A			D	
Stops (vph)				38	37	0	142	26			535	

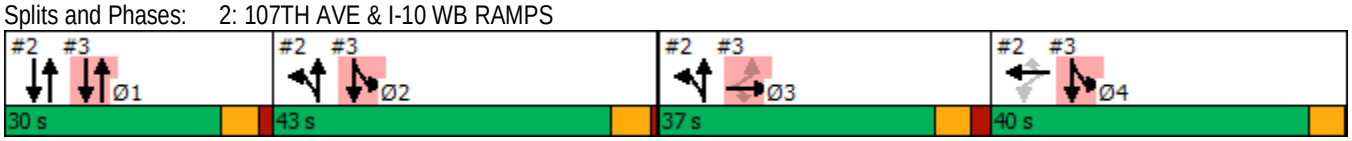
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	43.0	37.0
Total Split (%)	29%	25%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				1	1	0	3	2			16	
CO Emissions (g/hr)				79	79	12	205	152			1129	
NOx Emissions (g/hr)				15	15	2	40	30			220	
VOC Emissions (g/hr)				18	18	3	47	35			262	
Dilemma Vehicles (#)				0	1	0	0	21			30	
Queue Length 50th (ft)				31	32	0	114	7			152	
Queue Length 95th (ft)				74	78	0	m177	26			224	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				547	526	574	854	2802			1143	
Starvation Cap Reductn				0	0	0	438	1564			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.09	0.09	0.05	0.56	0.65			0.63	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 108.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 20.0 Intersection LOS: C
Intersection Capacity Utilization 44.5% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	117	433	0	0	0	0	655	214	43	525	0
Future Volume (vph)	298	117	433	0	0	0	0	655	214	43	525	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.924	0.850					0.963				
Flt Protected	0.950	0.995								0.950		
Satd. Flow (prot)	1711	1564	1501	0	0	0	0	4947	0	1717	3601	0
Flt Permitted	0.950	0.995								0.950		
Satd. Flow (perm)	1711	1564	1501	0	0	0	0	4947	0	1717	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31	339					47				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.97	0.97	0.97	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	4%	0%	0%	0%	0%	3%	2%	7%	2%	0%
Adj. Flow (vph)	359	141	522	0	0	0	0	675	221	48	590	0
Shared Lane Traffic (%)	10%		35%									
Lane Group Flow (vph)	323	360	339	0	0	0	0	896	0	48	590	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	37.0	37.0	37.0					30.0				
Total Split (%)	24.7%	24.7%	24.7%					20.0%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	31.1	31.1	31.1					24.1		30.6	65.4	
Actuated g/C Ratio	0.29	0.29	0.29					0.22		0.28	0.60	
v/c Ratio	0.66	0.77	0.51					0.79		0.10	0.27	
Control Delay	43.5	46.1	6.6					44.6		15.5	1.4	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.1	
Total Delay	43.5	46.1	6.6					44.6		15.5	1.5	
LOS	D	D	A					D		B	A	
Approach Delay		32.2						44.6			2.6	
Approach LOS		C						D			A	
Stops (vph)	231	234	28					738		35	27	

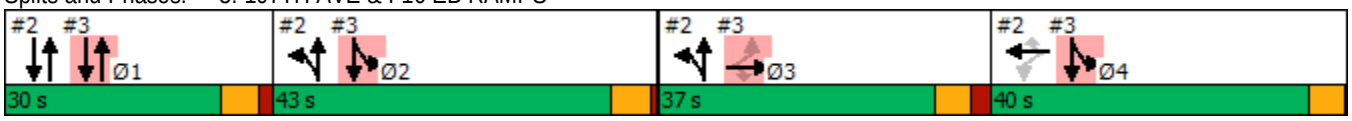
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	43.0	40.0
Total Split (%)	29%	27%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	7	2					39		1	2	
CO Emissions (g/hr)	466	510	155					2749		47	118	
NOx Emissions (g/hr)	91	99	30					535		9	23	
VOC Emissions (g/hr)	108	118	36					637		11	27	
Dilemma Vehicles (#)	0	13	0					39		0	2	
Queue Length 50th (ft)	207	230	0					205		28	9	
Queue Length 95th (ft)	324	#389	51					#310		m54	10	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	489	469	671					1135		1150	2830	
Starvation Cap Reductn	0	0	0					0		0	836	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.66	0.77	0.51					0.79		0.04	0.30	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 108.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 44.5% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

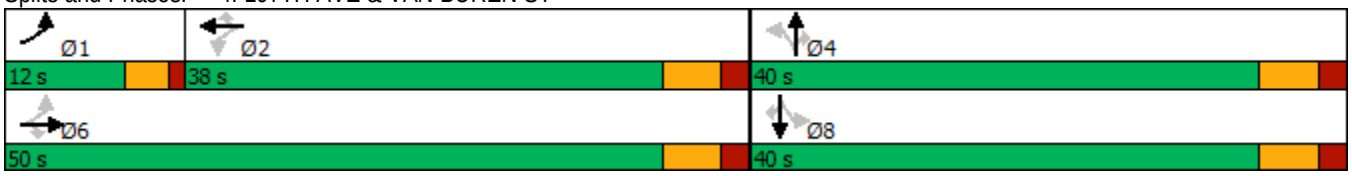
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	429	102	36	143	36	58	603	66	79	387	65
Future Volume (vph)	115	429	102	36	143	36	58	603	66	79	387	65
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	200		150	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1841	1580	1783	1726	1550	1801	3601	1550	1766	3532	1611
Flt Permitted	0.516			0.490			0.506			0.358		
Satd. Flow (perm)	978	1841	1580	920	1726	1550	959	3601	1550	666	3532	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			85			85			85
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			79.7			59.8	
Peak Hour Factor	0.90	0.90	0.90	0.78	0.78	0.78	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	3%	12%	6%	2%	2%	6%	4%	4%	2%
Adj. Flow (vph)	128	477	113	46	183	46	62	641	70	86	421	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	477	113	46	183	46	62	641	70	86	421	71
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	50.0	50.0	38.0	38.0	38.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	13.3%	55.6%	55.6%	42.2%	42.2%	42.2%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	26.9	24.9	24.9	16.3	16.3	16.3	21.9	21.9	21.9	21.9	21.9	21.9
Actuated g/C Ratio	0.46	0.42	0.42	0.28	0.28	0.28	0.37	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.24	0.62	0.15	0.18	0.39	0.09	0.17	0.48	0.11	0.35	0.32	0.11
Control Delay	10.6	17.4	3.2	20.6	21.8	2.1	15.6	16.5	3.5	20.0	15.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	17.4	3.2	20.6	21.8	2.1	15.6	16.5	3.5	20.0	15.0	3.5
LOS	B	B	A	C	C	A	B	B	A	C	B	A
Approach Delay		13.9			18.3			15.2			14.3	
Approach LOS		B			B			B			B	
Stops (vph)	58	305	14	29	109	2	40	429	8	57	256	8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	7	1	2	7	1	3	28	2	3	14	2
CO Emissions (g/hr)	102	499	47	122	482	89	186	1954	168	214	998	127
NOx Emissions (g/hr)	20	97	9	24	94	17	36	380	33	42	194	25
VOC Emissions (g/hr)	24	116	11	28	112	21	43	453	39	49	231	29
Dilemma Vehicles (#)	0	28	0	0	9	0	0	40	0	0	26	0
Queue Length 50th (ft)	23	116	0	12	52	0	15	91	0	22	55	0
Queue Length 95th (ft)	60	241	25	35	100	4	44	155	18	64	101	19
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170	200		150	210		160
Base Capacity (vph)	559	1401	1229	509	955	895	564	2117	946	391	2077	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.34	0.09	0.09	0.19	0.05	0.11	0.30	0.07	0.22	0.20	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 59
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 70.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: 107TH AVE & VAN BUREN ST



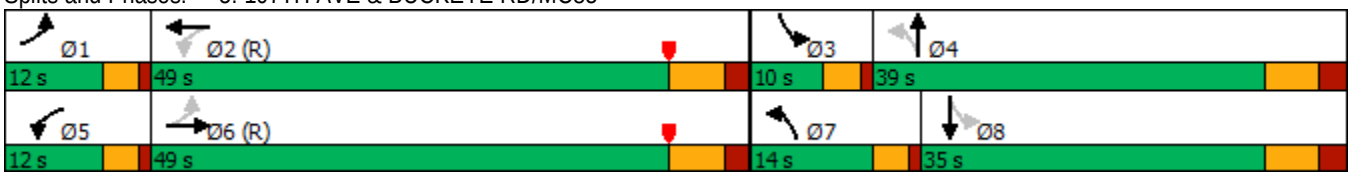
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	808	51	27	315	222	72	514	172	184	319	76
Future Volume (vph)	158	808	51	27	315	222	72	514	172	184	319	76
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.991			0.938			0.962			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3532	0	1717	3206	0	1801	3464	0	1655	3442	0
Flt Permitted	0.282			0.178			0.485			0.206		
Satd. Flow (perm)	535	3532	0	322	3206	0	919	3464	0	359	3442	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			189			42			25	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.96	0.96	0.96	0.86	0.86	0.86
Heavy Vehicles (%)	2%	3%	4%	7%	5%	11%	2%	2%	2%	11%	4%	2%
Adj. Flow (vph)	172	878	55	31	358	252	75	535	179	214	371	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	933	0	31	610	0	75	714	0	214	459	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	49.0		12.0	49.0		14.0	39.0		10.0	35.0	
Total Split (%)	10.9%	44.5%		10.9%	44.5%		12.7%	35.5%		9.1%	31.8%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	50.4	42.9		45.4	37.1		43.0	33.0		47.1	38.0	
Actuated g/C Ratio	0.46	0.39		0.41	0.34		0.39	0.30		0.43	0.35	
v/c Ratio	0.51	0.68		0.15	0.51		0.18	0.67		0.77	0.38	
Control Delay	21.9	30.4		21.2	35.3		20.2	35.5		46.8	29.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	30.4		21.2	35.3		20.2	35.5		46.8	29.0	
LOS	C	C		C	D		C	D		D	C	
Approach Delay		29.1			34.6			34.1			34.6	
Approach LOS		C			C			C			C	
Stops (vph)	87	682		18	898		43	555		101	283	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	22		1	36		1	17		9	19	
CO Emissions (g/hr)	218	1512		91	2493		97	1197		650	1352	
NOx Emissions (g/hr)	42	294		18	485		19	233		126	263	
VOC Emissions (g/hr)	51	350		21	578		22	277		151	313	
Dilemma Vehicles (#)	0	39		0	65		0	31		0	18	
Queue Length 50th (ft)	67	287		16	171		30	221		95	126	
Queue Length 95th (ft)	102	350		32	170		62	288		#247	179	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	337	1400		241	1349		462	1067		277	1206	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.51	0.67		0.13	0.45		0.16	0.67		0.77	0.38	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 32.6 Intersection LOS: C
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85



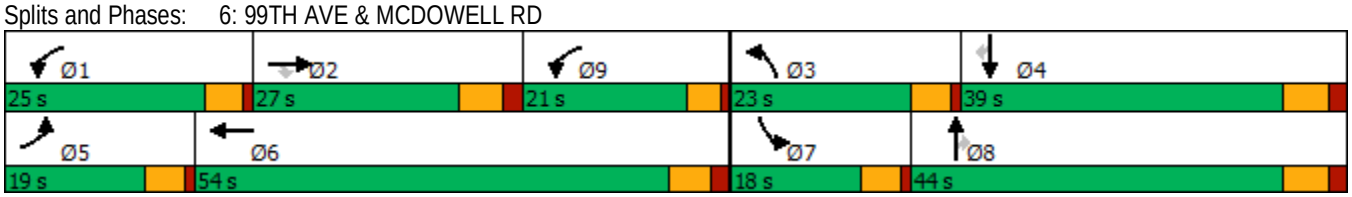
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	673	116	542	475	13	145	436	615	131	191	36
Future Volume (vph)	55	673	116	542	475	13	145	436	615	131	191	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202		2				634			200
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.84	0.84	0.84	0.94	0.94	0.94	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	3%	5%	3%	8%	8%	3%	6%	9%	4%	3%
Adj. Flow (vph)	65	801	138	577	505	14	149	449	634	135	197	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	801	138	577	519	0	149	449	634	135	197	37
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	19.0	27.0	27.0		54.0		23.0	44.0	44.0	18.0	39.0	39.0
Total Split (%)	14.1%	20.0%	20.0%		40.0%		17.0%	32.6%	32.6%	13.3%	28.9%	28.9%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	None	None	None
Act Effct Green (s)	8.0	40.3	40.3	30.3	70.2		11.4	22.2	22.2	10.6	21.3	21.3
Actuated g/C Ratio	0.06	0.31	0.31	0.23	0.53		0.09	0.17	0.17	0.08	0.16	0.16
v/c Ratio	0.31	0.74	0.22	0.75	0.28		0.53	0.53	0.65	0.52	0.24	0.09
Control Delay	66.0	47.4	1.5	30.8	18.9		66.0	52.7	6.9	67.4	49.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	47.4	1.5	30.8	18.9		66.0	52.7	6.9	67.4	49.5	0.4
LOS	E	D	A	C	B		E	D	A	E	D	A
Approach Delay		42.3			25.2			30.7			51.1	
Approach LOS		D			C			C			D	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	25.0	21.0
Total Split (%)	19%	16%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	50	586	2	474	260		132	384	44	120	159	0
Fuel Used(gal)	3	37	4	13	8		4	12	5	5	6	0
CO Emissions (g/hr)	226	2568	281	892	576		311	840	352	341	435	31
NOx Emissions (g/hr)	44	500	55	173	112		60	163	69	66	85	6
VOC Emissions (g/hr)	52	595	65	207	133		72	195	82	79	101	7
Dilemma Vehicles (#)	0	25	0	0	15		0	13	0	0	6	0
Queue Length 50th (ft)	28	327	0	113	129		64	130	0	58	54	0
Queue Length 95th (ft)	53	423	0	168	198		107	178	55	101	85	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	368	1084	620	919	1860		446	1442	1220	319	1237	539
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.74	0.22	0.63	0.28		0.33	0.31	0.52	0.42	0.16	0.07

Intersection Summary	
Area Type: Other	
Cycle Length: 135	
Actuated Cycle Length: 131.6	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 34.3	Intersection LOS: C
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: 99TH AVE & MCDOWELL RD



Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	335	251	173	171	1107	0	0	774	69
Future Volume (vph)	0	0	0	335	251	173	171	1107	0	0	774	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.994	0.850					0.988	
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1381	2866	1379	1466	4868	0	0	6012	0
Flt Permitted				0.950	0.983		0.950					
Satd. Flow (perm)	0	0	0	1381	2866	1379	1466	4868	0	0	6012	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	63					13	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.96	0.96	0.96	0.94	0.94	0.94	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	15%	4%	3%	19%	3%	0%	0%	4%	2%
Adj. Flow (vph)	0	0	0	349	261	180	182	1178	0	0	900	80
Shared Lane Traffic (%)				41%		10%						
Lane Group Flow (vph)	0	0	0	206	422	162	182	1178	0	0	980	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							10.0				20.0	
Minimum Split (s)							47.8				28.9	
Total Split (s)							40.0				45.0	
Total Split (%)							26.7%				30.0%	
Yellow Time (s)							3.9				4.7	
All-Red Time (s)							1.9				1.2	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							5.8				5.9	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				C-Min	
Act Effct Green (s)				54.3	54.3	54.3	32.1	83.9			46.1	
Actuated g/C Ratio				0.36	0.36	0.36	0.21	0.56			0.31	
v/c Ratio				0.41	0.41	0.30	0.58	0.43			0.53	
Control Delay				37.7	36.2	20.8	77.0	3.9			45.1	
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay				37.7	36.2	20.8	77.0	3.9			45.1	
LOS				D	D	C	E	A			D	
Approach Delay					33.4			13.7			45.1	
Approach LOS					C			B			D	
Stops (vph)				143	291	65	138	98			681	

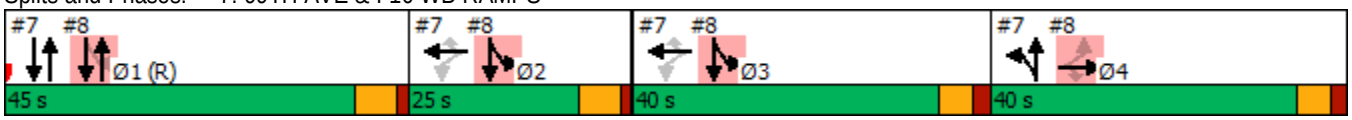
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	30.0	45.8
Total Split (s)	25.0	40.0
Total Split (%)	17%	27%
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.2	1.9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	11	3	5	6			21	
CO Emissions (g/hr)				383	772	223	349	414			1480	
NOx Emissions (g/hr)				74	150	43	68	81			288	
VOC Emissions (g/hr)				89	179	52	81	96			343	
Dilemma Vehicles (#)				0	12	0	0	27			28	
Queue Length 50th (ft)				157	168	69	139	26			244	
Queue Length 95th (ft)				237	220	135	222	28			268	
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				544	1131	581	334	2693			1854	
Starvation Cap Reductn				0	0	0	0	227			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.38	0.37	0.28	0.54	0.48			0.53	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 155
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 28.5 Intersection LOS: C
Intersection Capacity Utilization 44.0% ICU Level of Service A
Analysis Period (min) 15
Description: WB I-10 Off ramp

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	353	90	258	0	0	0	0	884	206	85	1066	0
Future Volume (vph)	353	90	258	0	0	0	0	884	206	85	1066	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		200	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.91	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.977								0.950		
Satd. Flow (prot)	1557	2845	1292	0	0	0	0	5905	1334	1711	4643	0
Flt Permitted	0.950	0.977								0.207		
Satd. Flow (perm)	1557	2845	1292	0	0	0	0	5905	1334	373	4643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27	108						215			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			8.1	
Peak Hour Factor	0.91	0.91	0.91	0.25	0.25	0.25	0.96	0.96	0.96	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	7%	17%	2%	8%	0%
Adj. Flow (vph)	388	99	284	0	0	0	0	921	215	97	1211	0
Shared Lane Traffic (%)	48%		37%									
Lane Group Flow (vph)	202	390	179	0	0	0	0	921	215	97	1211	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						1		2 3	1 2 3	
Permitted Phases	4		4						1	1 2 3		
Detector Phase	4	4	4					1	1	2 3	1 2 3	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	47.8	47.8	47.8					28.9	28.9			
Total Split (s)	40.0	40.0	40.0					45.0	45.0			
Total Split (%)	26.7%	26.7%	26.7%					30.0%	30.0%			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.8	5.8	5.8					5.9	5.9			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	None	None	None					C-Min	C-Min			
Act Effct Green (s)	32.1	32.1	32.1					46.1	46.1	100.3	106.2	
Actuated g/C Ratio	0.21	0.21	0.21					0.31	0.31	0.67	0.71	
v/c Ratio	0.61	0.62	0.50					0.51	0.39	0.13	0.37	
Control Delay	61.2	53.9	25.2					45.3	7.3	3.8	1.9	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.2	
Total Delay	61.2	53.9	25.2					45.3	7.3	3.8	2.1	
LOS	E	D	C					D	A	A	A	
Approach Delay		49.1						38.1			2.3	
Approach LOS		D						D			A	
Stops (vph)	163	295	59					718	21	18	95	

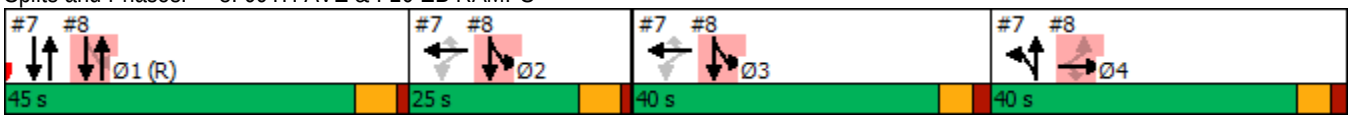
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	30.0	45.8
Total Split (s)	25.0	40.0
Total Split (%)	17%	27%
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.2	1.9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	12	3					39	6	1	5	
CO Emissions (g/hr)	452	818	243					2741	400	41	370	
NOx Emissions (g/hr)	88	159	47					533	78	8	72	
VOC Emissions (g/hr)	105	190	56					635	93	9	86	
Dilemma Vehicles (#)	0	11	0					29	0	0	10	
Queue Length 50th (ft)	194	185	63					231	0	4	23	
Queue Length 95th (ft)	292	250	150					270	69	29	14	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						200			
Base Capacity (vph)	355	670	377					1813	558	788	3437	
Starvation Cap Reductn	0	0	0					0	0	0	1200	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.57	0.58	0.47					0.51	0.39	0.12	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 155
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 26.2 Intersection LOS: C
Intersection Capacity Utilization 44.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

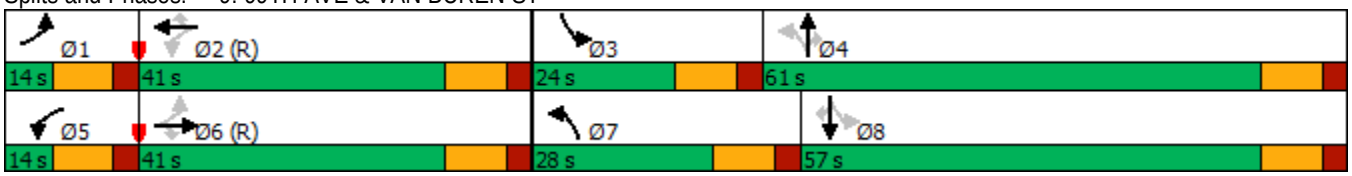
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	368	64	86	119	139	87	639	196	178	442	89
Future Volume (vph)	120	368	64	86	119	139	87	639	196	178	442	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1586	1801	1280	1711	3323	1531	1601	4600	1487	1711	2983	1290
Flt Permitted	0.651			0.380			0.410			0.207		
Satd. Flow (perm)	1087	1801	1280	684	3323	1531	691	4600	1487	373	2983	1290
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			191			190			190
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.94	0.94	0.94	0.77	0.77	0.77	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	10%	2%	22%	2%	5%	2%	9%	9%	5%	2%	17%	21%
Adj. Flow (vph)	128	391	68	112	155	181	96	702	215	193	480	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	391	68	112	155	181	96	702	215	193	480	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	41.0	41.0	14.0	41.0	41.0	28.0	61.0	61.0	24.0	57.0	57.0
Total Split (%)	10.0%	29.3%	29.3%	10.0%	29.3%	29.3%	20.0%	43.6%	43.6%	17.1%	40.7%	40.7%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	62.6	52.9	52.9	62.2	52.6	52.6	36.4	27.3	27.3	45.6	31.9	31.9
Actuated g/C Ratio	0.45	0.38	0.38	0.44	0.38	0.38	0.26	0.20	0.20	0.33	0.23	0.23
v/c Ratio	0.25	0.57	0.11	0.30	0.12	0.26	0.40	0.78	0.49	0.77	0.71	0.22
Control Delay	21.3	40.8	0.4	22.1	31.4	5.0	35.1	59.8	12.5	52.3	55.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	40.8	0.4	22.1	31.4	5.0	35.1	59.8	12.5	52.3	55.6	1.2
LOS	C	D	A	C	C	A	D	E	B	D	E	A
Approach Delay		31.9			18.4			47.5			47.9	
Approach LOS		C			B			D			D	
Stops (vph)	69	295	0	50	79	12	63	592	33	127	398	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	19	2	4	6	6	4	37	8	8	21	2
CO Emissions (g/hr)	384	1354	154	306	442	441	308	2601	537	554	1469	157
NOx Emissions (g/hr)	75	263	30	60	86	86	60	506	104	108	286	31
VOC Emissions (g/hr)	89	314	36	71	102	102	71	603	124	128	340	36
Dilemma Vehicles (#)	0	13	0	0	4	0	0	18	0	0	13	0
Queue Length 50th (ft)	62	286	0	53	48	0	59	225	19	125	211	0
Queue Length 95th (ft)	111	438	0	82	72	23	95	259	89	#179	268	0
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	521	680	602	374	1249	694	349	1702	669	265	1018	565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.57	0.11	0.30	0.12	0.26	0.28	0.41	0.32	0.73	0.47	0.17

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 39.7 Intersection LOS: D
Intersection Capacity Utilization 66.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	1028	60	37	296	141	129	614	129	131	257	71
Future Volume (vph)	176	1028	60	37	296	141	129	614	129	131	257	71
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.992				0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3506	0	1655	3251	1217	1801	3490	0	1446	1841	1580
Flt Permitted	0.499			0.097			0.537			0.118		
Satd. Flow (perm)	946	3506	0	169	3251	1217	1018	3490	0	180	1841	1580
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				164		22				116
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4799			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.88	0.88	0.88	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	11%	13%	35%	2%	2%	5%	27%	5%	4%
Adj. Flow (vph)	196	1142	67	43	344	164	147	698	147	135	265	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	1209	0	43	344	164	147	845	0	135	265	73
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0
Total Split (s)	10.0	47.0		10.0	47.0	47.0	12.0	35.0		18.0	41.0	41.0
Total Split (%)	9.1%	42.7%		9.1%	42.7%	42.7%	10.9%	31.8%		16.4%	37.3%	37.3%
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4		3.0	4.4	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4		4.0	6.4	6.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effct Green (s)	51.7	45.4		49.4	41.1	41.1	40.1	30.0		46.9	33.8	33.8
Actuated g/C Ratio	0.47	0.41		0.45	0.37	0.37	0.36	0.27		0.43	0.31	0.31
v/c Ratio	0.40	0.83		0.29	0.28	0.29	0.35	0.87		0.65	0.47	0.13
Control Delay	13.7	29.0		23.3	20.7	6.4	21.9	48.7		35.3	33.8	1.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	13.7	29.0		23.3	20.7	6.4	21.9	48.7		35.3	33.8	1.9
LOS	B	C		C	C	A	C	D		D	C	A
Approach Delay		26.9			16.7			44.7			29.3	
Approach LOS		C			B			D			C	
Stops (vph)	66	956		25	151	34	85	649		82	203	3

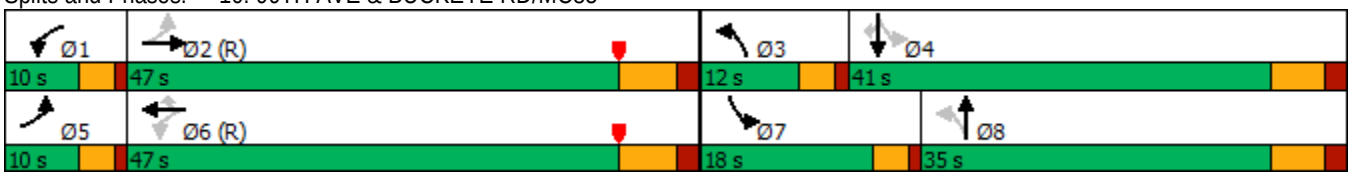
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	58		2	13	5	3	22		6	13	3
CO Emissions (g/hr)	518	4026		125	937	377	191	1520		453	920	176
NOx Emissions (g/hr)	101	783		24	182	73	37	296		88	179	34
VOC Emissions (g/hr)	120	933		29	217	87	44	352		105	213	41
Dilemma Vehicles (#)	0	21		0	4	0	0	32		0	9	0
Queue Length 50th (ft)	45	471		19	85	0	61	291		57	149	0
Queue Length 95th (ft)	m72	#586		33	72	22	101	#400		110	228	11
Internal Link Dist (ft)		5209			4719			274			849	
Turn Bay Length (ft)	160			170		250	190			250		250
Base Capacity (vph)	493	1449		157	1215	557	430	967		239	579	576
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.40	0.83		0.27	0.28	0.29	0.34	0.87		0.56	0.46	0.13

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 34 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 30.7 Intersection LOS: C
Intersection Capacity Utilization 69.7% ICU Level of Service C
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85



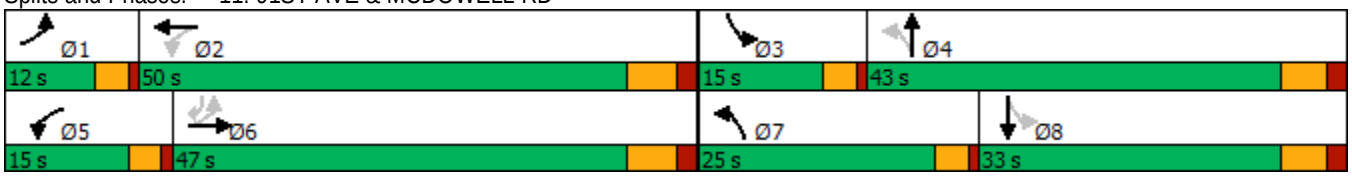
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	527	196	148	319	76	322	706	203	131	497	64
Future Volume (vph)	106	527	196	148	319	76	322	706	203	131	497	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.959			0.971			0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3226	0	1662	3258	0	1711	3308	0	1711	3355	1531
Flt Permitted	0.442			0.145			0.219			0.149		
Satd. Flow (perm)	796	3226	0	254	3258	0	394	3308	0	268	3355	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			27			32				136
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			14.5			54.8	
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.96	0.96	0.96	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	3%	5%	4%	4%	2%	2%	2%	2%	4%	2%
Adj. Flow (vph)	126	627	233	180	389	93	335	735	211	151	571	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	860	0	180	482	0	335	946	0	151	571	74
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	12.0	47.0		15.0	50.0		25.0	43.0		15.0	33.0	47.0
Total Split (%)	10.0%	39.2%		12.5%	41.7%		20.8%	35.8%		12.5%	27.5%	39.2%
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4		4.0	6.4		4.0	6.0		4.0	6.0	6.4
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min		None	None		None	None	Min
Act Effct Green (s)	47.0	37.0		52.9	40.0		51.7	36.0		38.6	26.9	37.0
Actuated g/C Ratio	0.41	0.33		0.46	0.35		0.45	0.32		0.34	0.24	0.33
v/c Ratio	0.32	0.80		0.73	0.42		0.85	0.89		0.71	0.72	0.13
Control Delay	20.0	39.5		36.1	27.8		42.7	47.7		42.3	47.2	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	20.0	39.5		36.1	27.8		42.7	47.7		42.3	47.2	0.4
LOS	B	D		D	C		D	D		D	D	A
Approach Delay		37.0			30.0			46.4			41.9	
Approach LOS		D			C			D			D	
Stops (vph)	61	604		81	270		206	786		90	445	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	31		7	19		6	20		4	18	1
CO Emissions (g/hr)	268	2191		499	1333		425	1371		312	1273	91
NOx Emissions (g/hr)	52	426		97	259		83	267		61	248	18
VOC Emissions (g/hr)	62	508		116	309		99	318		72	295	21
Dilemma Vehicles (#)	0	29		0	14		0	37		0	20	0
Queue Length 50th (ft)	53	295		79	136		174	359		69	218	0
Queue Length 95th (ft)	84	338		113	164		#308	#483		#134	273	0
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	396	1190		255	1274		423	1105		234	808	637
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.32	0.72		0.71	0.38		0.79	0.86		0.65	0.71	0.12

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 113.8
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 40.0 Intersection LOS: D
Intersection Capacity Utilization 73.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	168	4	175	92	939	0	0	674	76
Future Volume (vph)	0	0	0	168	4	175	92	939	0	0	674	76
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.917	0.850					0.985	
Flt Protected				0.950	0.980		0.950					
Satd. Flow (prot)	0	0	0	1694	1519	1487	1749	3601	0	0	3509	0
Flt Permitted				0.950	0.980		0.229					
Satd. Flow (perm)	0	0	0	1694	1519	1487	422	3601	0	0	3509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					45	128					17	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			14.5	
Peak Hour Factor	0.25	0.25	0.25	0.86	0.86	0.86	0.97	0.97	0.97	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	3%	2%	5%	5%	2%	0%	0%	3%	4%
Adj. Flow (vph)	0	0	0	195	5	203	95	968	0	0	741	84
Shared Lane Traffic (%)				28%		37%						
Lane Group Flow (vph)	0	0	0	140	135	128	95	968	0	0	825	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				30.0	30.0	30.0	15.0					
Total Split (%)				24.0%	24.0%	24.0%	12.0%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				24.4	24.4	24.4	45.0	50.1			67.5	
Actuated g/C Ratio				0.21	0.21	0.21	0.38	0.43			0.57	
v/c Ratio				0.40	0.39	0.31	0.35	0.63			0.41	
Control Delay				45.9	31.5	9.4	21.8	18.7			14.2	
Queue Delay				0.0	0.0	0.0	0.0	0.4			0.0	
Total Delay				45.9	31.5	9.4	21.8	19.2			14.2	
LOS				D	C	A	C	B			B	
Approach Delay					29.5			19.4			14.2	
Approach LOS					C			B			B	
Stops (vph)				101	66	16	39	390			383	

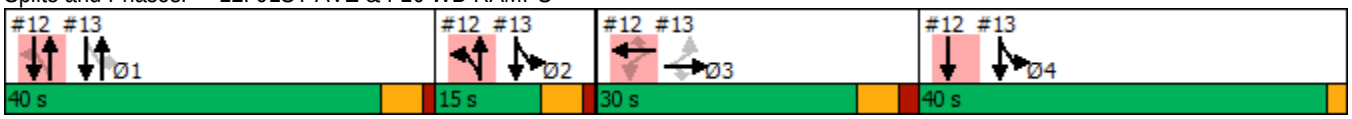
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	40.0	40.0
Total Split (%)	32%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	3	2	1	10			9	
CO Emissions (g/hr)				253	193	108	73	697			635	
NOx Emissions (g/hr)				49	38	21	14	136			124	
VOC Emissions (g/hr)				59	45	25	17	161			147	
Dilemma Vehicles (#)				0	5	0	0	0			32	
Queue Length 50th (ft)				97	63	0	26	137			170	
Queue Length 95th (ft)				166	131	49	m43	168			212	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				350	349	409	272	1530			1995	
Starvation Cap Reductn				0	0	0	0	184			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.40	0.39	0.31	0.35	0.72			0.41	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 43.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	348	8	224	0	0	0	0	676	143	94	760	0
Future Volume (vph)	348	8	224	0	0	0	0	676	143	94	760	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	200		240	0		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.968	0.850						0.850			
Flt Protected	0.950	0.964								0.950		
Satd. Flow (prot)	1711	1606	1516	0	0	0	0	3601	1611	1717	3532	0
Flt Permitted	0.950	0.964								0.200		
Satd. Flow (perm)	1711	1606	1516	0	0	0	0	3601	1611	361	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10	183						151			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.99	0.99	0.99	0.25	0.25	0.25	0.95	0.95	0.95	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	0%	0%	0%	0%	2%	2%	7%	4%	0%
Adj. Flow (vph)	352	8	226	0	0	0	0	712	151	107	864	0
Shared Lane Traffic (%)	42%		19%									
Lane Group Flow (vph)	204	199	183	0	0	0	0	712	151	107	864	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					40.0	40.0			
Total Split (%)	24.0%	24.0%	24.0%					32.0%	32.0%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	24.4	24.4	24.4					35.0	35.0	72.3	82.6	
Actuated g/C Ratio	0.21	0.21	0.21					0.30	0.30	0.61	0.70	
v/c Ratio	0.58	0.59	0.40					0.67	0.26	0.16	0.35	
Control Delay	50.8	49.2	8.8					40.8	6.5	3.8	3.9	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.1	
Total Delay	50.8	49.2	8.8					40.8	6.5	3.8	4.0	
LOS	D	D	A					D	A	A	A	
Approach Delay		37.2						34.8			4.0	
Approach LOS		D						C			A	
Stops (vph)	179	167	23					578	17	21	151	

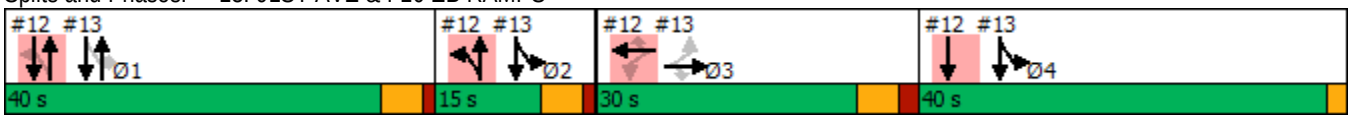
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	15.0	40.0
Total Split (%)	12%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	6	3					30	5	1	5	
CO Emissions (g/hr)	464	441	188					2096	318	40	316	
NOx Emissions (g/hr)	90	86	37					408	62	8	62	
VOC Emissions (g/hr)	107	102	43					486	74	9	73	
Dilemma Vehicles (#)	0	8	0					29	0	0	2	
Queue Length 50th (ft)	148	143	0					250	0	17	73	
Queue Length 95th (ft)	248	248	65					343	50	29	91	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	354	340	459					1070	584	749	2452	
Starvation Cap Reductn	0	0	0					0	0	0	614	
Spillback Cap Reductn	0	0	0					5	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.58	0.59	0.40					0.67	0.26	0.14	0.47	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 43.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

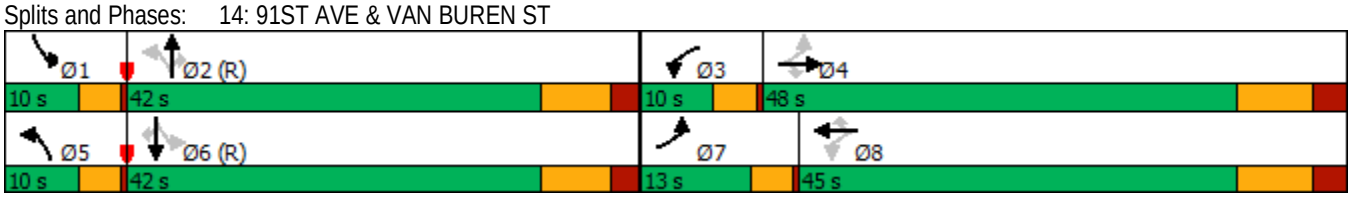
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	287	85	65	208	115	106	542	131	140	465	144
Future Volume (vph)	198	287	85	65	208	115	106	542	131	140	465	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1749	1531	1558	1749	1516	1678	3421	1432	1678	3323	1516
Flt Permitted	0.372			0.422			0.429			0.385		
Satd. Flow (perm)	670	1749	1531	692	1749	1516	758	3421	1432	680	3323	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130			155			140			158
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.94	0.94	0.94	0.91	0.91	0.91
Heavy Vehicles (%)	2%	5%	2%	12%	5%	3%	4%	2%	9%	4%	5%	3%
Adj. Flow (vph)	239	346	102	88	281	155	113	577	139	154	511	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	346	102	88	281	155	113	577	139	154	511	158
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	13.0	48.0	48.0	10.0	45.0	45.0	10.0	42.0	42.0	10.0	42.0	42.0
Total Split (%)	11.8%	43.6%	43.6%	9.1%	40.9%	40.9%	9.1%	38.2%	38.2%	9.1%	38.2%	38.2%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	41.5	29.2	29.2	35.3	24.2	24.2	55.7	45.6	45.6	55.7	45.6	45.6
Actuated g/C Ratio	0.38	0.27	0.27	0.32	0.22	0.22	0.51	0.41	0.41	0.51	0.41	0.41
v/c Ratio	0.71	0.75	0.20	0.33	0.73	0.34	0.26	0.41	0.21	0.39	0.37	0.22
Control Delay	36.2	47.3	3.3	24.0	50.4	6.9	8.4	11.0	0.9	18.3	24.7	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	47.3	3.3	24.0	50.4	6.9	8.4	11.0	0.9	18.3	24.7	4.8
LOS	D	D	A	C	D	A	A	B	A	B	C	A
Approach Delay		36.9			33.1			9.0			19.7	
Approach LOS		D			C			A			B	
Stops (vph)	138	255	5	43	187	15	23	197	3	80	318	16

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	16	4	3	12	5	4	24	5	5	19	5
CO Emissions (g/hr)	751	1150	267	223	810	345	310	1646	356	369	1294	317
NOx Emissions (g/hr)	146	224	52	43	158	67	60	320	69	72	252	62
VOC Emissions (g/hr)	174	266	62	52	188	80	72	381	82	85	300	73
Dilemma Vehicles (#)	0	0	0	0	0	0	0	10	0	0	21	0
Queue Length 50th (ft)	120	231	0	40	186	0	13	48	1	52	128	0
Queue Length 95th (ft)	143	269	16	52	196	23	39	78	4	106	200	45
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	338	618	625	269	570	599	434	1418	675	399	1377	720
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.56	0.16	0.33	0.49	0.26	0.26	0.41	0.21	0.39	0.37	0.22

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 14: 91ST AVE & VAN BUREN ST



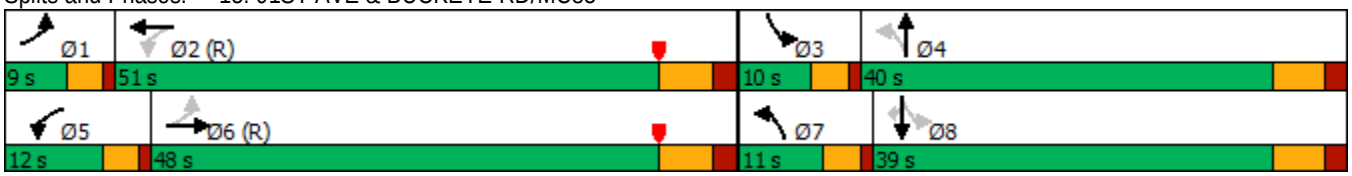
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	927	98	45	342	131	101	616	47	120	443	91
Future Volume (vph)	116	927	98	45	342	131	101	616	47	120	443	91
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.986			0.958			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	4764	0	1531	4140	0	1749	5110	0	1749	3566	1508
Flt Permitted	0.421			0.188			0.353			0.223		
Satd. Flow (perm)	720	4764	0	303	4140	0	650	5110	0	411	3566	1508
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			106			11				114
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		445			470			399			4882	
Travel Time (s)		6.1			6.4			6.0			74.0	
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	13%	10%	2%	20%	26%	12%	5%	2%	4%	5%	3%	9%
Adj. Flow (vph)	129	1030	109	51	384	147	122	742	57	126	466	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	1139	0	51	531	0	122	799	0	126	466	96
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	9.0	48.0		12.0	51.0		11.0	40.0		10.0	39.0	39.0
Total Split (%)	8.2%	43.6%		10.9%	46.4%		10.0%	36.4%		9.1%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	59.0	50.7		56.9	48.2		36.9	27.6		35.7	27.0	27.0
Actuated g/C Ratio	0.54	0.46		0.52	0.44		0.34	0.25		0.32	0.25	0.25
v/c Ratio	0.29	0.52		0.23	0.28		0.42	0.62		0.59	0.53	0.21
Control Delay	11.1	15.9		21.5	21.7		27.6	37.8		39.1	40.7	16.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	11.1	15.9		21.5	21.7		27.6	37.8		39.1	40.7	16.1
LOS	B	B		C	C		C	D		D	D	B
Approach Delay		15.4			21.7			36.5			37.0	
Approach LOS		B			C			D			D	
Stops (vph)	36	587		26	517		67	558		118	414	39

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	46		2	25		2	17		7	24	4
CO Emissions (g/hr)	327	3245		145	1782		155	1218		457	1680	275
NOx Emissions (g/hr)	64	631		28	347		30	237		89	327	53
VOC Emissions (g/hr)	76	752		33	413		36	282		106	389	64
Dilemma Vehicles (#)	0	78		0	42		0	26		0	4	0
Queue Length 50th (ft)	26	120		10	58		59	182		80	177	18
Queue Length 95th (ft)	m40	m153		51	109		85	188		125	213	70
Internal Link Dist (ft)		365			390			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	443	2206		251	1874		291	1577		212	1063	529
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.29	0.52		0.20	0.28		0.42	0.51		0.59	0.44	0.18

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 94 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 26.4 Intersection LOS: C
Intersection Capacity Utilization 51.6% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	857	89	216	304	60	89	581	227	229	591	36
Future Volume (vph)	66	857	89	216	304	60	89	581	227	229	591	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.986				0.850		0.958			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3331	0	1678	3355	1516	1646	4612	0	1711	4824	0
Flt Permitted	0.560			0.084			0.371			0.129		
Satd. Flow (perm)	1008	3331	0	148	3355	1516	643	4612	0	232	4824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				99		76			7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.77	0.77	0.77	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93
Heavy Vehicles (%)	2%	3%	6%	4%	4%	3%	6%	5%	2%	2%	3%	3%
Adj. Flow (vph)	86	1113	116	225	317	63	98	638	249	246	635	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	1229	0	225	317	63	98	887	0	246	674	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9		11.0	32.9	
Total Split (s)	20.0	47.0		18.0	45.0	45.0	20.0	33.0		22.0	35.0	
Total Split (%)	16.7%	39.2%		15.0%	37.5%	37.5%	16.7%	27.5%		18.3%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6		1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9		4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	53.3	43.8		63.2	51.6	51.6	37.9	27.0		48.8	33.9	
Actuated g/C Ratio	0.44	0.36		0.53	0.43	0.43	0.32	0.22		0.41	0.28	
v/c Ratio	0.18	1.01		0.90	0.22	0.09	0.35	0.81		0.85	0.49	
Control Delay	16.2	65.6		79.8	15.8	1.6	20.5	34.1		54.6	36.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	16.2	65.6		79.8	15.8	1.6	20.5	34.1		54.6	36.9	
LOS	B	E		E	B	A	C	C		D	D	
Approach Delay		62.3			38.1			32.8			41.7	
Approach LOS		E			D			C			D	
Stops (vph)	37	791		226	132	4	40	683		159	502	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	55		14	13	2	1	19		9	23	
CO Emissions (g/hr)	205	3831		963	916	150	95	1297		624	1609	
NOx Emissions (g/hr)	40	745		187	178	29	19	252		121	313	
VOC Emissions (g/hr)	48	888		223	212	35	22	301		145	373	
Dilemma Vehicles (#)	0	36		0	24	0	0	41		0	21	
Queue Length 50th (ft)	33	~554		153	48	0	29	232		132	155	
Queue Length 95th (ft)	52	#520		#274	88	m1	51	289		#250	201	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	609	1222		259	1441	708	374	1100		316	1368	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.14	1.01		0.87	0.22	0.09	0.26	0.81		0.78	0.49	

Intersection Summary

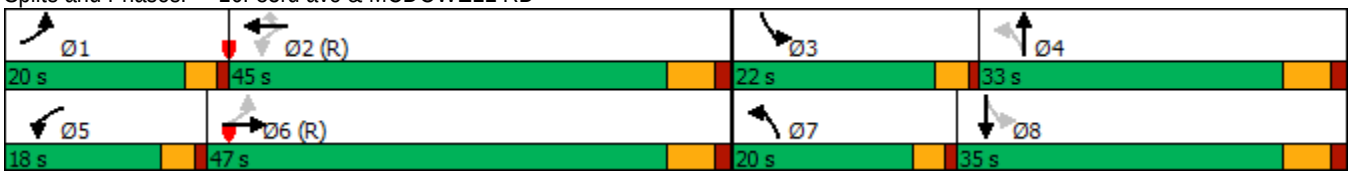
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 45.9 Intersection LOS: D
Intersection Capacity Utilization 78.5% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 16: 83rd ave & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	238	6	244	316	845	0	0	526	285
Future Volume (vph)	0	0	0	238	6	244	316	845	0	0	526	285
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.919	0.850						0.850
Flt Protected				0.950	0.979		0.950					
Satd. Flow (prot)	0	0	0	1479	1406	1446	2921	5124	0	0	5124	1611
Flt Permitted				0.950	0.979		0.950					
Satd. Flow (perm)	0	0	0	1479	1406	1446	2921	5124	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					48	147						356
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.92	0.92	0.92	0.88	0.88	0.88	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	18%	17%	8%	22%	3%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	259	7	265	359	960	0	0	658	356
Shared Lane Traffic (%)				29%		36%						
Lane Group Flow (vph)	0	0	0	184	177	170	359	960	0	0	658	356
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				30.0	30.0
Total Split (%)							42.5%				25.0%	25.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				34.3	34.3	34.3	43.4	74.1			24.5	24.5
Actuated g/C Ratio				0.29	0.29	0.29	0.36	0.62			0.20	0.20
v/c Ratio				0.43	0.41	0.33	0.34	0.30			0.63	0.58
Control Delay				39.6	28.8	9.6	10.6	2.3			33.5	13.6
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				39.6	28.8	9.6	10.6	2.3			33.5	13.6
LOS				D	C	A	B	A			C	B
Approach Delay					26.4			4.5			26.5	
Approach LOS					C			A			C	
Stops (vph)				137	96	28	116	247			448	133

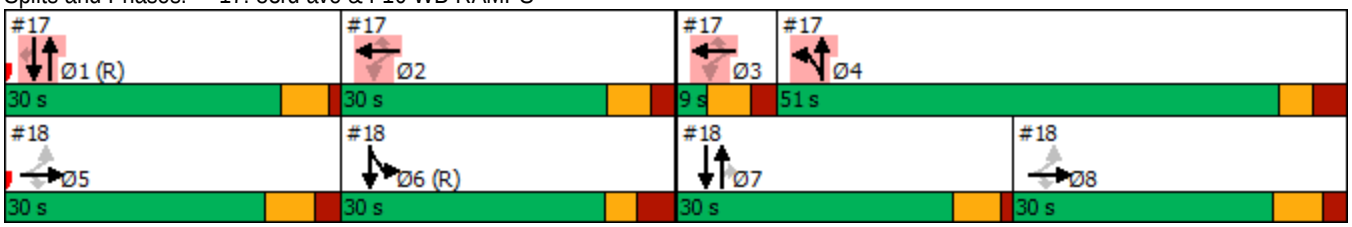
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (%)	25%	8%	25%	25%	25%	25%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	4	2	3	6			12	4
CO Emissions (g/hr)				337	268	159	222	437			844	281
NOx Emissions (g/hr)				65	52	31	43	85			164	55
VOC Emissions (g/hr)				78	62	37	51	101			196	65
Dilemma Vehicles (#)				0	7	0	0	9			17	0
Queue Length 50th (ft)				125	89	13	21	4			164	128
Queue Length 95th (ft)				201	164	72	38	8			m183	m160
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				423	436	518	1090	3176			1057	615
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.43	0.41	0.33	0.33	0.30			0.62	0.58

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 16.4 Intersection LOS: B
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	13	828	0	0	0	0	812	117	137	641	0
Future Volume (vph)	365	13	828	0	0	0	0	812	117	137	641	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.95	1.00
Frt		0.867	0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1711	1381	1406	0	0	0	0	7118	1284	1801	3401	0
Flt Permitted	0.950	0.996								0.950		
Satd. Flow (perm)	1711	1381	1406	0	0	0	0	7118	1284	1801	3401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		107	137						154			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			54.4			7.7	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.93	0.93	0.93	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	11%	0%	0%	0%	0%	10%	28%	2%	8%	0%
Adj. Flow (vph)	420	15	952	0	0	0	0	873	126	167	782	0
Shared Lane Traffic (%)	10%		47%									
Lane Group Flow (vph)	378	504	505	0	0	0	0	873	126	167	782	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								30.0	30.0	30.0		
Total Split (%)								25.0%	25.0%	25.0%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	47.9	47.9	47.9					22.8	22.8	30.8	58.9	
Actuated g/C Ratio	0.40	0.40	0.40					0.19	0.19	0.26	0.49	
v/c Ratio	0.55	0.82	0.79					0.65	0.34	0.36	0.47	
Control Delay	30.5	36.3	31.4					22.5	4.2	18.6	16.6	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.4	
Total Delay	30.5	36.3	31.4					22.5	4.2	18.6	17.0	
LOS	C	D	C					C	A	B	B	
Approach Delay		32.9						20.2			17.3	
Approach LOS		C						C			B	
Stops (vph)	243	318	291					715	35	103	557	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	9.0	51.0	30.0	30.0
Total Split (%)	25%	25%	8%	43%	25%	25%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

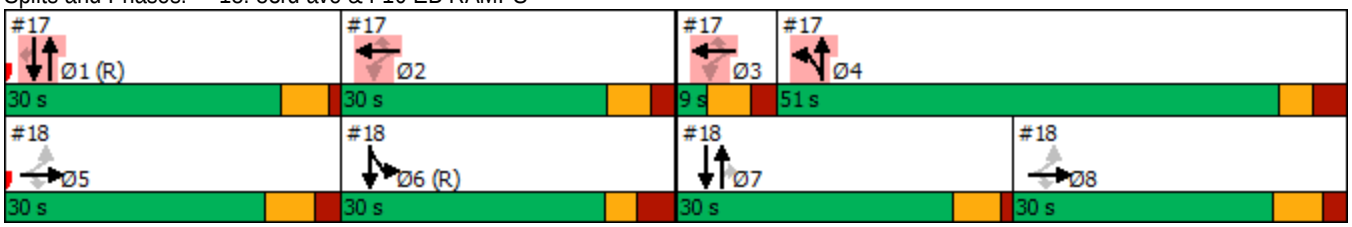
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	12	11					32	3	2	11	
CO Emissions (g/hr)	618	854	801					2203	228	157	784	
NOx Emissions (g/hr)	120	166	156					429	44	31	153	
VOC Emissions (g/hr)	143	198	186					511	53	36	182	
Dilemma Vehicles (#)	0	17	0					24	0	0	1	
Queue Length 50th (ft)	225	295	256					116	11	104	290	
Queue Length 95th (ft)	296	414	367					136	m13	156	326	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	774	683	711					1465	386	462	1723	
Starvation Cap Reductn	0	0	0					0	0	0	462	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.49	0.74	0.71					0.60	0.33	0.36	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 24.7 Intersection LOS: C
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15

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

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

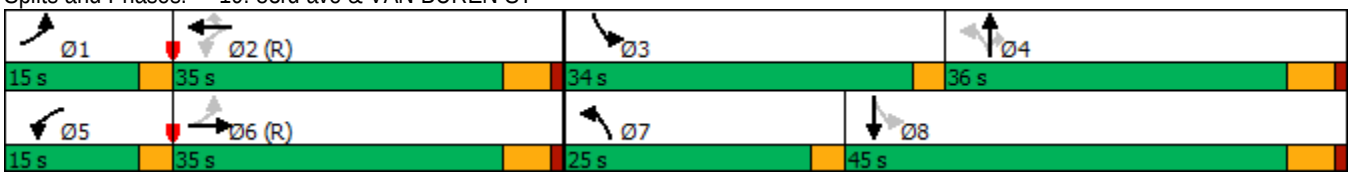
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	461	30	46	85	97	7	648	91	391	867	96
Future Volume (vph)	122	461	30	46	85	97	7	648	91	391	867	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		1	1		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	0.95
Frt		0.991				0.850			0.850		0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3327	0	1312	2957	1290	1531	4558	1394	1586	3192	0
Flt Permitted	0.627			0.384			0.283			0.187		
Satd. Flow (perm)	1010	3327	0	530	2957	1290	456	4558	1394	312	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				139			105		10	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			54.4	
Peak Hour Factor	0.90	0.90	0.90	0.70	0.70	0.70	0.89	0.89	0.89	0.95	0.95	0.95
Heavy Vehicles (%)	14%	4%	3%	33%	18%	21%	14%	10%	12%	10%	8%	5%
Adj. Flow (vph)	136	512	33	66	121	139	8	728	102	412	913	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	545	0	66	121	139	8	728	102	412	1014	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0	45.0	20.0	30.0	30.0	20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0	35.0	25.0	36.0	36.0	34.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%	29.2%	20.8%	30.0%	30.0%	28.3%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3	1.3	0.0	1.2	1.2	0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6	5.6	3.0	5.5	5.5	3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	57.1	45.3		51.7	41.0	41.0	30.5	23.1	23.1	56.7	52.5	
Actuated g/C Ratio	0.48	0.38		0.43	0.34	0.34	0.25	0.19	0.19	0.47	0.44	
v/c Ratio	0.26	0.43		0.24	0.12	0.26	0.05	0.83	0.29	0.93	0.72	
Control Delay	21.2	31.4		43.0	52.1	30.1	18.3	55.2	9.0	54.4	37.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	21.2	31.4		43.0	52.1	30.1	18.3	55.2	9.0	54.4	37.6	
LOS	C	C		D	D	C	B	E	A	D	D	
Approach Delay		29.3			40.9			49.2			42.5	
Approach LOS		C			D			D			D	
Stops (vph)	71	363		38	74	84	6	606	13	355	928	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	25		2	5	5	0	37	3	18	41	
CO Emissions (g/hr)	411	1748		170	328	343	24	2593	242	1248	2890	
NOx Emissions (g/hr)	80	340		33	64	67	5	505	47	243	562	
VOC Emissions (g/hr)	95	405		39	76	80	6	601	56	289	670	
Dilemma Vehicles (#)	0	21		0	1	0	0	22	0	0	16	
Queue Length 50th (ft)	61	170		45	46	61	3	201	0	322	423	
Queue Length 95th (ft)	113	252		66	61	76	10	234	42	#384	497	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250		120	230		
Base Capacity (vph)	537	1258		321	1011	532	378	1158	432	476	1401	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.43		0.21	0.12	0.26	0.02	0.63	0.24	0.87	0.72	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 49 (41%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 41.3 Intersection LOS: D
Intersection Capacity Utilization 61.0% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



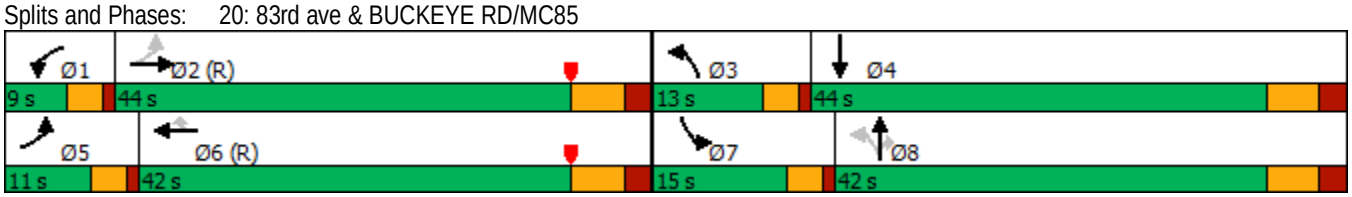
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	1196	34	13	280	111	63	438	113	171	344	172
Future Volume (vph)	177	1196	34	13	280	111	63	438	113	171	344	172
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.996				0.850			0.850		0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	4910	0	2897	4435	1358	1801	3566	1580	3098	4558	0
Flt Permitted	0.516			0.950			0.449			0.950		
Satd. Flow (perm)	891	4910	0	2897	4435	1358	851	3566	1580	3098	4558	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				118			126		125	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		461			432			976			409	
Travel Time (s)		6.3			5.9			14.8			6.2	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90	0.99	0.99	0.99
Heavy Vehicles (%)	12%	7%	9%	23%	19%	21%	2%	3%	4%	15%	7%	16%
Adj. Flow (vph)	190	1286	37	14	298	118	70	487	126	173	347	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	190	1323	0	14	298	118	70	487	126	173	521	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	11.0	44.0		9.0	42.0	42.0	13.0	42.0	42.0	15.0	44.0	
Total Split (%)	10.0%	40.0%		8.2%	38.2%	38.2%	11.8%	38.2%	38.2%	13.6%	40.0%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	61.5	54.9		5.1	44.6	44.6	33.9	24.1	24.1	9.7	28.5	
Actuated g/C Ratio	0.56	0.50		0.05	0.41	0.41	0.31	0.22	0.22	0.09	0.26	
v/c Ratio	0.34	0.54		0.10	0.17	0.19	0.22	0.62	0.28	0.63	0.41	
Control Delay	7.6	12.7		51.6	23.0	5.7	22.7	42.0	7.3	58.9	26.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.6	12.7		51.6	23.0	5.7	22.7	42.0	7.3	58.9	26.1	
LOS	A	B		D	C	A	C	D	A	E	C	
Approach Delay		12.0			19.2			33.6			34.3	
Approach LOS		B			B			C			C	
Stops (vph)	35	689		16	179	15	40	381	15	161	314	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	54		1	13	4	1	11	1	10	24	
CO Emissions (g/hr)	461	3773		57	935	283	83	787	75	696	1710	
NOx Emissions (g/hr)	90	734		11	182	55	16	153	15	135	333	
VOC Emissions (g/hr)	107	874		13	217	66	19	182	17	161	396	
Dilemma Vehicles (#)	0	46		0	13	0	0	16	0	0	19	
Queue Length 50th (ft)	26	80		5	49	0	32	165	0	61	85	
Queue Length 95th (ft)	45	321		15	79	41	56	202	44	97	111	
Internal Link Dist (ft)		381			352			896			329	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	567	2452		139	1797	620	354	1144	592	309	1628	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.34	0.54		0.10	0.17	0.19	0.20	0.43	0.21	0.56	0.32	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 61 (55%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 52.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



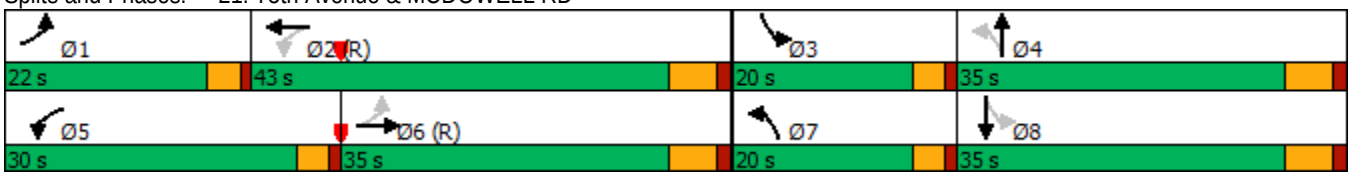
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	730	246	238	355	129	90	748	163	157	663	44
Future Volume (vph)	97	730	246	238	355	129	90	748	163	157	663	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.962			0.960			0.973			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4717	0	1711	4652	0	1711	4670	0	1711	4827	0
Flt Permitted	0.422			0.125			0.239			0.123		
Satd. Flow (perm)	760	4717	0	225	4652	0	430	4670	0	221	4827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67			79			38			8	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.87	0.87	0.87	0.83	0.83	0.83	0.90	0.90	0.90	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	3%	2%	4%	2%	2%	5%	2%	2%	3%	2%
Adj. Flow (vph)	111	839	283	287	428	155	100	831	181	183	771	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	1122	0	287	583	0	100	1012	0	183	822	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2		6.0	48.2		10.0	30.8		10.0	30.8	
Total Split (s)	22.0	35.0		30.0	43.0		20.0	35.0		20.0	35.0	
Total Split (%)	18.3%	29.2%		25.0%	35.8%		16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8		4.0	5.8		4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	51.0	40.8		64.6	50.4		39.5	28.8		47.1	32.6	
Actuated g/C Ratio	0.42	0.34		0.54	0.42		0.33	0.24		0.39	0.27	
v/c Ratio	0.28	0.68		0.83	0.29		0.42	0.88		0.75	0.62	
Control Delay	14.6	28.1		54.8	35.2		28.3	52.0		44.7	40.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.6	28.1		54.8	35.2		28.3	52.0		44.7	40.1	
LOS	B	C		D	D		C	D		D	D	
Approach Delay		26.9			41.7			49.9			40.9	
Approach LOS		C			D			D			D	
Stops (vph)	40	684		211	591		59	813		106	597	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	48		13	27		2	25		4	17	
CO Emissions (g/hr)	289	3340		933	1902		123	1735		249	1177	
NOx Emissions (g/hr)	56	650		181	370		24	337		48	229	
VOC Emissions (g/hr)	67	774		216	441		28	402		58	273	
Dilemma Vehicles (#)	0	72		0	31		0	35		0	24	
Queue Length 50th (ft)	39	153		203	127		47	261		92	196	
Queue Length 95th (ft)	m40	m253		m271	165		83	#326		147	234	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	520	1646		443	1998		335	1190		285	1329	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.68		0.65	0.29		0.30	0.85		0.64	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 39.3 Intersection LOS: D
Intersection Capacity Utilization 70.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	316	0	309	226	804	0	0	847	305
Future Volume (vph)	0	0	0	316	0	309	226	804	0	0	847	305
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.86	1.00
Frt					0.920	0.850						0.850
Flt Protected				0.950	0.977		0.950					
Satd. Flow (prot)	0	0	0	1544	1461	1501	3126	5075	0	0	6457	1611
Flt Permitted				0.950	0.977		0.950					
Satd. Flow (perm)	0	0	0	1544	1461	1501	3126	5075	0	0	6457	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					128	175						367
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.94	0.94	0.94	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	13%	2%	4%	14%	4%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	363	0	355	240	855	0	0	1020	367
Shared Lane Traffic (%)				31%		36%						
Lane Group Flow (vph)	0	0	0	250	241	227	240	855	0	0	1020	367
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							46.0				39.0	39.0
Total Split (%)							35.4%				30.0%	30.0%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				41.3	41.3	41.3	38.6	77.2			31.0	31.0
Actuated g/C Ratio				0.32	0.32	0.32	0.30	0.59			0.24	0.24
v/c Ratio				0.51	0.44	0.38	0.26	0.28			0.66	0.55
Control Delay				41.5	19.4	11.4	18.6	3.8			46.7	7.2
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				41.5	19.4	11.4	18.6	3.8			46.7	7.2
LOS				D	B	B	B	A			D	A
Approach Delay					24.6			7.0			36.3	
Approach LOS					C			A			D	
Stops (vph)				177	81	43	132	418			743	27

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	33.0	12.0	41.0	31.0	39.0	19.0
Total Split (%)	25%	9%	32%	24%	30%	15%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

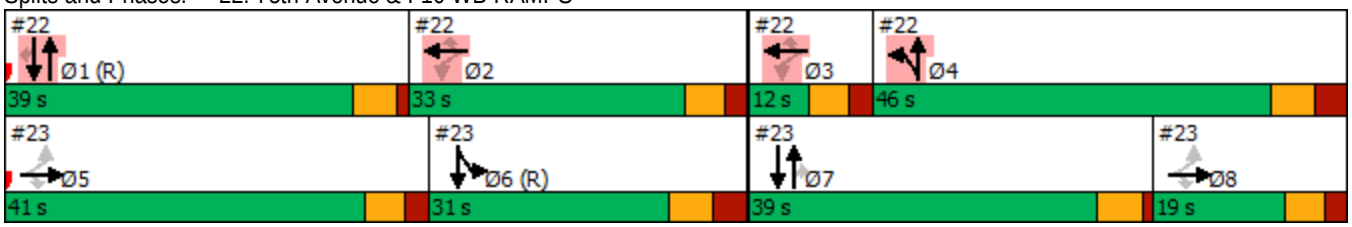
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	4	3	3	9			22	2
CO Emissions (g/hr)				451	290	221	228	597			1538	173
NOx Emissions (g/hr)				88	56	43	44	116			299	34
VOC Emissions (g/hr)				104	67	51	53	138			357	40
Dilemma Vehicles (#)				0	7	0	0	6			33	0
Queue Length 50th (ft)				186	81	33	21	0			220	0
Queue Length 95th (ft)				268	158	97	m79	9			235	49
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				492	553	597	928	3119			1673	689
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.51	0.44	0.38	0.26	0.27			0.61	0.53

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15

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

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	15	827	0	0	0	0	616	165	243	989	0
Future Volume (vph)	319	15	827	0	0	0	0	616	165	243	989	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	200		150	0		0
Storage Lanes	1		1	0		0	2		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.91	1.00
Frt		0.866	0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1662	1411	1446	0	0	0	0	7118	1369	1801	4979	0
Flt Permitted	0.950	0.996								0.950		
Satd. Flow (perm)	1662	1411	1446	0	0	0	0	7118	1369	1801	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38	137						196			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.89	0.89	0.89	0.25	0.25	0.25	0.84	0.84	0.84	0.83	0.83	0.83
Heavy Vehicles (%)	5%	2%	8%	0%	0%	0%	0%	10%	20%	2%	6%	0%
Adj. Flow (vph)	358	17	929	0	0	0	0	733	196	293	1192	0
Shared Lane Traffic (%)	10%		47%									
Lane Group Flow (vph)	322	490	492	0	0	0	0	733	196	293	1192	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								39.0	39.0	31.0		
Total Split (%)								30.0%	30.0%	23.8%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	50.3	50.3	50.3					26.2	26.2	34.1	65.7	
Actuated g/C Ratio	0.39	0.39	0.39					0.20	0.20	0.26	0.51	
v/c Ratio	0.50	0.86	0.77					0.51	0.45	0.62	0.47	
Control Delay	32.6	49.2	32.6					46.9	8.7	32.9	21.2	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.3	
Total Delay	32.6	49.2	32.6					46.9	8.7	32.9	21.4	
LOS	C	D	C					D	A	C	C	
Approach Delay		38.8						38.8			23.7	
Approach LOS		D						D			C	
Stops (vph)	210	360	285					529	19	194	850	

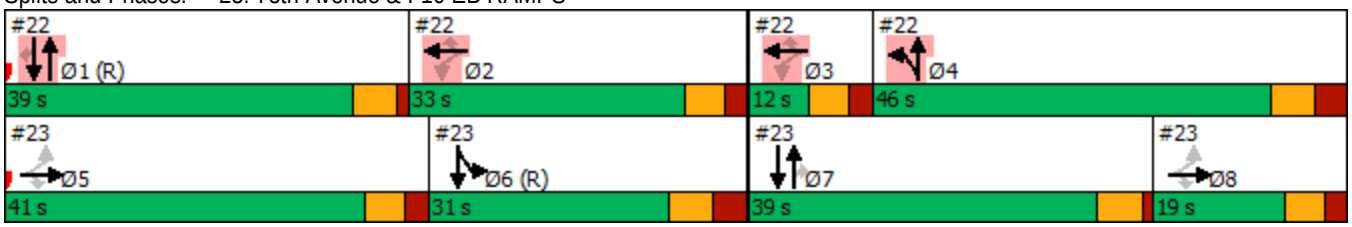
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	39.0	33.0	12.0	46.0	41.0	19.0
Total Split (%)	30%	25%	9%	35%	32%	15%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	13	11					27	4	5	18	
CO Emissions (g/hr)	520	929	763					1906	314	340	1272	
NOx Emissions (g/hr)	101	181	148					371	61	66	247	
VOC Emissions (g/hr)	121	215	177					442	73	79	295	
Dilemma Vehicles (#)	0	15	0					20	0	0	2	
Queue Length 50th (ft)	208	374	271					137	0	216	317	
Queue Length 95th (ft)	293	#534	408					141	46	#360	362	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	783	685	754					1845	500	472	2801	
Starvation Cap Reductn	0	0	0					0	0	0	797	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.41	0.72	0.65					0.40	0.39	0.62	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 32.8 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

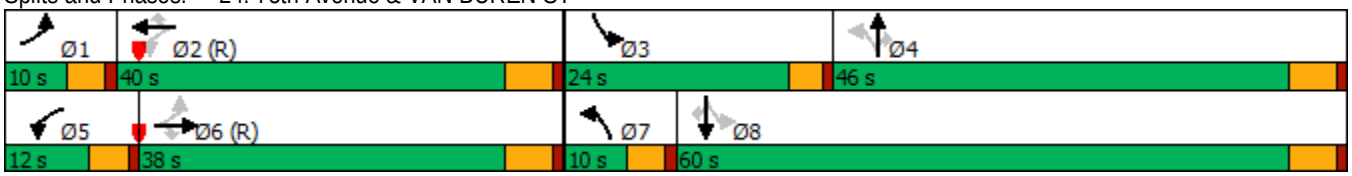
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	643	137	58	148	59	35	648	229	218	1047	57
Future Volume (vph)	58	643	137	58	148	59	35	648	229	218	1047	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		100	200		270	250		100	220		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1302	3202	1432	1442	3034	1229	1491	3144	1382	1531	3261	1346
Flt Permitted	0.629			0.192			0.111			0.156		
Satd. Flow (perm)	862	3202	1432	291	3034	1229	174	3144	1382	251	3261	1346
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			139			139			152			103
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.83	0.83	0.83	0.76	0.76	0.76	0.83	0.83	0.83	0.89	0.89	0.89
Heavy Vehicles (%)	34%	9%	9%	21%	15%	27%	17%	11%	13%	14%	7%	16%
Adj. Flow (vph)	70	775	165	76	195	78	42	781	276	245	1176	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	775	165	76	195	78	42	781	276	245	1176	64
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	15.0	15.0	2.0	15.0	15.0
Minimum Split (s)	9.5	52.0	52.0	9.5	52.0	52.0	9.5	34.0	34.0	16.0	50.0	50.0
Total Split (s)	10.0	38.0	38.0	12.0	40.0	40.0	10.0	46.0	46.0	24.0	60.0	60.0
Total Split (%)	8.3%	31.7%	31.7%	10.0%	33.3%	33.3%	8.3%	38.3%	38.3%	20.0%	50.0%	50.0%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3	4.3	3.5	4.3	4.3	3.0	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3	5.3	4.5	5.3	5.3	4.0	5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	Ped
Act Effct Green (s)	48.7	41.8	41.8	50.3	42.5	42.5	42.8	36.5	36.5	58.4	49.1	49.1
Actuated g/C Ratio	0.41	0.35	0.35	0.42	0.35	0.35	0.36	0.30	0.30	0.49	0.41	0.41
v/c Ratio	0.19	0.70	0.28	0.38	0.18	0.15	0.34	0.82	0.53	0.82	0.88	0.10
Control Delay	24.9	41.3	10.1	39.5	41.5	10.9	23.9	46.1	18.0	43.5	41.2	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	41.3	10.1	39.5	41.5	10.9	23.9	46.1	18.0	43.5	41.2	1.3
LOS	C	D	B	D	D	B	C	D	B	D	D	A
Approach Delay		35.1			34.2			38.2			39.8	
Approach LOS		D			C			D			D	
Stops (vph)	31	584	56	48	127	27	21	581	84	137	934	2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	34	6	3	8	3	2	36	10	9	46	1
CO Emissions (g/hr)	185	2401	394	216	560	177	115	2492	684	620	3184	99
NOx Emissions (g/hr)	36	467	77	42	109	34	22	485	133	121	620	19
VOC Emissions (g/hr)	43	556	91	50	130	41	27	578	158	144	738	23
Dilemma Vehicles (#)	0	2	0	0	6	0	0	23	0	0	37	0
Queue Length 50th (ft)	27	317	24	51	79	3	16	286	73	108	433	0
Queue Length 95th (ft)	m41	364	m30	m80	96	m21	30	315	130	186	482	8
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200		100	200		270	250		100	220		100
Base Capacity (vph)	376	1114	588	202	1075	525	122	1066	569	335	1486	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.70	0.28	0.38	0.18	0.15	0.34	0.73	0.49	0.73	0.79	0.10

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 37.7 Intersection LOS: D
Intersection Capacity Utilization 63.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	1105	118	29	277	130	73	572	170	222	420	39
Future Volume (vph)	164	1105	118	29	277	130	73	572	170	222	420	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		250	260		0	270		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850		0.966			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3401	1454	1670	3036	1442	1505	3283	0	1597	3331	0
Flt Permitted	0.496			0.113			0.466			0.142		
Satd. Flow (perm)	931	3401	1454	199	3036	1442	738	3283	0	239	3331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			98			157		34			9	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4818			2586			1298			2861	
Travel Time (s)		65.7			35.3			19.7			43.3	
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	3%	8%	13%	10%	21%	14%	22%	9%	5%	15%	8%	18%
Adj. Flow (vph)	178	1201	128	35	334	157	79	622	185	244	462	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	1201	128	35	334	157	79	807	0	244	505	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4			8		
Detector Phase	1	6	6	5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0	37.0	17.0	30.0		17.0	30.0	
Total Split (s)	18.0	47.0	47.0	11.0	40.0	40.0	17.0	30.0		17.0	30.0	
Total Split (%)	17.1%	44.8%	44.8%	10.5%	38.1%	38.1%	16.2%	28.6%		16.2%	28.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1	1.1	0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1	6.1	3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	55.4	46.8	46.8	47.9	39.2	39.2	33.9	24.5		43.6	32.6	
Actuated g/C Ratio	0.53	0.45	0.45	0.46	0.37	0.37	0.32	0.23		0.42	0.31	
v/c Ratio	0.31	0.79	0.18	0.21	0.29	0.25	0.27	1.02		0.89	0.49	
Control Delay	14.8	30.9	7.1	15.6	24.8	5.0	21.9	75.7		57.6	31.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	14.8	30.9	7.1	15.6	24.8	5.0	21.9	75.7		57.6	31.6	
LOS	B	C	A	B	C	A	C	E		E	C	
Approach Delay		27.0			18.3			70.9			40.1	
Approach LOS		C			B			E			D	
Stops (vph)	83	904	24	17	191	16	48	631		144	361	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	58	4	1	14	5	2	26		12	23	
CO Emissions (g/hr)	505	4027	312	92	948	330	107	1785		842	1629	
NOx Emissions (g/hr)	98	784	61	18	185	64	21	347		164	317	
VOC Emissions (g/hr)	117	933	72	21	220	76	25	414		195	378	
Dilemma Vehicles (#)	0	52	0	0	13	0	0	32		0	18	
Queue Length 50th (ft)	60	377	12	11	82	0	32	~285		111	143	
Queue Length 95th (ft)	100	#498	50	24	114	35	63	#418		#253	204	
Internal Link Dist (ft)		4738			2506			1218			2781	
Turn Bay Length (ft)	260		190	270		250	260			270		
Base Capacity (vph)	613	1515	702	207	1133	637	390	792		280	1040	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.29	0.79	0.18	0.17	0.29	0.25	0.20	1.02		0.87	0.49	

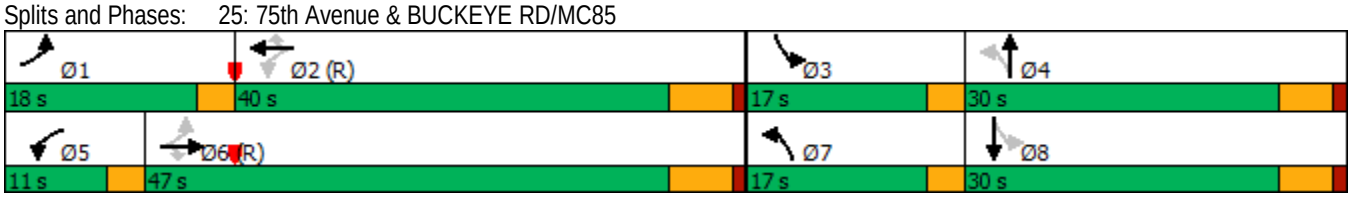
Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 79 (75%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 39.0 Intersection LOS: D
Intersection Capacity Utilization 74.0% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	677	244	228	533	129	160	577	71	124	755	88
Future Volume (vph)	160	677	244	228	533	129	160	577	71	124	755	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.960				0.850		0.984			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3221	0	1711	3388	1531	1711	4700	0	1711	4795	0
Flt Permitted	0.361			0.111			0.139			0.259		
Satd. Flow (perm)	650	3221	0	200	3388	1531	250	4700	0	466	4795	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45				161		17			16	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.94	0.94	0.94	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	2%	4%	4%	2%	3%	2%	2%	4%	13%	2%	3%	2%
Adj. Flow (vph)	170	720	260	285	666	161	176	634	78	139	848	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	980	0	285	666	161	176	712	0	139	947	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		8.0	15.0	
Minimum Split (s)	11.0	50.3		9.0	48.3	48.3	9.0	33.0		12.0	28.3	
Total Split (s)	23.0	45.0		20.0	42.0	42.0	20.0	35.0		20.0	35.0	
Total Split (%)	19.2%	37.5%		16.7%	35.0%	35.0%	16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		Min	Ped	
Act Effct Green (s)	55.5	43.1		65.9	50.3	50.3	43.4	28.8		39.3	26.7	
Actuated g/C Ratio	0.46	0.36		0.55	0.42	0.42	0.36	0.24		0.33	0.22	
v/c Ratio	0.43	0.83		0.85	0.47	0.22	0.70	0.63		0.52	0.88	
Control Delay	13.6	29.0		51.0	28.4	5.0	38.9	42.3		31.4	54.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.6	29.0		51.0	28.4	5.0	38.9	42.3		31.4	54.2	
LOS	B	C		D	C	A	D	D		C	D	
Approach Delay		26.7			30.8			41.6			51.3	
Approach LOS		C			C			D			D	
Stops (vph)	60	747		132	384	14	129	607		84	782	

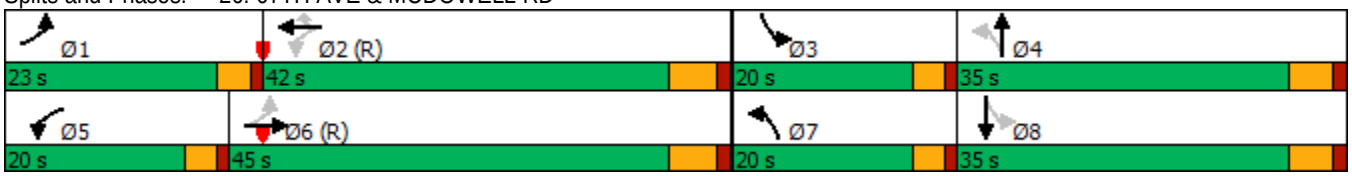
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	46		6	12	1	3	15		4	35	
CO Emissions (g/hr)	462	3210		409	850	94	243	1073		294	2417	
NOx Emissions (g/hr)	90	625		80	165	18	47	209		57	470	
VOC Emissions (g/hr)	107	744		95	197	22	56	249		68	560	
Dilemma Vehicles (#)	0	58		0	22	0	0	7		0	32	
Queue Length 50th (ft)	38	378		148	196	0	111	198		71	254	
Queue Length 95th (ft)	m58	#498		#267	246	32	176	245		109	297	
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	513	1187		334	1418	734	288	1215		334	1194	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.33	0.83		0.85	0.47	0.22	0.61	0.59		0.42	0.79	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 37.2 Intersection LOS: D
Intersection Capacity Utilization 75.2% ICU Level of Service D
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	217	200	254	222	515	0	0	974	218
Future Volume (vph)	0	0	0	217	200	254	222	515	0	0	974	218
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.957	0.850						0.850
Flt Protected				0.950	0.994		0.950					
Satd. Flow (prot)	0	0	0	1441	2384	1424	3210	5075	0	0	5175	1611
Flt Permitted				0.950	0.994		0.950					
Satd. Flow (perm)	0	0	0	1441	2384	1424	3210	5075	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					40	167						227
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	16%	50%	5%	11%	4%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	233	215	273	236	548	0	0	1015	227
Shared Lane Traffic (%)				20%		39%						
Lane Group Flow (vph)	0	0	0	186	368	167	236	548	0	0	1015	227
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				32.0	32.0
Total Split (%)							42.5%				26.7%	26.7%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				28.2	28.2	28.2	37.3	80.2			35.2	35.2
Actuated g/C Ratio				0.24	0.24	0.24	0.31	0.67			0.29	0.29
v/c Ratio				0.55	0.62	0.36	0.24	0.16			0.67	0.36
Control Delay				47.0	41.5	7.6	13.0	3.6			47.6	14.6
Queue Delay				0.2	0.1	0.0	0.0	0.0			0.0	0.0
Total Delay				47.2	41.6	7.6	13.0	3.6			47.6	14.6
LOS				D	D	A	B	A			D	B
Approach Delay					35.2			6.4			41.6	
Approach LOS					D			A			D	
Stops (vph)				149	269	19	126	234			711	106

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	18.0	19.0	30.0	20.0	45.0	25.0
Total Split (%)	15%	16%	25%	17%	38%	21%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

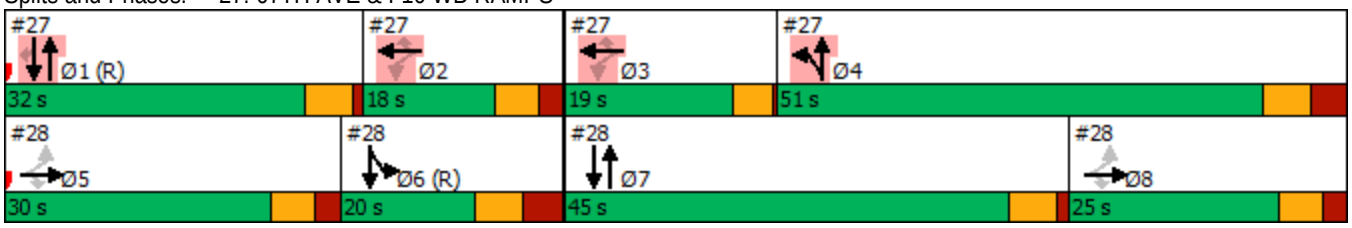
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	9	2	3	5			22	3
CO Emissions (g/hr)				351	645	128	183	315			1549	208
NOx Emissions (g/hr)				68	125	25	36	61			301	40
VOC Emissions (g/hr)				81	149	30	42	73			359	48
Dilemma Vehicles (#)				0	7	0	0	1			124	0
Queue Length 50th (ft)				141	135	0	19	10			212	20
Queue Length 95th (ft)				218	187	59	86	98			#290	m63
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				388	672	506	1160	3379			1519	633
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				17	21	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.50	0.57	0.33	0.20	0.16			0.67	0.36

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 29.9 Intersection LOS: C
Intersection Capacity Utilization 50.8% ICU Level of Service A
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	10	500	0	0	0	0	673	189	286	887	0
Future Volume (vph)	170	10	500	0	0	0	0	673	189	286	887	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	200		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.81	0.81	1.00	0.95	1.00
Frt		0.865	0.850					0.967				
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1639	2739	1424	0	0	0	0	7064	0	1801	3465	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1639	2739	1424	0	0	0	0	7064	0	1801	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77	130					63				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.89	0.89	0.89	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	5%	0%	0%	0%	0%	5%	15%	2%	6%	0%
Adj. Flow (vph)	200	12	588	0	0	0	0	756	212	304	944	0
Shared Lane Traffic (%)	10%		50%									
Lane Group Flow (vph)	180	326	294	0	0	0	0	968	0	304	944	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								45.0		20.0		
Total Split (%)								37.5%		16.7%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	32.4	32.4	32.4					31.3		36.7	73.3	
Actuated g/C Ratio	0.27	0.27	0.27					0.26		0.31	0.61	
v/c Ratio	0.41	0.41	0.61					0.51		0.55	0.45	
Control Delay	37.7	27.7	25.7					59.1		23.0	6.7	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.4	
Total Delay	37.7	27.7	25.7					59.1		23.0	7.1	
LOS	D	C	C					E		C	A	
Approach Delay		29.2						59.1			10.9	
Approach LOS		C						E			B	
Stops (vph)	121	166	122					1012		197	583	

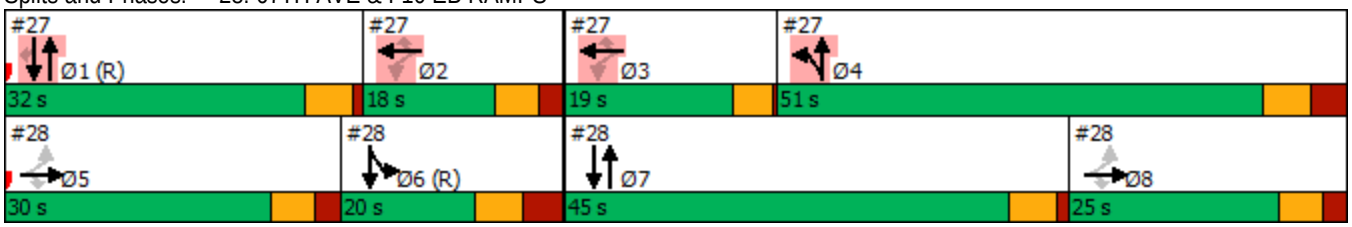
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	32.0	18.0	19.0	51.0	30.0	25.0
Total Split (%)	27%	15%	16%	43%	25%	21%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	7	5					43		4	10	
CO Emissions (g/hr)	300	457	381					2972		300	706	
NOx Emissions (g/hr)	58	89	74					578		58	137	
VOC Emissions (g/hr)	69	106	88					689		70	164	
Dilemma Vehicles (#)	0	9	0					11		0	0	
Queue Length 50th (ft)	124	90	119					185		129	232	
Queue Length 95th (ft)	173	118	187					214		#420	416	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	636	1110	632					2379		551	2360	
Starvation Cap Reductn	0	0	0					0		0	777	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.28	0.29	0.47					0.41		0.55	0.60	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 50.8% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	736	132	110	188	83	110	615	282	196	701	50
Future Volume (vph)	158	736	132	110	188	83	110	615	282	196	701	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		100	260		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.954				0.850		0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3116	1301	1601	2755	0	1662	3144	1446	1586	3152	0
Flt Permitted	0.515			0.227			0.176			0.162		
Satd. Flow (perm)	830	3116	1301	382	2755	0	308	3144	1446	270	3152	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			131		55				197		8	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	14%	12%	20%	9%	19%	25%	5%	11%	8%	10%	9%	18%
Adj. Flow (vph)	168	783	140	120	204	90	118	661	303	228	815	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	783	140	120	294	0	118	661	303	228	873	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	9.0	52.0	52.0	9.0	52.0		9.0	50.0	50.0	9.0	50.0	
Total Split (s)	17.0	39.0	39.0	13.0	35.0		12.0	46.0	46.0	22.0	56.0	
Total Split (%)	14.2%	32.5%	32.5%	10.8%	29.2%		10.0%	38.3%	38.3%	18.3%	46.7%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4		1.0	1.4	1.4	1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7		4.0	5.4	5.4	4.0	5.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes			Yes	Yes		Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped	Ped	None	Ped	
Act Effct Green (s)	58.4	43.0	43.0	53.4	40.6		39.3	29.9	29.9	52.1	38.7	
Actuated g/C Ratio	0.49	0.36	0.36	0.44	0.34		0.33	0.25	0.25	0.43	0.32	
v/c Ratio	0.35	0.70	0.25	0.43	0.30		0.62	0.84	0.60	0.76	0.85	
Control Delay	15.7	27.7	4.2	23.3	26.8		51.8	74.4	41.5	48.2	51.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	15.7	27.7	4.2	23.3	26.8		51.8	74.4	41.5	48.2	51.3	
LOS	B	C	A	C	C		D	E	D	D	D	
Approach Delay		22.8			25.8			62.7			50.6	
Approach LOS		C			C			E			D	
Stops (vph)	58	440	18	64	164		113	607	325	169	696	

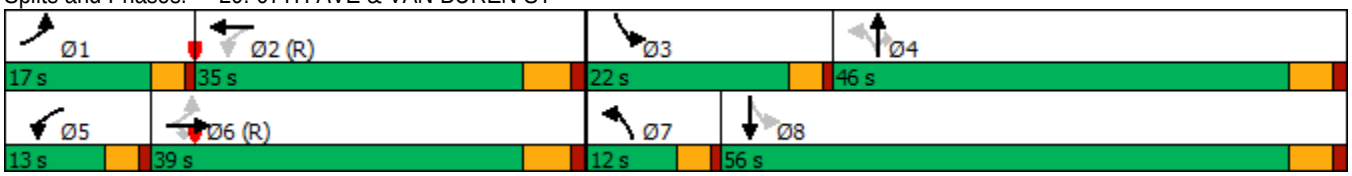
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	35	5	3	8		6	37	16	9	34	
CO Emissions (g/hr)	472	2473	346	206	526		432	2594	1089	603	2378	
NOx Emissions (g/hr)	92	481	67	40	102		84	505	212	117	463	
VOC Emissions (g/hr)	109	573	80	48	122		100	601	252	140	551	
Dilemma Vehicles (#)	0	39	0	0	11		0	23	0	0	9	
Queue Length 50th (ft)	46	129	2	50	72		87	287	145	137	353	
Queue Length 95th (ft)	m85	#408	m15	97	124		m102	m305	m173	210	311	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250		100	250			250		100	260		
Base Capacity (vph)	495	1117	550	285	967		191	1063	619	314	1333	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.34	0.70	0.25	0.42	0.30		0.62	0.62	0.49	0.73	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 43.2 Intersection LOS: D
Intersection Capacity Utilization 64.9% ICU Level of Service C
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



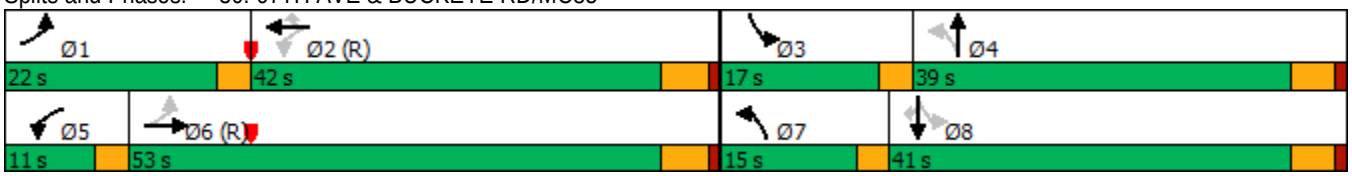
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	1043	77	74	303	72	130	625	187	112	478	226
Future Volume (vph)	264	1043	77	74	303	72	130	625	187	112	478	226
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		200	200		0	260		260
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.990				0.850		0.965				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	3270	0	1701	2986	1393	1717	3442	0	1640	3433	1494
Flt Permitted	0.472			0.100			0.278			0.115		
Satd. Flow (perm)	815	3270	0	179	2986	1393	502	3442	0	199	3433	1494
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				102		32				279
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.85	0.85	0.85	0.81	0.81	0.81
Heavy Vehicles (%)	12%	11%	14%	8%	23%	18%	7%	3%	3%	12%	7%	10%
Adj. Flow (vph)	290	1146	85	82	337	80	153	735	220	138	590	279
Shared Lane Traffic (%)												
Lane Group Flow (vph)	290	1231	0	82	337	80	153	955	0	138	590	279
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		8
Detector Phase	1	6		5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	15.0	3.0	15.0		3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0	38.0	12.0	32.0		17.0	37.0	37.0
Total Split (s)	22.0	53.0		11.0	42.0	42.0	15.0	39.0		17.0	41.0	41.0
Total Split (%)	18.3%	44.2%		9.2%	35.0%	35.0%	12.5%	32.5%		14.2%	34.2%	34.2%
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5	5.5	3.0	5.2		3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	Ped
Act Effct Green (s)	63.0	51.8		50.9	40.9	40.9	47.6	34.4		48.5	34.8	34.8
Actuated g/C Ratio	0.52	0.43		0.42	0.34	0.34	0.40	0.29		0.40	0.29	0.29
v/c Ratio	0.54	0.87		0.48	0.33	0.15	0.49	0.95		0.64	0.59	0.44
Control Delay	21.1	40.2		27.9	31.8	3.9	27.1	58.8		55.5	40.7	10.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	21.1	40.2		27.9	31.8	3.9	27.1	58.8		55.5	40.7	10.4
LOS	C	D		C	C	A	C	E		E	D	B
Approach Delay		36.5			26.7			54.4			34.3	
Approach LOS		D			C			D			C	
Stops (vph)	150	943		45	222	6	80	710		83	276	82

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	12	59		2	9	1	2	23		6	24	9
CO Emissions (g/hr)	840	4133		144	639	83	172	1587		423	1652	650
NOx Emissions (g/hr)	163	804		28	124	16	34	309		82	321	127
VOC Emissions (g/hr)	195	958		33	148	19	40	368		98	383	151
Dilemma Vehicles (#)	0	45		0	13	0	0	29		0	42	0
Queue Length 50th (ft)	130	477		32	106	0	71	362		79	136	36
Queue Length 95th (ft)	194	#629		66	151	24	109	#458		128	178	69
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250		200	200			260		260
Base Capacity (vph)	558	1415		177	1018	542	324	1021		251	1024	641
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.52	0.87		0.46	0.33	0.15	0.47	0.94		0.55	0.58	0.44

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 32 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 39.6 Intersection LOS: D
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85



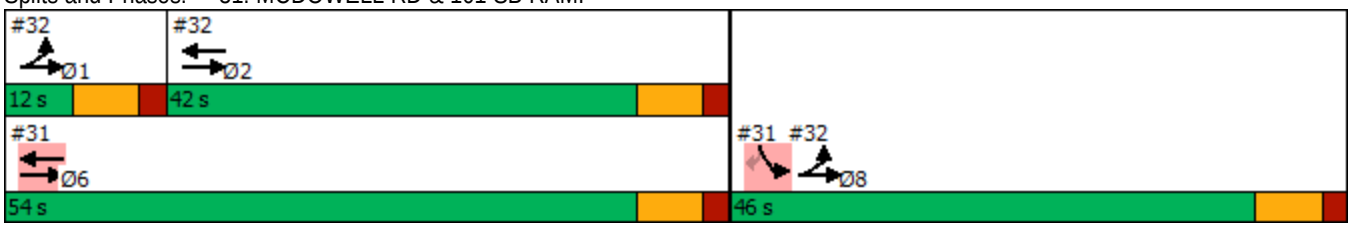
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1300	600	0	600	400		
Future Volume (vph)	0	1300	600	0	600	400		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	1	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6520	3601	0	1801	2836		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6520	3601	0	1801	2836		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						311		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1413	652	0	652	435		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1413	652	0	652	435		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		54.0	54.0		46.0	46.0	12.0	42.0
Total Split (%)		54.0%	54.0%		46.0%	46.0%	12%	42%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		47.0	47.0		39.0	39.0		
Actuated g/C Ratio		0.47	0.47		0.39	0.39		
v/c Ratio		0.46	0.39		0.93	0.34		
Control Delay		18.5	9.9		50.9	6.8		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		18.5	9.9		50.9	6.8		
LOS		B	A		D	A		
Approach Delay		18.5	9.9		33.2			
Approach LOS		B	A		C			
Stops (vph)		837	142		516	81		
Fuel Used(gal)		23	5		22	8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		1642	331		1521	535		
NOx Emissions (g/hr)		320	64		296	104		
VOC Emissions (g/hr)		381	77		353	124		
Dilemma Vehicles (#)		55	56		0	0		
Queue Length 50th (ft)		170	59		391	28		
Queue Length 95th (ft)		202	m62		#617	63		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3064	1692		702	1295		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.46	0.39		0.93	0.34		

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 21.8	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: MCDOWELL RD & 101 SB RAMP



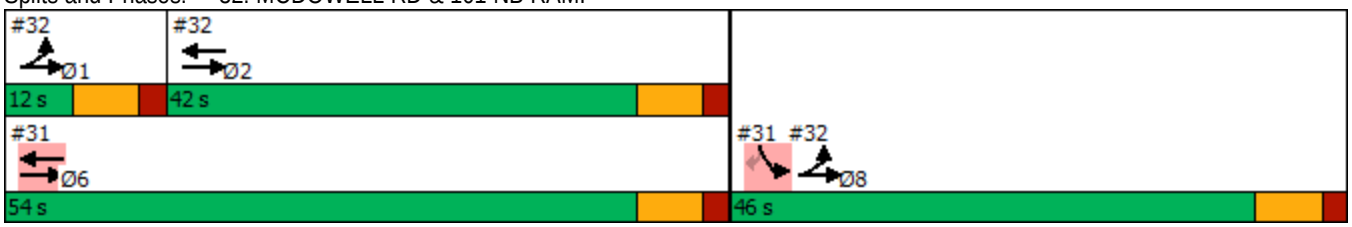
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	500	1400	600	500	0	0			
Future Volume (vph)	500	1400	600	500	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.932						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	3021	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	3021	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			231						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	543	1522	652	543	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	543	1522	1195	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			42.0				12.0	54.0	46.0
Total Split (%)			42.0%				12%	54%	46%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	51.0	100.0	35.0						
Actuated g/C Ratio	0.51	1.00	0.35						
v/c Ratio	0.34	0.47	0.99						
Control Delay	26.8	2.4	50.6						
Queue Delay	0.0	0.0	0.0						
Total Delay	26.8	2.4	50.6						
LOS	C	A	D						
Approach Delay		8.8	50.6						
Approach LOS		A	D						
Stops (vph)	365	277	824						
Fuel Used(gal)	9	8	49						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	611	577	3426						
NOx Emissions (g/hr)	119	112	667						
VOC Emissions (g/hr)	142	134	794						
Dilemma Vehicles (#)	0	0	52						
Queue Length 50th (ft)	132	90	335						
Queue Length 95th (ft)	m165	m87	#494						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1603	3241	1207						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.34	0.47	0.99						

Intersection Summary	
Area Type: CBD	
Cycle Length: 100	
Actuated Cycle Length: 100	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 24.1	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: MCDOWELL RD & 101 NB RAMP



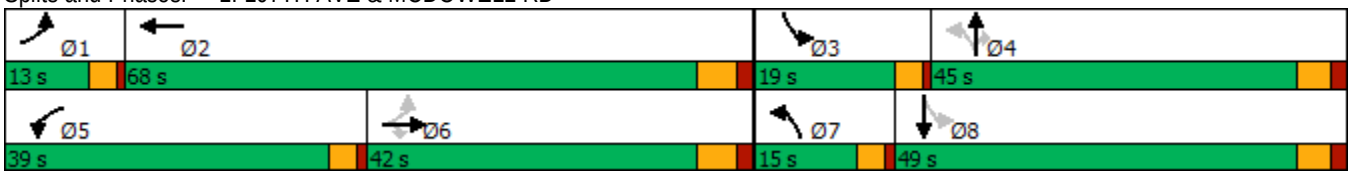
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	570	125	423	613	153	167	526	251	170	355	155
Future Volume (vph)	97	570	125	423	613	153	167	526	251	170	355	155
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	0		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.970				0.850		0.954	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	5175	1611	3493	5009	0	1801	3601	1611	1801	3436	0
Flt Permitted	0.338			0.950			0.283			0.201		
Satd. Flow (perm)	628	5175	1611	3493	5009	0	536	3601	1611	381	3436	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130		52				179		48	
Link Speed (mph)		45			30			45			35	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			22.9			9.3			23.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.89	0.89	0.89	0.91	0.91	0.91
Heavy Vehicles (%)	4%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	101	594	130	441	639	159	188	591	282	187	390	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	594	130	441	798	0	188	591	282	187	560	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	13.0	42.0	42.0	39.0	68.0		15.0	45.0	45.0	19.0	49.0	
Total Split (%)	9.0%	29.0%	29.0%	26.9%	46.9%		10.3%	31.0%	31.0%	13.1%	33.8%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	46.7	36.1	36.1	20.1	48.0		38.5	26.1	26.1	42.6	28.2	
Actuated g/C Ratio	0.41	0.31	0.31	0.17	0.42		0.33	0.23	0.23	0.37	0.24	
v/c Ratio	0.30	0.37	0.22	0.73	0.38		0.63	0.72	0.56	0.63	0.64	
Control Delay	18.5	33.4	7.0	53.3	23.1		35.7	47.2	19.3	34.2	39.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.5	33.4	7.0	53.3	23.1		35.7	47.2	19.3	34.2	39.0	
LOS	B	C	A	D	C		D	D	B	C	D	
Approach Delay		27.4			33.9			37.7			37.8	
Approach LOS		C			C			D			D	
Stops (vph)	58	429	16	385	474		120	465	82	110	399	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	12	1	23	36		4	14	4	3	11	
CO Emissions (g/hr)	106	820	65	1642	2483		265	997	255	242	797	
NOx Emissions (g/hr)	21	159	13	319	483		52	194	50	47	155	
VOC Emissions (g/hr)	25	190	15	380	575		61	231	59	56	185	
Dilemma Vehicles (#)	0	24	0	0	0		0	18	0	0	16	
Queue Length 50th (ft)	35	124	0	160	139		93	215	64	93	178	
Queue Length 95th (ft)	75	196	50	238	202		158	297	156	160	254	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160				120		120	150		
Base Capacity (vph)	349	1622	594	1073	2737		303	1245	674	334	1339	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.29	0.37	0.22	0.41	0.29		0.62	0.47	0.42	0.56	0.42	

Intersection Summary

Area Type: Other
Cycle Length: 145
Actuated Cycle Length: 115.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 56.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: 107TH AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	131	11	45	281	896	0	0	528	345
Future Volume (vph)	0	0	0	131	11	45	281	896	0	0	528	345
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.991	0.850					0.941	
Flt Protected				0.950	0.962		0.950					
Satd. Flow (prot)	0	0	0	1694	1632	1531	1749	3601	0	0	4869	0
Flt Permitted				0.950	0.962		0.950					
Satd. Flow (perm)	0	0	0	1694	1632	1531	1749	3601	0	0	4869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					94	
Link Speed (mph)		30			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		18.5			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	3%	2%	2%	5%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	151	13	52	312	996	0	0	562	367
Shared Lane Traffic (%)				44%		10%						
Lane Group Flow (vph)	0	0	0	85	84	47	312	996	0	0	929	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				43.0	43.0	43.0					30.0	
Total Split (%)				28.7%	28.7%	28.7%					20.0%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				13.7	13.7	13.7	52.7	82.3			24.3	
Actuated g/C Ratio				0.13	0.13	0.13	0.49	0.77			0.23	
v/c Ratio				0.39	0.40	0.16	0.36	0.36			0.79	
Control Delay				50.1	49.4	1.2	17.4	1.5			41.5	
Queue Delay				0.0	0.0	0.0	3.2	1.4			0.0	
Total Delay				50.1	49.4	1.2	20.6	2.9			41.5	
LOS				D	D	A	C	A			D	
Approach Delay					39.2			7.1			41.5	
Approach LOS					D			A			D	
Stops (vph)				64	63	0	195	57			697	

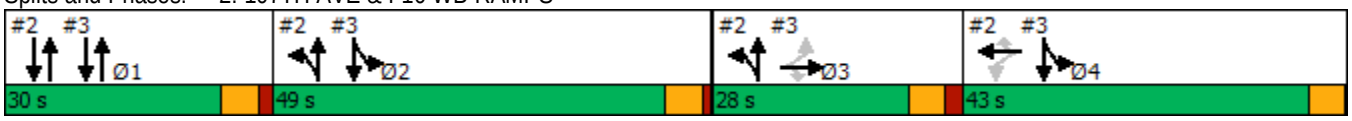
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	49.0	28.0
Total Split (%)	33%	19%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				2	2	0	4	3			22	
CO Emissions (g/hr)				139	136	17	284	212			1519	
NOx Emissions (g/hr)				27	26	3	55	41			296	
VOC Emissions (g/hr)				32	31	4	66	49			352	
Dilemma Vehicles (#)				0	3	0	0	37			40	
Queue Length 50th (ft)				55	56	0	157	8			194	
Queue Length 95th (ft)				115	118	0	m237	m41			#323	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				620	599	627	869	2791			1181	
Starvation Cap Reductn				0	0	0	448	1517			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.14	0.14	0.07	0.74	0.78			0.79	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 106.5
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	351	37	208	0	0	0	0	829	153	63	600	0
Future Volume (vph)	351	37	208	0	0	0	0	829	153	63	600	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.982	0.850					0.977				
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4	210					21				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.95	0.95	0.95	0.89	0.89	0.89
Heavy Vehicles (%)	2%	5%	7%	0%	0%	0%	0%	2%	3%	2%	2%	0%
Adj. Flow (vph)	403	43	239	0	0	0	0	873	161	71	674	0
Shared Lane Traffic (%)	41%		12%									
Lane Group Flow (vph)	238	237	210	0	0	0	0	1034	0	71	674	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	28.0	28.0	28.0					30.0				
Total Split (%)	18.7%	18.7%	18.7%					20.0%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	22.1	22.1	22.1					24.3		37.2	72.1	
Actuated g/C Ratio	0.21	0.21	0.21					0.23		0.35	0.68	
v/c Ratio	0.67	0.70	0.45					0.89		0.11	0.28	
Control Delay	51.6	52.9	9.1					50.5		13.2	0.9	
Queue Delay	0.0	0.0	0.0					0.3		0.0	0.1	
Total Delay	51.6	52.9	9.1					50.9		13.2	1.0	
LOS	D	D	A					D		B	A	
Approach Delay		39.0						50.9			2.2	
Approach LOS		D						D			A	
Stops (vph)	178	174	23					836		48	24	

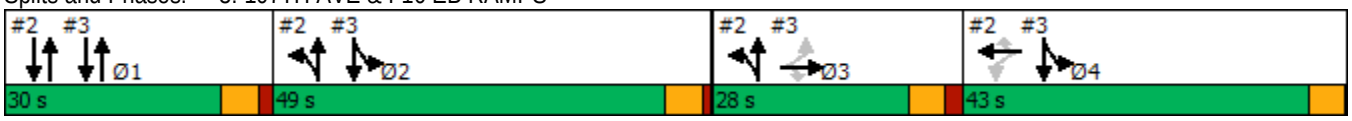
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	49.0	43.0
Total Split (%)	33%	29%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	5	2					46		1	2	
CO Emissions (g/hr)	383	382	111					3192		64	125	
NOx Emissions (g/hr)	75	74	22					621		12	24	
VOC Emissions (g/hr)	89	89	26					740		15	29	
Dilemma Vehicles (#)	0	9	0					43		0	3	
Queue Length 50th (ft)	154	159	0					241		37	8	
Queue Length 95th (ft)	#306	#327	63					#416		m62	9	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	355	339	469					1165		1391	3108	
Starvation Cap Reductn	0	0	0					0		0	1208	
Spillback Cap Reductn	0	0	0					11		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.67	0.70	0.45					0.90		0.05	0.35	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 106.5
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 32.9 Intersection LOS: C
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	206	72	114	474	120	73	630	52	26	590	145
Future Volume (vph)	77	206	72	114	474	120	73	630	52	26	590	145
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	0		0	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1774	1580	1783	1877	1565	1783	3566	1611	1640	3601	1611
Flt Permitted	0.237			0.617			0.331			0.321		
Satd. Flow (perm)	449	1774	1580	1158	1877	1565	621	3566	1611	554	3601	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			124			69			158
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			119.6			59.8	
Peak Hour Factor	0.91	0.91	0.91	0.97	0.97	0.97	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	9%	4%	3%	3%	5%	3%	3%	2%	12%	2%	2%
Adj. Flow (vph)	85	226	79	118	489	124	76	656	54	28	641	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	226	79	118	489	124	76	656	54	28	641	158
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	66.0	66.0	54.0	54.0	54.0	44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	10.9%	60.0%	60.0%	49.1%	49.1%	49.1%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	36.6	34.4	34.4	26.4	26.4	26.4	26.0	26.0	26.0	26.0	26.0	26.0
Actuated g/C Ratio	0.50	0.47	0.47	0.36	0.36	0.36	0.35	0.35	0.35	0.35	0.35	0.35
v/c Ratio	0.25	0.27	0.10	0.28	0.73	0.19	0.35	0.52	0.09	0.14	0.50	0.23
Control Delay	11.6	12.6	3.3	20.5	28.4	4.6	26.8	22.4	4.2	22.5	22.1	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	12.6	3.3	20.5	28.4	4.6	26.8	22.4	4.2	22.5	22.1	4.8
LOS	B	B	A	C	C	A	C	C	A	C	C	A
Approach Delay		10.5			23.1			21.5			18.8	
Approach LOS		B			C			C			B	
Stops (vph)	34	106	8	71	376	15	53	463	6	19	430	17

4: VAN BUREN ST & 107TH AVE

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	3	0	5	24	4	4	31	2	1	23	4
CO Emissions (g/hr)	65	191	32	369	1656	309	258	2186	155	71	1616	284
NOx Emissions (g/hr)	13	37	6	72	322	60	50	425	30	14	314	55
VOC Emissions (g/hr)	15	44	7	85	384	72	60	507	36	17	375	66
Dilemma Vehicles (#)	0	11	0	0	26	0	0	0	0	0	32	0
Queue Length 50th (ft)	17	52	0	36	179	0	25	121	0	8	117	0
Queue Length 95th (ft)	50	126	22	95	371	35	79	233	19	34	226	42
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170				210		160
Base Capacity (vph)	382	1461	1315	809	1311	1131	345	1985	927	308	2004	966
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.15	0.06	0.15	0.37	0.11	0.22	0.33	0.06	0.09	0.32	0.16

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 73.4
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 19.6 Intersection LOS: B
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: VAN BUREN ST & 107TH AVE

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	338	96	129	802	188	82	334	49	122	525	162
Future Volume (vph)	119	338	96	129	802	188	82	334	49	122	525	162
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.967			0.971			0.981			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3482	0	1801	3425	0	1801	3533	0	1749	3467	0
Flt Permitted	0.107			0.424			0.266			0.432		
Satd. Flow (perm)	203	3482	0	804	3425	0	504	3533	0	795	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			29			15			38	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.93	0.93	0.93	0.98	0.98	0.98	0.89	0.89	0.89	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	3%	9%	2%	2%	2%	5%	2%	3%
Adj. Flow (vph)	128	363	103	132	818	192	92	375	55	126	541	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	466	0	132	1010	0	92	430	0	126	708	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	46.0		12.0	46.0		12.0	40.0		12.0	40.0	
Total Split (%)	10.9%	41.8%		10.9%	41.8%		10.9%	36.4%		10.9%	36.4%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	48.8	38.6		48.9	38.6		44.9	35.0		46.3	37.1	
Actuated g/C Ratio	0.44	0.35		0.44	0.35		0.41	0.32		0.42	0.34	
v/c Ratio	0.65	0.37		0.31	0.83		0.32	0.38		0.32	0.59	
Control Delay	32.8	25.3		8.7	20.1		21.5	29.8		21.1	32.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.8	25.3		8.7	20.1		21.5	29.8		21.1	32.1	
LOS	C	C		A	C		C	C		C	C	
Approach Delay		26.9			18.8			28.3			30.5	
Approach LOS		C			B			C			C	
Stops (vph)	68	287		27	372		48	281		74	537	

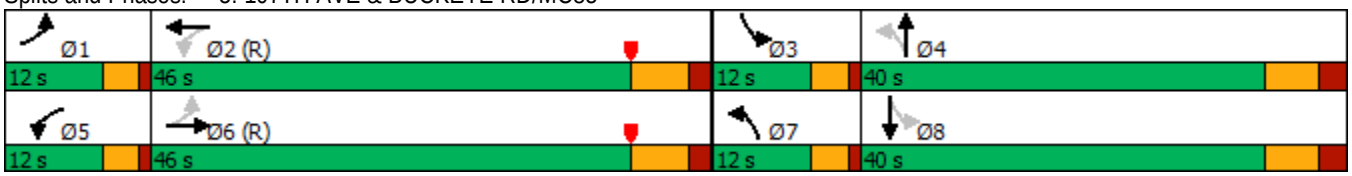
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	10		5	43		2	9		6	35	
CO Emissions (g/hr)	185	670		347	3004		111	613		392	2421	
NOx Emissions (g/hr)	36	130		68	585		22	119		76	471	
VOC Emissions (g/hr)	43	155		81	696		26	142		91	561	
Dilemma Vehicles (#)	0	20		0	95		0	17		0	31	
Queue Length 50th (ft)	48	116		20	110		38	122		53	216	
Queue Length 95th (ft)	#95	160		m28	160		69	165		92	282	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	207	1268		432	1244		303	1132		403	1193	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.62	0.37		0.31	0.81		0.30	0.38		0.31	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 30 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 25.1 Intersection LOS: C
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	633	153	559	967	76	350	505	556	139	602	114
Future Volume (vph)	81	633	153	559	967	76	350	505	556	139	602	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.989				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		7				562			217
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.98	0.98	0.98	0.99	0.99	0.99	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	90	703	170	570	987	78	354	510	562	149	647	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	703	170	570	1065	0	354	510	562	149	647	123
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	14.0	48.0	48.0		71.0		23.0	49.0	49.0	16.0	42.0	42.0
Total Split (%)	9.3%	32.0%	32.0%		47.3%		15.3%	32.7%	32.7%	10.7%	28.0%	28.0%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	Min	None	None
Act Effct Green (s)	8.3	41.7	41.7	26.5	64.9		17.4	31.6	31.6	10.2	24.5	24.5
Actuated g/C Ratio	0.06	0.30	0.30	0.19	0.47		0.13	0.23	0.23	0.07	0.18	0.18
v/c Ratio	0.44	0.66	0.27	0.88	0.65		0.82	0.44	0.52	0.59	0.72	0.27
Control Delay	70.7	46.3	2.6	53.0	30.7		75.4	46.8	5.1	73.1	58.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.7	46.3	2.6	53.0	30.7		75.4	46.8	5.1	73.1	58.4	1.4
LOS	E	D	A	D	C		E	D	A	E	E	A
Approach Delay		40.9			38.5			37.5			53.2	
Approach LOS		D			D			D			D	

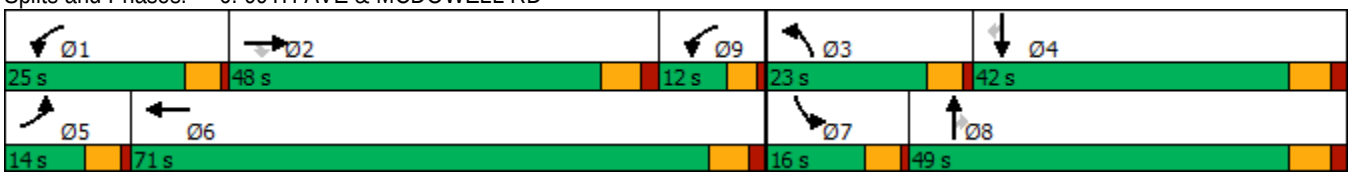
Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	25.0	12.0
Total Split (%)	17%	8%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	77	541	5	571	771		324	419	36	131	551	0
Fuel Used(gal)	5	34	5	17	23		11	13	4	5	21	1
CO Emissions (g/hr)	342	2397	375	1168	1593		802	909	301	377	1491	99
NOx Emissions (g/hr)	66	466	73	227	310		156	177	58	73	290	19
VOC Emissions (g/hr)	79	555	87	271	369		186	211	70	87	346	23
Dilemma Vehicles (#)	0	23	0	0	36		0	15	0	0	17	0
Queue Length 50th (ft)	41	294	0	172	383		163	146	0	68	204	0
Queue Length 95th (ft)	73	387	22	#294	496		#248	184	49	110	250	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	224	1067	630	666	1648		448	1564	1246	271	1305	567
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.66	0.27	0.86	0.65		0.79	0.33	0.45	0.55	0.50	0.22

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 138.1	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 41.4	Intersection LOS: D
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: 99TH AVE & MCDOWELL RD



Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	196	735	346	265	1124	0	0	884	442
Future Volume (vph)	0	0	0	196	735	346	265	1124	0	0	884	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.993	0.850					0.950	
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1443	3039	1393	1586	4916	0	0	5885	0
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1443	3039	1393	1586	4916	0	0	5885	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	63					81	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.89	0.89	0.89	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	10%	3%	2%	10%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	211	790	372	298	1263	0	0	1016	508
Shared Lane Traffic (%)				10%		10%						
Lane Group Flow (vph)	0	0	0	190	848	335	298	1263	0	0	1524	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							10.0				20.0	
Minimum Split (s)							47.8				28.9	
Total Split (s)							40.0				45.0	
Total Split (%)							26.7%				30.0%	
Yellow Time (s)							3.9				4.7	
All-Red Time (s)							1.9				1.2	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							5.8				5.9	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				C-Min	
Act Effct Green (s)				59.1	59.1	59.1	33.6	79.1			39.7	
Actuated g/C Ratio				0.39	0.39	0.39	0.22	0.53			0.26	
v/c Ratio				0.33	0.71	0.57	0.84	0.49			1.08dr	
Control Delay				33.8	42.0	32.9	95.8	6.1			63.3	
Queue Delay				0.0	0.0	0.0	0.0	0.1			0.0	
Total Delay				33.8	42.0	32.9	95.8	6.2			63.3	
LOS				C	D	C	F	A			E	
Approach Delay					38.6			23.3			63.3	
Approach LOS					D			C			E	
Stops (vph)				121	647	200	254	92			1175	

Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	30.0	45.8
Total Split (s)	25.0	40.0
Total Split (%)	17%	27%
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.2	1.9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	23	8	9	6			40	
CO Emissions (g/hr)				326	1640	559	646	449			2762	
NOx Emissions (g/hr)				63	319	109	126	87			537	
VOC Emissions (g/hr)				76	380	130	150	104			640	
Dilemma Vehicles (#)				0	26	0	0	85			43	
Queue Length 50th (ft)				141	401	228	305	26			411	
Queue Length 95th (ft)				216	490	346	m#379	87			#443	
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				568	1199	587	361	2574			1618	
Starvation Cap Reductn				0	0	0	0	294			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.33	0.71	0.57	0.83	0.55			0.94	

Intersection Summary

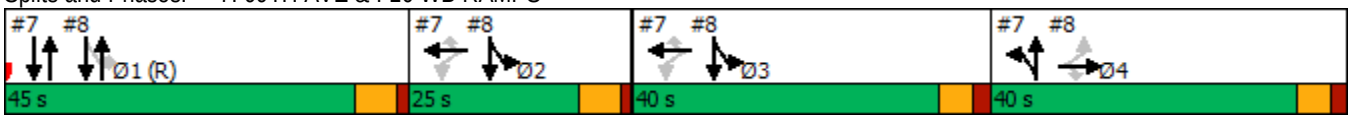
Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 165
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 41.7 Intersection LOS: D
Intersection Capacity Utilization 64.5% ICU Level of Service C
Analysis Period (min) 15
Description: WB I-10 Off ramp

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	136	181	0	0	0	0	1304	475	236	935	0
Future Volume (vph)	273	136	181	0	0	0	0	1304	475	236	935	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		200	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.91	1.00
Frt		0.978	0.850						0.850			
Flt Protected	0.950	0.980								0.950		
Satd. Flow (prot)	1557	2828	1146	0	0	0	0	6017	1473	1711	4686	0
Flt Permitted	0.950	0.980								0.101		
Satd. Flow (perm)	1557	2828	1146	0	0	0	0	6017	1473	182	4686	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11	142						366			
Link Speed (mph)		45			45			45			30	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			12.1	
Peak Hour Factor	0.93	0.93	0.93	0.25	0.25	0.25	0.98	0.98	0.98	0.87	0.87	0.87
Heavy Vehicles (%)	2%	6%	24%	0%	0%	0%	0%	5%	6%	2%	7%	0%
Adj. Flow (vph)	294	146	195	0	0	0	0	1331	485	271	1075	0
Shared Lane Traffic (%)	45%		25%									
Lane Group Flow (vph)	162	327	146	0	0	0	0	1331	485	271	1075	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						1		2 3	1 2 3	
Permitted Phases	4		4						1	1 2 3		
Detector Phase	4	4	4					1	1	2 3	1 2 3	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	47.8	47.8	47.8					28.9	28.9			
Total Split (s)	40.0	40.0	40.0					45.0	45.0			
Total Split (%)	26.7%	26.7%	26.7%					30.0%	30.0%			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.8	5.8	5.8					5.9	5.9			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	None	None	None					C-Min	C-Min			
Act Effct Green (s)	33.6	33.6	33.6					39.7	39.7	98.8	104.7	
Actuated g/C Ratio	0.22	0.22	0.22					0.26	0.26	0.66	0.70	
v/c Ratio	0.47	0.51	0.40					0.84	0.74	0.38	0.33	
Control Delay	55.3	52.3	11.0					48.9	20.5	17.1	1.6	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.3	
Total Delay	55.3	52.3	11.0					48.9	20.5	17.1	1.9	
LOS	E	D	B					D	C	B	A	
Approach Delay		43.6						41.3			5.0	
Approach LOS		D						D			A	
Stops (vph)	129	254	20					1258	246	179	48	

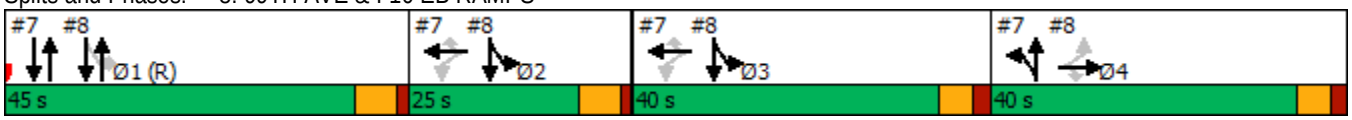
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	30.0	45.8
Total Split (s)	25.0	40.0
Total Split (%)	17%	27%
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.2	1.9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	10	2					61	17	3	4	
CO Emissions (g/hr)	354	695	150					4283	1184	195	312	
NOx Emissions (g/hr)	69	135	29					833	230	38	61	
VOC Emissions (g/hr)	82	161	35					993	274	45	72	
Dilemma Vehicles (#)	0	10	0					26	0	0	0	
Queue Length 50th (ft)	151	158	3					384	245	180	19	
Queue Length 95th (ft)	236	216	71					413	318	m209	m20	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						200			
Base Capacity (vph)	354	653	370					1594	659	722	3272	
Starvation Cap Reductn	0	0	0					0	0	0	1448	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.46	0.50	0.39					0.84	0.74	0.38	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 165
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 28.8 Intersection LOS: C
Intersection Capacity Utilization 64.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

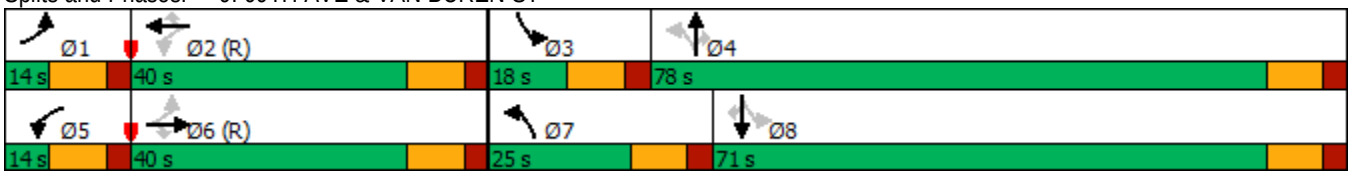
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	116	57	85	417	178	112	839	62	142	668	152
Future Volume (vph)	97	116	57	85	417	178	112	839	62	142	668	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1454	1766	1459	1711	3421	1531	1616	4775	1531	1711	3292	1432
Flt Permitted	0.433			0.676			0.188			0.210		
Satd. Flow (perm)	663	1766	1459	1217	3421	1531	320	4775	1531	378	3292	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			178			189			177			177
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.96	0.96	0.96	0.99	0.99	0.99
Heavy Vehicles (%)	20%	4%	7%	2%	2%	2%	8%	5%	2%	2%	6%	9%
Adj. Flow (vph)	105	126	62	90	444	189	117	874	65	143	675	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	126	62	90	444	189	117	874	65	143	675	154
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	40.0	40.0	14.0	40.0	40.0	25.0	78.0	78.0	18.0	71.0	71.0
Total Split (%)	9.3%	26.7%	26.7%	9.3%	26.7%	26.7%	16.7%	52.0%	52.0%	12.0%	47.3%	47.3%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	67.0	57.0	57.0	62.9	55.0	55.0	50.9	39.8	39.8	46.0	37.3	37.3
Actuated g/C Ratio	0.45	0.38	0.38	0.42	0.37	0.37	0.34	0.27	0.27	0.31	0.25	0.25
v/c Ratio	0.30	0.19	0.09	0.17	0.35	0.28	0.57	0.69	0.12	0.74	0.83	0.31
Control Delay	25.8	35.6	0.3	24.2	38.2	6.5	40.2	51.9	0.5	55.7	48.1	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	35.6	0.3	24.2	38.2	6.5	40.2	51.9	0.5	55.7	48.1	2.9
LOS	C	D	A	C	D	A	D	D	A	E	D	A
Approach Delay		24.6			28.2			47.4			42.0	
Approach LOS		C			C			D			D	
Stops (vph)	58	79	0	52	306	19	72	730	0	80	420	12

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	6	2	4	23	8	6	47	2	6	28	4
CO Emissions (g/hr)	319	406	137	306	1598	569	397	3279	150	430	1991	283
NOx Emissions (g/hr)	62	79	27	59	311	111	77	638	29	84	387	55
VOC Emissions (g/hr)	74	94	32	71	370	132	92	760	35	100	461	66
Dilemma Vehicles (#)	0	4	0	0	14	0	0	22	0	0	38	0
Queue Length 50th (ft)	55	82	0	46	165	0	75	283	0	66	191	6
Queue Length 95th (ft)	110	157	0	94	257	64	106	294	0	104	163	2
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	348	671	664	537	1253	680	255	2190	798	194	1356	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.19	0.09	0.17	0.35	0.28	0.46	0.40	0.08	0.74	0.50	0.22

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 38.9 Intersection LOS: D
Intersection Capacity Utilization 61.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



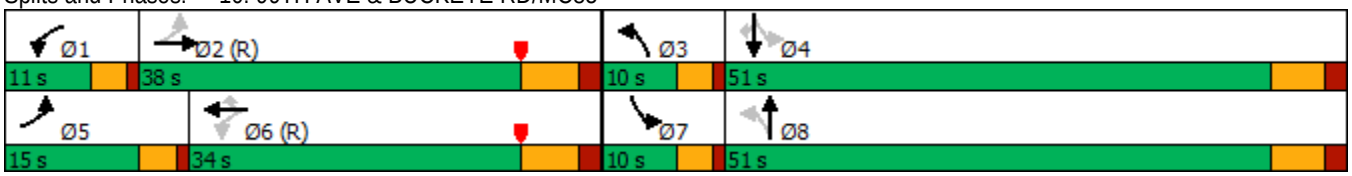
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	323	49	116	818	282	148	531	59	122	541	170
Future Volume (vph)	133	323	49	116	818	282	148	531	59	122	541	170
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.980				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3385	0	1801	3566	1381	1801	3456	0	1413	1895	1611
Flt Permitted	0.114			0.447			0.147			0.295		
Satd. Flow (perm)	214	3385	0	847	3566	1381	279	3456	0	439	1895	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				260		13				185
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4797			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	2%	2%	3%	19%	2%	5%	2%	30%	2%	2%
Adj. Flow (vph)	166	404	61	127	899	310	168	603	67	133	588	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	465	0	127	899	310	168	670	0	133	588	185
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0
Total Split (s)	15.0	38.0		11.0	34.0	34.0	10.0	51.0		10.0	51.0	51.0
Total Split (%)	13.6%	34.5%		10.0%	30.9%	30.9%	9.1%	46.4%		9.1%	46.4%	46.4%
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4		3.0	4.4	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4		4.0	6.4	6.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effct Green (s)	47.5	35.0		42.3	32.4	32.4	49.1	40.7		49.1	40.7	40.7
Actuated g/C Ratio	0.43	0.32		0.38	0.29	0.29	0.45	0.37		0.45	0.37	0.37
v/c Ratio	0.72	0.43		0.33	0.86	0.53	0.81	0.52		0.53	0.84	0.26
Control Delay	54.8	30.2		14.2	35.1	5.8	47.3	27.6		24.8	43.0	4.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	54.8	30.2		14.2	35.1	5.8	47.3	27.6		24.8	43.0	4.0
LOS	D	C		B	D	A	D	C		C	D	A
Approach Delay		36.7			26.3			31.5			32.4	
Approach LOS		D			C			C			C	
Stops (vph)	116	229		44	673	67	80	431		72	479	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	18		5	43	11	4	14		6	29	6
CO Emissions (g/hr)	540	1278		340	3032	751	257	955		400	2053	435
NOx Emissions (g/hr)	105	249		66	590	146	50	186		78	400	85
VOC Emissions (g/hr)	125	296		79	703	174	60	221		93	476	101
Dilemma Vehicles (#)	0	50		0	41	0	0	21		0	22	0
Queue Length 50th (ft)	98	113		25	342	17	62	181		49	360	0
Queue Length 95th (ft)	147	151		51	#463	20	#127	223		84	495	43
Internal Link Dist (ft)		5209			4717			274			849	
Turn Bay Length (ft)	160			170		250	190			250		250
Base Capacity (vph)	251	1087		391	1050	590	207	1408		249	768	763
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.66	0.43		0.32	0.86	0.53	0.81	0.48		0.53	0.77	0.24

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 71 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 30.7 Intersection LOS: C
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85



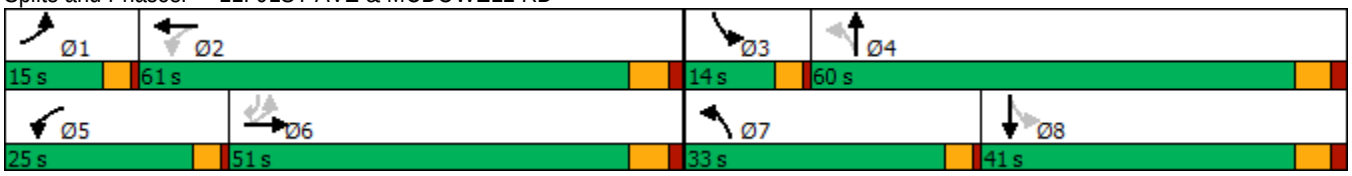
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	438	212	187	683	155	287	718	151	94	589	112
Future Volume (vph)	118	438	212	187	683	155	287	718	151	94	589	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.951			0.972			0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3243	0	1711	3325	0	1711	3332	0	1711	3421	1531
Flt Permitted	0.155			0.201			0.190			0.193		
Satd. Flow (perm)	279	3243	0	362	3325	0	342	3332	0	348	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			20			19				138
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			12.7			47.9	
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	130	481	233	210	767	174	305	764	161	100	627	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	714	0	210	941	0	305	925	0	100	627	119
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	15.0	51.0		25.0	61.0		33.0	60.0		14.0	41.0	51.0
Total Split (%)	10.0%	34.0%		16.7%	40.7%		22.0%	40.0%		9.3%	27.3%	34.0%
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4		4.0	6.4		4.0	6.0		4.0	6.0	6.4
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min		None	None		None	None	Min
Act Effct Green (s)	53.2	41.2		62.4	46.6		60.6	46.1		43.3	32.9	41.2
Actuated g/C Ratio	0.40	0.31		0.47	0.35		0.46	0.35		0.33	0.25	0.31
v/c Ratio	0.60	0.68		0.65	0.79		0.80	0.78		0.50	0.73	0.21
Control Delay	33.9	41.1		31.5	43.6		42.4	43.8		32.6	52.9	4.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	33.9	41.1		31.5	43.6		42.4	43.8		32.6	52.9	4.7
LOS	C	D		C	D		D	D		C	D	A
Approach Delay		40.0			41.4			43.4			43.7	
Approach LOS		D			D			D			D	
Stops (vph)	70	507		107	709		186	737		61	522	8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	28		9	45		6	19		3	23	2
CO Emissions (g/hr)	324	1955		623	3132		402	1355		211	1588	162
NOx Emissions (g/hr)	63	380		121	609		78	264		41	309	32
VOC Emissions (g/hr)	75	453		144	726		93	314		49	368	38
Dilemma Vehicles (#)	0	21		0	28		0	28		0	18	0
Queue Length 50th (ft)	66	273		112	396		180	390		52	275	0
Queue Length 95th (ft)	113	380		175	496		291	496		93	380	34
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	239	1190		394	1431		468	1418		226	956	633
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.54	0.60		0.53	0.66		0.65	0.65		0.44	0.66	0.19

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 131.5
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 42.2 Intersection LOS: D
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	147	13	191	191	978	0	0	894	207
Future Volume (vph)	0	0	0	147	13	191	191	978	0	0	894	207
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.899	0.850					0.972	
Flt Protected				0.950	0.989		0.950					
Satd. Flow (prot)	0	0	0	1711	1524	1531	1801	3601	0	0	3500	0
Flt Permitted				0.950	0.989		0.123					
Satd. Flow (perm)	0	0	0	1711	1524	1531	233	3601	0	0	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					66	125					33	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			12.7	
Peak Hour Factor	0.25	0.25	0.25	0.90	0.90	0.90	0.96	0.96	0.96	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	8%	2%	2%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	163	14	212	199	1019	0	0	982	227
Shared Lane Traffic (%)				17%		41%						
Lane Group Flow (vph)	0	0	0	135	129	125	199	1019	0	0	1209	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				32.0	32.0	32.0	23.0					
Total Split (%)				22.9%	22.9%	22.9%	16.4%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				26.3	26.3	26.3	76.8	81.9			79.9	
Actuated g/C Ratio				0.19	0.19	0.19	0.55	0.59			0.57	
v/c Ratio				0.42	0.38	0.32	0.63	0.48			0.60	
Control Delay				54.5	28.3	10.1	31.9	5.0			20.2	
Queue Delay				0.0	0.0	0.0	0.0	0.3			0.6	
Total Delay				54.5	28.3	10.1	31.9	5.2			20.8	
LOS				D	C	B	C	A			C	
Approach Delay					31.5			9.6			20.8	
Approach LOS					C			A			C	
Stops (vph)				106	51	16	165	109			671	

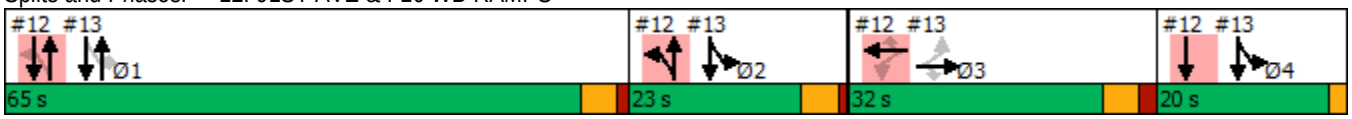
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	65.0	20.0
Total Split (%)	46%	14%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	3	2	3	5			17	
CO Emissions (g/hr)				275	175	111	223	378			1165	
NOx Emissions (g/hr)				54	34	22	43	73			227	
VOC Emissions (g/hr)				64	41	26	52	87			270	
Dilemma Vehicles (#)				0	4	0	0	0			39	
Queue Length 50th (ft)				115	53	0	92	58			354	
Queue Length 95th (ft)				187	125	58	180	67			422	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				323	341	391	332	2148			2026	
Starvation Cap Reductn				0	0	0	0	485			418	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.42	0.38	0.32	0.60	0.61			0.75	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 139
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 54.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	4	88	0	0	0	0	1045	179	217	814	0
Future Volume (vph)	128	4	88	0	0	0	0	1045	179	217	814	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	200		240	0		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.967								0.950		
Satd. Flow (prot)	1678	1556	1446	0	0	0	0	3601	1611	1801	3601	0
Flt Permitted	0.950	0.967								0.127		
Satd. Flow (perm)	1678	1556	1446	0	0	0	0	3601	1611	241	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11	76						155			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.90	0.90	0.90	0.25	0.25	0.25	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	4%	2%	8%	0%	0%	0%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	142	4	98	0	0	0	0	1077	185	231	866	0
Shared Lane Traffic (%)	40%		22%									
Lane Group Flow (vph)	85	83	76	0	0	0	0	1077	185	231	866	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	32.0	32.0	32.0					65.0	65.0			
Total Split (%)	22.9%	22.9%	22.9%					46.4%	46.4%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	26.3	26.3	26.3					59.9	59.9	91.7	101.9	
Actuated g/C Ratio	0.19	0.19	0.19					0.43	0.43	0.66	0.73	
v/c Ratio	0.27	0.27	0.23					0.69	0.24	0.45	0.33	
Control Delay	51.2	44.8	11.7					35.2	6.4	22.7	2.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.2	
Total Delay	51.2	44.8	11.7					35.2	6.4	22.7	3.0	
LOS	D	D	B					D	A	C	A	
Approach Delay		36.7						31.0			7.1	
Approach LOS		D						C			A	
Stops (vph)	64	55	13					829	25	134	112	

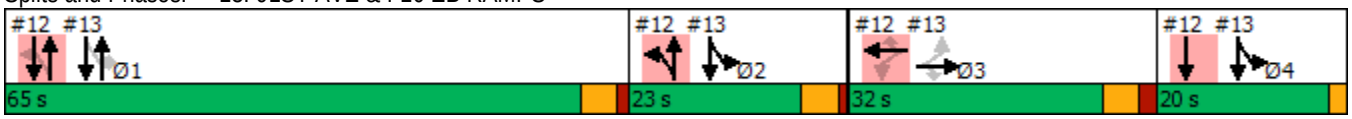
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	23.0	20.0
Total Split (%)	16%	14%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	2	1					45	6	3	4	
CO Emissions (g/hr)	172	156	77					3124	400	196	300	
NOx Emissions (g/hr)	33	30	15					608	78	38	58	
VOC Emissions (g/hr)	40	36	18					724	93	45	70	
Dilemma Vehicles (#)	0	3	0					37	0	0	1	
Queue Length 50th (ft)	70	62	0					415	16	67	59	
Queue Length 95th (ft)	126	118	47					497	63	144	70	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	317	303	335					1551	782	529	2666	
Starvation Cap Reductn	0	0	0					0	0	0	902	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.27	0.27	0.23					0.69	0.24	0.44	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 139
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 21.5 Intersection LOS: C
Intersection Capacity Utilization 54.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

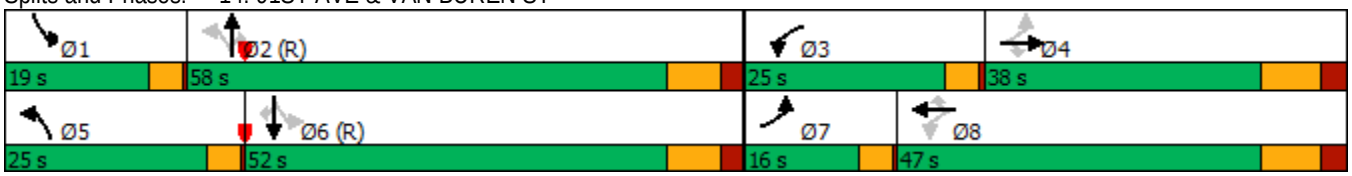
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	227	98	120	354	270	78	708	161	72	519	101
Future Volume (vph)	171	227	98	120	354	270	78	708	161	72	519	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1801	1531	1711	1801	1531	1711	3421	1487	1694	3421	1516
Flt Permitted	0.209			0.455			0.396			0.268		
Satd. Flow (perm)	376	1801	1531	819	1801	1531	713	3421	1487	478	3421	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			289			141			172
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.91	0.91	0.91	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	3%	2%	3%
Adj. Flow (vph)	197	261	113	135	398	303	86	778	177	75	541	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	261	113	135	398	303	86	778	177	75	541	105
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	16.0	38.0	38.0	25.0	47.0	47.0	25.0	58.0	58.0	19.0	52.0	52.0
Total Split (%)	11.4%	27.1%	27.1%	17.9%	33.6%	33.6%	17.9%	41.4%	41.4%	13.6%	37.1%	37.1%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	52.1	35.1	35.1	51.2	34.7	34.7	72.7	60.5	60.5	71.9	60.1	60.1
Actuated g/C Ratio	0.37	0.25	0.25	0.37	0.25	0.25	0.52	0.43	0.43	0.51	0.43	0.43
v/c Ratio	0.78	0.58	0.22	0.36	0.89	0.51	0.20	0.53	0.25	0.24	0.37	0.14
Control Delay	51.1	51.7	2.3	29.7	73.5	8.5	17.5	31.8	7.9	18.3	29.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	51.7	2.3	29.7	73.5	8.5	17.5	31.8	7.9	18.3	29.0	0.4
LOS	D	D	A	C	E	A	B	C	A	B	C	A
Approach Delay		41.7			42.9			26.5			23.7	
Approach LOS		D			D			C			C	
Stops (vph)	115	195	3	77	328	31	37	513	27	35	347	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	13	4	6	21	12	4	36	7	3	21	3
CO Emissions (g/hr)	684	922	305	421	1499	814	249	2494	465	186	1472	210
NOx Emissions (g/hr)	133	179	59	82	292	158	48	485	91	36	286	41
VOC Emissions (g/hr)	158	214	71	98	347	189	58	578	108	43	341	49
Dilemma Vehicles (#)	0	0	0	0	0	0	0	25	0	0	19	0
Queue Length 50th (ft)	116	203	0	77	342	9	38	281	20	33	180	0
Queue Length 95th (ft)	#175	296	8	122	#488	83	68	358	72	61	239	0
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	254	451	506	459	487	625	538	1478	722	390	1469	749
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.58	0.22	0.29	0.82	0.48	0.16	0.53	0.25	0.19	0.37	0.14

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 32.9 Intersection LOS: C
Intersection Capacity Utilization 65.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: 91ST AVE & VAN BUREN ST



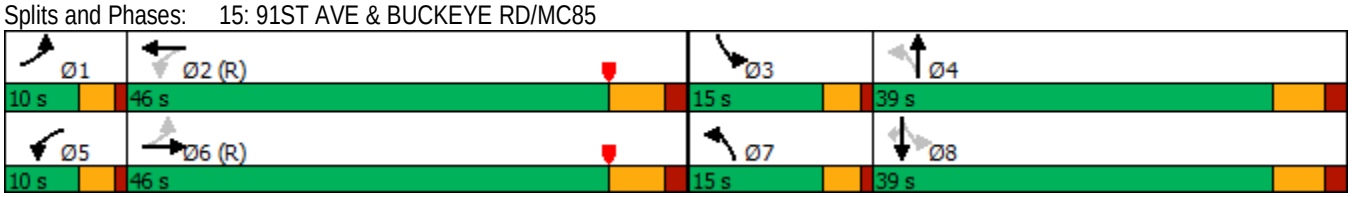
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	338	65	91	851	145	171	511	30	118	437	155
Future Volume (vph)	101	338	65	91	851	145	171	511	30	118	437	155
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.976			0.978			0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1717	4695	0	1766	4851	0	1733	5111	0	1717	3601	1550
Flt Permitted	0.184			0.495			0.316			0.356		
Satd. Flow (perm)	332	4695	0	920	4851	0	576	5111	0	643	3601	1550
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			34			8				167
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		447			450			399			4882	
Travel Time (s)		6.1			6.1			6.0			74.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	7%	11%	3%	4%	7%	3%	6%	2%	10%	7%	2%	6%
Adj. Flow (vph)	106	356	68	101	946	161	182	544	32	127	470	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	424	0	101	1107	0	182	576	0	127	470	167
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	10.0	46.0		10.0	46.0		15.0	39.0		15.0	39.0	39.0
Total Split (%)	9.1%	41.8%		9.1%	41.8%		13.6%	35.5%		13.6%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	57.4	47.6		57.0	47.4		37.9	25.2		35.7	24.0	24.0
Actuated g/C Ratio	0.52	0.43		0.52	0.43		0.34	0.23		0.32	0.22	0.22
v/c Ratio	0.40	0.21		0.19	0.52		0.59	0.49		0.42	0.60	0.36
Control Delay	28.2	26.0		8.3	12.8		31.5	37.3		26.8	41.3	7.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	28.2	26.0		8.3	12.8		31.5	37.3		26.8	41.3	7.1
LOS	C	C		A	B		C	D		C	D	A
Approach Delay		26.4			12.4			35.9			31.4	
Approach LOS		C			B			D			C	
Stops (vph)	69	556		24	302		117	446		77	378	19

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	24		3	40		4	14		6	23	6
CO Emissions (g/hr)	349	1683		245	2782		276	982		396	1636	409
NOx Emissions (g/hr)	68	327		48	541		54	191		77	318	80
VOC Emissions (g/hr)	81	390		57	645		64	228		92	379	95
Dilemma Vehicles (#)	0	69		0	35		0	20		0	16	0
Queue Length 50th (ft)	49	72		20	90		89	128		60	158	0
Queue Length 95th (ft)	106	110		37	106		129	154		93	195	50
Internal Link Dist (ft)		367			370			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	267	2054		534	2110		317	1529		325	1073	579
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.40	0.21		0.19	0.52		0.57	0.38		0.39	0.44	0.29

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 7 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 56.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85



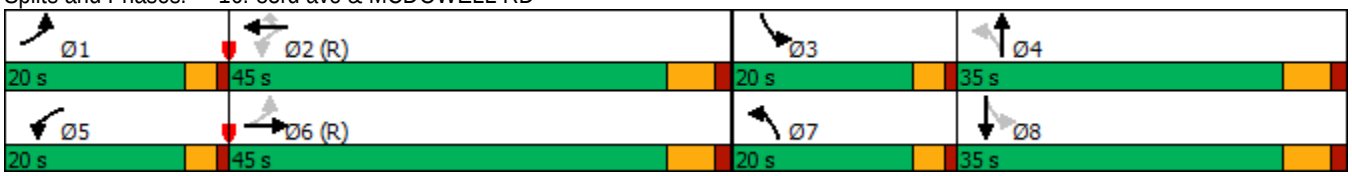
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	552	110	273	888	300	197	886	171	167	739	125
Future Volume (vph)	145	552	110	273	888	300	197	886	171	167	739	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.975				0.850		0.976			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3336	0	1711	3421	1531	1711	4798	0	1711	4808	0
Flt Permitted	0.159			0.219			0.138			0.137		
Satd. Flow (perm)	286	3336	0	394	3421	1531	248	4798	0	247	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				314		31			26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	161	613	122	297	965	326	212	953	184	178	786	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	735	0	297	965	326	212	1137	0	178	919	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9		11.0	32.9	
Total Split (s)	20.0	45.0		20.0	45.0	45.0	20.0	35.0		20.0	35.0	
Total Split (%)	16.7%	37.5%		16.7%	37.5%	37.5%	16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6		1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9		4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	55.5	42.3		62.0	45.9	45.9	46.2	30.4		43.5	29.1	
Actuated g/C Ratio	0.46	0.35		0.52	0.38	0.38	0.38	0.25		0.36	0.24	
v/c Ratio	0.61	0.62		0.81	0.74	0.42	0.80	0.92		0.74	0.78	
Control Delay	26.1	34.8		45.0	20.6	1.2	49.5	54.7		43.6	46.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.1	34.8		45.0	20.6	1.2	49.5	54.7		43.6	46.4	
LOS	C	C		D	C	A	D	D		D	D	
Approach Delay		33.2			21.2			53.9			45.9	
Approach LOS		C			C			D			D	
Stops (vph)	81	527		219	505	6	135	936		114	768	
Fuel Used(gal)	7	34		15	41	11	5	29		6	34	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	471	2368		1024	2842	734	332	2045		427	2400	
NOx Emissions (g/hr)	92	461		199	553	143	65	398		83	467	
VOC Emissions (g/hr)	109	549		237	659	170	77	474		99	556	
Dilemma Vehicles (#)	0	28		0	3	0	0	39		0	32	
Queue Length 50th (ft)	65	250		135	131	3	106	300		87	234	
Queue Length 95th (ft)	107	320		m186	m342	m1	#210	#409		153	290	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	333	1189		378	1309	779	293	1243		290	1201	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.48	0.62		0.79	0.74	0.42	0.72	0.91		0.61	0.77	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 75.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: 83rd ave & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	181	10	410	583	1078	0	0	649	497
Future Volume (vph)	0	0	0	181	10	410	583	1078	0	0	649	497
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.869	0.850						0.850
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1586	1481	1531	3330	5175	0	0	5124	1611
Flt Permitted				0.950	0.996		0.950					
Satd. Flow (perm)	0	0	0	1586	1481	1531	3330	5175	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					78	122						544
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.88	0.88	0.88	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	10%	6%	2%	7%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	206	11	466	641	1185	0	0	729	558
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	185	251	247	641	1185	0	0	729	558
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							54.0				35.0	35.0
Total Split (%)							38.6%				25.0%	25.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				34.7	34.7	34.7	55.8	93.7			31.7	31.7
Actuated g/C Ratio				0.25	0.25	0.25	0.40	0.67			0.23	0.23
v/c Ratio				0.47	0.59	0.52	0.48	0.34			0.63	0.71
Control Delay				48.8	37.2	26.2	16.1	2.7			52.2	10.0
Queue Delay				0.0	0.0	0.0	0.0	0.4			0.0	0.0
Total Delay				48.8	37.2	26.2	16.1	3.1			52.2	10.0
LOS				D	D	C	B	A			D	B
Approach Delay					36.4			7.6			33.9	
Approach LOS					D			A			C	
Stops (vph)				137	135	95	377	478			577	54

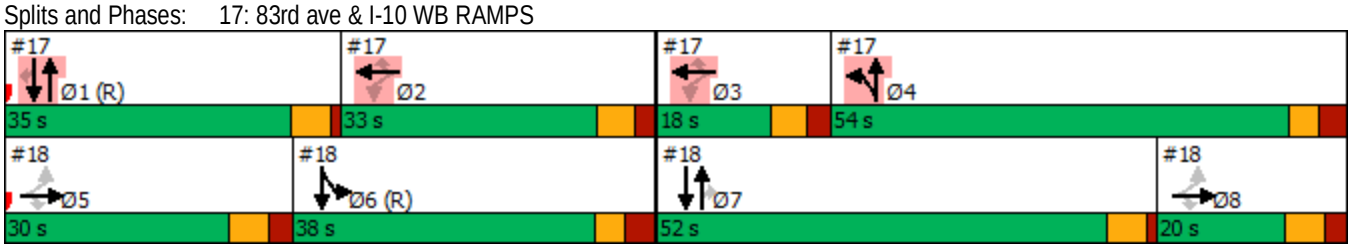
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	33.0	18.0	30.0	38.0	52.0	20.0
Total Split (%)	24%	13%	21%	27%	37%	14%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	6	5	9	10			18	4
CO Emissions (g/hr)				350	394	321	596	706			1234	310
NOx Emissions (g/hr)				68	77	62	116	137			240	60
VOC Emissions (g/hr)				81	91	74	138	164			286	72
Dilemma Vehicles (#)				0	6	0	0	3			23	0
Queue Length 50th (ft)				156	158	105	104	1			225	10
Queue Length 95th (ft)				215	236	178	328	2			269	121
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				443	469	515	1327	3462			1159	785
Starvation Cap Reductn				0	0	0	0	1555			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.42	0.54	0.48	0.48	0.62			0.63	0.71

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 21.7 Intersection LOS: C
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	3	423	0	0	0	0	1267	423	228	683	0
Future Volume (vph)	420	3	423	0	0	0	0	1267	423	228	683	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.95	1.00
Frt		0.919	0.850						0.850			
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1711	1453	1369	0	0	0	0	7529	1454	1801	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1711	1453	1369	0	0	0	0	7529	1454	1801	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44	222						469			
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			61.2			7.7	
Peak Hour Factor	0.86	0.86	0.86	0.25	0.25	0.25	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	33%	14%	0%	0%	0%	0%	4%	13%	2%	5%	0%
Adj. Flow (vph)	488	3	492	0	0	0	0	1408	470	243	727	0
Shared Lane Traffic (%)	30%		36%									
Lane Group Flow (vph)	342	326	315	0	0	0	0	1408	470	243	727	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								52.0	52.0	38.0		
Total Split (%)								37.1%	37.1%	27.1%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	39.2	39.2	39.2					43.4	43.4	38.9	87.6	
Actuated g/C Ratio	0.28	0.28	0.28					0.31	0.31	0.28	0.63	
v/c Ratio	0.72	0.74	0.58					0.60	0.61	0.49	0.33	
Control Delay	54.1	50.2	16.8					41.8	6.5	19.0	12.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.7	
Total Delay	54.1	50.2	16.8					41.8	6.5	19.0	13.5	
LOS	D	D	B					D	A	B	B	
Approach Delay		40.8						33.0			14.9	
Approach LOS		D						C			B	
Stops (vph)	260	221	74					1040	34	170	543	

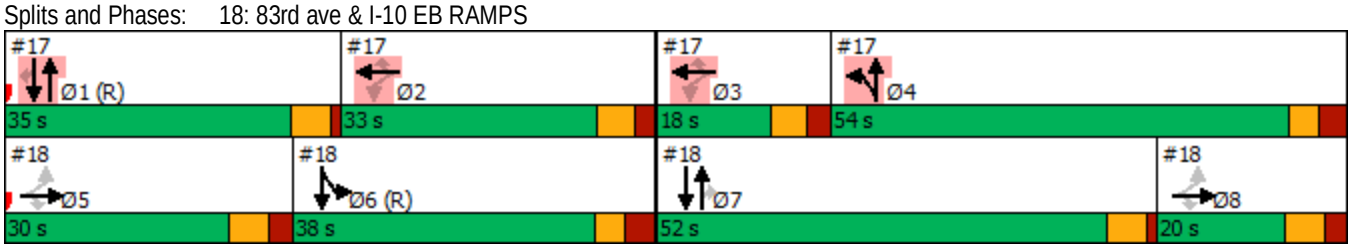
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	35.0	33.0	18.0	54.0	30.0	20.0
Total Split (%)	25%	24%	13%	39%	21%	14%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	9	5					52	11	4	11	
CO Emissions (g/hr)	688	617	346					3624	782	262	755	
NOx Emissions (g/hr)	134	120	67					705	152	51	147	
VOC Emissions (g/hr)	159	143	80					840	181	61	175	
Dilemma Vehicles (#)	0	9	0					39	0	0	1	
Queue Length 50th (ft)	300	263	72					261	1	182	277	
Queue Length 95th (ft)	376	350	151					292	86	284	381	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	594	533	620					2535	800	506	2260	
Starvation Cap Reductn	0	0	0					0	0	0	1116	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.58	0.61	0.51					0.56	0.59	0.48	0.64	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 30.4 Intersection LOS: C
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

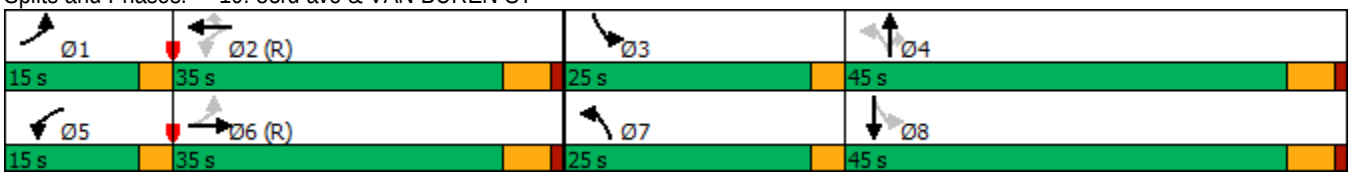
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	194	56	145	420	426	73	888	49	116	852	156
Future Volume (vph)	174	194	56	145	420	426	73	888	49	116	852	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		1	1		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	0.95
Frt		0.966				0.850			0.850		0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3194	0	1586	3388	1432	1631	4730	1446	1363	3226	0
Flt Permitted	0.350			0.550			0.108			0.169		
Satd. Flow (perm)	590	3194	0	918	3388	1432	185	4730	1446	242	3226	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29				381			78		19	
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			61.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	9%	6%	4%	10%	3%	9%	7%	6%	8%	28%	6%	4%
Adj. Flow (vph)	202	226	65	169	488	495	86	1045	58	127	936	171
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	291	0	169	488	495	86	1045	58	127	1107	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0	45.0	20.0	30.0	30.0	20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0	35.0	25.0	45.0	45.0	25.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%	29.2%	20.8%	37.5%	37.5%	20.8%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3	1.3	0.0	1.2	1.2	0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6	5.6	3.0	5.5	5.5	3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	51.1	36.4		49.5	35.6	35.6	56.4	45.0	45.0	59.3	48.1	
Actuated g/C Ratio	0.43	0.30		0.41	0.30	0.30	0.47	0.38	0.38	0.49	0.40	
v/c Ratio	0.57	0.29		0.38	0.49	0.72	0.45	0.59	0.10	0.59	0.85	
Control Delay	30.5	31.5		20.6	30.6	11.2	21.9	31.3	3.0	26.9	39.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.5	31.5		20.6	30.6	11.2	21.9	31.3	3.0	26.9	39.5	
LOS	C	C		C	C	B	C	C	A	C	D	
Approach Delay		31.1			20.8			29.3			38.2	
Approach LOS		C			C			C			D	
Stops (vph)	116	173		58	279	126	37	686	3	60	880	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	13		6	20	17	3	45	2	4	41	
CO Emissions (g/hr)	614	888		437	1419	1191	230	3127	122	283	2884	
NOx Emissions (g/hr)	119	173		85	276	232	45	608	24	55	561	
VOC Emissions (g/hr)	142	206		101	329	276	53	725	28	66	668	
Dilemma Vehicles (#)	0	10		0	26	0	0	30	0	0	34	
Queue Length 50th (ft)	99	83		54	110	16	33	231	0	51	405	
Queue Length 95th (ft)	161	123		m88	m157	m71	52	252	14	79	482	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250		120	230		
Base Capacity (vph)	362	988		457	1004	692	358	1788	595	327	1303	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.56	0.29		0.37	0.49	0.72	0.24	0.58	0.10	0.39	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 71 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 64.4% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



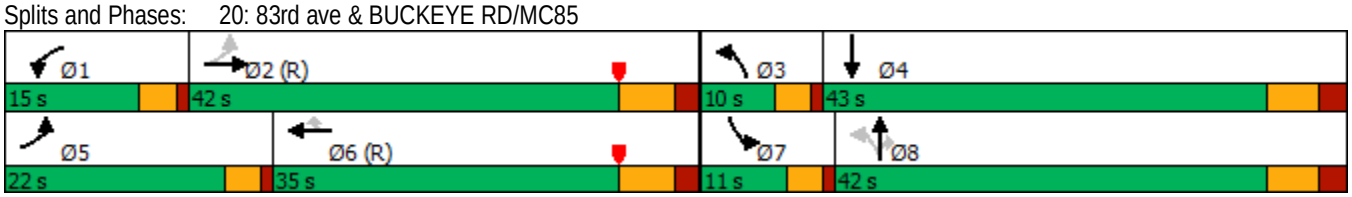
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	315	91	105	824	186	91	473	29	101	736	170
Future Volume (vph)	166	315	91	105	824	186	91	473	29	101	736	170
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.966				0.850			0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	4645	0	3493	4887	1454	1801	3566	1536	2897	4921	0
Flt Permitted	0.239			0.950			0.186			0.950		
Satd. Flow (perm)	444	4645	0	3493	4887	1454	353	3566	1536	2897	4921	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70				194			156		51	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		460			509			976			400	
Travel Time (s)		6.3			6.9			14.8			6.1	
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	4%	12%	2%	2%	8%	13%	2%	3%	7%	23%	2%	14%
Adj. Flow (vph)	171	325	94	109	858	194	101	526	32	105	767	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	419	0	109	858	194	101	526	32	105	944	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	22.0	42.0		15.0	35.0	35.0	10.0	42.0	42.0	11.0	43.0	
Total Split (%)	20.0%	38.2%		13.6%	31.8%	31.8%	9.1%	38.2%	38.2%	10.0%	39.1%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	55.9	42.9		7.8	40.3	40.3	40.0	31.2	31.2	6.7	31.8	
Actuated g/C Ratio	0.51	0.39		0.07	0.37	0.37	0.36	0.28	0.28	0.06	0.29	
v/c Ratio	0.49	0.23		0.44	0.48	0.30	0.48	0.52	0.06	0.59	0.65	
Control Delay	25.0	16.1		54.2	29.2	5.5	27.9	34.6	0.2	64.4	34.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.0	16.1		54.2	29.2	5.5	27.9	34.6	0.2	64.4	34.1	
LOS	C	B		D	C	A	C	C	A	E	C	
Approach Delay		18.7			27.6			31.9			37.1	
Approach LOS		B			C			C			D	
Stops (vph)	126	197		98	623	21	57	382	0	98	724	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	18		6	42	7	2	11	0	6	47	
CO Emissions (g/hr)	574	1232		430	2929	470	126	775	13	422	3256	
NOx Emissions (g/hr)	112	240		84	570	91	25	151	3	82	634	
VOC Emissions (g/hr)	133	286		100	679	109	29	180	3	98	755	
Dilemma Vehicles (#)	0	4		0	37	0	0	17	0	0	35	
Queue Length 50th (ft)	61	49		38	169	0	44	163	0	37	199	
Queue Length 95th (ft)	129	61		65	237	53	75	206	0	67	234	
Internal Link Dist (ft)		380			429			896			320	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	448	1852		349	1790	655	210	1144	598	184	1658	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.38	0.23		0.31	0.48	0.30	0.48	0.46	0.05	0.57	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 54 (49%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 57.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	539	132	238	1033	286	231	915	149	265	786	135
Future Volume (vph)	123	539	132	238	1033	286	231	915	149	265	786	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.970			0.967			0.979			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4768	0	1694	4754	0	1711	4813	0	1711	4808	0
Flt Permitted	0.104			0.282			0.147			0.114		
Satd. Flow (perm)	187	4768	0	503	4754	0	265	4813	0	205	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			60			24			26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	132	580	142	253	1099	304	260	1028	167	294	873	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	722	0	253	1403	0	260	1195	0	294	1023	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2		6.0	48.2		10.0	30.8		10.0	30.8	
Total Split (s)	13.0	44.0		11.0	42.0		30.0	35.0		30.0	35.0	
Total Split (%)	10.8%	36.7%		9.2%	35.0%		25.0%	29.2%		25.0%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8		4.0	5.8		4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	48.8	38.5		49.5	39.2		53.2	33.8		55.8	35.1	
Actuated g/C Ratio	0.41	0.32		0.41	0.33		0.44	0.28		0.46	0.29	
v/c Ratio	0.72	0.46		0.85	0.88		0.79	0.87		0.89	0.72	
Control Delay	54.8	47.7		55.0	44.8		42.2	48.6		57.3	40.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.8	47.7		55.0	44.8		42.2	48.6		57.3	40.8	
LOS	D	D		D	D		D	D		E	D	
Approach Delay		48.8			46.3			47.4			44.5	
Approach LOS		D			D			D			D	
Stops (vph)	98	1344		162	1123		155	918		198	778	

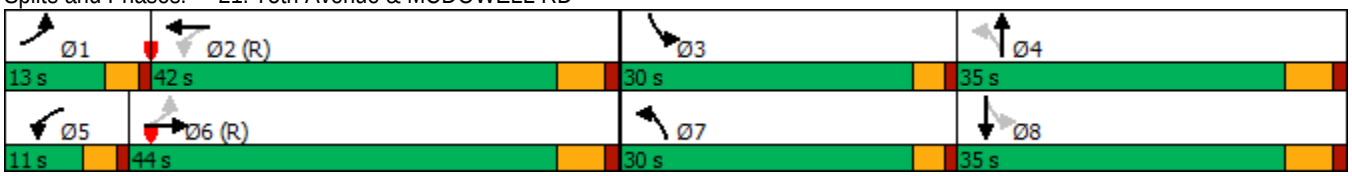
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	46		13	71		5	28		7	22	
CO Emissions (g/hr)	478	3243		890	4940		363	1946		484	1544	
NOx Emissions (g/hr)	93	631		173	961		71	379		94	300	
VOC Emissions (g/hr)	111	752		206	1145		84	451		112	358	
Dilemma Vehicles (#)	0	24		0	53		0	40		0	32	
Queue Length 50th (ft)	88	204		130	375		123	307		166	243	
Queue Length 95th (ft)	m#144	m205		#292	#476		207	#435		264	328	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	190	1564		299	1592		440	1372		425	1425	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.69	0.46		0.85	0.88		0.59	0.87		0.69	0.72	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 46.6 Intersection LOS: D
Intersection Capacity Utilization 79.7% ICU Level of Service D
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	170	10	454	377	1220	0	0	774	354
Future Volume (vph)	0	0	0	170	10	454	377	1220	0	0	774	354
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.86	1.00
Frt					0.867	0.850						0.850
Flt Protected				0.950	0.997		0.950					
Satd. Flow (prot)	0	0	0	1572	1482	1531	3210	5175	0	0	6457	1611
Flt Permitted				0.950	0.997		0.950					
Satd. Flow (perm)	0	0	0	1572	1482	1531	3210	5175	0	0	6457	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					68	111						385
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	11%	2%	2%	11%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	202	12	540	414	1341	0	0	841	385
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	182	286	286	414	1341	0	0	841	385
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							68.0				34.0	34.0
Total Split (%)							45.3%				22.7%	22.7%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				42.7	42.7	42.7	56.7	95.8			31.4	31.4
Actuated g/C Ratio				0.28	0.28	0.28	0.38	0.64			0.21	0.21
v/c Ratio				0.41	0.61	0.56	0.34	0.41			0.62	0.60
Control Delay				47.1	41.4	32.1	16.2	2.7			56.8	8.9
Queue Delay				0.0	0.0	0.0	0.0	0.6			0.0	0.0
Total Delay				47.1	41.4	32.1	16.2	3.3			56.8	8.9
LOS				D	D	C	B	A			E	A
Approach Delay					39.3			6.3			41.8	
Approach LOS					D			A			D	
Stops (vph)				123	161	128	144	495			693	32

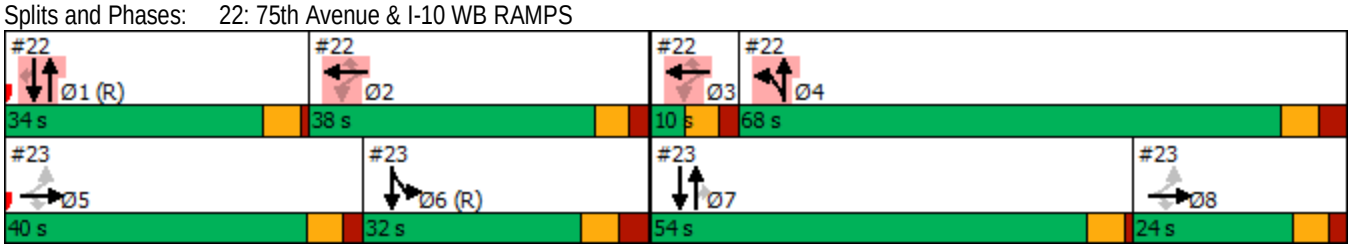
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	38.0	10.0	40.0	32.0	54.0	24.0
Total Split (%)	25%	7%	27%	21%	36%	16%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	7	6	4	11			22	3
CO Emissions (g/hr)				327	466	406	301	767			1529	210
NOx Emissions (g/hr)				64	91	79	59	149			297	41
VOC Emissions (g/hr)				76	108	94	70	178			354	49
Dilemma Vehicles (#)				0	8	0	0	4			26	0
Queue Length 50th (ft)				153	206	154	30	1			225	0
Queue Length 95th (ft)				215	289	229	115	15			265	97
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				448	471	515	1292	3290			1352	641
Starvation Cap Reductn				0	0	0	0	1389			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.41	0.61	0.56	0.32	0.71			0.62	0.60

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 63.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	644	4	451	0	0	0	0	983	242	316	682	0
Future Volume (vph)	644	4	451	0	0	0	0	983	242	316	682	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	200		150	0		0
Storage Lanes	1		1	0		0	2		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.91	1.00
Frt		0.957	0.850						0.850			
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1551	1394	0	0	0	0	7529	1536	1801	4979	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1551	1394	0	0	0	0	7529	1536	1801	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16	179						248			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.95	0.95	0.95	0.25	0.25	0.25	0.91	0.91	0.91	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	12%	0%	0%	0%	0%	4%	7%	2%	6%	0%
Adj. Flow (vph)	678	4	475	0	0	0	0	1080	266	333	718	0
Shared Lane Traffic (%)	41%		24%									
Lane Group Flow (vph)	400	396	361	0	0	0	0	1080	266	333	718	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								54.0	54.0	32.0		
Total Split (%)								36.0%	36.0%	21.3%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	48.8	48.8	48.8					34.1	34.1	47.9	87.2	
Actuated g/C Ratio	0.33	0.33	0.33					0.23	0.23	0.32	0.58	
v/c Ratio	0.72	0.77	0.63					0.63	0.49	0.58	0.25	
Control Delay	51.7	53.5	24.9					53.6	9.7	21.2	10.3	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	51.7	53.5	24.9					53.6	9.7	21.2	10.3	
LOS	D	D	C					D	A	C	B	
Approach Delay		43.9						44.9			13.8	
Approach LOS		D						D			B	
Stops (vph)	325	318	150					861	31	241	503	

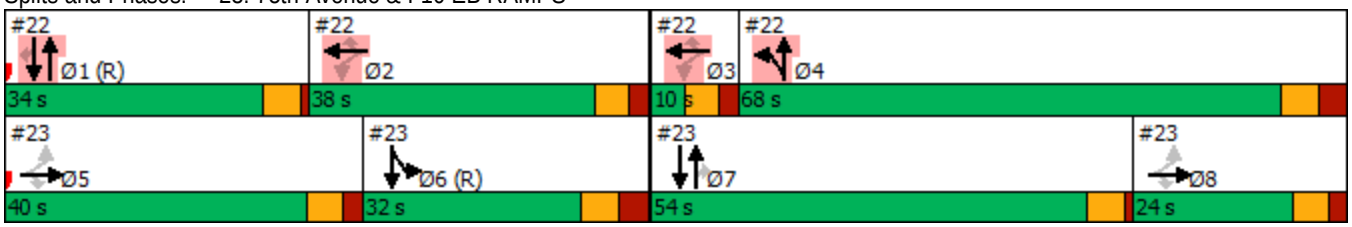
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	34.0	38.0	10.0	68.0	40.0	24.0
Total Split (%)	23%	25%	7%	45%	27%	16%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	12	12	7					45	7	5	10	
CO Emissions (g/hr)	833	831	496					3150	467	380	699	
NOx Emissions (g/hr)	162	162	97					613	91	74	136	
VOC Emissions (g/hr)	193	193	115					730	108	88	162	
Dilemma Vehicles (#)	0	10	0					26	0	0	0	
Queue Length 50th (ft)	368	375	163					238	14	280	98	
Queue Length 95th (ft)	434	450	246					251	87	#548	286	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	784	719	736					2444	666	574	3380	
Starvation Cap Reductn	0	0	0					0	0	0	0	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.51	0.55	0.49					0.44	0.40	0.58	0.21	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 35.4 Intersection LOS: D
Intersection Capacity Utilization 63.0% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	219	56	123	661	217	133	738	99	137	786	128
Future Volume (vph)	33	219	56	123	661	217	133	738	99	137	786	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		100	200		270	250		100	220		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3144	1323	1631	3292	1473	1531	3292	1473	1504	3172	1432
Flt Permitted	0.307			0.542			0.118			0.133		
Satd. Flow (perm)	517	3144	1323	930	3292	1473	190	3292	1473	211	3172	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			103			233			103			103
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	9%	11%	18%	7%	6%	6%	14%	6%	6%	16%	10%	9%
Adj. Flow (vph)	38	249	64	132	711	233	149	829	111	152	873	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	249	64	132	711	233	149	829	111	152	873	142
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	15.0	15.0	2.0	15.0	15.0
Minimum Split (s)	9.5	52.0	52.0	9.5	52.0	52.0	9.5	34.0	34.0	16.0	50.0	50.0
Total Split (s)	12.0	48.0	48.0	12.0	48.0	48.0	14.0	45.0	45.0	15.0	46.0	46.0
Total Split (%)	10.0%	40.0%	40.0%	10.0%	40.0%	40.0%	11.7%	37.5%	37.5%	12.5%	38.3%	38.3%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3	4.3	3.5	4.3	4.3	3.0	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3	5.3	4.5	5.3	5.3	4.0	5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	Ped
Act Effct Green (s)	53.6	46.0	46.0	57.9	51.9	51.9	46.2	35.9	35.9	48.1	36.4	36.4
Actuated g/C Ratio	0.45	0.38	0.38	0.48	0.43	0.43	0.38	0.30	0.30	0.40	0.30	0.30
v/c Ratio	0.13	0.21	0.11	0.27	0.50	0.30	0.83	0.84	0.22	0.77	0.91	0.28
Control Delay	28.7	36.0	13.0	10.1	13.7	0.7	64.6	35.3	2.8	48.2	53.9	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.7	36.0	13.0	10.1	13.7	0.7	64.6	35.3	2.8	48.2	53.9	11.1
LOS	C	D	B	B	B	A	E	D	A	D	D	B
Approach Delay		31.0			10.4			36.0			47.9	
Approach LOS		C			B			D			D	
Stops (vph)	22	152	25	34	234	4	110	720	21	83	735	31

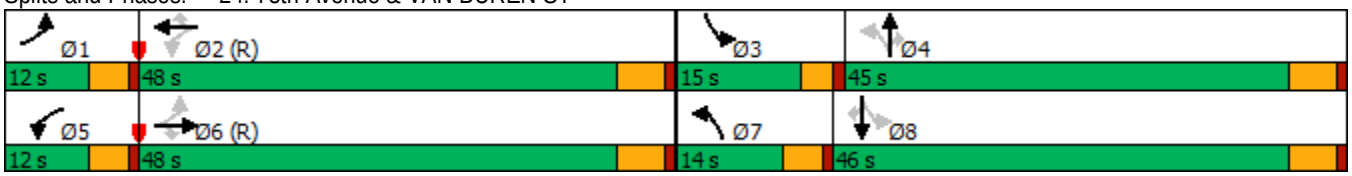
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	11	2	5	28	8	8	40	4	6	37	4
CO Emissions (g/hr)	111	762	165	348	1949	536	539	2776	261	396	2562	262
NOx Emissions (g/hr)	22	148	32	68	379	104	105	540	51	77	499	51
VOC Emissions (g/hr)	26	177	38	81	452	124	125	643	60	92	594	61
Dilemma Vehicles (#)	0	30	0	0	30	0	0	10	0	0	28	0
Queue Length 50th (ft)	13	60	0	27	83	1	47	351	16	72	336	21
Queue Length 95th (ft)	52	127	22	m38	m122	m0	m#158	396	m15	#151	405	68
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200		100	200		270	250		100	220		100
Base Capacity (vph)	302	1206	571	499	1423	769	179	1089	556	204	1075	553
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.21	0.11	0.26	0.50	0.30	0.83	0.76	0.20	0.75	0.81	0.26

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 111 (93%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 61.0% ICU Level of Service B
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



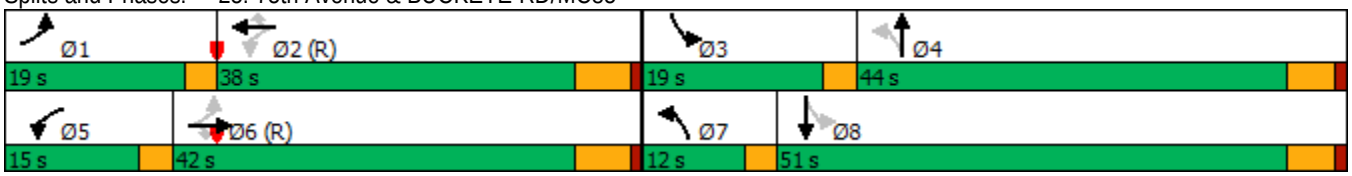
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	335	85	151	887	128	97	486	54	143	556	85
Future Volume (vph)	47	335	85	151	887	128	97	486	54	143	556	85
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		250	260		0	270		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850		0.985			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	3113	1442	1685	3401	1454	1685	3269	0	1640	3345	0
Flt Permitted	0.205			0.453			0.235			0.139		
Satd. Flow (perm)	351	3113	1442	803	3401	1454	417	3269	0	240	3345	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			132		10			16	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4741			2586			1298			2861	
Travel Time (s)		64.7			35.3			19.7			43.3	
Peak Hour Factor	0.82	0.82	0.82	0.91	0.91	0.91	0.78	0.78	0.78	0.95	0.95	0.95
Heavy Vehicles (%)	13%	18%	14%	9%	8%	13%	9%	10%	17%	12%	8%	5%
Adj. Flow (vph)	57	409	104	166	975	141	124	623	69	151	585	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	409	104	166	975	141	124	692	0	151	674	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4			8		
Detector Phase	1	6	6	5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0	37.0	17.0	30.0		17.0	30.0	
Total Split (s)	19.0	42.0	42.0	15.0	38.0	38.0	12.0	44.0		19.0	51.0	
Total Split (%)	15.8%	35.0%	35.0%	12.5%	31.7%	31.7%	10.0%	36.7%		15.8%	42.5%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.3		3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1	1.1	0.0	1.2		0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1	6.1	3.0	5.5		3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	61.1	51.4	51.4	67.4	56.2	56.2	39.6	29.0		46.5	33.0	
Actuated g/C Ratio	0.51	0.43	0.43	0.56	0.47	0.47	0.33	0.24		0.39	0.28	
v/c Ratio	0.23	0.31	0.15	0.32	0.61	0.19	0.56	0.87		0.65	0.72	
Control Delay	16.9	25.4	5.7	18.3	26.7	10.0	32.6	55.0		43.1	53.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	16.9	25.4	5.7	18.3	26.7	10.0	32.6	55.0		43.1	53.5	
LOS	B	C	A	B	C	A	C	D		D	D	
Approach Delay		21.0			23.8			51.6			51.6	
Approach LOS		C			C			D			D	
Stops (vph)	23	221	11	63	440	57	64	498		130	610	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	16	3	7	41	5	2	17		8	37	
CO Emissions (g/hr)	145	1138	217	459	2877	378	158	1173		545	2560	
NOx Emissions (g/hr)	28	221	42	89	560	74	31	228		106	498	
VOC Emissions (g/hr)	34	264	50	106	667	88	37	272		126	593	
Dilemma Vehicles (#)	0	14	0	0	66	0	0	18		0	6	
Queue Length 50th (ft)	19	108	0	42	155	0	62	268		113	277	
Queue Length 95th (ft)	43	157	30	120	332	m62	78	263		m143	338	
Internal Link Dist (ft)		4661			2506			1218			2781	
Turn Bay Length (ft)	260		190	270		250	260			270		
Base Capacity (vph)	366	1334	678	538	1592	751	235	1055		280	1278	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.16	0.31	0.15	0.31	0.61	0.19	0.53	0.66		0.54	0.53	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 36.4 Intersection LOS: D
Intersection Capacity Utilization 58.9% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



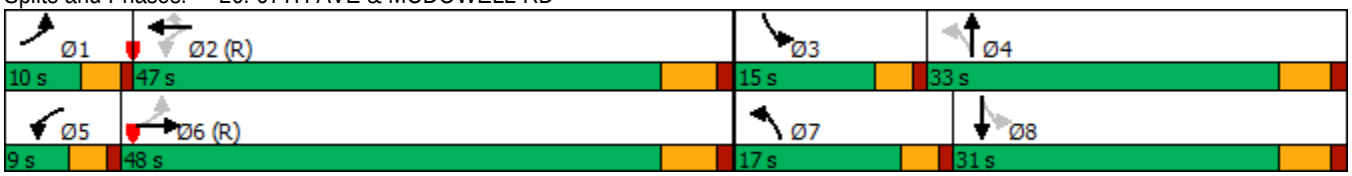
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	538	151	196	1096	277	219	802	86	179	720	157
Future Volume (vph)	147	538	151	196	1096	277	219	802	86	179	720	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.967				0.850		0.985			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3308	0	1711	3421	1531	1711	4842	0	1711	4783	0
Flt Permitted	0.094			0.278			0.153			0.165		
Satd. Flow (perm)	169	3308	0	501	3421	1531	276	4842	0	297	4783	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41				298		17			43	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	158	578	162	211	1178	298	241	881	95	203	818	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	740	0	211	1178	298	241	976	0	203	996	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		
Detector Phase	1	6		5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		8.0	15.0	
Minimum Split (s)	11.0	50.3		9.0	48.3	48.3	9.0	33.0		12.0	28.3	
Total Split (s)	10.0	48.0		9.0	47.0	47.0	17.0	33.0		15.0	31.0	
Total Split (%)	9.5%	45.7%		8.6%	44.8%	44.8%	16.2%	31.4%		14.3%	29.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		Min	Ped	
Act Effct Green (s)	51.8	42.7		49.6	41.6	41.6	40.3	26.2		36.3	24.2	
Actuated g/C Ratio	0.49	0.41		0.47	0.40	0.40	0.38	0.25		0.35	0.23	
v/c Ratio	0.83	0.54		0.69	0.87	0.38	0.86	0.80		0.82	0.88	
Control Delay	53.5	24.1		31.1	37.6	4.0	53.2	41.8		49.8	46.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.5	24.1		31.1	37.6	4.0	53.2	41.8		49.8	46.9	
LOS	D	C		C	D	A	D	D		D	D	
Approach Delay		29.3			30.9			44.1			47.4	
Approach LOS		C			C			D			D	
Stops (vph)	68	480		124	958	24	142	795		118	782	
Fuel Used(gal)	7	33		4	29	3	5	21		7	34	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	519	2283		305	2038	193	353	1440		469	2400	
NOx Emissions (g/hr)	101	444		59	397	38	69	280		91	467	
VOC Emissions (g/hr)	120	529		71	472	45	82	334		109	556	
Dilemma Vehicles (#)	0	33		0	51	0	0	35		0	38	
Queue Length 50th (ft)	55	185		77	378	0	108	218		88	224	
Queue Length 95th (ft)	#185	244		#147	#482	52	#238	269		#186	269	
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	191	1370		308	1355	786	284	1285		251	1198	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.83	0.54		0.69	0.87	0.38	0.85	0.76		0.81	0.83	

Intersection Summary	
Area Type: Other	
Cycle Length: 105	
Actuated Cycle Length: 105	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 37.8	Intersection LOS: D
Intersection Capacity Utilization 78.6%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	139	400	388	404	767	0	0	732	246
Future Volume (vph)	0	0	0	139	400	388	404	767	0	0	732	246
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.962	0.850						0.850
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1533	3128	1466	3361	5175	0	0	5175	1611
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1533	3128	1466	3361	5175	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					38	137						208
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.89	0.89	0.89	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	9%	2%	2%	6%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	165	476	462	454	862	0	0	787	265
Shared Lane Traffic (%)				10%		36%						
Lane Group Flow (vph)	0	0	0	148	659	296	454	862	0	0	787	265
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							36.0				30.0	30.0
Total Split (%)							27.7%				23.1%	23.1%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				40.3	40.3	40.3	44.4	78.1			26.0	26.0
Actuated g/C Ratio				0.31	0.31	0.31	0.34	0.60			0.20	0.20
v/c Ratio				0.31	0.66	0.54	0.40	0.28			0.76	0.54
Control Delay				35.2	39.6	22.3	20.7	3.7			55.0	16.2
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				35.2	39.6	22.3	20.7	3.7			55.0	16.2
LOS				D	D	C	C	A			E	B
Approach Delay					34.4			9.6			45.3	
Approach LOS					C			A			D	
Stops (vph)				91	440	109	246	268			678	59

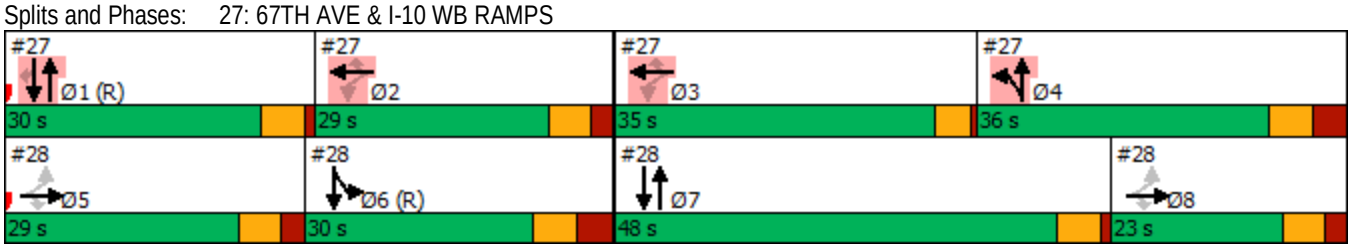
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	29.0	35.0	29.0	30.0	48.0	23.0
Total Split (%)	22%	27%	22%	23%	37%	18%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				3	15	5	6	6			19	3
CO Emissions (g/hr)				217	1033	326	389	416			1340	199
NOx Emissions (g/hr)				42	201	63	76	81			261	39
VOC Emissions (g/hr)				50	239	76	90	96			310	46
Dilemma Vehicles (#)				0	7	0	0	4			28	0
Queue Length 50th (ft)				107	270	121	81	14			234	41
Queue Length 95th (ft)				142	279	174	230	201			285	129
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				684	1416	729	1148	3108			1033	488
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.22	0.47	0.41	0.40	0.28			0.76	0.54

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 28.3 Intersection LOS: C
Intersection Capacity Utilization 54.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	500	250	275	0	0	0	0	1208	159	252	580	0
Future Volume (vph)	500	250	275	0	0	0	0	1208	159	252	580	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	200		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.81	0.81	1.00	0.95	1.00
Frt		0.988	0.850					0.983				
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1639	3131	1359	0	0	0	0	7422	0	1801	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1639	3131	1359	0	0	0	0	7422	0	1801	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7	237					27				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	3%	9%	2%	5%	0%
Adj. Flow (vph)	588	294	324	0	0	0	0	1313	173	274	630	0
Shared Lane Traffic (%)	48%		15%									
Lane Group Flow (vph)	306	625	275	0	0	0	0	1486	0	274	630	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								48.0		30.0		
Total Split (%)								36.9%		23.1%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	39.5	39.5	39.5					37.9		32.9	76.2	
Actuated g/C Ratio	0.30	0.30	0.30					0.29		0.25	0.59	
v/c Ratio	0.61	0.65	0.48					0.68		0.60	0.31	
Control Delay	44.1	42.1	9.2					41.3		20.1	10.0	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.0	
Total Delay	44.1	42.1	9.2					41.3		20.1	10.0	
LOS	D	D	A					D		C	B	
Approach Delay		35.1						41.3			13.1	
Approach LOS		D						D			B	
Stops (vph)	218	443	37					1149		207	464	

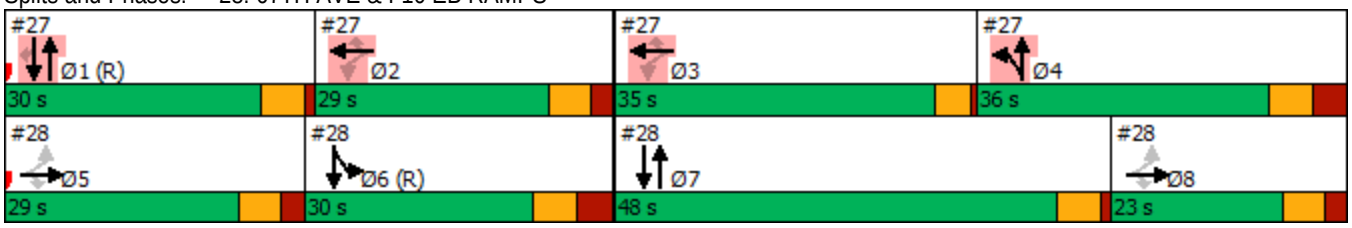
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	29.0	35.0	36.0	29.0	23.0
Total Split (%)	23%	22%	27%	28%	22%	18%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	16	3					58		4	8	
CO Emissions (g/hr)	544	1093	235					4054		277	546	
NOx Emissions (g/hr)	106	213	46					789		54	106	
VOC Emissions (g/hr)	126	253	54					940		64	127	
Dilemma Vehicles (#)	0	17	0					43		0	0	
Queue Length 50th (ft)	249	270	26					266		160	239	
Queue Length 95th (ft)	304	290	82					287		m#368	330	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	616	1182	659					2455		456	2177	
Starvation Cap Reductn	0	0	0					0		0	0	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.50	0.53	0.42					0.61		0.60	0.29	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 32.1 Intersection LOS: C
Intersection Capacity Utilization 54.9% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	352	96	204	773	131	177	902	107	88	440	82
Future Volume (vph)	114	352	96	204	773	131	177	902	107	88	440	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		100	260		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.978				0.850		0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3172	1432	1646	3202	0	1572	3323	1406	1572	3096	0
Flt Permitted	0.106			0.457			0.317			0.101		
Satd. Flow (perm)	171	3172	1432	792	3202	0	525	3323	1406	167	3096	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			112		18				97		19	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91
Heavy Vehicles (%)	14%	10%	9%	6%	6%	10%	11%	5%	11%	11%	10%	10%
Adj. Flow (vph)	133	409	112	234	889	151	203	1037	123	97	484	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	409	112	234	1040	0	203	1037	123	97	574	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	9.0	52.0	52.0	9.0	52.0		9.0	50.0	50.0	9.0	50.0	
Total Split (s)	12.0	49.0	49.0	12.0	49.0		12.0	47.0	47.0	12.0	47.0	
Total Split (%)	10.0%	40.8%	40.8%	10.0%	40.8%		10.0%	39.2%	39.2%	10.0%	39.2%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4		1.0	1.4	1.4	1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7		4.0	5.4	5.4	4.0	5.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes			Yes	Yes		Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped	Ped	None	Ped	
Act Effct Green (s)	54.7	44.1	44.1	55.1	44.4		49.1	39.7	39.7	49.1	39.7	
Actuated g/C Ratio	0.46	0.37	0.37	0.46	0.37		0.41	0.33	0.33	0.41	0.33	
v/c Ratio	0.75	0.35	0.19	0.55	0.87		0.71	0.94	0.23	0.60	0.55	
Control Delay	56.6	35.9	13.8	25.9	44.1		42.7	54.2	15.7	36.4	33.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	56.6	35.9	13.8	25.9	44.1		42.7	54.2	15.7	36.4	33.7	
LOS	E	D	B	C	D		D	D	B	D	C	
Approach Delay		36.3			40.8			49.0			34.1	
Approach LOS		D			D			D			C	
Stops (vph)	87	280	65	138	789		117	615	64	52	400	

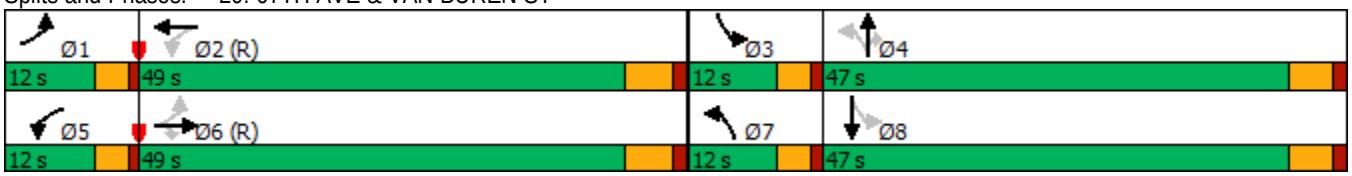
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	18	4	6	31		9	48	5	3	21	
CO Emissions (g/hr)	446	1284	310	407	2195		627	3356	333	240	1465	
NOx Emissions (g/hr)	87	250	60	79	427		122	653	65	47	285	
VOC Emissions (g/hr)	103	298	72	94	509		145	778	77	56	340	
Dilemma Vehicles (#)	0	43	0	0	37		0	77	0	0	16	
Queue Length 50th (ft)	83	146	10	108	390		90	297	18	42	179	
Queue Length 95th (ft)	m#135	186	m52	160	460		m150	#394	m41	#84	237	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250		100	250			250		100	260		
Base Capacity (vph)	177	1166	597	427	1194		284	1151	550	161	1085	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.75	0.35	0.19	0.55	0.87		0.71	0.90	0.22	0.60	0.53	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 41.8 Intersection LOS: D
Intersection Capacity Utilization 72.3% ICU Level of Service C
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



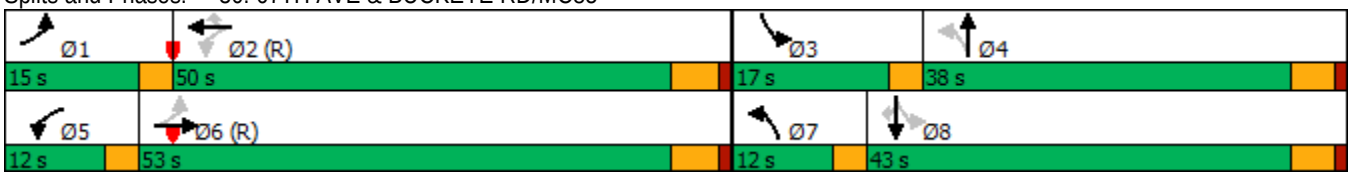
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	431	86	143	895	112	102	558	52	58	485	173
Future Volume (vph)	119	431	86	143	895	112	102	558	52	58	485	173
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		200	200		0	260		260
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.975				0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1701	3101	0	1749	3280	1381	1783	3445	0	1371	3465	1480
Flt Permitted	0.180			0.329			0.301			0.132		
Satd. Flow (perm)	322	3101	0	606	3280	1381	565	3445	0	190	3465	1480
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				102		8				178
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.79	0.79	0.79	0.97	0.97	0.97
Heavy Vehicles (%)	8%	17%	8%	5%	12%	19%	3%	5%	8%	34%	6%	11%
Adj. Flow (vph)	153	553	110	155	973	122	129	706	66	60	500	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	663	0	155	973	122	129	772	0	60	500	178
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		8
Detector Phase	1	6		5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	15.0	3.0	15.0		3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0	38.0	12.0	32.0		17.0	37.0	37.0
Total Split (s)	15.0	53.0		12.0	50.0	50.0	12.0	38.0		17.0	43.0	43.0
Total Split (%)	12.5%	44.2%		10.0%	41.7%	41.7%	10.0%	31.7%		14.2%	35.8%	35.8%
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5	5.5	3.0	5.2		3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	Ped
Act Effct Green (s)	67.9	55.3		66.7	54.7	54.7	40.8	31.4		40.7	29.7	29.7
Actuated g/C Ratio	0.57	0.46		0.56	0.46	0.46	0.34	0.26		0.34	0.25	0.25
v/c Ratio	0.51	0.46		0.36	0.65	0.18	0.46	0.85		0.40	0.58	0.36
Control Delay	24.6	19.7		15.4	29.6	7.2	30.1	51.6		46.9	60.6	22.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	24.6	19.7		15.4	29.6	7.2	30.1	51.6		46.9	60.6	22.0
LOS	C	B		B	C	A	C	D		D	E	C
Approach Delay		20.7			25.7			48.5			50.2	
Approach LOS		C			C			D			D	
Stops (vph)	72	259		68	691	19	67	561		47	453	139

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	23		3	27	2	2	16		3	28	8
CO Emissions (g/hr)	388	1604		236	1890	142	143	1149		215	1932	579
NOx Emissions (g/hr)	76	312		46	368	28	28	224		42	376	113
VOC Emissions (g/hr)	90	372		55	438	33	33	266		50	448	134
Dilemma Vehicles (#)	0	16		0	37	0	0	21		0	26	0
Queue Length 50th (ft)	47	118		53	305	9	67	301		42	210	44
Queue Length 95th (ft)	80	128		101	437	51	87	300		m71	231	79
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250		200	200			260		260
Base Capacity (vph)	324	1441		432	1495	684	283	961		207	1091	588
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.47	0.46		0.36	0.65	0.18	0.46	0.80		0.29	0.46	0.30

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 35.0 Intersection LOS: C
Intersection Capacity Utilization 59.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85



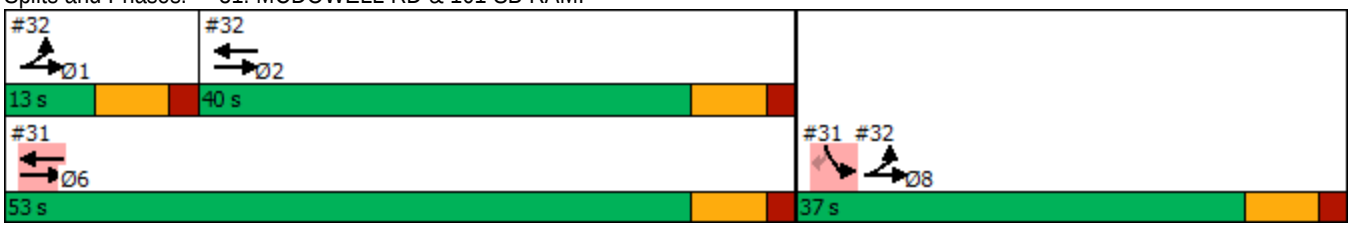
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1300	600	0	500	1000		
Future Volume (vph)	0	1300	600	0	500	1000		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	1	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6520	3601	0	1801	2836		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6520	3601	0	1801	2836		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						362		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1413	652	0	543	1087		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1413	652	0	543	1087		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		53.0	53.0		37.0	37.0	13.0	40.0
Total Split (%)		58.9%	58.9%		41.1%	41.1%	14%	44%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		46.0	46.0		30.0	30.0		
Actuated g/C Ratio		0.51	0.51		0.33	0.33		
v/c Ratio		0.42	0.35		0.91	0.92		
Control Delay		14.2	8.7		49.8	32.4		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		14.2	8.7		49.8	32.4		
LOS		B	A		D	C		
Approach Delay		14.2	8.7		38.2			
Approach LOS		B	A		D			
Stops (vph)		765	156		431	642		
Fuel Used(gal)		21	5		18	30		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		1500	333		1261	2083		
NOx Emissions (g/hr)		292	65		245	405		
VOC Emissions (g/hr)		348	77		292	483		
Dilemma Vehicles (#)		61	59		0	0		
Queue Length 50th (ft)		138	58		292	236		
Queue Length 95th (ft)		165	m57		#486	#386		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3332	1840		600	1186		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.42	0.35		0.91	0.92		

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 23.8	Intersection LOS: C
Intersection Capacity Utilization 100.6%	ICU Level of Service G
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: MCDOWELL RD & 101 SB RAMP



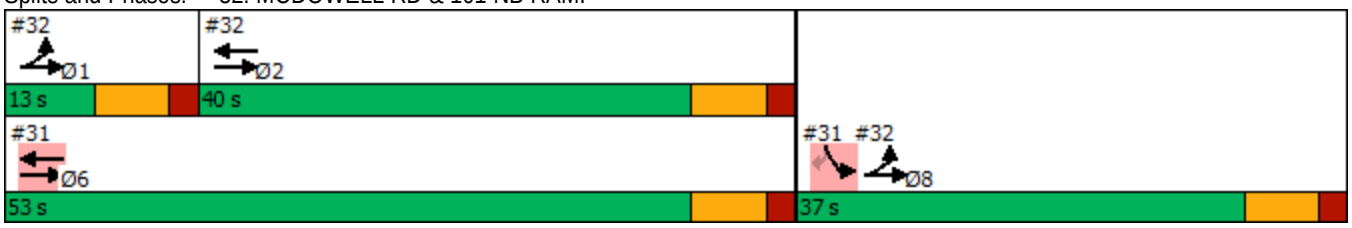
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	400	1400	600	600	0	0			
Future Volume (vph)	400	1400	600	600	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.925						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	2998	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	2998	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			317						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	435	1522	652	652	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	435	1522	1304	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			40.0				13.0	53.0	37.0
Total Split (%)			44.4%				14%	59%	41%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	43.0	90.0	33.0						
Actuated g/C Ratio	0.48	1.00	0.37						
v/c Ratio	0.29	0.47	1.00						
Control Delay	26.5	2.4	48.6						
Queue Delay	0.0	0.0	0.0						
Total Delay	26.5	2.4	48.6						
LOS	C	A	D						
Approach Delay		7.7	48.6						
Approach LOS		A	D						
Stops (vph)	298	301	851						
Fuel Used(gal)	7	9	52						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	492	598	3663						
NOx Emissions (g/hr)	96	116	713						
VOC Emissions (g/hr)	114	139	849						
Dilemma Vehicles (#)	0	0	62						
Queue Length 50th (ft)	101	87	~315						
Queue Length 95th (ft)	m129	m94	#479						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1502	3241	1300						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.29	0.47	1.00						

Intersection Summary	
Area Type: CBD	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 100.6%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: MCDOWELL RD & 101 NB RAMP



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	650	90	246	324	70	79	565	343	128	524	118
Future Volume (vph)	92	650	90	246	324	70	79	565	343	128	524	118
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	230		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.974				0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	5124	1595	3493	4880	0	1801	3601	1611	1701	3494	0
Flt Permitted	0.507			0.950			0.201			0.151		
Satd. Flow (perm)	925	5124	1595	3493	4880	0	381	3601	1611	270	3494	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		44				239		19	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			15.2			9.3			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.98	0.98	0.98	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles (%)	6%	3%	3%	2%	5%	7%	2%	2%	2%	8%	2%	3%
Adj. Flow (vph)	97	684	95	251	331	71	83	595	361	132	540	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	684	95	251	402	0	83	595	361	132	662	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	20.0	55.0	55.0	20.0	55.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	16.0%	44.0%	44.0%	16.0%	44.0%		16.0%	24.0%	24.0%	16.0%	24.0%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	59.6	48.9	48.9	13.4	53.8		34.0	23.2	23.2	39.8	28.1	
Actuated g/C Ratio	0.51	0.42	0.42	0.11	0.46		0.29	0.20	0.20	0.34	0.24	
v/c Ratio	0.18	0.32	0.13	0.63	0.18		0.38	0.83	0.71	0.56	0.78	
Control Delay	12.8	24.4	5.2	57.6	17.5		31.6	57.1	23.7	36.9	48.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	12.8	24.4	5.2	57.6	17.5		31.6	57.1	23.7	36.9	48.8	
LOS	B	C	A	E	B		C	E	C	D	D	
Approach Delay		21.0			32.9			43.4			46.8	
Approach LOS		C			C			D			D	
Stops (vph)	44	423	10	227	199		54	516	119	86	562	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	11	1	14	17		2	17	5	3	18	
CO Emissions (g/hr)	83	794	43	986	1211		118	1165	375	210	1278	
NOx Emissions (g/hr)	16	154	8	192	236		23	227	73	41	249	
VOC Emissions (g/hr)	19	184	10	228	281		27	270	87	49	296	
Dilemma Vehicles (#)	0	28	0	0	13		0	22	0	0	21	
Queue Length 50th (ft)	31	128	0	95	57		43	230	84	70	247	
Queue Length 95th (ft)	61	175	35	144	88		81	#334	207	122	#338	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160	230			120		120	150		
Base Capacity (vph)	637	2135	720	478	2263		322	751	525	289	852	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.15	0.32	0.13	0.53	0.18		0.26	0.79	0.69	0.46	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 36.3 Intersection LOS: D
Intersection Capacity Utilization 51.2% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	103	4	38	275	950	0	0	604	233
Future Volume (vph)	0	0	0	103	4	38	275	950	0	0	604	233
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.990	0.850					0.958	
Flt Protected				0.950	0.958		0.950					
Satd. Flow (prot)	0	0	0	1662	1595	1531	1685	3601	0	0	4957	0
Flt Permitted				0.950	0.958		0.950					
Satd. Flow (perm)	0	0	0	1662	1595	1531	1685	3601	0	0	4957	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					57	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		12.3			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.89	0.89	0.89	0.93	0.93	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	2%	2%	9%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	116	4	43	296	1022	0	0	657	253
Shared Lane Traffic (%)				46%		10%						
Lane Group Flow (vph)	0	0	0	63	61	39	296	1022	0	0	910	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				40.0	40.0	40.0					34.0	
Total Split (%)				26.7%	26.7%	26.7%					22.7%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				17.1	17.1	17.1	62.9	96.4			28.2	
Actuated g/C Ratio				0.14	0.14	0.14	0.51	0.78			0.23	
v/c Ratio				0.28	0.27	0.13	0.35	0.37			0.78	
Control Delay				52.6	51.1	0.9	18.4	1.5			48.5	
Queue Delay				0.0	0.0	0.0	6.9	3.3			0.0	
Total Delay				52.6	51.1	0.9	25.3	4.8			48.5	
LOS				D	D	A	C	A			D	
Approach Delay					39.7			9.4			48.5	
Approach LOS					D			A			D	
Stops (vph)				48	43	0	185	53			712	

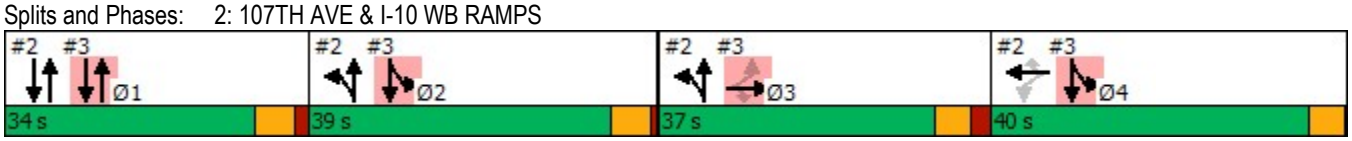
Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	39.0	37.0
Total Split (%)	26%	25%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				2	1	0	4	3			23	
CO Emissions (g/hr)				106	99	15	277	218			1577	
NOx Emissions (g/hr)				21	19	3	54	42			307	
VOC Emissions (g/hr)				25	23	3	64	51			365	
Dilemma Vehicles (#)				0	1	0	0	42			33	
Queue Length 50th (ft)				48	47	0	173	24			237	
Queue Length 95th (ft)				98	98	0	m198	m34			327	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				480	462	517	844	2774			1170	
Starvation Cap Reductn				0	0	0	491	1620			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.13	0.13	0.08	0.84	0.89			0.78	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 124
Natural Cycle: 180
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 26.3 Intersection LOS: C
Intersection Capacity Utilization 68.8% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	379	149	551	0	0	0	0	833	272	55	668	0
Future Volume (vph)	379	149	551	0	0	0	0	833	272	55	668	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.924	0.850					0.963				
Flt Protected	0.950	0.995								0.950		
Satd. Flow (prot)	1711	1564	1501	0	0	0	0	4946	0	1717	3601	0
Flt Permitted	0.950	0.995								0.950		
Satd. Flow (perm)	1711	1564	1501	0	0	0	0	4946	0	1717	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31	277					48				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.97	0.97	0.97	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	4%	0%	0%	0%	0%	3%	2%	7%	2%	0%
Adj. Flow (vph)	457	180	664	0	0	0	0	859	280	62	751	0
Shared Lane Traffic (%)	10%		35%									
Lane Group Flow (vph)	411	458	432	0	0	0	0	1139	0	62	751	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	37.0	37.0	37.0					34.0				
Total Split (%)	24.7%	24.7%	24.7%					22.7%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	31.1	31.1	31.1					28.2		41.9	80.7	
Actuated g/C Ratio	0.25	0.25	0.25					0.23		0.34	0.65	
v/c Ratio	0.96	1.10	0.74					0.98		0.11	0.32	
Control Delay	81.3	116.1	24.6					68.4		16.4	1.1	
Queue Delay	0.0	0.0	0.0					1.4		0.0	0.2	
Total Delay	81.3	116.1	24.6					69.8		16.4	1.4	
LOS	F	F	C					E		B	A	
Approach Delay		74.7						69.8			2.5	
Approach LOS		E						E			A	
Stops (vph)	285	285	130					926		44	27	

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	39.0	40.0
Total Split (%)	26%	27%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	15	5					55		1	2	
CO Emissions (g/hr)	768	1016	371					3859		60	141	
NOx Emissions (g/hr)	149	198	72					751		12	27	
VOC Emissions (g/hr)	178	235	86					894		14	33	
Dilemma Vehicles (#)	0	13	0					41		0	2	
Queue Length 50th (ft)	343	~438	121					322		42	10	
Queue Length 95th (ft)	#562	#671	230					#500		m65	11	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	429	415	584					1161		953	2584	
Starvation Cap Reductn	0	0	0					0		0	1030	
Spillback Cap Reductn	0	0	0					9		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.96	1.10	0.74					0.99		0.07	0.48	

Intersection Summary

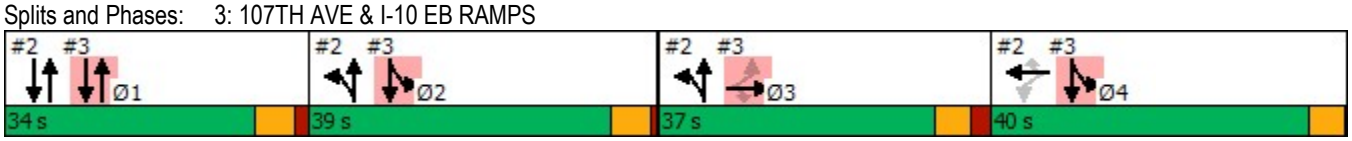
Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 124
Natural Cycle: 180
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 54.9 Intersection LOS: D
Intersection Capacity Utilization 68.8% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	546	130	46	182	46	74	767	84	100	492	83
Future Volume (vph)	146	546	130	46	182	46	74	767	84	100	492	83
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	200		150	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1841	1580	1783	1726	1550	1801	3601	1550	1766	3532	1611
Flt Permitted	0.476			0.386			0.417			0.244		
Satd. Flow (perm)	902	1841	1580	725	1726	1550	790	3601	1550	454	3532	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			115			85			89			90
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			79.7			59.8	
Peak Hour Factor	0.90	0.90	0.90	0.78	0.78	0.78	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	3%	12%	6%	2%	2%	6%	4%	4%	2%
Adj. Flow (vph)	162	607	144	59	233	59	79	816	89	109	535	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	607	144	59	233	59	79	816	89	109	535	90
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	50.0	50.0	38.0	38.0	38.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	13.3%	55.6%	55.6%	42.2%	42.2%	42.2%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	33.9	31.8	31.8	20.3	20.3	20.3	26.7	26.7	26.7	26.7	26.7	26.7
Actuated g/C Ratio	0.48	0.45	0.45	0.29	0.29	0.29	0.38	0.38	0.38	0.38	0.38	0.38
v/c Ratio	0.31	0.74	0.19	0.29	0.47	0.12	0.27	0.60	0.14	0.64	0.40	0.14
Control Delay	13.1	23.1	4.8	25.2	25.2	2.9	19.8	20.6	4.9	40.1	17.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	23.1	4.8	25.2	25.2	2.9	19.8	20.6	4.9	40.1	17.9	4.8
LOS	B	C	A	C	C	A	B	C	A	D	B	A
Approach Delay		18.4			21.5			19.1			19.6	
Approach LOS		B			C			B			B	
Stops (vph)	75	420	23	34	137	4	48	571	13	75	331	13

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	10	1	2	9	2	3	37	3	4	19	2
CO Emissions (g/hr)	136	708	68	156	621	116	239	2552	218	301	1294	166
NOx Emissions (g/hr)	26	138	13	30	121	23	47	497	42	59	252	32
VOC Emissions (g/hr)	32	164	16	36	144	27	55	591	50	70	300	38
Dilemma Vehicles (#)	0	32	0	0	10	0	0	45	0	0	30	0
Queue Length 50th (ft)	38	205	7	20	83	0	21	135	0	35	80	0
Queue Length 95th (ft)	82	374	38	46	134	8	66	253	29	#132	158	29
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170	200		150	210		160
Base Capacity (vph)	535	1182	1056	338	806	769	392	1787	814	225	1753	845
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.51	0.14	0.17	0.29	0.08	0.20	0.46	0.11	0.48	0.31	0.11

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 70.9
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 80.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: 107TH AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	1028	65	34	401	282	92	654	219	234	406	97
Future Volume (vph)	201	1028	65	34	401	282	92	654	219	234	406	97
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.991			0.938			0.962			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3532	0	1717	3206	0	1801	3464	0	1655	3442	0
Flt Permitted	0.219			0.102			0.296			0.127		
Satd. Flow (perm)	415	3532	0	184	3206	0	561	3464	0	221	3442	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			187			42			26	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.96	0.96	0.96	0.86	0.86	0.86
Heavy Vehicles (%)	2%	3%	4%	7%	5%	11%	2%	2%	2%	11%	4%	2%
Adj. Flow (vph)	218	1117	71	39	456	320	96	681	228	272	472	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	218	1188	0	39	776	0	96	909	0	272	585	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	49.0		12.0	49.0		14.0	39.0		10.0	35.0	
Total Split (%)	10.9%	44.5%		10.9%	44.5%		12.7%	35.5%		9.1%	31.8%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	54.3	46.8		49.5	41.1		42.9	32.2		41.0	31.5	
Actuated g/C Ratio	0.49	0.43		0.45	0.37		0.39	0.29		0.37	0.29	
v/c Ratio	0.71	0.79		0.24	0.59		0.31	0.87		1.55	0.58	
Control Delay	30.5	32.5		21.1	33.0		23.1	45.7		296.7	35.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.5	32.5		21.1	33.0		23.1	45.7		296.7	35.6	
LOS	C	C		C	C		C	D		F	D	
Approach Delay		32.2			32.5			43.5			118.5	
Approach LOS		C			C			D			F	
Stops (vph)	111	906		22	962		56	759		116	407	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	29		2	42		2	24		24	26	
CO Emissions (g/hr)	302	1998		114	2955		128	1697		1648	1810	
NOx Emissions (g/hr)	59	389		22	575		25	330		321	352	
VOC Emissions (g/hr)	70	463		26	685		30	393		382	419	
Dilemma Vehicles (#)	0	49		0	101		0	39		0	23	
Queue Length 50th (ft)	81	386		16	176		42	307		~238	181	
Queue Length 95th (ft)	#142	490		m39	270		77	#416		#387	233	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	305	1507		198	1347		342	1043		176	1004	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.71	0.79		0.20	0.58		0.28	0.87		1.55	0.58	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.55
Intersection Signal Delay: 53.1 Intersection LOS: D
Intersection Capacity Utilization 79.3% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	856	148	689	604	17	184	555	782	167	243	46
Future Volume (vph)	70	856	148	689	604	17	184	555	782	167	243	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1568	3335	3486	0	3242	5036	2682	3213	4988	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202		2				806			200
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.84	0.84	0.84	0.94	0.94	0.94	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	3%	5%	3%	8%	8%	3%	6%	9%	4%	3%
Adj. Flow (vph)	83	1019	176	733	643	18	190	572	806	172	251	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	1019	176	733	661	0	190	572	806	172	251	47
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	19.0	27.0	27.0		54.0		23.0	44.0	44.0	18.0	39.0	39.0
Total Split (%)	14.1%	20.0%	20.0%		40.0%		17.0%	32.6%	32.6%	13.3%	28.9%	28.9%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	None	None	None
Act Effct Green (s)	8.9	40.2	40.2	34.5	70.9		13.6	28.9	28.9	11.7	27.1	27.1
Actuated g/C Ratio	0.06	0.28	0.28	0.24	0.49		0.09	0.20	0.20	0.08	0.19	0.19
v/c Ratio	0.39	1.03	0.30	0.92	0.38		0.62	0.56	0.68	0.66	0.27	0.10
Control Delay	72.0	86.4	4.5	45.0	24.6		72.6	53.8	6.2	77.6	50.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.0	86.4	4.5	45.0	24.6		72.6	53.8	6.2	77.6	50.7	0.5
LOS	E	F	A	D	C		E	D	A	E	D	A
Approach Delay		74.2			35.3			31.6			55.5	
Approach LOS		E			D			C			E	

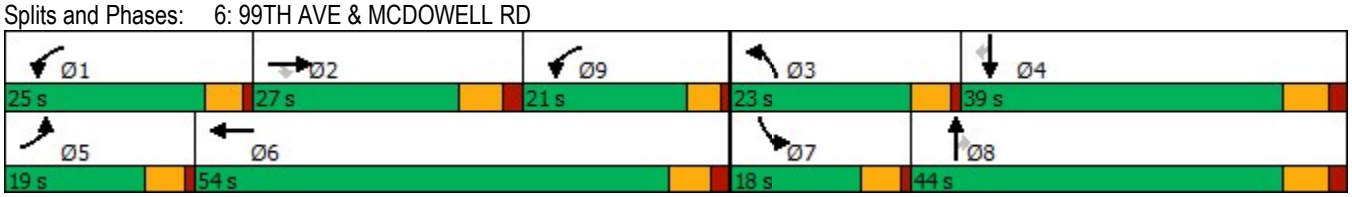
Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	25.0	21.0
Total Split (%)	19%	16%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	65	733	8	610	378		172	482	49	157	199	0
Fuel Used(gal)	4	53	5	18	12		6	15	6	7	8	1
CO Emissions (g/hr)	295	3730	369	1279	824		415	1073	434	463	555	39
NOx Emissions (g/hr)	57	726	72	249	160		81	209	84	90	108	8
VOC Emissions (g/hr)	68	864	86	297	191		96	249	100	107	129	9
Dilemma Vehicles (#)	0	27	0	0	17		0	16	0	0	7	0
Queue Length 50th (ft)	40	~556	0	177	202		91	182	0	82	75	0
Queue Length 95th (ft)	65	#671	26	#307	289		137	224	56	130	107	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	336	991	584	840	1722		408	1318	1297	292	1131	510
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.25	1.03	0.30	0.87	0.38		0.47	0.43	0.62	0.59	0.22	0.09

Intersection Summary	
Area Type: Other	
Cycle Length: 135	
Actuated Cycle Length: 143.5	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 46.6	Intersection LOS: D
Intersection Capacity Utilization 71.6%	ICU Level of Service C
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: 99TH AVE & MCDOWELL RD



Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	426	319	220	218	1408	0	0	985	88
Future Volume (vph)	0	0	0	426	319	220	218	1408	0	0	985	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	1.00
Frt					0.994	0.850						0.850
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1381	2866	1379	1466	4868	0	0	6075	1531
Flt Permitted				0.950	0.983		0.950					
Satd. Flow (perm)	0	0	0	1381	2866	1379	1466	4868	0	0	6075	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	91						164
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.96	0.96	0.96	0.94	0.94	0.94	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	15%	4%	3%	19%	3%	0%	0%	4%	2%
Adj. Flow (vph)	0	0	0	444	332	229	232	1498	0	0	1145	102
Shared Lane Traffic (%)				41%		10%						
Lane Group Flow (vph)	0	0	0	262	537	206	232	1498	0	0	1145	102
Turn Type				Perm	NA	Perm	Prot	NA			NA	Free
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						Free
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							10.0				20.0	
Minimum Split (s)							47.8				28.9	
Total Split (s)							48.0				48.0	
Total Split (%)							27.4%				27.4%	
Yellow Time (s)							3.9				4.7	
All-Red Time (s)							1.9				1.2	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							5.8				5.9	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				C-Min	
Act Effct Green (s)				51.2	51.2	51.2	61.7	112.0			44.5	175.0
Actuated g/C Ratio				0.29	0.29	0.29	0.35	0.64			0.25	1.00
v/c Ratio				0.65	0.64	0.44	0.45	0.48			0.74	0.07
Control Delay				61.4	56.7	29.2	18.0	13.1			63.8	0.1
Queue Delay				0.0	0.0	0.0	0.0	1.1			0.3	0.0
Total Delay				61.4	56.7	29.2	18.0	14.2			64.1	0.1
LOS				E	E	C	B	B			E	A
Approach Delay					52.3			14.7			58.9	
Approach LOS					D			B			E	
Stops (vph)				216	436	88	132	1045			893	0

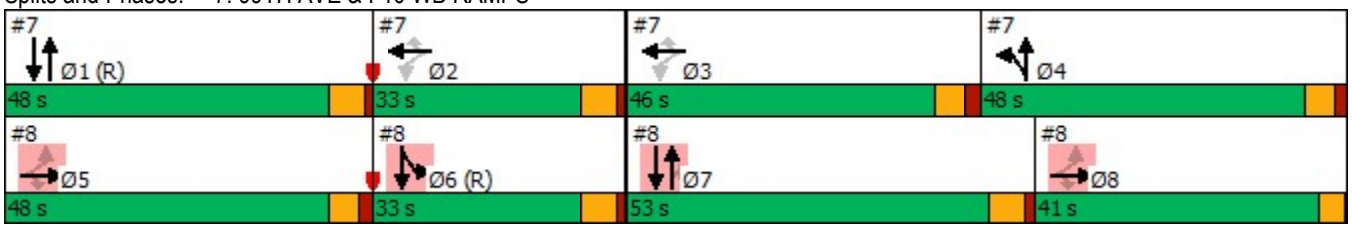
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	8.0	10.0	5.0	20.0	5.0
Minimum Split (s)	30.0	45.8	47.8	30.0	28.9	30.0
Total Split (s)	33.0	46.0	48.0	33.0	53.0	41.0
Total Split (%)	19%	26%	27%	19%	30%	23%
Yellow Time (s)	4.7	3.9	3.9	4.7	4.7	3.5
All-Red Time (s)	1.2	1.9	1.9	1.2	1.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				9	17	4	3	22			30	1
CO Emissions (g/hr)				601	1192	311	224	1512			2077	36
NOx Emissions (g/hr)				117	232	60	43	294			404	7
VOC Emissions (g/hr)				139	276	72	52	350			481	8
Dilemma Vehicles (#)				0	12	0	0	2			28	0
Queue Length 50th (ft)				297	320	119	127	458			359	0
Queue Length 95th (ft)				373	351	190	302	587			383	0
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				585	1217	638	516	3114			1543	1531
Starvation Cap Reductn				0	0	0	0	1283			0	0
Spillback Cap Reductn				5	7	0	0	0			71	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.45	0.44	0.32	0.45	0.82			0.78	0.07

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 38.0 Intersection LOS: D
Intersection Capacity Utilization 51.8% ICU Level of Service A
Analysis Period (min) 15
Description: WB I-10 Off ramp

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	449	114	328	0	0	0	0	1125	262	108	1356	0
Future Volume (vph)	449	114	328	0	0	0	0	1125	262	108	1356	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		200	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.91	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.976								0.950		
Satd. Flow (prot)	1557	2843	1292	0	0	0	0	5905	1334	1711	4643	0
Flt Permitted	0.950	0.976								0.950		
Satd. Flow (perm)	1557	2843	1292	0	0	0	0	5905	1334	1711	4643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11	91						203			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			8.1	
Peak Hour Factor	0.91	0.91	0.91	0.25	0.25	0.25	0.96	0.96	0.96	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	7%	17%	2%	8%	0%
Adj. Flow (vph)	493	125	360	0	0	0	0	1172	273	123	1541	0
Shared Lane Traffic (%)	49%		37%									
Lane Group Flow (vph)	251	500	227	0	0	0	0	1172	273	123	1541	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								20.0	20.0	5.0		
Minimum Split (s)								28.9	28.9	30.0		
Total Split (s)								53.0	53.0	33.0		
Total Split (%)								30.3%	30.3%	18.9%		
Yellow Time (s)								4.7	4.7	4.7		
All-Red Time (s)								1.2	1.2	1.2		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.9	5.9	5.9		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	C-Max		
Act Effct Green (s)	48.1	48.1	48.1					46.6	46.6	62.6	115.2	
Actuated g/C Ratio	0.27	0.27	0.27					0.27	0.27	0.36	0.66	
v/c Ratio	0.59	0.63	0.54					0.75	0.54	0.20	0.50	
Control Delay	60.5	58.0	35.9					62.1	18.6	16.0	9.4	
Queue Delay	0.1	0.0	0.0					0.3	0.0	0.0	1.3	
Total Delay	60.5	58.0	35.9					62.4	18.6	16.0	10.8	
LOS	E	E	D					E	B	B	B	
Approach Delay		53.5						54.1			11.2	
Approach LOS		D						D			B	
Stops (vph)	193	383	108					1011	65	39	975	

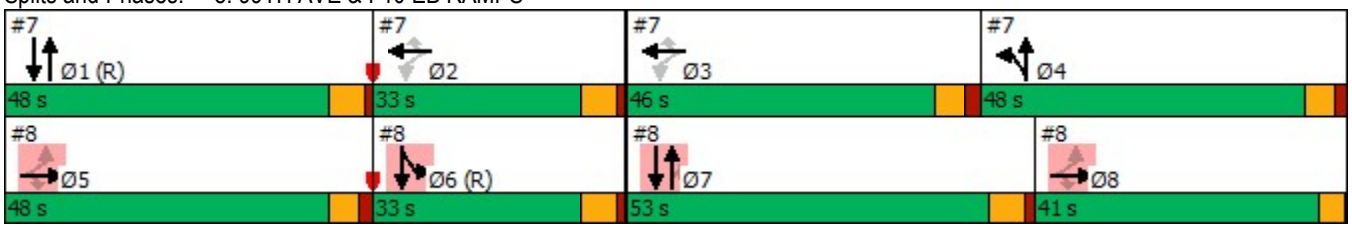
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	10.0	5.0
Minimum Split (s)	28.9	30.0	45.8	47.8	47.8	30.0
Total Split (s)	48.0	33.0	46.0	48.0	48.0	41.0
Total Split (%)	27%	19%	26%	27%	27%	23%
Yellow Time (s)	4.7	4.7	3.9	3.9	3.9	3.5
All-Red Time (s)	1.2	1.2	1.9	1.9	1.9	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	15	5					55	8	1	19	
CO Emissions (g/hr)	550	1080	369					3842	584	85	1358	
NOx Emissions (g/hr)	107	210	72					747	114	16	264	
VOC Emissions (g/hr)	127	250	85					890	135	20	315	
Dilemma Vehicles (#)	0	10	0					31	0	0	2	
Queue Length 50th (ft)	271	284	143					359	64	36	489	
Queue Length 95th (ft)	376	352	245					403	165	m69	513	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						200			
Base Capacity (vph)	702	1287	632					1589	507	612	3068	
Starvation Cap Reductn	0	0	0					0	0	0	1231	
Spillback Cap Reductn	31	38	0					80	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.37	0.40	0.36					0.78	0.54	0.20	0.84	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 36.5 Intersection LOS: D
Intersection Capacity Utilization 51.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

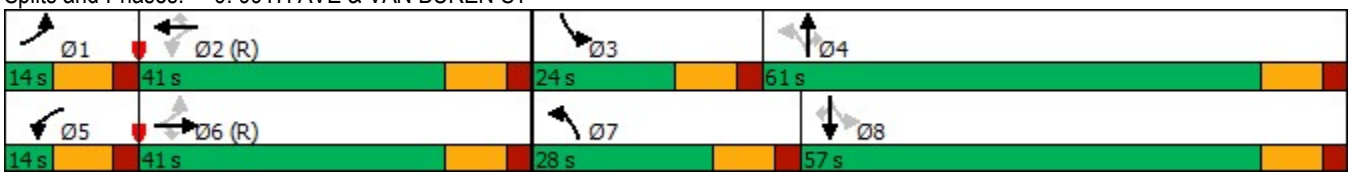
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	468	81	109	151	177	111	813	249	226	562	113
Future Volume (vph)	153	468	81	109	151	177	111	813	249	226	562	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1586	1801	1280	1711	3323	1531	1601	4600	1487	1711	2983	1290
Flt Permitted	0.629			0.093			0.314			0.159		
Satd. Flow (perm)	1050	1801	1280	167	3323	1531	529	4600	1487	286	2983	1290
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			230			190			190
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.94	0.94	0.94	0.77	0.77	0.77	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	10%	2%	22%	2%	5%	2%	9%	9%	5%	2%	17%	21%
Adj. Flow (vph)	163	498	86	142	196	230	122	893	274	246	611	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	498	86	142	196	230	122	893	274	246	611	123
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	41.0	41.0	14.0	41.0	41.0	28.0	61.0	61.0	24.0	57.0	57.0
Total Split (%)	10.0%	29.3%	29.3%	10.0%	29.3%	29.3%	20.0%	43.6%	43.6%	17.1%	40.7%	40.7%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	49.4	37.6	37.6	58.8	43.0	43.0	44.3	34.2	34.2	52.8	38.4	38.4
Actuated g/C Ratio	0.35	0.27	0.27	0.42	0.31	0.31	0.32	0.24	0.24	0.38	0.27	0.27
v/c Ratio	0.39	1.03	0.18	0.55	0.19	0.37	0.50	0.80	0.54	0.97	0.75	0.25
Control Delay	28.3	98.8	0.8	39.3	38.7	6.9	33.0	55.1	17.7	81.2	52.4	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	98.8	0.8	39.3	38.7	6.9	33.0	55.1	17.7	81.2	52.4	1.5
LOS	C	F	A	D	D	A	C	E	B	F	D	A
Approach Delay		72.2			26.0			45.0			53.3	
Approach LOS		E			C			D			D	
Stops (vph)	104	392	0	72	111	18	75	742	69	144	500	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	30	3	6	8	8	6	46	10	11	26	3
CO Emissions (g/hr)	519	2122	195	417	580	567	385	3244	723	782	1837	201
NOx Emissions (g/hr)	101	413	38	81	113	110	75	631	141	152	357	39
VOC Emissions (g/hr)	120	492	45	97	134	131	89	752	168	181	426	47
Dilemma Vehicles (#)	0	15	0	0	5	0	0	23	0	0	16	0
Queue Length 50th (ft)	89	453	0	76	70	0	70	282	62	152	267	0
Queue Length 95th (ft)	154	#776	0	130	96	33	105	312	145	#306	327	3
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	416	483	483	260	1019	629	344	1702	669	259	1018	565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	1.03	0.18	0.55	0.19	0.37	0.35	0.52	0.41	0.95	0.60	0.22

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 49.9 Intersection LOS: D
Intersection Capacity Utilization 79.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	1308	76	47	377	179	164	781	164	167	327	90
Future Volume (vph)	224	1308	76	47	377	179	164	781	164	167	327	90
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.992				0.850			0.850		0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3506	0	1655	3251	1217	1801	3601	1565	1446	3393	0
Flt Permitted	0.439			0.099			0.502			0.119		
Satd. Flow (perm)	832	3506	0	172	3251	1217	952	3601	1565	181	3393	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				208			170		33	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4799			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.88	0.88	0.88	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	11%	13%	35%	2%	2%	5%	27%	5%	4%
Adj. Flow (vph)	249	1453	84	55	438	208	186	888	186	172	337	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	1537	0	55	438	208	186	888	186	172	430	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0	41.0	19.0	41.0	
Total Split (s)	10.0	47.0		10.0	47.0	47.0	12.0	35.0	35.0	18.0	41.0	
Total Split (%)	9.1%	42.7%		9.1%	42.7%	42.7%	10.9%	31.8%	31.8%	16.4%	37.3%	
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4	4.4	3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4	6.4	4.0	6.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	50.0	42.5		48.6	40.3	40.3	39.9	29.6	29.6	48.5	34.6	
Actuated g/C Ratio	0.45	0.39		0.44	0.37	0.37	0.36	0.27	0.27	0.44	0.31	
v/c Ratio	0.58	1.13		0.36	0.37	0.36	0.46	0.92	0.34	0.75	0.40	
Control Delay	16.8	93.0		24.3	17.7	4.5	24.5	54.6	8.2	44.4	28.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.8	93.0		24.3	17.7	4.5	24.5	54.6	8.2	44.4	28.4	
LOS	B	F		C	B	A	C	D	A	D	C	
Approach Delay		82.4			14.3			43.3			33.0	
Approach LOS		F			B			D			C	
Stops (vph)	100	1150		30	170	34	118	695	26	106	293	

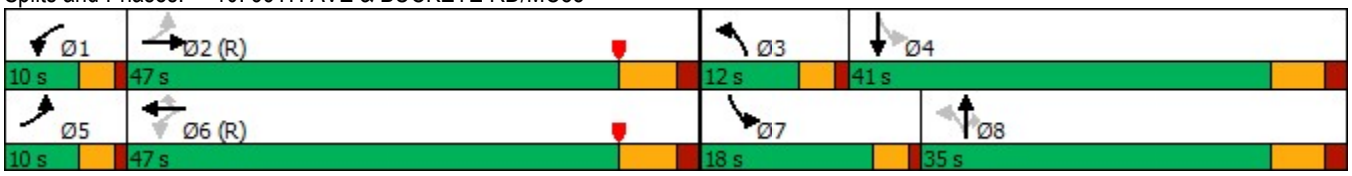
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	90		2	17	7	4	24	2	9	20	
CO Emissions (g/hr)	686	6308		158	1154	464	257	1674	139	601	1430	
NOx Emissions (g/hr)	134	1227		31	225	90	50	326	27	117	278	
VOC Emissions (g/hr)	159	1462		37	267	108	60	388	32	139	331	
Dilemma Vehicles (#)	0	23		0	6	0	0	33	0	0	15	
Queue Length 50th (ft)	63	~712		14	70	1	79	325	8	75	114	
Queue Length 95th (ft)	m74	m#761		m44	88	14	125	#434	60	#171	160	
Internal Link Dist (ft)		5209			4719			274			849	
Turn Bay Length (ft)	160			170		250	190			250		
Base Capacity (vph)	432	1358		157	1191	577	407	968	545	241	1089	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.58	1.13		0.35	0.37	0.36	0.46	0.92	0.34	0.71	0.39	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 34 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 53.3 Intersection LOS: D
Intersection Capacity Utilization 80.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85



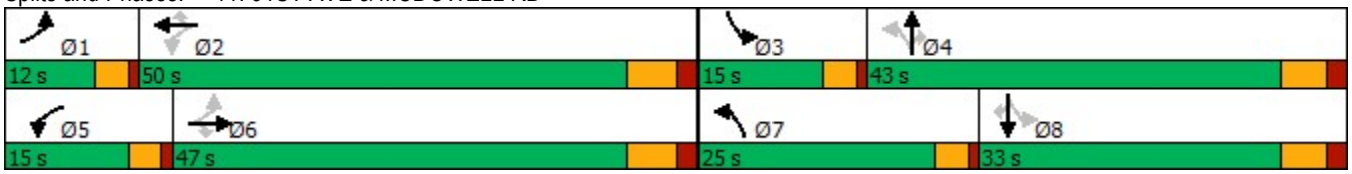
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	670	249	188	406	97	410	898	258	167	632	81
Future Volume (vph)	135	670	249	188	406	97	410	898	258	167	632	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3355	1516	1662	3355	1501	1711	3421	1531	1711	3355	1531
Flt Permitted	0.429			0.169			0.129			0.152		
Satd. Flow (perm)	772	3355	1516	296	3355	1501	232	3421	1531	274	3355	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			296			136			207			140
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			14.5			54.8	
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.96	0.96	0.96	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	3%	5%	4%	4%	2%	2%	2%	2%	4%	2%
Adj. Flow (vph)	161	798	296	229	495	118	427	935	269	192	726	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	798	296	229	495	118	427	935	269	192	726	93
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0	15.0	4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	9.0	30.0	30.0	9.0	34.4	34.4	9.0	30.0	30.0	9.0	30.0	30.0
Total Split (s)	12.0	47.0	47.0	15.0	50.0	50.0	25.0	43.0	43.0	15.0	33.0	33.0
Total Split (%)	10.0%	39.2%	39.2%	12.5%	41.7%	41.7%	20.8%	35.8%	35.8%	12.5%	27.5%	27.5%
Yellow Time (s)	3.0	4.4	4.4	3.0	4.4	4.4	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	None
Act Effct Green (s)	47.7	37.5	37.5	54.1	40.6	40.6	54.1	37.4	37.4	39.8	27.0	27.0
Actuated g/C Ratio	0.41	0.32	0.32	0.46	0.35	0.35	0.46	0.32	0.32	0.34	0.23	0.23
v/c Ratio	0.43	0.74	0.43	0.86	0.43	0.19	1.14	0.86	0.43	0.85	0.94	0.20
Control Delay	22.5	40.2	5.3	51.6	30.4	3.8	123.9	47.0	10.7	59.6	65.1	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	40.2	5.3	51.6	30.4	3.8	123.9	47.0	10.7	59.6	65.1	2.6
LOS	C	D	A	D	C	A	F	D	B	E	E	A
Approach Delay		29.7			32.4			61.2			58.3	
Approach LOS		C			C			E			E	
Stops (vph)	85	578	22	103	298	8	269	798	56	113	563	3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	29	7	10	20	3	15	19	2	6	25	2
CO Emissions (g/hr)	353	2055	472	676	1403	243	1019	1358	166	438	1779	120
NOx Emissions (g/hr)	69	400	92	131	273	47	198	264	32	85	346	23
VOC Emissions (g/hr)	82	476	109	157	325	56	236	315	38	102	412	28
Dilemma Vehicles (#)	0	27	0	0	14	0	0	36	0	0	25	0
Queue Length 50th (ft)	69	281	0	104	149	0	~344	362	35	92	294	0
Queue Length 95th (ft)	104	322	45	#174	176	21	#549	#477	108	#211	#394	10
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	380	1166	719	265	1252	645	373	1092	629	229	775	461
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.68	0.41	0.86	0.40	0.18	1.14	0.86	0.43	0.84	0.94	0.20

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 117
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 47.1 Intersection LOS: D
Intersection Capacity Utilization 80.5% ICU Level of Service D
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	214	5	223	117	1195	0	0	857	97
Future Volume (vph)	0	0	0	214	5	223	117	1195	0	0	857	97
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.916	0.850					0.985	
Flt Protected				0.950	0.980		0.950					
Satd. Flow (prot)	0	0	0	1694	1517	1487	1749	3601	0	0	3509	0
Flt Permitted				0.950	0.980		0.133					
Satd. Flow (perm)	0	0	0	1694	1517	1487	245	3601	0	0	3509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					45	163					17	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			14.5	
Peak Hour Factor	0.25	0.25	0.25	0.86	0.86	0.86	0.97	0.97	0.97	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	3%	2%	5%	5%	2%	0%	0%	3%	4%
Adj. Flow (vph)	0	0	0	249	6	259	121	1232	0	0	942	107
Shared Lane Traffic (%)				28%		37%						
Lane Group Flow (vph)	0	0	0	179	172	163	121	1232	0	0	1049	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				30.0	30.0	30.0	15.0					
Total Split (%)				24.0%	24.0%	24.0%	12.0%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				24.3	24.3	24.3	44.8	49.9			73.5	
Actuated g/C Ratio				0.20	0.20	0.20	0.36	0.40			0.59	
v/c Ratio				0.54	0.51	0.39	0.58	0.85			0.50	
Control Delay				51.9	39.0	9.2	34.1	24.1			15.2	
Queue Delay				0.0	0.0	0.0	0.0	5.7			0.0	
Total Delay				51.9	39.0	9.2	34.1	29.8			15.2	
LOS				D	D	A	C	C			B	
Approach Delay					34.0			30.2			15.2	
Approach LOS					C			C			B	
Stops (vph)				136	97	19	92	840			516	

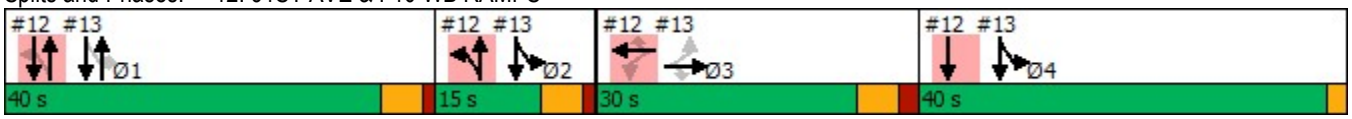
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	40.0	40.0
Total Split (%)	32%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	4	2	2	17			12	
CO Emissions (g/hr)				343	274	136	135	1159			837	
NOx Emissions (g/hr)				67	53	27	26	225			163	
VOC Emissions (g/hr)				80	63	32	31	269			194	
Dilemma Vehicles (#)				0	6	0	0	0			39	
Queue Length 50th (ft)				138	101	0	36	185			236	
Queue Length 95th (ft)				208	172	53	m48	m215			290	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				333	334	423	209	1454			2093	
Starvation Cap Reductn				0	0	0	0	176			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.54	0.51	0.39	0.58	0.96			0.50	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 123.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 25.5 Intersection LOS: C
Intersection Capacity Utilization 52.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	443	10	285	0	0	0	0	860	182	120	967	0
Future Volume (vph)	443	10	285	0	0	0	0	860	182	120	967	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	200		240	0		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.967	0.850						0.850			
Flt Protected	0.950	0.964								0.950		
Satd. Flow (prot)	1711	1604	1516	0	0	0	0	3601	1611	1717	3532	0
Flt Permitted	0.950	0.964								0.115		
Satd. Flow (perm)	1711	1604	1516	0	0	0	0	3601	1611	208	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10	146						171			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.99	0.99	0.99	0.25	0.25	0.25	0.95	0.95	0.95	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	0%	0%	0%	0%	2%	2%	7%	4%	0%
Adj. Flow (vph)	447	10	288	0	0	0	0	905	192	136	1099	0
Shared Lane Traffic (%)	42%		19%									
Lane Group Flow (vph)	259	253	233	0	0	0	0	905	192	136	1099	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					40.0	40.0			
Total Split (%)	24.0%	24.0%	24.0%					32.0%	32.0%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	24.3	24.3	24.3					34.9	34.9	78.3	88.5	
Actuated g/C Ratio	0.20	0.20	0.20					0.28	0.28	0.63	0.72	
v/c Ratio	0.77	0.78	0.56					0.89	0.33	0.21	0.43	
Control Delay	63.8	63.6	23.0					54.7	8.7	4.3	4.0	
Queue Delay	0.0	0.0	0.0					4.6	0.0	0.0	0.1	
Total Delay	63.8	63.6	23.0					59.3	8.7	4.3	4.1	
LOS	E	E	C					E	A	A	A	
Approach Delay		51.0						50.5			4.2	
Approach LOS		D						D			A	
Stops (vph)	230	217	83					781	29	29	200	

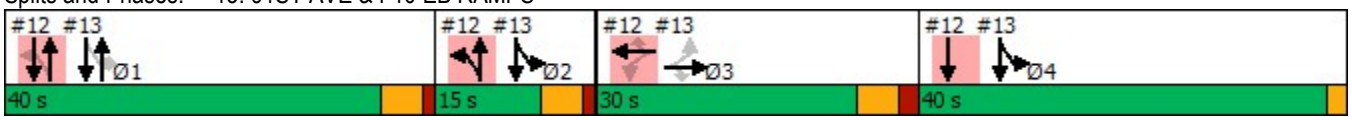
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	15.0	40.0
Total Split (%)	12%	32%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	9	5					41	6	1	6	
CO Emissions (g/hr)	637	615	333					2862	415	53	409	
NOx Emissions (g/hr)	124	120	65					557	81	10	80	
VOC Emissions (g/hr)	148	143	77					663	96	12	95	
Dilemma Vehicles (#)	0	10	0					34	0	0	3	
Queue Length 50th (ft)	211	207	64					371	12	23	101	
Queue Length 95th (ft)	#344	#351	155					#487	71	33	115	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	336	323	415					1017	578	680	2528	
Starvation Cap Reductn	0	0	0					0	0	0	417	
Spillback Cap Reductn	0	0	0					70	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.77	0.78	0.56					0.96	0.33	0.20	0.52	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 123.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 32.0 Intersection LOS: C
Intersection Capacity Utilization 52.4% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	365	108	83	265	146	135	689	167	178	592	183
Future Volume (vph)	252	365	108	83	265	146	135	689	167	178	592	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1749	1531	1558	1749	1516	1678	3421	1432	1678	3323	1516
Flt Permitted	0.312			0.283			0.322			0.273		
Satd. Flow (perm)	562	1749	1531	464	1749	1516	569	3421	1432	482	3323	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130			197			157			161
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.94	0.94	0.94	0.91	0.91	0.91
Heavy Vehicles (%)	2%	5%	2%	12%	5%	3%	4%	2%	9%	4%	5%	3%
Adj. Flow (vph)	304	440	130	112	358	197	144	733	178	196	651	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	304	440	130	112	358	197	144	733	178	196	651	201
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	13.0	48.0	48.0	10.0	45.0	45.0	10.0	42.0	42.0	10.0	42.0	42.0
Total Split (%)	11.8%	43.6%	43.6%	9.1%	40.9%	40.9%	9.1%	38.2%	38.2%	9.1%	38.2%	38.2%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	46.5	32.4	32.4	40.5	29.4	29.4	50.5	40.4	40.4	50.5	40.4	40.4
Actuated g/C Ratio	0.42	0.29	0.29	0.37	0.27	0.27	0.46	0.37	0.37	0.46	0.37	0.37
v/c Ratio	0.92	0.86	0.24	0.49	0.77	0.36	0.45	0.58	0.28	0.69	0.53	0.31
Control Delay	57.6	52.5	5.5	26.0	47.9	5.8	14.0	17.1	1.6	34.5	30.6	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	52.5	5.5	26.0	47.9	5.8	14.0	17.1	1.6	34.5	30.6	8.6
LOS	E	D	A	C	D	A	B	B	A	C	C	A
Approach Delay		47.3			31.8			14.1			27.1	
Approach LOS		D			C			B			C	
Stops (vph)	164	333	12	53	238	16	45	409	11	113	461	36

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	15	21	5	4	15	6	6	32	7	7	25	6
CO Emissions (g/hr)	1029	1492	344	287	1023	434	414	2236	459	515	1727	420
NOx Emissions (g/hr)	200	290	67	56	199	85	80	435	89	100	336	82
VOC Emissions (g/hr)	239	346	80	66	237	101	96	518	106	119	400	97
Dilemma Vehicles (#)	0	0	0	0	0	0	0	16	0	0	27	0
Queue Length 50th (ft)	142	288	0	46	230	0	27	83	1	78	191	18
Queue Length 95th (ft)	#195	343	32	61	243	22	m41	340	6	#170	271	77
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	331	618	625	230	570	627	321	1257	625	286	1221	658
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.71	0.21	0.49	0.63	0.31	0.45	0.58	0.28	0.69	0.53	0.31

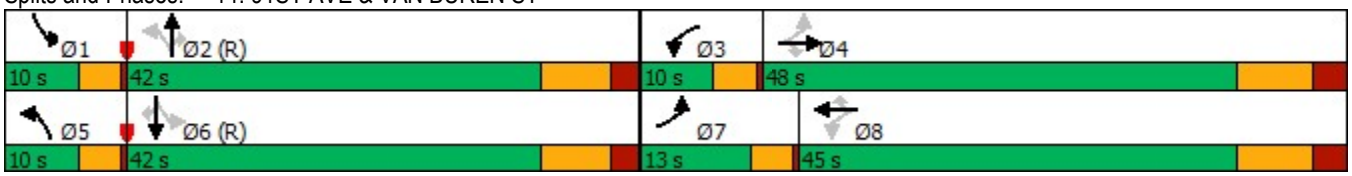
Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 29.0 Intersection LOS: C
Intersection Capacity Utilization 70.8% ICU Level of Service C
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 14: 91ST AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	1179	125	57	435	167	128	784	60	153	564	116
Future Volume (vph)	148	1179	125	57	435	167	128	784	60	153	564	116
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.986			0.958			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	4764	0	1531	4141	0	1749	5110	0	1749	3566	1508
Flt Permitted	0.350			0.094			0.278			0.154		
Satd. Flow (perm)	599	4764	0	151	4141	0	512	5110	0	284	3566	1508
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			107			11				122
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		445			470			399			4882	
Travel Time (s)		6.1			6.4			6.0			74.0	
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	13%	10%	2%	20%	26%	12%	5%	2%	4%	5%	3%	9%
Adj. Flow (vph)	164	1310	139	64	489	188	154	945	72	161	594	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	1449	0	64	677	0	154	1017	0	161	594	122
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	9.0	48.0		12.0	51.0		11.0	40.0		10.0	39.0	39.0
Total Split (%)	8.2%	43.6%		10.9%	46.4%		10.0%	36.4%		9.1%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	53.3	46.3		54.5	45.4		41.2	31.9		39.4	31.1	31.1
Actuated g/C Ratio	0.48	0.42		0.50	0.41		0.37	0.29		0.36	0.28	0.28
v/c Ratio	0.48	0.72		0.41	0.38		0.57	0.68		0.88	0.59	0.24
Control Delay	13.2	19.9		33.6	31.3		30.8	36.6		64.5	35.7	13.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	13.2	19.9		33.6	31.3		30.8	36.6		64.5	35.7	13.2
LOS	B	B		C	C		C	D		E	D	B
Approach Delay		19.2			31.5			35.8			37.9	
Approach LOS		B			C			D			D	
Stops (vph)	51	517		38	705		86	715		140	530	55

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	57		3	34		3	22		9	30	5
CO Emissions (g/hr)	427	3956		198	2403		204	1540		629	2101	350
NOx Emissions (g/hr)	83	770		39	468		40	300		122	409	68
VOC Emissions (g/hr)	99	917		46	557		47	357		146	487	81
Dilemma Vehicles (#)	0	119		0	56		0	36		0	7	0
Queue Length 50th (ft)	40	158		31	112		68	224		98	226	36
Queue Length 95th (ft)	m42	m150		60	150		104	245		#155	261	90
Internal Link Dist (ft)		365			390			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	344	2017		176	1770		270	1577		183	1063	535
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.48	0.72		0.36	0.38		0.57	0.64		0.88	0.56	0.23

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 94 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 62.5% ICU Level of Service B
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	1090	113	275	387	76	113	739	289	291	752	46
Future Volume (vph)	84	1090	113	275	387	76	113	739	289	291	752	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	2		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.91
Frt		0.986				0.850			0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4787	0	1678	4821	1516	3193	4775	1531	3319	4824	0
Flt Permitted	0.506			0.074			0.950			0.950		
Satd. Flow (perm)	911	4787	0	131	4821	1516	3193	4775	1531	3319	4824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				125			253		7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.77	0.77	0.77	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93
Heavy Vehicles (%)	2%	3%	6%	4%	4%	3%	6%	5%	2%	2%	3%	3%
Adj. Flow (vph)	109	1416	147	286	403	79	124	812	318	313	809	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	1563	0	286	403	79	124	812	318	313	858	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2			4			
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9	32.9	11.0	32.9	
Total Split (s)	12.0	54.0		25.0	67.0	67.0	13.0	33.0	33.0	18.0	38.0	
Total Split (%)	9.2%	41.5%		19.2%	51.5%	51.5%	10.0%	25.4%	25.4%	13.8%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6	1.6	1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9	5.9	4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	59.1	49.8		75.3	62.0	62.0	8.3	27.0	27.0	13.8	32.5	
Actuated g/C Ratio	0.45	0.38		0.58	0.48	0.48	0.06	0.21	0.21	0.11	0.25	
v/c Ratio	0.24	0.85		0.93	0.18	0.10	0.61	0.82	0.61	0.89	0.71	
Control Delay	15.0	42.0		72.5	19.8	0.9	72.0	56.9	16.3	84.1	47.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.0	42.0		72.5	19.8	0.9	72.0	56.9	16.3	84.1	47.9	
LOS	B	D		E	B	A	E	E	B	F	D	
Approach Delay		40.2			37.5			48.1			57.6	
Approach LOS		D			D			D			E	
Stops (vph)	46	1058		195	212	1	109	690	68	269	706	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	65		16	18	3	4	21	3	14	32	
CO Emissions (g/hr)	259	4517		1116	1227	185	254	1484	238	974	2231	
NOx Emissions (g/hr)	50	879		217	239	36	49	289	46	189	434	
VOC Emissions (g/hr)	60	1047		259	284	43	59	344	55	226	517	
Dilemma Vehicles (#)	0	46		0	15	0	0	28	0	0	26	
Queue Length 50th (ft)	40	443		187	70	0	53	241	46	136	242	
Queue Length 95th (ft)	57	404		#349	93	7	87	293	146	#217	293	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	467	1844		325	2298	788	221	995	519	357	1212	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.23	0.85		0.88	0.18	0.10	0.56	0.82	0.61	0.88	0.71	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 46.0 Intersection LOS: D
Intersection Capacity Utilization 72.4% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: 83rd ave & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	303	8	310	402	1075	0	0	669	363
Future Volume (vph)	0	0	0	303	8	310	402	1075	0	0	669	363
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.919	0.850						0.850
Flt Protected				0.950	0.979		0.950					
Satd. Flow (prot)	0	0	0	1479	1406	1446	2921	5124	0	0	5124	1611
Flt Permitted				0.950	0.979		0.950					
Satd. Flow (perm)	0	0	0	1479	1406	1446	2921	5124	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					48	143						454
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.92	0.92	0.92	0.88	0.88	0.88	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	18%	17%	8%	22%	3%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	329	9	337	457	1222	0	0	836	454
Shared Lane Traffic (%)				29%		36%						
Lane Group Flow (vph)	0	0	0	234	225	216	457	1222	0	0	836	454
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				30.0	30.0
Total Split (%)							42.5%				25.0%	25.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				32.7	32.7	32.7	44.8	75.7			24.7	24.7
Actuated g/C Ratio				0.27	0.27	0.27	0.37	0.63			0.21	0.21
v/c Ratio				0.58	0.54	0.43	0.42	0.38			0.79	0.66
Control Delay				44.5	34.4	15.6	13.5	2.6			51.6	8.8
Queue Delay				1.0	0.6	0.0	0.0	0.3			0.0	0.0
Total Delay				45.5	35.1	15.6	13.5	3.0			51.6	8.8
LOS				D	D	B	B	A			D	A
Approach Delay					32.5			5.8			36.5	
Approach LOS					C			A			D	
Stops (vph)				185	138	61	183	407			621	36

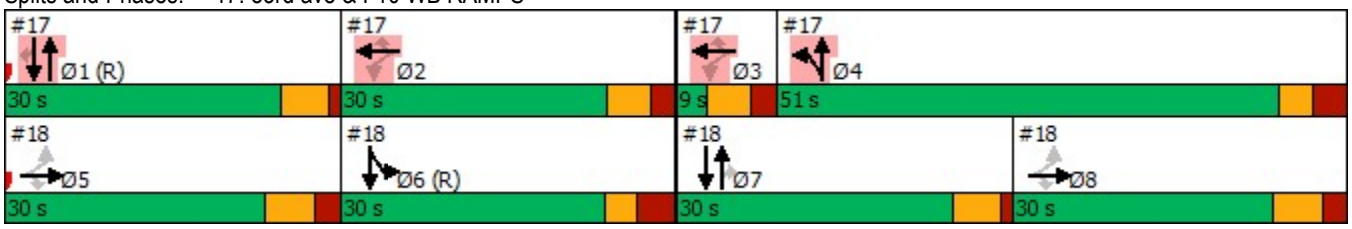
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (%)	25%	8%	25%	25%	25%	25%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	5	3	5	9			18	3
CO Emissions (g/hr)				453	371	241	329	643			1290	217
NOx Emissions (g/hr)				88	72	47	64	125			251	42
VOC Emissions (g/hr)				105	86	56	76	149			299	50
Dilemma Vehicles (#)				0	9	0	0	16			28	0
Queue Length 50th (ft)				165	128	45	36	9			227	0
Queue Length 95th (ft)				257	219	121	m62	m10			241	41
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				403	418	498	1090	3232			1054	692
Starvation Cap Reductn				0	0	0	0	1266			0	0
Spillback Cap Reductn				45	43	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.65	0.60	0.43	0.42	0.62			0.79	0.66

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 21.6 Intersection LOS: C
Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	464	17	1053	0	0	0	0	1033	149	174	815	0
Future Volume (vph)	464	17	1053	0	0	0	0	1033	149	174	815	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.95	1.00
Frt		0.867	0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1711	1381	1406	0	0	0	0	7118	1284	1801	3401	0
Flt Permitted	0.950	0.996								0.950		
Satd. Flow (perm)	1711	1381	1406	0	0	0	0	7118	1284	1801	3401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55	137						160			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			54.4			7.7	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.93	0.93	0.93	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	11%	0%	0%	0%	0%	10%	28%	2%	8%	0%
Adj. Flow (vph)	533	20	1210	0	0	0	0	1111	160	212	994	0
Shared Lane Traffic (%)	10%		47%									
Lane Group Flow (vph)	480	642	641	0	0	0	0	1111	160	212	994	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								30.0	30.0	30.0		
Total Split (%)								25.0%	25.0%	25.0%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	53.4	53.4	53.4					24.6	24.6	23.5	53.4	
Actuated g/C Ratio	0.44	0.44	0.44					0.20	0.20	0.20	0.44	
v/c Ratio	0.63	1.00	0.91					0.76	0.41	0.60	0.66	
Control Delay	30.4	65.9	43.9					24.9	3.8	26.9	23.7	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	4.1	
Total Delay	30.4	65.9	43.9					24.9	3.8	26.9	27.8	
LOS	C	E	D					C	A	C	C	
Approach Delay		48.2						22.3			27.6	
Approach LOS		D						C			C	
Stops (vph)	319	448	403					897	33	149	795	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	9.0	51.0	30.0	30.0
Total Split (%)	25%	25%	8%	43%	25%	25%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	19	16					40	4	3	17	
CO Emissions (g/hr)	793	1362	1146					2828	279	236	1155	
NOx Emissions (g/hr)	154	265	223					550	54	46	225	
VOC Emissions (g/hr)	184	316	266					655	65	55	268	
Dilemma Vehicles (#)	0	22	0					10	0	0	1	
Queue Length 50th (ft)	296	503	400					158	7	138	420	
Queue Length 95th (ft)	398	#746	#623					163	m8	m195	428	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	760	644	701					1465	391	352	1516	
Starvation Cap Reductn	0	0	0					0	0	0	429	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.63	1.00	0.91					0.76	0.41	0.60	0.91	

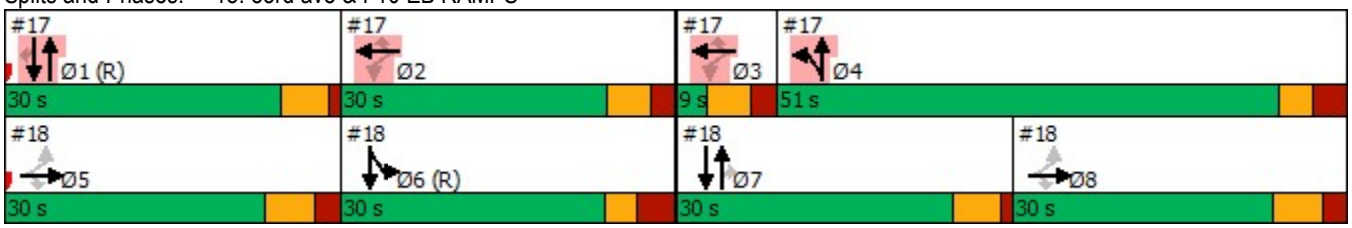
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 34.6 Intersection LOS: C
Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	586	38	59	108	123	9	824	116	497	1103	122
Future Volume (vph)	155	586	38	59	108	123	9	824	116	497	1103	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		1	1		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	0.95
Frt		0.991				0.850			0.850		0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3327	0	1312	2957	1290	1531	4558	1394	1586	3192	0
Flt Permitted	0.591			0.203			0.215			0.147		
Satd. Flow (perm)	952	3327	0	280	2957	1290	346	4558	1394	245	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				176			105		10	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			54.4	
Peak Hour Factor	0.90	0.90	0.90	0.70	0.70	0.70	0.89	0.89	0.89	0.95	0.95	0.95
Heavy Vehicles (%)	14%	4%	3%	33%	18%	21%	14%	10%	12%	10%	8%	5%
Adj. Flow (vph)	172	651	42	84	154	176	10	926	130	523	1161	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	693	0	84	154	176	10	926	130	523	1289	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0	45.0	20.0	30.0	30.0	20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0	35.0	25.0	36.0	36.0	34.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%	29.2%	20.8%	30.0%	30.0%	28.3%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3	1.3	0.0	1.2	1.2	0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6	5.6	3.0	5.5	5.5	3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	46.5	34.5		42.2	30.4	30.4	37.4	30.0	30.0	66.5	62.3	
Actuated g/C Ratio	0.39	0.29		0.35	0.25	0.25	0.31	0.25	0.25	0.55	0.52	
v/c Ratio	0.41	0.72		0.47	0.21	0.38	0.06	0.81	0.31	1.09	0.78	
Control Delay	28.3	44.4		52.7	57.4	30.6	16.6	49.1	12.2	83.3	32.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	28.3	44.4		52.7	57.4	30.6	16.6	49.1	12.2	83.3	32.2	
LOS	C	D		D	E	C	B	D	B	F	C	
Approach Delay		41.2			45.1			44.3			46.9	
Approach LOS		D			D			D			D	
Stops (vph)	106	539		51	98	94	6	758	27	384	1147	

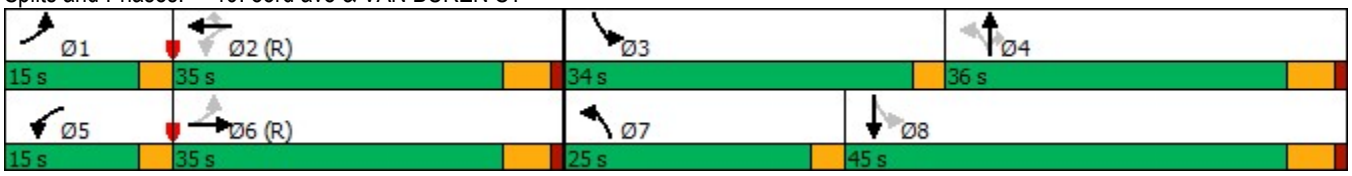
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	34		3	6	6	0	46	5	25	51	
CO Emissions (g/hr)	543	2369		228	428	426	29	3215	322	1732	3553	
NOx Emissions (g/hr)	106	461		44	83	83	6	626	63	337	691	
VOC Emissions (g/hr)	126	549		53	99	99	7	745	75	401	823	
Dilemma Vehicles (#)	0	26		0	1	0	0	31	0	0	60	
Queue Length 50th (ft)	87	251		58	61	62	4	254	15	~395	545	
Queue Length 95th (ft)	147	#361		82	73	75	11	296	64	m#511	m584	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250		120	230		
Base Capacity (vph)	428	959		207	750	458	374	1158	432	482	1661	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.40	0.72		0.41	0.21	0.38	0.03	0.80	0.30	1.09	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 49 (41%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 44.9 Intersection LOS: D
Intersection Capacity Utilization 74.7% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



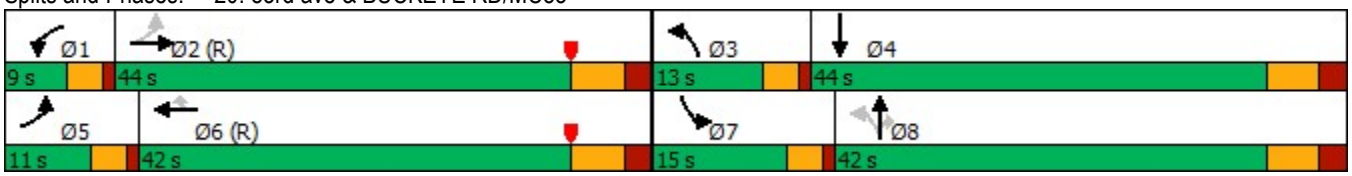
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	1521	43	17	356	141	80	557	144	218	438	219
Future Volume (vph)	225	1521	43	17	356	141	80	557	144	218	438	219
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.996				0.850			0.850		0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	4910	0	2897	4435	1358	1801	3566	1580	3098	4558	0
Flt Permitted	0.470			0.950			0.373			0.950		
Satd. Flow (perm)	811	4910	0	2897	4435	1358	707	3566	1580	3098	4558	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				150			122		124	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		461			432			976			409	
Travel Time (s)		6.3			5.9			14.8			6.2	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90	0.99	0.99	0.99
Heavy Vehicles (%)	12%	7%	9%	23%	19%	21%	2%	3%	4%	15%	7%	16%
Adj. Flow (vph)	242	1635	46	18	379	150	89	619	160	220	442	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	242	1681	0	18	379	150	89	619	160	220	663	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	11.0	44.0		9.0	42.0	42.0	13.0	42.0	42.0	15.0	44.0	
Total Split (%)	10.0%	40.0%		8.2%	38.2%	38.2%	11.8%	38.2%	38.2%	13.6%	40.0%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	55.4	49.4		5.0	39.3	39.3	39.3	29.1	29.1	10.4	33.9	
Actuated g/C Ratio	0.50	0.45		0.05	0.36	0.36	0.36	0.26	0.26	0.09	0.31	
v/c Ratio	0.50	0.76		0.14	0.24	0.26	0.27	0.66	0.32	0.75	0.45	
Control Delay	11.3	19.2		52.8	26.5	5.7	20.3	39.1	10.3	64.8	25.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.3	19.2		52.8	26.5	5.7	20.3	39.1	10.3	64.8	25.3	
LOS	B	B		D	C	A	C	D	B	E	C	
Approach Delay		18.2			21.6			31.8			35.2	
Approach LOS		B			C			C			D	
Stops (vph)	61	1001		18	246	17	49	476	33	205	413	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	73		1	18	5	1	14	2	13	31	
CO Emissions (g/hr)	616	5074		72	1227	358	101	970	114	906	2179	
NOx Emissions (g/hr)	120	987		14	239	70	20	189	22	176	424	
VOC Emissions (g/hr)	143	1176		17	284	83	23	225	26	210	505	
Dilemma Vehicles (#)	0	65		0	16	0	0	22	0	0	24	
Queue Length 50th (ft)	36	109		6	72	0	37	204	20	78	112	
Queue Length 95th (ft)	m60	#570		18	100	45	62	246	67	#128	140	
Internal Link Dist (ft)		381			352			896			329	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	482	2206		135	1584	581	351	1144	589	309	1627	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.50	0.76		0.13	0.24	0.26	0.25	0.54	0.27	0.71	0.41	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 61 (55%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 25.0 Intersection LOS: C
Intersection Capacity Utilization 63.5% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



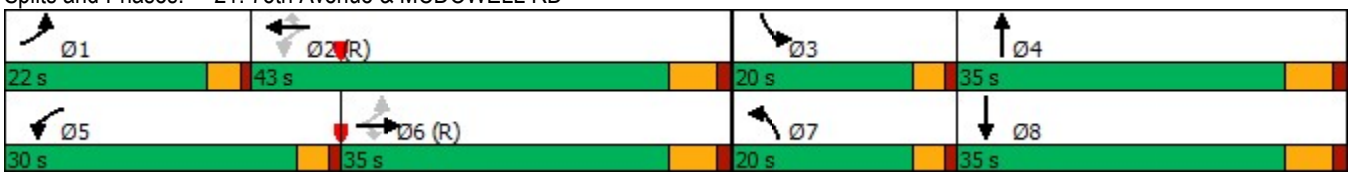
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	929	313	303	452	164	114	952	207	200	843	56
Future Volume (vph)	123	929	313	303	452	164	114	952	207	200	843	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		1	1		1	2		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	0.91	0.97	0.91	0.91
Frt			0.850			0.850		0.973			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4916	1516	1711	4821	1531	3319	4670	0	3319	4827	0
Flt Permitted	0.438			0.111			0.950			0.950		
Satd. Flow (perm)	789	4916	1516	200	4821	1531	3319	4670	0	3319	4827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			314			198		38			8	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.87	0.87	0.87	0.83	0.83	0.83	0.90	0.90	0.90	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	3%	2%	4%	2%	2%	5%	2%	2%	3%	2%
Adj. Flow (vph)	141	1068	360	365	545	198	127	1058	230	233	980	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	1068	360	365	545	198	127	1288	0	233	1045	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2						
Detector Phase	1	6	6	5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2	50.2	6.0	48.2	48.2	10.0	30.8		10.0	30.8	
Total Split (s)	22.0	35.0	35.0	30.0	43.0	43.0	20.0	35.0		20.0	35.0	
Total Split (%)	18.3%	29.2%	29.2%	25.0%	35.8%	35.8%	16.7%	29.2%		16.7%	29.2%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8	5.8	4.0	5.8	5.8	4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	43.7	32.1	32.1	61.0	45.4	45.4	9.0	32.6		12.6	36.2	
Actuated g/C Ratio	0.36	0.27	0.27	0.51	0.38	0.38	0.08	0.27		0.10	0.30	
v/c Ratio	0.39	0.81	0.57	0.93	0.30	0.28	0.51	1.00		0.67	0.71	
Control Delay	20.9	47.6	10.7	68.3	46.0	24.1	60.4	66.6		61.0	40.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	20.9	47.6	10.7	68.3	46.0	24.1	60.4	66.6		61.0	40.6	
LOS	C	D	B	E	D	C	E	E		E	D	
Approach Delay		36.7			49.4			66.0			44.3	
Approach LOS		D			D			E			D	
Stops (vph)	80	832	54	273	408	139	108	983		189	777	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	51	12	18	25	8	3	34		6	22	
CO Emissions (g/hr)	403	3594	850	1249	1721	565	236	2403		410	1520	
NOx Emissions (g/hr)	78	699	165	243	335	110	46	468		80	296	
VOC Emissions (g/hr)	93	833	197	290	399	131	55	557		95	352	
Dilemma Vehicles (#)	0	38	0	0	18	0	0	44		0	32	
Queue Length 50th (ft)	57	294	28	282	155	68	49	357		90	261	
Queue Length 95th (ft)	91	336	107	#366	182	m117	80	#506		123	306	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	479	1316	635	429	1823	701	442	1294		442	1462	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.29	0.81	0.57	0.85	0.30	0.28	0.29	1.00		0.53	0.71	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 48.9 Intersection LOS: D
Intersection Capacity Utilization 74.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	402	0	393	287	1023	0	0	1077	388
Future Volume (vph)	0	0	0	402	0	393	287	1023	0	0	1077	388
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.86	1.00
Frt					0.920	0.850						0.850
Flt Protected				0.950	0.977		0.950					
Satd. Flow (prot)	0	0	0	1544	1461	1501	3126	5075	0	0	6457	1611
Flt Permitted				0.950	0.977		0.950					
Satd. Flow (perm)	0	0	0	1544	1461	1501	3126	5075	0	0	6457	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					128	128						454
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.94	0.94	0.94	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	13%	2%	4%	14%	4%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	462	0	452	305	1088	0	0	1298	467
Shared Lane Traffic (%)				31%		36%						
Lane Group Flow (vph)	0	0	0	319	306	289	305	1088	0	0	1298	467
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							46.0				39.0	39.0
Total Split (%)							35.4%				30.0%	30.0%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				38.7	38.7	38.7	38.5	79.8			33.7	33.7
Actuated g/C Ratio				0.30	0.30	0.30	0.30	0.61			0.26	0.26
v/c Ratio				0.69	0.58	0.54	0.33	0.35			0.78	0.62
Control Delay				49.6	27.0	24.8	24.0	4.8			48.5	8.0
Queue Delay				15.5	2.5	0.0	0.0	0.0			0.0	0.0
Total Delay				65.2	29.5	24.8	24.0	4.8			48.5	8.0
LOS				E	C	C	C	A			D	A
Approach Delay					40.4			9.0			37.8	
Approach LOS					D			A			D	
Stops (vph)				244	136	119	192	572			974	42

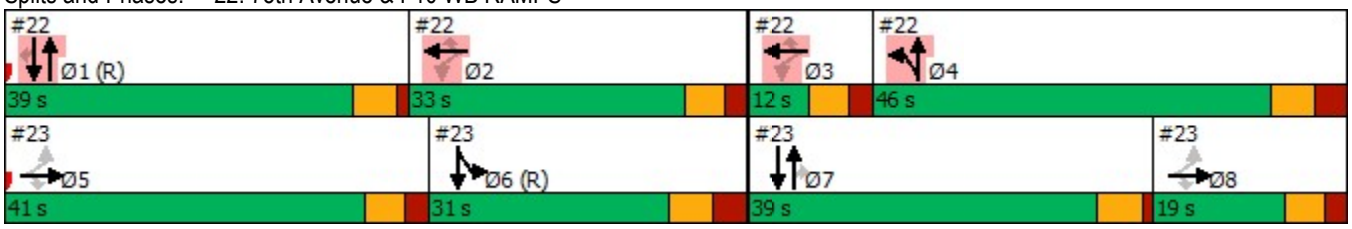
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	33.0	12.0	41.0	31.0	39.0	19.0
Total Split (%)	25%	9%	32%	24%	30%	15%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				9	6	6	5	12			29	3
CO Emissions (g/hr)				623	425	385	333	810			2008	232
NOx Emissions (g/hr)				121	83	75	65	158			391	45
VOC Emissions (g/hr)				144	99	89	77	188			465	54
Dilemma Vehicles (#)				0	10	0	0	14			41	0
Queue Length 50th (ft)				250	138	117	62	216			296	8
Queue Length 95th (ft)				349	232	202	m101	m10			307	59
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				460	525	537	925	3114			1673	753
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				126	119	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.96	0.75	0.54	0.33	0.35			0.78	0.62

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 28.5 Intersection LOS: C
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	406	19	1052	0	0	0	0	784	210	309	1258	0
Future Volume (vph)	406	19	1052	0	0	0	0	784	210	309	1258	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	200		150	0		0
Storage Lanes	1		1	0		0	2		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.91	1.00
Frt		0.866	0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1662	1411	1446	0	0	0	0	7118	1369	1801	4979	0
Flt Permitted	0.950	0.996								0.950		
Satd. Flow (perm)	1662	1411	1446	0	0	0	0	7118	1369	1801	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14	137						250			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.89	0.89	0.89	0.25	0.25	0.25	0.84	0.84	0.84	0.83	0.83	0.83
Heavy Vehicles (%)	5%	2%	8%	0%	0%	0%	0%	10%	20%	2%	6%	0%
Adj. Flow (vph)	456	21	1182	0	0	0	0	933	250	372	1516	0
Shared Lane Traffic (%)	10%		48%									
Lane Group Flow (vph)	410	634	615	0	0	0	0	933	250	372	1516	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								39.0	39.0	31.0		
Total Split (%)								30.0%	30.0%	23.8%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	55.7	55.7	55.7					31.8	31.8	23.2	60.3	
Actuated g/C Ratio	0.43	0.43	0.43					0.24	0.24	0.18	0.46	
v/c Ratio	0.58	1.03	0.88					0.54	0.48	1.16	0.66	
Control Delay	32.8	82.0	42.5					43.7	7.8	126.9	31.0	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	8.7	
Total Delay	32.8	82.0	42.5					43.7	7.8	126.9	39.8	
LOS	C	F	D					D	A	F	D	
Approach Delay		55.2						36.1			56.9	
Approach LOS		E						D			E	
Stops (vph)	275	457	391					660	22	254	1217	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	39.0	33.0	12.0	46.0	41.0	19.0
Total Split (%)	30%	25%	9%	35%	32%	15%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	21	15					34	6	12	27	
CO Emissions (g/hr)	670	1458	1061					2378	395	852	1912	
NOx Emissions (g/hr)	130	284	206					463	77	166	372	
VOC Emissions (g/hr)	155	338	246					551	92	197	443	
Dilemma Vehicles (#)	0	19	0					28	0	0	4	
Queue Length 50th (ft)	278	~642	416					166	0	~371	479	
Queue Length 95th (ft)	389	#885	#662					181	50	#505	465	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	712	613	697					1845	540	321	2382	
Starvation Cap Reductn	0	0	0					0	0	0	839	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.58	1.03	0.88					0.51	0.46	1.16	0.98	

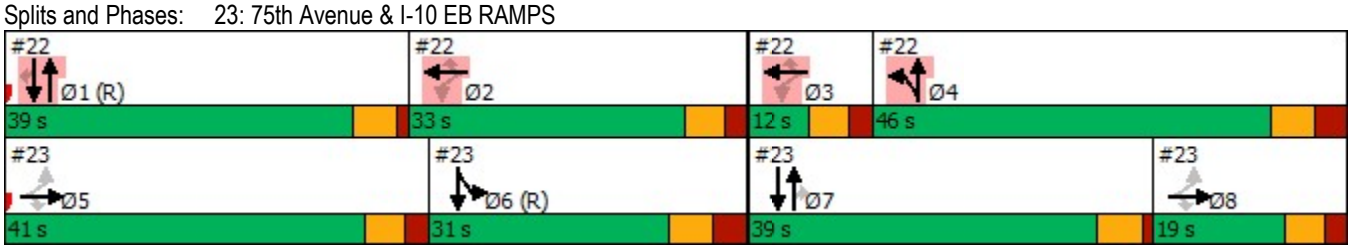
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 51.1 Intersection LOS: D
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	818	174	74	188	75	45	824	291	277	1332	73
Future Volume (vph)	74	818	174	74	188	75	45	824	291	277	1332	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		100	200		270	250		100	220		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1302	3202	1432	1442	3034	1229	1491	3144	1382	1531	3261	1346
Flt Permitted	0.582			0.115			0.095			0.099		
Satd. Flow (perm)	798	3202	1432	175	3034	1229	149	3144	1382	159	3261	1346
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			139			139			150			103
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.83	0.83	0.83	0.76	0.76	0.76	0.83	0.83	0.83	0.89	0.89	0.89
Heavy Vehicles (%)	34%	9%	9%	21%	15%	27%	17%	11%	13%	14%	7%	16%
Adj. Flow (vph)	89	986	210	97	247	99	54	993	351	311	1497	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	986	210	97	247	99	54	993	351	311	1497	82
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	15.0	15.0	2.0	15.0	15.0
Minimum Split (s)	9.5	52.0	52.0	9.5	52.0	52.0	9.5	34.0	34.0	16.0	50.0	50.0
Total Split (s)	10.0	40.0	40.0	10.0	40.0	40.0	10.0	48.0	48.0	22.0	60.0	60.0
Total Split (%)	8.3%	33.3%	33.3%	8.3%	33.3%	33.3%	8.3%	40.0%	40.0%	18.3%	50.0%	50.0%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3	4.3	3.5	4.3	4.3	3.0	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3	5.3	4.5	5.3	5.3	4.0	5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	Ped
Act Effct Green (s)	41.9	35.4	35.4	42.6	35.7	35.7	47.7	41.4	41.4	64.7	55.4	55.4
Actuated g/C Ratio	0.35	0.30	0.30	0.36	0.30	0.30	0.40	0.34	0.34	0.54	0.46	0.46
v/c Ratio	0.29	1.04	0.40	0.77	0.27	0.21	0.45	0.92	0.61	1.07	0.99	0.12
Control Delay	27.1	74.7	12.6	66.1	33.6	2.9	27.4	51.1	22.8	104.1	54.5	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	74.7	12.6	66.1	33.6	2.9	27.4	51.1	22.8	104.1	54.5	2.5
LOS	C	E	B	E	C	A	C	D	C	F	D	A
Approach Delay		61.2			33.9			43.1			60.4	
Approach LOS		E			C			D			E	
Stops (vph)	37	734	67	46	141	3	26	747	142	177	1163	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	49	7	4	10	3	2	46	13	15	61	2
CO Emissions (g/hr)	236	3436	503	291	672	189	149	3235	919	1030	4282	130
NOx Emissions (g/hr)	46	669	98	57	131	37	29	629	179	200	833	25
VOC Emissions (g/hr)	55	796	117	67	156	44	34	750	213	239	992	30
Dilemma Vehicles (#)	0	16	0	0	8	0	0	30	0	0	51	0
Queue Length 50th (ft)	35	~458	31	50	77	0	19	378	125	~212	~608	0
Queue Length 95th (ft)	m44	m#466	m40	#89	95	3	36	416	194	#388	#763	18
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200		100	200		270	250		100	220		100
Base Capacity (vph)	302	944	520	126	903	463	120	1118	588	291	1506	676
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	1.04	0.40	0.77	0.27	0.21	0.45	0.89	0.60	1.07	0.99	0.12

Intersection Summary

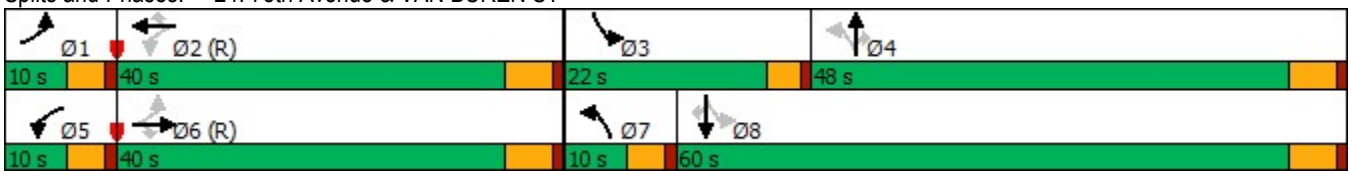
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 53.5 Intersection LOS: D
Intersection Capacity Utilization 77.2% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	1406	150	37	352	165	93	728	216	282	534	50
Future Volume (vph)	209	1406	150	37	352	165	93	728	216	282	534	50
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		100	260		0	270		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3401	1454	1670	3036	1442	1505	3370	1565	1597	3331	0
Flt Permitted	0.423			0.107			0.315			0.145		
Satd. Flow (perm)	794	3401	1454	188	3036	1442	499	3370	1565	244	3331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			98			199			172		9	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4818			2586			1298			2861	
Travel Time (s)		65.7			35.3			19.7			43.3	
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	3%	8%	13%	10%	21%	14%	22%	9%	5%	15%	8%	18%
Adj. Flow (vph)	227	1528	163	45	424	199	101	791	235	310	587	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	227	1528	163	45	424	199	101	791	235	310	642	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0	37.0	17.0	30.0	30.0	17.0	30.0	
Total Split (s)	18.0	47.0	47.0	11.0	40.0	40.0	17.0	30.0	30.0	17.0	30.0	
Total Split (%)	17.1%	44.8%	44.8%	10.5%	38.1%	38.1%	16.2%	28.6%	28.6%	16.2%	28.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1	1.1	0.0	1.2	1.2	0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1	6.1	3.0	5.5	5.5	3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	55.0	46.1	46.1	46.3	37.3	37.3	34.9	24.5	24.5	43.9	30.6	
Actuated g/C Ratio	0.52	0.44	0.44	0.44	0.36	0.36	0.33	0.23	0.23	0.42	0.29	
v/c Ratio	0.43	1.02	0.24	0.27	0.39	0.31	0.42	1.01	0.47	1.10	0.66	
Control Delay	16.5	59.9	9.7	17.2	27.3	5.1	25.0	74.5	13.9	110.5	36.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.5	59.9	9.7	17.2	27.3	5.1	25.0	74.5	13.9	110.5	36.5	
LOS	B	E	A	B	C	A	C	E	B	F	D	
Approach Delay		50.5			20.0			57.4			60.6	
Approach LOS		D			C			E			E	
Stops (vph)	110	1121	42	20	258	18	60	646	59	174	497	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	81	6	2	18	6	2	25	3	18	31	
CO Emissions (g/hr)	653	5674	415	117	1235	416	140	1762	221	1274	2143	
NOx Emissions (g/hr)	127	1104	81	23	240	81	27	343	43	248	417	
VOC Emissions (g/hr)	151	1315	96	27	286	96	32	408	51	295	497	
Dilemma Vehicles (#)	0	59	0	0	17	0	0	32	0	0	22	
Queue Length 50th (ft)	79	~613	26	14	111	0	41	~284	34	~187	195	
Queue Length 95th (ft)	126	#771	72	29	147	38	77	#415	106	#363	272	
Internal Link Dist (ft)		4738			2506			1218			2781	
Turn Bay Length (ft)	260		190	270		100	260			270		
Base Capacity (vph)	557	1494	693	199	1077	640	328	786	497	282	977	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.41	1.02	0.24	0.23	0.39	0.31	0.31	1.01	0.47	1.10	0.66	

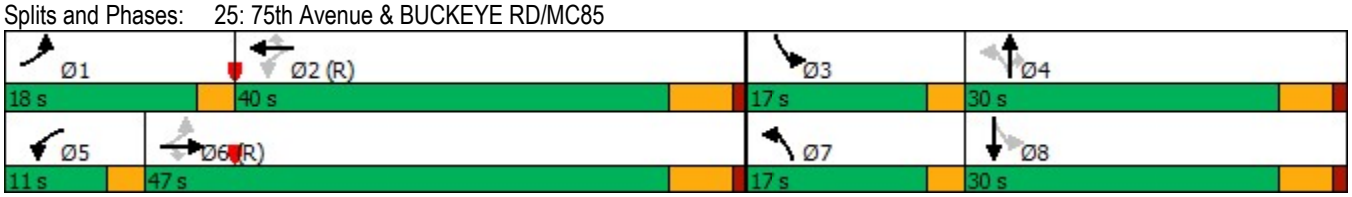
Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 49.9 Intersection LOS: D
Intersection Capacity Utilization 84.0% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	861	310	290	678	164	204	734	90	158	960	112
Future Volume (vph)	204	861	310	290	678	164	204	734	90	158	960	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.971			0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3355	1501	1711	4736	0	1711	4700	0	1711	4868	1531
Flt Permitted	0.188			0.111			0.129			0.172		
Satd. Flow (perm)	339	3355	1501	200	4736	0	232	4700	0	310	4868	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			301		49			17				126
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.94	0.94	0.94	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	2%	4%	4%	2%	3%	2%	2%	4%	13%	2%	3%	2%
Adj. Flow (vph)	217	916	330	363	848	205	224	807	99	178	1079	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	916	330	363	1053	0	224	906	0	178	1079	126
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		5.0	15.0		8.0	15.0	15.0
Minimum Split (s)	11.0	50.3	50.3	9.0	48.3		9.0	33.0		12.0	28.3	28.3
Total Split (s)	23.0	45.0	45.0	20.0	42.0		20.0	35.0		20.0	35.0	35.0
Total Split (%)	19.2%	37.5%	37.5%	16.7%	35.0%		16.7%	29.2%		16.7%	29.2%	29.2%
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4		1.0	1.4		1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7		4.0	5.4		4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		Min	Ped	Ped
Act Effct Green (s)	54.8	39.3	39.3	60.4	43.6		47.2	31.0		42.5	28.6	28.6
Actuated g/C Ratio	0.46	0.33	0.33	0.50	0.36		0.39	0.26		0.35	0.24	0.24
v/c Ratio	0.70	0.83	0.48	1.11	0.60		0.82	0.74		0.70	0.93	0.27
Control Delay	44.0	26.8	2.2	113.2	32.5		46.2	43.6		38.4	59.1	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	44.0	26.8	2.2	113.2	32.5		46.2	43.6		38.4	59.1	7.8
LOS	D	C	A	F	C		D	D		D	E	A
Approach Delay		23.8			53.2			44.1			51.8	
Approach LOS		C			D			D			D	
Stops (vph)	184	756	23	168	648		162	780		106	892	16

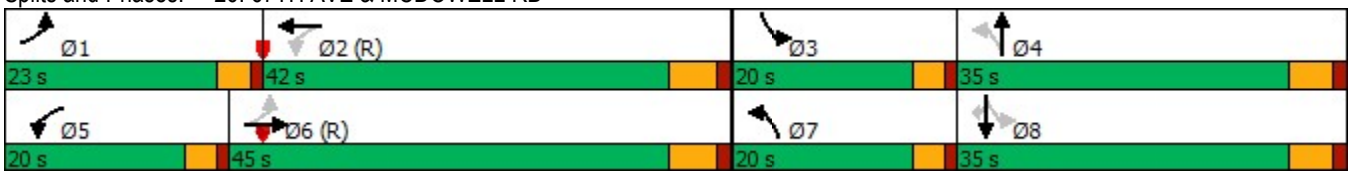
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	43	11	11	20		5	20		6	40	3
CO Emissions (g/hr)	771	3025	764	777	1428		329	1385		389	2821	187
NOx Emissions (g/hr)	150	589	149	151	278		64	270		76	549	36
VOC Emissions (g/hr)	179	701	177	180	331		76	321		90	654	43
Dilemma Vehicles (#)	0	79	0	0	35		0	11		0	36	0
Queue Length 50th (ft)	89	154	0	~286	237		137	255		87	297	0
Queue Length 95th (ft)	m131	m365	m9	#406	261		m#242	310		137	#368	47
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260			170			250		
Base Capacity (vph)	386	1098	694	328	1753		288	1237		305	1200	472
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.56	0.83	0.48	1.11	0.60		0.78	0.73		0.58	0.90	0.27

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 43.0 Intersection LOS: D
Intersection Capacity Utilization 80.3% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	276	254	323	282	655	0	0	1239	277
Future Volume (vph)	0	0	0	276	254	323	282	655	0	0	1239	277
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.957	0.850						0.850
Flt Protected				0.950	0.993		0.950					
Satd. Flow (prot)	0	0	0	1441	2383	1424	3210	5075	0	0	5175	1611
Flt Permitted				0.950	0.993		0.950					
Satd. Flow (perm)	0	0	0	1441	2383	1424	3210	5075	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					39	212						259
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	16%	50%	5%	11%	4%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	297	273	347	300	697	0	0	1291	289
Shared Lane Traffic (%)				21%		39%						
Lane Group Flow (vph)	0	0	0	235	470	212	300	697	0	0	1291	289
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				32.0	32.0
Total Split (%)							42.5%				26.7%	26.7%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				29.2	29.2	29.2	42.4	79.2			29.1	29.1
Actuated g/C Ratio				0.24	0.24	0.24	0.35	0.66			0.24	0.24
v/c Ratio				0.67	0.77	0.42	0.26	0.21			1.03	0.49
Control Delay				51.1	47.9	7.4	13.2	4.3			77.4	19.2
Queue Delay				8.7	6.5	0.0	0.0	0.0			10.1	0.0
Total Delay				59.8	54.3	7.4	13.2	4.3			87.5	19.2
LOS				E	D	A	B	A			F	B
Approach Delay					44.9			7.0			75.0	
Approach LOS					D			A			E	
Stops (vph)				196	370	23	178	346			876	172

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	18.0	19.0	30.0	20.0	45.0	25.0
Total Split (%)	15%	16%	25%	17%	38%	21%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				7	13	2	4	6			35	4
CO Emissions (g/hr)				464	886	161	245	441			2475	308
NOx Emissions (g/hr)				90	172	31	48	86			482	60
VOC Emissions (g/hr)				107	205	37	57	102			574	71
Dilemma Vehicles (#)				0	15	0	0	2			132	0
Queue Length 50th (ft)				178	179	0	63	94			~400	58
Queue Length 95th (ft)				279	250	65	96	100			m#460	m83
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				368	638	522	1164	3348			1253	586
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				98	122	0	0	0			33	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.87	0.91	0.41	0.26	0.21			1.06	0.49

Intersection Summary

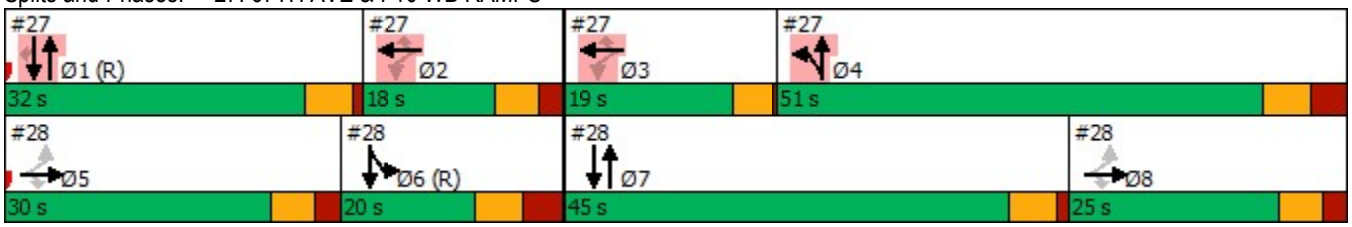
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 47.7 Intersection LOS: D
Intersection Capacity Utilization 62.5% ICU Level of Service B
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	13	636	0	0	0	0	856	240	364	1128	0
Future Volume (vph)	216	13	636	0	0	0	0	856	240	364	1128	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	200		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.81	0.81	1.00	0.95	1.00
Frt		0.864	0.850					0.967				
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1639	2736	1424	0	0	0	0	7064	0	1801	3465	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1639	2736	1424	0	0	0	0	7064	0	1801	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36	130					63				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.89	0.89	0.89	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	5%	0%	0%	0%	0%	5%	15%	2%	6%	0%
Adj. Flow (vph)	254	15	748	0	0	0	0	962	270	387	1200	0
Shared Lane Traffic (%)	10%		50%									
Lane Group Flow (vph)	229	414	374	0	0	0	0	1232	0	387	1200	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								45.0		20.0		
Total Split (%)								37.5%		16.7%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	37.1	37.1	37.1					38.1		25.2	68.6	
Actuated g/C Ratio	0.31	0.31	0.31					0.32		0.21	0.57	
v/c Ratio	0.45	0.48	0.71					0.54		1.02	0.61	
Control Delay	35.1	31.4	30.1					32.7		62.1	13.6	
Queue Delay	0.0	0.0	0.0					0.0		0.0	4.1	
Total Delay	35.1	31.4	30.1					32.7		62.1	17.7	
LOS	D	C	C					C		E	B	
Approach Delay		31.8						32.7			28.5	
Approach LOS		C						C			C	
Stops (vph)	150	247	185					826		239	955	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	32.0	18.0	19.0	51.0	30.0	25.0
Total Split (%)	27%	15%	16%	43%	25%	21%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	9	8					44		8	17	
CO Emissions (g/hr)	371	631	531					3050		576	1156	
NOx Emissions (g/hr)	72	123	103					593		112	225	
VOC Emissions (g/hr)	86	146	123					707		134	268	
Dilemma Vehicles (#)	0	12	0					42		0	0	
Queue Length 50th (ft)	160	141	191					179		~321	454	
Queue Length 95th (ft)	193	154	243					207		m#502	m503	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	651	1108	644					2379		378	2027	
Starvation Cap Reductn	0	0	0					0		0	728	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.35	0.37	0.58					0.52		1.02	0.92	

Intersection Summary

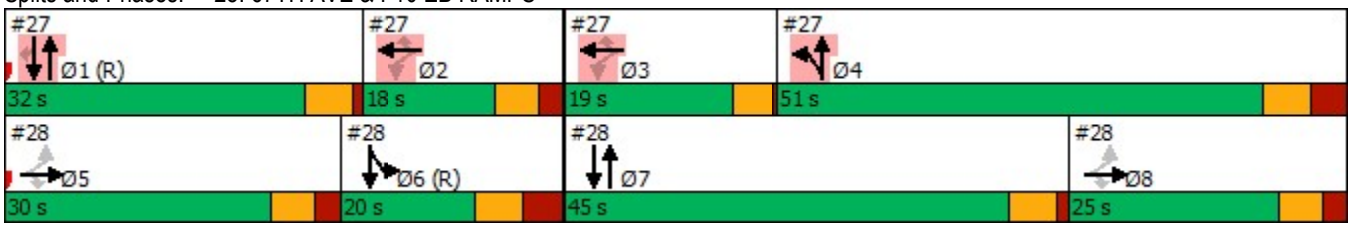
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 30.7 Intersection LOS: C
Intersection Capacity Utilization 62.5% ICU Level of Service B
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	936	168	140	239	106	140	782	359	249	892	64
Future Volume (vph)	201	936	168	140	239	106	140	782	359	249	892	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		100	260		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.954				0.850		0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3116	1301	1601	2755	0	1662	3144	1446	1586	3152	0
Flt Permitted	0.476			0.109			0.091			0.152		
Satd. Flow (perm)	767	3116	1301	184	2755	0	159	3144	1446	254	3152	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87		60				168		6	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	14%	12%	20%	9%	19%	25%	5%	11%	8%	10%	9%	18%
Adj. Flow (vph)	214	996	179	152	260	115	151	841	386	290	1037	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	996	179	152	375	0	151	841	386	290	1111	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	9.0	52.0	52.0	9.0	52.0		9.0	50.0	50.0	9.0	50.0	
Total Split (s)	12.0	52.0	52.0	12.0	52.0		13.0	50.0	50.0	16.0	53.0	
Total Split (%)	9.2%	40.0%	40.0%	9.2%	40.0%		10.0%	38.5%	38.5%	12.3%	40.8%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4		1.0	1.4	1.4	1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7		4.0	5.4	5.4	4.0	5.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes			Yes	Yes		Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped	Ped	None	Ped	
Act Effct Green (s)	56.7	46.3	46.3	56.7	46.3		54.3	43.9	43.9	60.3	46.9	
Actuated g/C Ratio	0.44	0.36	0.36	0.44	0.36		0.42	0.34	0.34	0.46	0.36	
v/c Ratio	0.55	0.90	0.34	0.87	0.37		0.89	0.79	0.64	1.21	0.98	
Control Delay	30.0	51.5	17.4	65.8	26.9		73.7	45.3	25.3	149.9	62.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	30.0	51.5	17.4	65.8	26.9		73.7	45.3	25.3	149.9	62.1	
LOS	C	D	B	E	C		E	D	C	F	E	
Approach Delay		43.8			38.2			42.8			80.3	
Approach LOS		D			D			D			F	
Stops (vph)	143	841	63	74	210		80	692	180	129	861	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	53	7	5	10		8	42	16	15	45	
CO Emissions (g/hr)	702	3706	507	341	674		549	2920	1144	1068	3155	
NOx Emissions (g/hr)	137	721	99	66	131		107	568	222	208	614	
VOC Emissions (g/hr)	163	859	118	79	156		127	677	265	248	731	
Dilemma Vehicles (#)	0	35	0	0	13		0	25	0	0	34	
Queue Length 50th (ft)	111	415	53	75	102		76	333	155	~211	476	
Queue Length 95th (ft)	171	#541	117	#203	146		#205	415	269	#364	#574	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250		100	250			250		100	260		
Base Capacity (vph)	386	1109	519	175	1019		170	1078	606	240	1157	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.55	0.90	0.34	0.87	0.37		0.89	0.78	0.64	1.21	0.96	

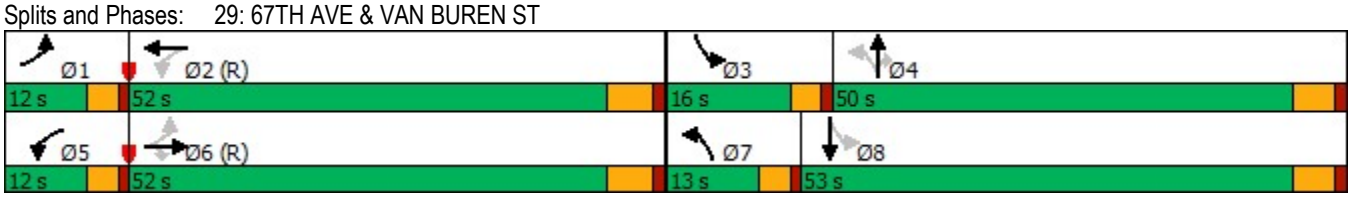
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 53.8 Intersection LOS: D
Intersection Capacity Utilization 79.7% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	336	1327	98	94	385	92	165	795	238	142	608	287
Future Volume (vph)	336	1327	98	94	385	92	165	795	238	142	608	287
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		100	250		100	200		0	260		260
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	3309	1442	1701	2986	1393	1717	3566	1595	1640	3433	1494
Flt Permitted	0.394			0.085			0.162			0.099		
Satd. Flow (perm)	680	3309	1442	152	2986	1393	293	3566	1595	171	3433	1494
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			64			87			152			354
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.85	0.85	0.85	0.81	0.81	0.81
Heavy Vehicles (%)	12%	11%	14%	8%	23%	18%	7%	3%	3%	12%	7%	10%
Adj. Flow (vph)	369	1458	108	104	428	102	194	935	280	175	751	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	369	1458	108	104	428	102	194	935	280	175	751	354
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	3.0	15.0	15.0	3.0	15.0	15.0
Minimum Split (s)	15.0	42.0	42.0	11.0	38.0	38.0	12.0	32.0	32.0	17.0	37.0	37.0
Total Split (s)	31.0	65.0	65.0	11.0	45.0	45.0	16.0	47.0	47.0	17.0	48.0	48.0
Total Split (%)	22.1%	46.4%	46.4%	7.9%	32.1%	32.1%	11.4%	33.6%	33.6%	12.1%	34.3%	34.3%
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.2	5.2	3.0	5.2	5.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	Ped
Act Effct Green (s)	75.8	62.2	62.2	57.5	46.9	46.9	54.3	39.4	39.4	56.0	40.2	40.2
Actuated g/C Ratio	0.54	0.44	0.44	0.41	0.34	0.34	0.39	0.28	0.28	0.40	0.29	0.29
v/c Ratio	0.70	0.99	0.16	0.69	0.43	0.19	0.80	0.93	0.50	0.83	0.76	0.52
Control Delay	27.5	60.3	11.6	51.9	39.6	11.0	51.5	65.0	21.4	63.2	50.9	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	60.3	11.6	51.9	39.6	11.0	51.5	65.0	21.4	63.2	50.9	6.4
LOS	C	E	B	D	D	B	D	E	C	E	D	A
Approach Delay		51.3			37.0			54.5			40.3	
Approach LOS		D			D			D			D	
Stops (vph)	198	1139	27	61	299	18	104	741	91	93	542	24

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	16	76	4	3	12	2	4	24	4	8	33	11
CO Emissions (g/hr)	1105	5295	273	218	869	124	278	1656	258	544	2321	755
NOx Emissions (g/hr)	215	1030	53	42	169	24	54	322	50	106	452	147
VOC Emissions (g/hr)	256	1227	63	51	201	29	64	384	60	126	538	175
Dilemma Vehicles (#)	0	44	0	0	13	0	0	24	0	0	16	0
Queue Length 50th (ft)	201	~750	23	47	166	10	112	428	92	104	322	0
Queue Length 95th (ft)	284	#891	63	#143	228	56	#172	476	161	#177	344	40
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200		100	250		100	200			260		260
Base Capacity (vph)	560	1471	676	153	1001	524	246	1064	582	215	1049	702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.99	0.16	0.68	0.43	0.19	0.79	0.88	0.48	0.81	0.72	0.50

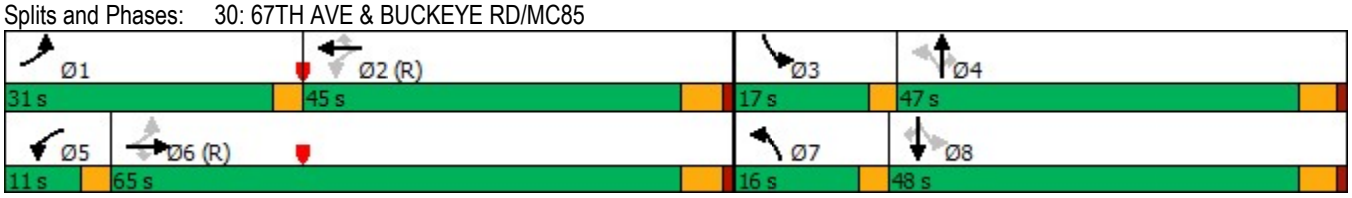
Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 47.8 Intersection LOS: D
Intersection Capacity Utilization 78.5% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85



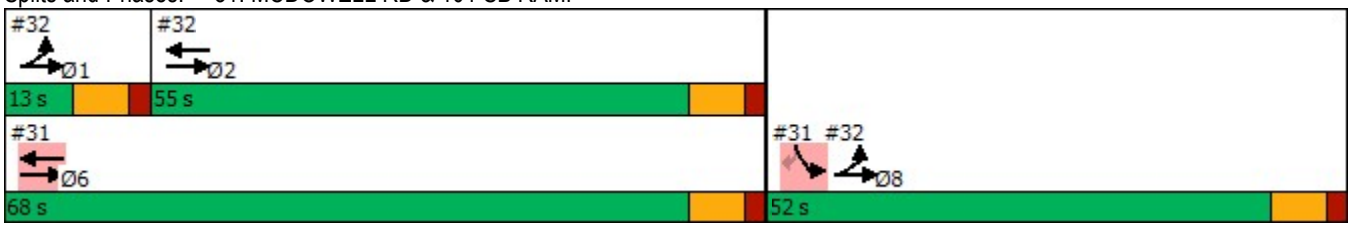
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1654	763	0	763	509		
Future Volume (vph)	0	1654	763	0	763	509		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	2	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	0.97	0.86		
Frt					0.991	0.850		
Flt Protected					0.955			
Satd. Flow (prot)	0	6520	3601	0	3480	2771		
Flt Permitted					0.955			
Satd. Flow (perm)	0	6520	3601	0	3480	2771		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)					7	218		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1798	829	0	829	553		
Shared Lane Traffic (%)						10%		
Lane Group Flow (vph)	0	1798	829	0	884	498		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		68.0	68.0		52.0	52.0	13.0	55.0
Total Split (%)		56.7%	56.7%		43.3%	43.3%	11%	46%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		61.0	61.0		45.0	45.0		
Actuated g/C Ratio		0.51	0.51		0.38	0.38		
v/c Ratio		0.54	0.45		0.68	0.42		
Control Delay		20.8	9.0		34.3	16.2		
Queue Delay		0.0	0.4		0.0	0.0		
Total Delay		20.8	9.5		34.3	16.2		
LOS		C	A		C	B		
Approach Delay		20.8	9.5		27.8			
Approach LOS		C	A		C			
Stops (vph)		1074	141		658	187		
Fuel Used(gal)		31	5		26	11		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		2150	378		1834	756		
NOx Emissions (g/hr)		418	74		357	147		
VOC Emissions (g/hr)		498	88		425	175		
Dilemma Vehicles (#)		64	68		0	0		
Queue Length 50th (ft)		265	67		290	88		
Queue Length 95th (ft)		300	m58		362	141		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3314	1830		1309	1175		
Starvation Cap Reductn		0	497		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.54	0.62		0.68	0.42		

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 102.0%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 31: MCDOWELL RD & 101 SB RAMP



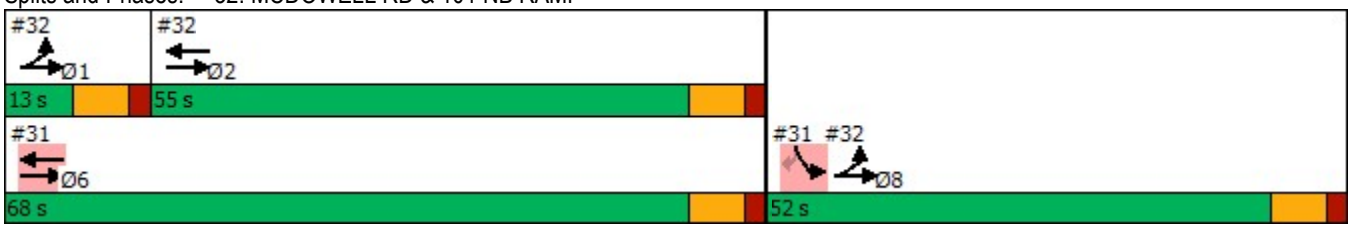
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	636	1781	763	636	0	0			
Future Volume (vph)	636	1781	763	636	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.932						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	3021	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	3021	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			167						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	691	1936	829	691	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	691	1936	1520	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			55.0				13.0	68.0	52.0
Total Split (%)			45.8%				11%	57%	43%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	58.0	120.0	48.0						
Actuated g/C Ratio	0.48	1.00	0.40						
v/c Ratio	0.45	0.60	1.16						
Control Delay	35.5	3.9	112.2						
Queue Delay	0.8	0.0	0.0						
Total Delay	36.3	3.9	112.2						
LOS	D	A	F						
Approach Delay		12.4	112.2						
Approach LOS		B	F						
Stops (vph)	513	418	1085						
Fuel Used(gal)	13	12	80						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	899	830	5615						
NOx Emissions (g/hr)	175	162	1092						
VOC Emissions (g/hr)	208	192	1301						
Dilemma Vehicles (#)	0	0	49						
Queue Length 50th (ft)	225	170	~693						
Queue Length 95th (ft)	282	170	#834						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1519	3241	1308						
Starvation Cap Reductn	492	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.67	0.60	1.16						

Intersection Summary	
Area Type: CBD	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 49.0	Intersection LOS: D
Intersection Capacity Utilization 102.0%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 32: MCDOWELL RD & 101 NB RAMP



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	725	159	538	780	195	212	669	319	216	452	197
Future Volume (vph)	123	725	159	538	780	195	212	669	319	216	452	197
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	0		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.970				0.850		0.955	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	5175	1611	3493	5009	0	1801	3601	1611	1801	3439	0
Flt Permitted	0.270			0.950			0.210			0.118		
Satd. Flow (perm)	502	5175	1611	3493	5009	0	398	3601	1611	224	3439	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146		52				179		48	
Link Speed (mph)		45			30			45			35	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			22.9			9.3			23.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.89	0.89	0.89	0.91	0.91	0.91
Heavy Vehicles (%)	4%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	128	755	166	560	813	203	238	752	358	237	497	216
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	755	166	560	1016	0	238	752	358	237	713	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	13.0	42.0	42.0	39.0	68.0		15.0	45.0	45.0	19.0	49.0	
Total Split (%)	9.0%	29.0%	29.0%	26.9%	46.9%		10.3%	31.0%	31.0%	13.1%	33.8%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	47.0	36.0	36.0	26.4	53.7		46.6	33.9	33.9	54.2	37.7	
Actuated g/C Ratio	0.36	0.27	0.27	0.20	0.41		0.35	0.26	0.26	0.41	0.29	
v/c Ratio	0.49	0.53	0.30	0.80	0.49		0.92	0.81	0.65	0.87	0.70	
Control Delay	26.5	43.6	10.5	59.4	28.3		69.4	53.6	27.4	61.7	43.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	26.5	43.6	10.5	59.4	28.3		69.4	53.6	27.4	61.7	43.1	
LOS	C	D	B	E	C		E	D	C	E	D	
Approach Delay		36.2			39.3			49.4			47.7	
Approach LOS		D			D			D			D	
Stops (vph)	82	600	27	496	656		141	608	145	133	525	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	17	1	31	47		6	19	6	6	15	
CO Emissions (g/hr)	156	1195	96	2139	3270		428	1343	396	388	1061	
NOx Emissions (g/hr)	30	232	19	416	636		83	261	77	76	206	
VOC Emissions (g/hr)	36	277	22	496	758		99	311	92	90	246	
Dilemma Vehicles (#)	0	27	0	0	0		0	23	0	0	17	
Queue Length 50th (ft)	56	205	13	239	226		135	316	136	138	266	
Queue Length 95th (ft)	97	279	77	313	278		#276	417	258	#322	364	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160				120		120	150		
Base Capacity (vph)	268	1418	547	938	2399		259	1088	612	274	1177	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.48	0.53	0.30	0.60	0.42		0.92	0.69	0.58	0.86	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 145
Actuated Cycle Length: 131.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 43.1 Intersection LOS: D
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	167	14	57	357	1140	0	0	672	439
Future Volume (vph)	0	0	0	167	14	57	357	1140	0	0	672	439
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.990	0.850					0.941	
Flt Protected				0.950	0.962		0.950					
Satd. Flow (prot)	0	0	0	1694	1630	1531	1749	3601	0	0	4869	0
Flt Permitted				0.950	0.962		0.950					
Satd. Flow (perm)	0	0	0	1694	1630	1531	1749	3601	0	0	4869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	98					96	
Link Speed (mph)		30			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		18.5			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	3%	2%	2%	5%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	192	16	66	397	1267	0	0	715	467
Shared Lane Traffic (%)				44%		10%						
Lane Group Flow (vph)	0	0	0	108	107	59	397	1267	0	0	1182	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.4	40.4	40.4					30.0	
Total Split (s)				40.0	40.0	40.0					44.0	
Total Split (%)				25.0%	25.0%	25.0%					27.5%	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	
Lost Time Adjust (s)				0.0	0.0	0.0					0.0	
Total Lost Time (s)				4.4	4.4	4.4					6.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?												
Recall Mode				None	None	None					Min	
Act Effct Green (s)				19.7	19.7	19.7	67.8	111.3			38.1	
Actuated g/C Ratio				0.14	0.14	0.14	0.48	0.79			0.27	
v/c Ratio				0.46	0.47	0.20	0.47	0.45			0.91dr	
Control Delay				63.1	62.6	3.1	26.4	1.8			52.6	
Queue Delay				0.0	0.0	0.0	57.7	4.3			0.0	
Total Delay				63.1	62.6	3.1	84.1	6.0			52.6	
LOS				E	E	A	F	A			D	
Approach Delay					50.0			24.7			52.6	
Approach LOS					D			C			D	
Stops (vph)				83	82	1	253	67			939	

Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	12.1
Total Split (s)	42.0	34.0
Total Split (%)	26%	21%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	2.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				3	3	0	6	4			31	
CO Emissions (g/hr)				195	192	24	411	269			2154	
NOx Emissions (g/hr)				38	37	5	80	52			419	
VOC Emissions (g/hr)				45	45	6	95	62			499	
Dilemma Vehicles (#)				0	3	0	0	47			39	
Queue Length 50th (ft)				100	101	0	282	30			364	
Queue Length 95th (ft)				160	163	6	m323	m47			#451	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				427	413	459	831	2815			1383	
Starvation Cap Reductn				0	0	0	487	1448			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.25	0.26	0.13	1.15	0.93			0.85	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 141.4
Natural Cycle: 170
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 37.5 Intersection LOS: D
Intersection Capacity Utilization 72.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS

Lane Group	Ø2	Ø3
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	447	47	265	0	0	0	0	1055	195	80	763	0
Future Volume (vph)	447	47	265	0	0	0	0	1055	195	80	763	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.982	0.850					0.977				
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1618	1459	0	0	0	0	5048	0	1801	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4	237					22				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.95	0.95	0.95	0.89	0.89	0.89
Heavy Vehicles (%)	2%	5%	7%	0%	0%	0%	0%	2%	3%	2%	2%	0%
Adj. Flow (vph)	514	54	305	0	0	0	0	1111	205	90	857	0
Shared Lane Traffic (%)	41%		12%									
Lane Group Flow (vph)	303	302	268	0	0	0	0	1316	0	90	857	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	34.0	34.0	34.0					44.0				
Total Split (%)	21.3%	21.3%	21.3%					27.5%				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				
Lost Time Adjust (s)	0.0	0.0	0.0					0.0				
Total Lost Time (s)	6.1	6.1	6.1					6.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?												
Recall Mode	None	None	None					Min				
Act Effct Green (s)	28.0	28.0	28.0					38.1		52.5	101.3	
Actuated g/C Ratio	0.20	0.20	0.20					0.27		0.37	0.72	
v/c Ratio	0.90	0.93	0.56					0.96		0.13	0.33	
Control Delay	84.6	91.4	14.2					65.9		19.5	0.9	
Queue Delay	0.0	0.0	0.0					15.3		0.0	0.6	
Total Delay	84.6	91.4	14.2					81.2		19.5	1.4	
LOS	F	F	B					F		B	A	
Approach Delay		65.3						81.2			3.2	
Approach LOS		E						F			A	
Stops (vph)	231	225	40					1108		61	27	

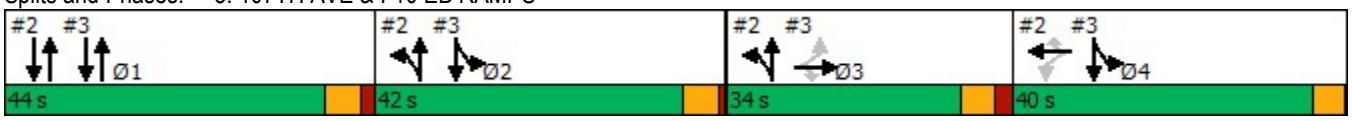
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	6.0
Minimum Split (s)	43.3	40.4
Total Split (s)	42.0	40.0
Total Split (%)	26%	25%
Yellow Time (s)	4.3	3.9
All-Red Time (s)	1.0	0.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	9	2					63		1	2	
CO Emissions (g/hr)	616	635	168					4374		88	155	
NOx Emissions (g/hr)	120	123	33					851		17	30	
VOC Emissions (g/hr)	143	147	39					1014		20	36	
Dilemma Vehicles (#)	0	8	0					42		0	2	
Queue Length 50th (ft)	296	308	25					446		67	11	
Queue Length 95th (ft)	#482	#517	110					#589		m89	12	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	338	323	478					1377		912	2658	
Starvation Cap Reductn	0	0	0					0		0	1284	
Spillback Cap Reductn	0	0	0					97		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.90	0.93	0.56					1.03		0.10	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 141.4
Natural Cycle: 170
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 53.2 Intersection LOS: D
Intersection Capacity Utilization 72.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	262	92	145	603	153	93	801	66	33	751	184
Future Volume (vph)	98	262	92	145	603	153	93	801	66	33	751	184
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	0		0	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1774	1580	1783	1877	1565	1783	3566	1611	1640	3601	1611
Flt Permitted	0.152			0.583			0.214			0.205		
Satd. Flow (perm)	288	1774	1580	1094	1877	1565	402	3566	1611	354	3601	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			46			110			69			172
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			119.6			59.8	
Peak Hour Factor	0.91	0.91	0.91	0.97	0.97	0.97	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	9%	4%	3%	3%	5%	3%	3%	2%	12%	2%	2%
Adj. Flow (vph)	108	288	101	149	622	158	97	834	69	36	816	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	288	101	149	622	158	97	834	69	36	816	200
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	66.0	66.0	54.0	54.0	54.0	44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	10.9%	60.0%	60.0%	49.1%	49.1%	49.1%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	48.0	45.8	45.8	37.5	37.5	37.5	33.1	33.1	33.1	33.1	33.1	33.1
Actuated g/C Ratio	0.52	0.50	0.50	0.41	0.41	0.41	0.36	0.36	0.36	0.36	0.36	0.36
v/c Ratio	0.40	0.33	0.12	0.33	0.81	0.22	0.67	0.65	0.11	0.28	0.63	0.29
Control Delay	15.9	14.8	7.8	22.9	35.0	7.9	55.1	29.1	6.6	32.5	28.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	14.8	7.8	22.9	35.0	7.9	55.1	29.1	6.6	32.5	28.6	7.1
LOS	B	B	A	C	D	A	E	C	A	C	C	A
Approach Delay		13.6			28.4			30.1			24.7	
Approach LOS		B			C			C			C	
Stops (vph)	42	138	25	91	502	33	71	629	11	26	584	29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	4	1	7	31	6	5	41	3	1	31	5
CO Emissions (g/hr)	88	253	59	474	2184	413	367	2872	200	97	2159	373
NOx Emissions (g/hr)	17	49	12	92	425	80	71	559	39	19	420	73
VOC Emissions (g/hr)	20	59	14	110	506	96	85	666	46	22	500	87
Dilemma Vehicles (#)	0	11	0	0	28	0	0	0	0	0	36	0
Queue Length 50th (ft)	34	105	17	66	358	19	51	229	0	16	222	11
Queue Length 95th (ft)	60	159	43	118	509	59	#150	333	30	50	323	64
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170				210		160
Base Capacity (vph)	292	1203	1086	615	1055	928	179	1588	755	157	1603	813
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.24	0.09	0.24	0.59	0.17	0.54	0.53	0.09	0.23	0.51	0.25

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 91.8
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 25.7 Intersection LOS: C
Intersection Capacity Utilization 79.7% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: VAN BUREN ST & 107TH AVE

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	430	122	164	1020	239	104	425	62	155	668	206
Future Volume (vph)	151	430	122	164	1020	239	104	425	62	155	668	206
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.967			0.972			0.981			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3482	0	1801	3429	0	1801	3533	0	1749	3467	0
Flt Permitted	0.101			0.341			0.125			0.340		
Satd. Flow (perm)	191	3482	0	646	3429	0	237	3533	0	626	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			29			15			38	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.93	0.93	0.93	0.98	0.98	0.98	0.89	0.89	0.89	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	3%	9%	2%	2%	2%	5%	2%	3%
Adj. Flow (vph)	162	462	131	167	1041	244	117	478	70	160	689	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	593	0	167	1285	0	117	548	0	160	901	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	15.0		4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7		9.0	33.8		9.0	33.8	
Total Split (s)	12.0	46.0		12.0	46.0		12.0	40.0		12.0	40.0	
Total Split (%)	10.9%	41.8%		10.9%	41.8%		10.9%	36.4%		10.9%	36.4%	
Yellow Time (s)	3.0	4.7		3.0	4.7		3.0	4.4		3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	6.8		4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	Max		None	Max	
Act Effct Green (s)	50.2	39.5		49.8	39.4		43.7	33.4		44.3	33.7	
Actuated g/C Ratio	0.46	0.36		0.45	0.36		0.40	0.30		0.40	0.31	
v/c Ratio	0.80	0.47		0.45	1.03		0.58	0.51		0.48	0.83	
Control Delay	48.7	26.8		11.3	40.0		31.2	32.6		25.1	41.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.7	26.8		11.3	40.0		31.2	32.6		25.1	41.7	
LOS	D	C		B	D		C	C		C	D	
Approach Delay		31.5			36.7			32.4			39.2	
Approach LOS		C			D			C			D	
Stops (vph)	83	387		50	651		63	380		99	754	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	13		7	62		2	12		7	47	
CO Emissions (g/hr)	266	888		465	4367		157	819		511	3261	
NOx Emissions (g/hr)	52	173		90	850		31	159		100	635	
VOC Emissions (g/hr)	62	206		108	1012		36	190		119	756	
Dilemma Vehicles (#)	0	25		0	126		0	22		0	39	
Queue Length 50th (ft)	62	157		34	~197		49	163		69	300	
Queue Length 95th (ft)	#170	210		m32	m166		85	214		114	382	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	203	1275		377	1245		208	1083		335	1089	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.80	0.47		0.44	1.03		0.56	0.51		0.48	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 30 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 35.6 Intersection LOS: D
Intersection Capacity Utilization 83.2% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	805	195	711	1230	97	445	642	707	177	766	145
Future Volume (vph)	103	805	195	711	1230	97	445	642	707	177	766	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.989				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3367	3500	0	3433	5085	2787	3400	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		7				686			217
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.98	0.98	0.98	0.99	0.99	0.99	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	114	894	217	726	1255	99	449	648	714	190	824	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	114	894	217	726	1354	0	449	648	714	190	824	156
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0	50.0		50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	14.0	43.0	43.0		71.0		23.0	49.0	49.0	16.0	42.0	42.0
Total Split (%)	9.3%	28.7%	28.7%		47.3%		15.3%	32.7%	32.7%	10.7%	28.0%	28.0%
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4		6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max	Max		Max		None	None	None	Min	None	None
Act Effct Green (s)	8.7	40.0	40.0	32.0	68.4		18.0	38.4	38.4	10.8	31.2	31.2
Actuated g/C Ratio	0.06	0.27	0.27	0.21	0.46		0.12	0.26	0.26	0.07	0.21	0.21
v/c Ratio	0.57	0.94	0.37	1.01	0.84		1.08	0.50	0.58	0.78	0.78	0.31
Control Delay	81.0	71.7	7.0	72.2	42.1		128.6	48.5	5.9	89.3	61.3	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.0	71.7	7.0	72.2	42.1		128.6	48.5	5.9	89.3	61.3	2.6
LOS	F	E	A	E	D		F	D	A	F	E	A
Approach Delay		61.1			52.6			51.6			58.0	
Approach LOS		E			D			D			E	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	27.0	15.0
Total Split (%)	18%	10%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	98	728	19	674	1137		379	531	55	166	705	3
Fuel Used(gal)	6	48	7	23	34		19	17	6	7	28	2
CO Emissions (g/hr)	449	3374	501	1634	2376		1327	1169	398	520	1932	131
NOx Emissions (g/hr)	87	656	97	318	462		258	228	78	101	376	26
VOC Emissions (g/hr)	104	782	116	379	551		308	271	92	120	448	30
Dilemma Vehicles (#)	0	26	0	0	35		0	17	0	0	23	0
Queue Length 50th (ft)	57	455	0	~253	612		~255	198	11	95	280	0
Queue Length 95th (ft)	93	#608	65	#405	742		#379	240	64	#158	331	10
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180		220	200			200		200	230		430
Base Capacity (vph)	207	949	583	722	1607		414	1445	1283	250	1207	541
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.94	0.37	1.01	0.84		1.08	0.45	0.56	0.76	0.68	0.29

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 149.3	
Natural Cycle: 160	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 55.0	Intersection LOS: D
Intersection Capacity Utilization 82.8%	ICU Level of Service E
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: 99TH AVE & MCDOWELL RD

Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	249	935	440	337	1430	0	0	1125	562
Future Volume (vph)	0	0	0	249	935	440	337	1430	0	0	1125	562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	1.00
Frt					0.993	0.850						0.850
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1443	3039	1393	1586	4916	0	0	6194	1531
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1443	3039	1393	1586	4916	0	0	6194	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	148						408
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.89	0.89	0.89	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	10%	3%	2%	10%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	268	1005	473	379	1607	0	0	1293	646
Shared Lane Traffic (%)				10%		10%						
Lane Group Flow (vph)	0	0	0	241	1079	426	379	1607	0	0	1293	646
Turn Type				Perm	NA	Perm	Prot	NA			NA	Free
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						Free
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							10.0				20.0	
Minimum Split (s)							47.8				28.9	
Total Split (s)							42.0				50.0	
Total Split (%)							28.0%				33.3%	
Yellow Time (s)							3.9				4.7	
All-Red Time (s)							1.9				1.2	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							5.8				5.9	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				C-Min	
Act Effct Green (s)				52.7	52.7	52.7	36.2	85.5			43.5	150.0
Actuated g/C Ratio				0.35	0.35	0.35	0.24	0.57			0.29	1.00
v/c Ratio				0.48	1.01	0.73	0.99	0.57			0.72	0.42
Control Delay				41.9	77.3	35.4	60.6	29.1			50.4	0.9
Queue Delay				0.0	0.0	0.0	0.0	21.3			0.0	0.0
Total Delay				41.9	77.3	35.4	60.6	50.4			50.5	0.9
LOS				D	E	D	E	D			D	A
Approach Delay					62.2			52.3			33.9	
Approach LOS					E			D			C	
Stops (vph)				174	893	241	296	1406			987	0

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	8.0	10.0	5.0	20.0	5.0
Minimum Split (s)	30.0	45.8	47.8	30.0	28.9	30.0
Total Split (s)	18.0	40.0	42.0	26.0	50.0	32.0
Total Split (%)	12%	27%	28%	17%	33%	21%
Yellow Time (s)	4.7	3.9	3.9	4.7	4.7	3.5
All-Red Time (s)	1.2	1.9	1.9	1.2	1.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				7	38	10	9	31			30	3
CO Emissions (g/hr)				457	2650	713	629	2160			2129	238
NOx Emissions (g/hr)				89	516	139	122	420			414	46
VOC Emissions (g/hr)				106	614	165	146	501			493	55
Dilemma Vehicles (#)				0	31	0	0	0			38	0
Queue Length 50th (ft)				203	~648	271	368	599			329	0
Queue Length 95th (ft)				298	#804	426	m#445	m631			356	0
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				507	1070	585	382	2821			1821	1531
Starvation Cap Reductn				0	0	0	0	1263			0	0
Spillback Cap Reductn				0	0	0	0	0			6	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.48	1.01	0.73	0.99	1.03			0.71	0.42

Intersection Summary

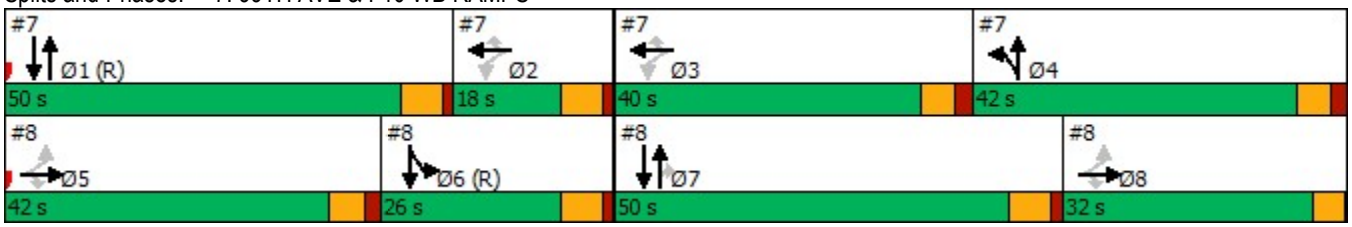
Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 49.1 Intersection LOS: D
Intersection Capacity Utilization 75.3% ICU Level of Service D
Analysis Period (min) 15
Description: WB I-10 Off ramp

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	173	230	0	0	0	0	1659	604	300	1189	0
Future Volume (vph)	347	173	230	0	0	0	0	1659	604	300	1189	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		200	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.91	1.00
Frt		0.978	0.850						0.850			
Flt Protected	0.950	0.980								0.950		
Satd. Flow (prot)	1557	2828	1146	0	0	0	0	6017	1473	1711	4686	0
Flt Permitted	0.950	0.980								0.950		
Satd. Flow (perm)	1557	2828	1146	0	0	0	0	6017	1473	1711	4686	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15	149						383			
Link Speed (mph)		45			45			45			30	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			12.1	
Peak Hour Factor	0.93	0.93	0.93	0.25	0.25	0.25	0.98	0.98	0.98	0.87	0.87	0.87
Heavy Vehicles (%)	2%	6%	24%	0%	0%	0%	0%	5%	6%	2%	7%	0%
Adj. Flow (vph)	373	186	247	0	0	0	0	1693	616	345	1367	0
Shared Lane Traffic (%)	45%		25%									
Lane Group Flow (vph)	205	416	185	0	0	0	0	1693	616	345	1367	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								20.0	20.0	5.0		
Minimum Split (s)								28.9	28.9	30.0		
Total Split (s)								50.0	50.0	26.0		
Total Split (%)								33.3%	33.3%	17.3%		
Yellow Time (s)								4.7	4.7	4.7		
All-Red Time (s)								1.2	1.2	1.2		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.9	5.9	5.9		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	C-Max		
Act Effct Green (s)	42.0	42.0	42.0					44.1	44.1	46.3	96.3	
Actuated g/C Ratio	0.28	0.28	0.28					0.29	0.29	0.31	0.64	
v/c Ratio	0.47	0.52	0.43					0.96	0.88	0.65	0.45	
Control Delay	49.1	46.5	13.8					88.3	56.3	27.1	6.0	
Queue Delay	0.3	0.1	0.0					14.7	0.0	0.0	1.1	
Total Delay	49.4	46.6	13.8					103.0	56.3	27.1	7.1	
LOS	D	D	B					F	E	C	A	
Approach Delay		39.8						90.6			11.1	
Approach LOS		D						F			B	
Stops (vph)	156	310	35					1593	485	250	833	

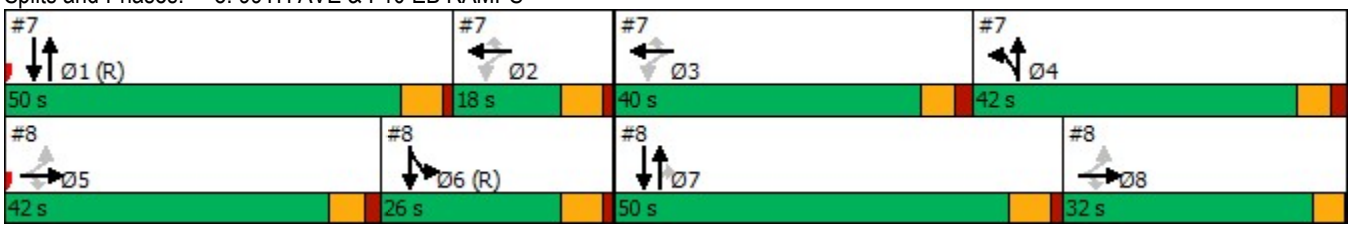
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	10.0	5.0
Minimum Split (s)	28.9	30.0	45.8	47.8	47.8	30.0
Total Split (s)	50.0	18.0	40.0	42.0	42.0	32.0
Total Split (%)	33%	12%	27%	28%	28%	21%
Yellow Time (s)	4.7	4.7	3.9	3.9	3.9	3.5
All-Red Time (s)	1.2	1.2	1.9	1.9	1.9	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	12	3					91	28	4	11	
CO Emissions (g/hr)	425	841	205					6371	1962	300	769	
NOx Emissions (g/hr)	83	164	40					1240	382	58	150	
VOC Emissions (g/hr)	98	195	47					1477	455	69	178	
Dilemma Vehicles (#)	0	10	0					23	0	0	0	
Queue Length 50th (ft)	183	193	28					499	346	227	382	
Queue Length 95th (ft)	275	255	109					#563	#527	m371	m17	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						200			
Base Capacity (vph)	707	1293	602					1768	703	528	3008	
Starvation Cap Reductn	0	0	0					0	0	0	1296	
Spillback Cap Reductn	166	202	0					121	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.38	0.38	0.31					1.03	0.88	0.65	0.80	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 53.9 Intersection LOS: D
Intersection Capacity Utilization 75.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

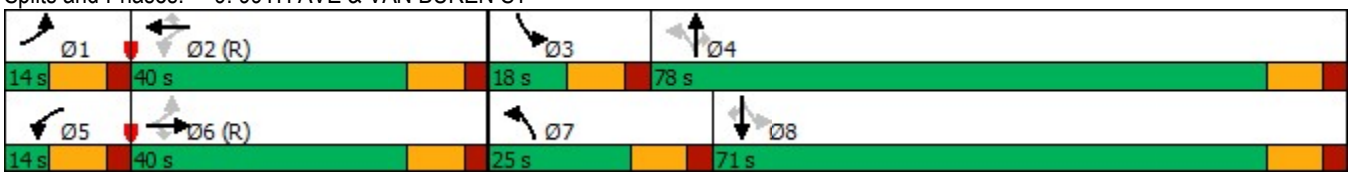
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	148	73	108	530	226	142	1067	79	181	850	193
Future Volume (vph)	123	148	73	108	530	226	142	1067	79	181	850	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1454	1766	1459	1711	3421	1531	1616	4775	1531	1711	3292	1432
Flt Permitted	0.241			0.655			0.138			0.157		
Satd. Flow (perm)	369	1766	1459	1179	3421	1531	235	4775	1531	283	3292	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			178			178			177			194
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.96	0.96	0.96	0.99	0.99	0.99
Heavy Vehicles (%)	20%	4%	7%	2%	2%	2%	8%	5%	2%	2%	6%	9%
Adj. Flow (vph)	134	161	79	115	564	240	148	1111	82	183	859	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	161	79	115	564	240	148	1111	82	183	859	195
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1	49.1	14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	40.0	40.0	14.0	40.0	40.0	25.0	78.0	78.0	18.0	71.0	71.0
Total Split (%)	9.3%	26.7%	26.7%	9.3%	26.7%	26.7%	16.7%	52.0%	52.0%	12.0%	47.3%	47.3%
Yellow Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	61.0	45.4	45.4	47.1	37.8	37.8	62.3	49.9	49.9	55.2	46.4	46.4
Actuated g/C Ratio	0.41	0.30	0.30	0.31	0.25	0.25	0.42	0.33	0.33	0.37	0.31	0.31
v/c Ratio	0.49	0.30	0.14	0.29	0.65	0.46	0.70	0.70	0.13	0.98	0.84	0.34
Control Delay	38.3	45.7	0.5	32.2	55.8	17.4	41.4	45.4	0.4	104.7	33.2	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	45.7	0.5	32.2	55.8	17.4	41.4	45.4	0.4	104.7	33.2	1.6
LOS	D	D	A	C	E	B	D	D	A	F	C	A
Approach Delay		33.5			42.8			42.2			38.8	
Approach LOS		C			D			D			D	
Stops (vph)	83	116	0	77	469	58	83	893	0	146	341	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	8	3	6	31	11	7	58	3	10	31	5
CO Emissions (g/hr)	434	552	176	404	2187	768	498	4041	191	713	2185	343
NOx Emissions (g/hr)	85	107	34	79	425	149	97	786	37	139	425	67
VOC Emissions (g/hr)	101	128	41	94	507	178	116	936	44	165	506	79
Dilemma Vehicles (#)	0	5	0	0	18	0	0	28	0	0	35	0
Queue Length 50th (ft)	83	123	0	69	264	48	85	343	0	117	148	0
Queue Length 95th (ft)	#171	215	0	130	351	142	114	349	0	#131	156	0
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120		120	150		280	300		110	370		370
Base Capacity (vph)	271	534	565	403	863	519	248	2190	798	187	1356	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.30	0.14	0.29	0.65	0.46	0.60	0.51	0.10	0.98	0.63	0.28

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 40.4 Intersection LOS: D
Intersection Capacity Utilization 73.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	411	62	148	1041	359	188	675	75	155	688	216
Future Volume (vph)	169	411	62	148	1041	359	188	675	75	155	688	216
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.980				0.850			0.850		0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	3385	0	1801	3566	1381	1801	3498	1611	1413	3472	0
Flt Permitted	0.116			0.352			0.143			0.216		
Satd. Flow (perm)	218	3385	0	667	3566	1381	271	3498	1611	321	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				196			116		46	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4797			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	2%	2%	3%	19%	2%	5%	2%	30%	2%	2%
Adj. Flow (vph)	211	514	78	163	1144	395	214	767	85	168	748	235
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	592	0	163	1144	395	214	767	85	168	983	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	19.0	41.0		19.0	41.0	41.0	19.0	41.0	41.0	19.0	41.0	
Total Split (s)	15.0	38.0		11.0	34.0	34.0	10.0	49.0	49.0	12.0	51.0	
Total Split (%)	13.6%	34.5%		10.0%	30.9%	30.9%	9.1%	44.5%	44.5%	10.9%	46.4%	
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4	4.4	3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.4	6.4	4.0	6.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	48.7	34.5		41.5	30.9	30.9	46.9	38.5	38.5	50.9	40.5	
Actuated g/C Ratio	0.44	0.31		0.38	0.28	0.28	0.43	0.35	0.35	0.46	0.37	
v/c Ratio	0.81	0.55		0.49	1.14	0.75	1.08	0.63	0.13	0.74	0.75	
Control Delay	62.9	36.7		17.5	100.5	16.5	109.4	31.9	2.3	37.8	32.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.9	36.7		17.5	100.5	16.5	109.4	31.9	2.3	37.8	32.6	
LOS	E	D		B	F	B	F	C	A	D	C	
Approach Delay		43.6			73.1			45.1			33.3	
Approach LOS		D			E			D			C	
Stops (vph)	131	326		55	693	182	103	539	4	87	727	

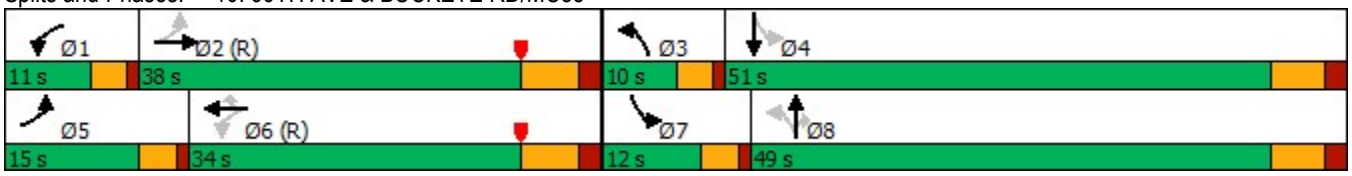
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	24		6	67	16	7	17	1	8	46	
CO Emissions (g/hr)	688	1709		440	4653	1114	493	1174	50	533	3233	
NOx Emissions (g/hr)	134	332		86	905	217	96	228	10	104	629	
VOC Emissions (g/hr)	159	396		102	1078	258	114	272	12	124	749	
Dilemma Vehicles (#)	0	66		0	61	0	0	26	0	0	37	
Queue Length 50th (ft)	130	165		34	~524	17	~93	231	0	66	296	
Queue Length 95th (ft)	#181	201		m59	#663	m#282	#205	274	15	#122	356	
Internal Link Dist (ft)		5209			4717			274			849	
Turn Bay Length (ft)	160			170		250	190			250		
Base Capacity (vph)	264	1072		333	1003	529	199	1354	694	227	1435	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.80	0.55		0.49	1.14	0.75	1.08	0.57	0.12	0.74	0.69	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 71 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 52.0 Intersection LOS: D
Intersection Capacity Utilization 82.5% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	557	270	238	869	197	365	913	192	120	749	142
Future Volume (vph)	150	557	270	238	869	197	365	913	192	120	749	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1516	1711	3421	1531	1711	3421	1531	1711	3421	1531
Flt Permitted	0.132			0.246			0.102			0.207		
Satd. Flow (perm)	238	3421	1516	443	3421	1531	184	3421	1531	373	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			297			178			165			141
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			12.7			47.9	
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	165	612	297	267	976	221	388	971	204	128	797	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	612	297	267	976	221	388	971	204	128	797	151
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0	15.0	4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	9.0	30.0	30.0	9.0	34.4	34.4	9.0	30.0	30.0	9.0	30.0	30.0
Total Split (s)	15.0	51.0	51.0	25.0	61.0	61.0	33.0	60.0	60.0	14.0	41.0	41.0
Total Split (%)	10.0%	34.0%	34.0%	16.7%	40.7%	40.7%	22.0%	40.0%	40.0%	9.3%	27.3%	27.3%
Yellow Time (s)	3.0	4.4	4.4	3.0	4.4	4.4	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	None
Act Effct Green (s)	57.0	44.0	44.0	68.2	51.2	51.2	70.1	54.9	54.9	46.2	35.0	35.0
Actuated g/C Ratio	0.39	0.30	0.30	0.47	0.35	0.35	0.48	0.38	0.38	0.32	0.24	0.24
v/c Ratio	0.83	0.60	0.45	0.74	0.82	0.34	0.99	0.76	0.30	0.64	0.97	0.32
Control Delay	59.4	46.7	6.3	37.5	49.6	9.3	87.3	45.4	9.2	40.6	80.8	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	46.7	6.3	37.5	49.6	9.3	87.3	45.4	9.2	40.6	80.8	10.4
LOS	E	D	A	D	D	A	F	D	A	D	F	B
Approach Delay		37.5			41.3			51.1			66.1	
Approach LOS		D			D			D			E	
Stops (vph)	94	463	24	145	769	34	266	783	33	86	673	23

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	25	7	12	48	8	11	21	2	4	33	3
CO Emissions (g/hr)	470	1745	516	821	3354	525	765	1450	115	288	2322	226
NOx Emissions (g/hr)	92	340	100	160	653	102	149	282	22	56	452	44
VOC Emissions (g/hr)	109	404	120	190	777	122	177	336	27	67	538	52
Dilemma Vehicles (#)	0	16	0	0	27	0	0	28	0	0	24	0
Queue Length 50th (ft)	91	265	0	158	446	28	~348	445	25	71	414	8
Queue Length 95th (ft)	#212	337	72	224	524	88	#562	533	85	114	#559	68
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	204	1059	674	388	1277	683	391	1283	677	211	819	473
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.58	0.44	0.69	0.76	0.32	0.99	0.76	0.30	0.61	0.97	0.32

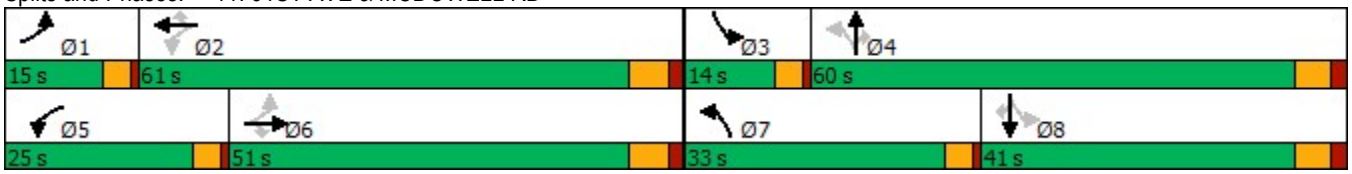
Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 146.4
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 48.6 Intersection LOS: D
Intersection Capacity Utilization 84.6% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	187	17	243	243	1244	0	0	1137	263
Future Volume (vph)	0	0	0	187	17	243	243	1244	0	0	1137	263
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.899	0.850					0.972	
Flt Protected				0.950	0.990		0.950					
Satd. Flow (prot)	0	0	0	1711	1525	1531	1801	3601	0	0	3500	0
Flt Permitted				0.950	0.990		0.067					
Satd. Flow (perm)	0	0	0	1711	1525	1531	127	3601	0	0	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					65	159					33	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			12.7	
Peak Hour Factor	0.25	0.25	0.25	0.90	0.90	0.90	0.96	0.96	0.96	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	8%	2%	2%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	208	19	270	253	1296	0	0	1249	289
Shared Lane Traffic (%)				17%		41%						
Lane Group Flow (vph)	0	0	0	173	165	159	253	1296	0	0	1538	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				32.0	32.0	32.0	23.0					
Total Split (%)				22.9%	22.9%	22.9%	16.4%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				26.3	26.3	26.3	77.8	82.9			79.9	
Actuated g/C Ratio				0.19	0.19	0.19	0.56	0.59			0.57	
v/c Ratio				0.54	0.49	0.38	0.89	0.61			0.76	
Control Delay				58.4	35.7	9.7	55.5	5.1			25.5	
Queue Delay				0.0	0.0	0.0	0.0	0.8			2.9	
Total Delay				58.4	35.7	9.7	55.5	5.9			28.4	
LOS				E	D	A	E	A			C	
Approach Delay					35.3			14.0			28.4	
Approach LOS					D			B			C	
Stops (vph)				138	80	19	204	142			1016	

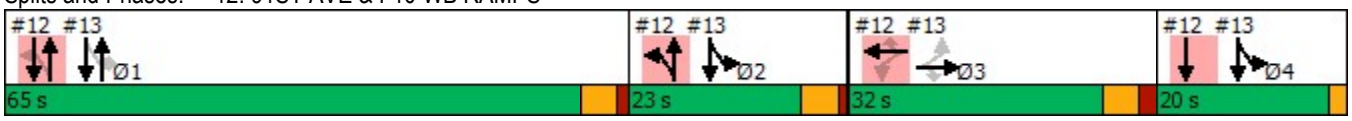
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	65.0	20.0
Total Split (%)	46%	14%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				5	4	2	5	7			24	
CO Emissions (g/hr)				363	252	140	361	485			1701	
NOx Emissions (g/hr)				71	49	27	70	94			331	
VOC Emissions (g/hr)				84	58	32	84	112			394	
Dilemma Vehicles (#)				0	5	0	0	0			50	
Queue Length 50th (ft)				151	89	0	193	75			530	
Queue Length 95th (ft)				235	172	65	m#237	84			624	
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				321	339	416	284	2132			2011	
Starvation Cap Reductn				0	0	0	0	485			354	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.54	0.49	0.38	0.89	0.79			0.93	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 67.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	5	112	0	0	0	0	1329	228	276	1035	0
Future Volume (vph)	163	5	112	0	0	0	0	1329	228	276	1035	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	200		240	0		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.961	0.850						0.850			
Flt Protected	0.950	0.967								0.950		
Satd. Flow (prot)	1678	1558	1446	0	0	0	0	3601	1611	1801	3601	0
Flt Permitted	0.950	0.967								0.067		
Satd. Flow (perm)	1678	1558	1446	0	0	0	0	3601	1611	127	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11	97						155			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.90	0.90	0.90	0.25	0.25	0.25	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	4%	2%	8%	0%	0%	0%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	181	6	124	0	0	0	0	1370	235	294	1101	0
Shared Lane Traffic (%)	40%		22%									
Lane Group Flow (vph)	109	105	97	0	0	0	0	1370	235	294	1101	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	32.0	32.0	32.0					65.0	65.0			
Total Split (%)	22.9%	22.9%	22.9%					46.4%	46.4%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	26.3	26.3	26.3					59.9	59.9	92.7	102.9	
Actuated g/C Ratio	0.19	0.19	0.19					0.43	0.43	0.66	0.74	
v/c Ratio	0.35	0.35	0.28					0.89	0.30	0.62	0.42	
Control Delay	53.0	47.9	10.9					45.5	10.0	36.0	2.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.4	
Total Delay	53.0	47.9	10.9					45.5	10.0	36.0	3.2	
LOS	D	D	B					D	B	D	A	
Approach Delay		38.1						40.3			10.1	
Approach LOS		D						D			B	
Stops (vph)	84	73	13					1179	51	211	145	

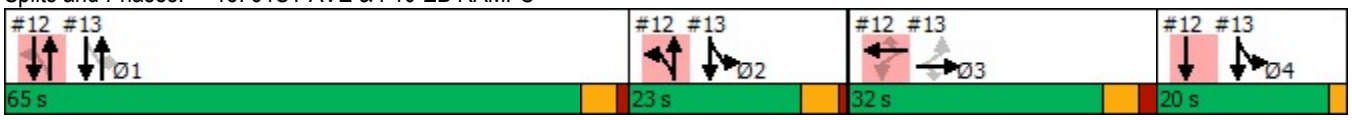
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	23.0	20.0
Total Split (%)	16%	14%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	3	1					61	8	5	5	
CO Emissions (g/hr)	225	203	94					4233	532	323	383	
NOx Emissions (g/hr)	44	39	18					824	103	63	75	
VOC Emissions (g/hr)	52	47	22					981	123	75	89	
Dilemma Vehicles (#)	0	3	0					47	0	0	1	
Queue Length 50th (ft)	91	82	0					598	43	172	76	
Queue Length 95th (ft)	154	147	52					705	103	m245	88	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	315	301	350					1540	777	476	2646	
Starvation Cap Reductn	0	0	0					0	0	0	902	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.35	0.35	0.28					0.89	0.30	0.62	0.63	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 27.4 Intersection LOS: C
Intersection Capacity Utilization 67.1% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	289	125	153	450	343	99	901	205	92	660	128
Future Volume (vph)	218	289	125	153	450	343	99	901	205	92	660	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1801	1531	1711	1801	1531	1711	3421	1487	1694	3421	1516
Flt Permitted	0.110			0.326			0.296			0.157		
Satd. Flow (perm)	198	1801	1531	587	1801	1531	533	3421	1487	280	3421	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			250			141			172
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.91	0.91	0.91	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	3%	2%	3%
Adj. Flow (vph)	251	332	144	172	506	385	109	990	225	96	688	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	251	332	144	172	506	385	109	990	225	96	688	133
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1	45.1	10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	16.0	38.0	38.0	25.0	47.0	47.0	25.0	58.0	58.0	19.0	52.0	52.0
Total Split (%)	11.4%	27.1%	27.1%	17.9%	33.6%	33.6%	17.9%	41.4%	41.4%	13.6%	37.1%	37.1%
Yellow Time (s)	3.5	6.2	6.2	3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9	2.9	0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1	9.1	4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	53.5	36.4	36.4	55.9	37.9	37.9	69.5	56.3	56.3	68.5	55.8	55.8
Actuated g/C Ratio	0.38	0.26	0.26	0.40	0.27	0.27	0.50	0.40	0.40	0.49	0.40	0.40
v/c Ratio	1.22	0.71	0.28	0.50	1.04	0.65	0.32	0.72	0.33	0.43	0.50	0.19
Control Delay	168.8	57.1	5.6	31.7	100.4	20.7	19.9	39.2	12.4	23.3	33.6	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	168.8	57.1	5.6	31.7	100.4	20.7	19.9	39.2	12.4	23.3	33.6	2.1
LOS	F	E	A	C	F	C	B	D	B	C	C	A
Approach Delay		85.5			60.4			33.0			28.0	
Approach LOS		F			E			C			C	
Stops (vph)	125	251	10	98	392	116	50	744	55	47	486	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	18	17	6	8	30	16	5	47	9	4	28	4
CO Emissions (g/hr)	1230	1197	397	541	2069	1122	320	3316	616	246	1939	272
NOx Emissions (g/hr)	239	233	77	105	402	218	62	645	120	48	377	53
VOC Emissions (g/hr)	285	277	92	125	479	260	74	769	143	57	449	63
Dilemma Vehicles (#)	0	0	0	0	0	0	0	32	0	0	24	0
Queue Length 50th (ft)	~224	275	0	100	~495	107	49	395	48	43	245	0
Queue Length 95th (ft)	#396	#418	35	153	#707	219	83	494	116	75	318	20
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160		80	160		220	155		155	120		120
Base Capacity (vph)	205	468	519	415	487	596	454	1376	682	297	1363	707
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.71	0.28	0.41	1.04	0.65	0.24	0.72	0.33	0.32	0.50	0.19

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 48.6 Intersection LOS: D
Intersection Capacity Utilization 79.8% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: 91ST AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	430	83	116	1083	184	218	650	38	150	556	197
Future Volume (vph)	128	430	83	116	1083	184	218	650	38	150	556	197
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.976			0.978			0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1717	4695	0	1766	4850	0	1733	5111	0	1717	3601	1550
Flt Permitted	0.092			0.431			0.252			0.269		
Satd. Flow (perm)	166	4695	0	801	4850	0	460	5111	0	486	3601	1550
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			33			8				164
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		447			450			399			4882	
Travel Time (s)		6.1			6.1			6.0			74.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	7%	11%	3%	4%	7%	3%	6%	2%	10%	7%	2%	6%
Adj. Flow (vph)	135	453	87	129	1203	204	232	691	40	161	598	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	135	540	0	129	1407	0	232	731	0	161	598	212
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	10.0	46.0		10.0	46.0		15.0	39.0		15.0	39.0	39.0
Total Split (%)	9.1%	41.8%		9.1%	41.8%		13.6%	35.5%		13.6%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	53.6	43.3		51.9	42.5		42.0	29.0		40.5	28.2	28.2
Actuated g/C Ratio	0.49	0.39		0.47	0.39		0.38	0.26		0.37	0.26	0.26
v/c Ratio	0.71	0.29		0.29	0.74		0.77	0.54		0.55	0.65	0.41
Control Delay	56.6	32.2		11.3	18.3		40.4	35.6		27.8	39.5	10.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	56.6	32.2		11.3	18.3		40.4	35.6		27.8	39.5	10.9
LOS	E	C		B	B		D	D		C	D	B
Approach Delay		37.0			17.7			36.8			31.3	
Approach LOS		D			B			D			C	
Stops (vph)	102	333		35	435		146	560		94	478	44

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	26		5	53		5	18		7	30	8
CO Emissions (g/hr)	510	1785		321	3690		376	1225		503	2064	547
NOx Emissions (g/hr)	99	347		63	718		73	238		98	402	106
VOC Emissions (g/hr)	118	414		74	855		87	284		117	478	127
Dilemma Vehicles (#)	0	68		0	94		0	25		0	21	0
Queue Length 50th (ft)	82	102		27	118		107	160		71	195	26
Queue Length 95th (ft)	m#153	142		m51	195		#173	192		111	244	85
Internal Link Dist (ft)		367			370			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	189	1874		439	1894		303	1529		306	1073	577
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.71	0.29		0.29	0.74		0.77	0.48		0.53	0.56	0.37

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 7 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 28.5 Intersection LOS: C
Intersection Capacity Utilization 68.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85

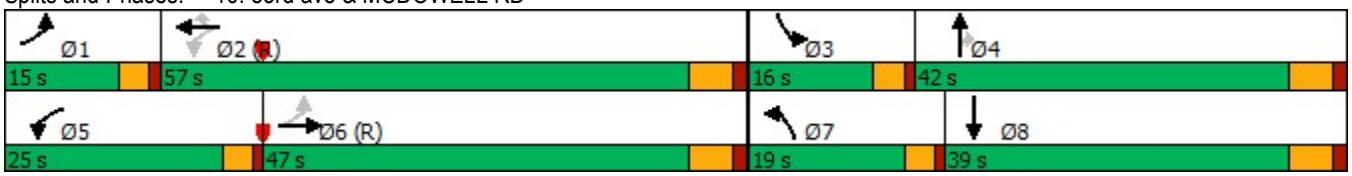
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	702	140	347	1130	382	251	1127	218	212	940	159
Future Volume (vph)	184	702	140	347	1130	382	251	1127	218	212	940	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	1		0	2		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.91
Frt		0.975				0.850			0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4793	0	1711	4916	1531	3319	4916	1531	3319	4808	0
Flt Permitted	0.168			0.175			0.950			0.950		
Satd. Flow (perm)	303	4793	0	315	4916	1531	3319	4916	1531	3319	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34				268			222		24	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	204	780	156	377	1228	415	270	1212	234	226	1000	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	936	0	377	1228	415	270	1212	234	226	1169	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2			4			
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9	32.9	11.0	32.9	
Total Split (s)	15.0	47.0		25.0	57.0	57.0	19.0	42.0	42.0	16.0	39.0	
Total Split (%)	11.5%	36.2%		19.2%	43.8%	43.8%	14.6%	32.3%	32.3%	12.3%	30.0%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6	1.6	1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9	5.9	4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	55.3	42.5		69.7	52.9	52.9	13.7	34.9	34.9	11.5	32.7	
Actuated g/C Ratio	0.43	0.33		0.54	0.41	0.41	0.11	0.27	0.27	0.09	0.25	
v/c Ratio	0.83	0.59		0.95	0.61	0.53	0.77	0.92	0.41	0.77	0.95	
Control Delay	48.2	37.2		59.8	32.5	12.7	71.8	57.7	7.8	76.0	63.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.2	37.2		59.8	32.5	12.7	71.8	57.7	7.8	76.0	63.6	
LOS	D	D		E	C	B	E	E	A	E	E	
Approach Delay		39.2			33.6			53.1			65.6	
Approach LOS		D			C			D			E	
Stops (vph)	110	664		202	872	110	240	1049	27	201	998	
Fuel Used(gal)	9	43		19	57	16	8	33	2	10	48	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	662	3035		1308	4007	1086	562	2273	132	689	3340	
NOx Emissions (g/hr)	129	591		254	780	211	109	442	26	134	650	
VOC Emissions (g/hr)	153	703		303	929	252	130	527	31	160	774	
Dilemma Vehicles (#)	0	32		0	43	0	0	40	0	0	38	
Queue Length 50th (ft)	90	235		214	303	87	114	359	7	97	349	
Queue Length 95th (ft)	#209	284		#418	355	188	162	421	72	#150	#442	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	250	1589		398	1999	781	382	1365	585	306	1250	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.82	0.59		0.95	0.61	0.53	0.71	0.89	0.40	0.74	0.94	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 47.0 Intersection LOS: D
Intersection Capacity Utilization 75.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: 83rd ave & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	230	13	522	742	1371	0	0	826	632
Future Volume (vph)	0	0	0	230	13	522	742	1371	0	0	826	632
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.869	0.850						0.850
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1586	1481	1531	3330	5175	0	0	5124	1611
Flt Permitted				0.950	0.996		0.950					
Satd. Flow (perm)	0	0	0	1586	1481	1531	3330	5175	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					36	122						513
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.88	0.88	0.88	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	10%	6%	2%	7%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	261	15	593	815	1507	0	0	928	710
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	235	320	314	815	1507	0	0	928	710
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							54.0				35.0	35.0
Total Split (%)							38.6%				25.0%	25.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				39.6	39.6	39.6	52.9	88.8			29.7	29.7
Actuated g/C Ratio				0.28	0.28	0.28	0.38	0.63			0.21	0.21
v/c Ratio				0.52	0.72	0.60	0.65	0.46			0.85	0.95
Control Delay				46.0	49.1	30.3	24.8	4.8			61.8	38.4
Queue Delay				0.8	3.0	0.0	1.4	0.8			0.0	0.0
Total Delay				46.9	52.2	30.3	26.2	5.6			61.8	38.4
LOS				D	D	C	C	A			E	D
Approach Delay					42.8			12.8			51.7	
Approach LOS					D			B			D	
Stops (vph)				168	223	148	627	783			773	189

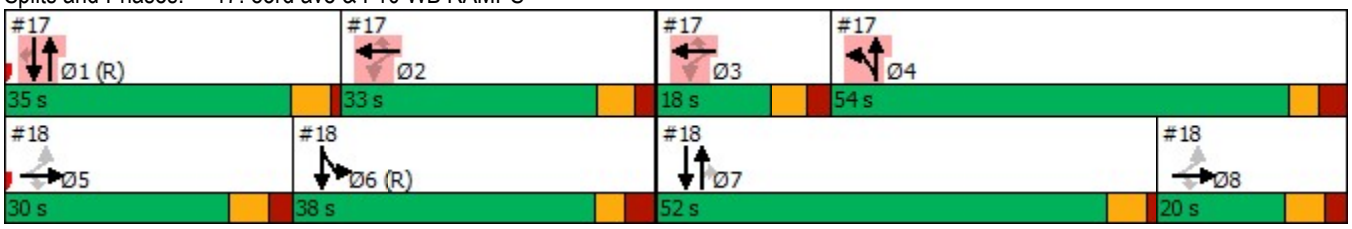
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	33.0	18.0	30.0	38.0	52.0	20.0
Total Split (%)	24%	13%	21%	27%	37%	14%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	9	6	14	16			25	11
CO Emissions (g/hr)				431	595	447	978	1091			1718	754
NOx Emissions (g/hr)				84	116	87	190	212			334	147
VOC Emissions (g/hr)				100	138	104	227	253			398	175
Dilemma Vehicles (#)				0	9	0	0	12			29	0
Queue Length 50th (ft)				189	258	158	352	2			300	217
Queue Length 95th (ft)				261	353	246	445	406			351	#471
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				475	468	543	1257	3280			1087	745
Starvation Cap Reductn				0	0	0	249	1335			0	0
Spillback Cap Reductn				78	73	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.59	0.81	0.58	0.81	0.77			0.85	0.95

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 31.4 Intersection LOS: C
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	4	538	0	0	0	0	1612	538	290	869	0
Future Volume (vph)	534	4	538	0	0	0	0	1612	538	290	869	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.95	1.00
Frt		0.919	0.850						0.850			
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1711	1453	1369	0	0	0	0	7529	1454	1801	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1711	1453	1369	0	0	0	0	7529	1454	1801	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44	142						470			
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			61.2			7.7	
Peak Hour Factor	0.86	0.86	0.86	0.25	0.25	0.25	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	33%	14%	0%	0%	0%	0%	4%	13%	2%	5%	0%
Adj. Flow (vph)	621	5	626	0	0	0	0	1791	598	309	924	0
Shared Lane Traffic (%)	30%		36%									
Lane Group Flow (vph)	435	416	401	0	0	0	0	1791	598	309	924	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								52.0	52.0	38.0		
Total Split (%)								37.1%	37.1%	27.1%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	42.0	42.0	42.0					47.4	47.4	32.2	84.8	
Actuated g/C Ratio	0.30	0.30	0.30					0.34	0.34	0.23	0.61	
v/c Ratio	0.85	0.89	0.79					0.70	0.75	0.75	0.44	
Control Delay	62.2	64.1	40.4					42.1	15.1	29.8	19.4	
Queue Delay	0.0	0.0	0.0					0.1	0.0	0.0	3.2	
Total Delay	62.2	64.1	40.4					42.2	15.1	29.8	22.6	
LOS	E	E	D					D	B	C	C	
Approach Delay		55.8						35.4			24.4	
Approach LOS		E						D			C	
Stops (vph)	337	294	216					1364	136	254	800	

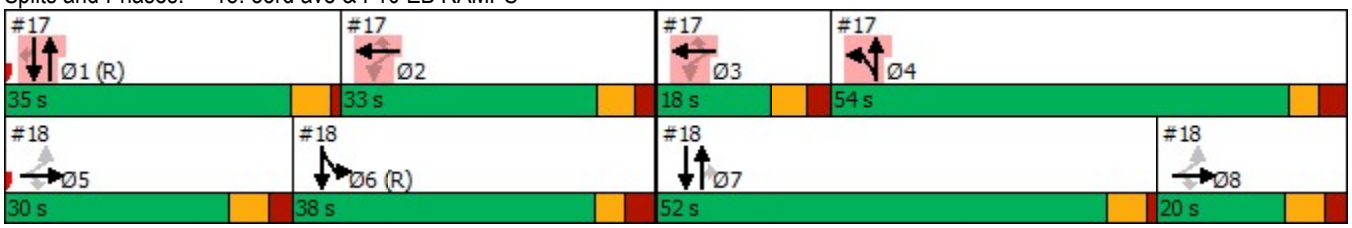
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	35.0	33.0	18.0	54.0	30.0	20.0
Total Split (%)	25%	24%	13%	39%	21%	14%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	13	12	9					66	16	6	16	
CO Emissions (g/hr)	924	869	663					4646	1125	411	1137	
NOx Emissions (g/hr)	180	169	129					904	219	80	221	
VOC Emissions (g/hr)	214	201	154					1077	261	95	263	
Dilemma Vehicles (#)	0	12	0					55	0	0	1	
Queue Length 50th (ft)	387	358	234					351	99	251	441	
Queue Length 95th (ft)	501	#516	346					388	265	m336	497	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	542	490	530					2546	802	417	2092	
Starvation Cap Reductn	0	0	0					0	0	0	1036	
Spillback Cap Reductn	0	0	0					93	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.80	0.85	0.76					0.73	0.75	0.74	0.88	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 37.9 Intersection LOS: D
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	247	71	184	534	542	93	1130	62	148	1084	198
Future Volume (vph)	221	247	71	184	534	542	93	1130	62	148	1084	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		1	1		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	0.95
Frt		0.966				0.850			0.850		0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3194	0	1586	3388	1432	1631	4730	1446	1363	3226	0
Flt Permitted	0.208			0.442			0.083			0.102		
Satd. Flow (perm)	350	3194	0	738	3388	1432	142	4730	1446	146	3226	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29				349			78		19	
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			61.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	9%	6%	4%	10%	3%	9%	7%	6%	8%	28%	6%	4%
Adj. Flow (vph)	257	287	83	214	621	630	109	1329	73	163	1191	218
Shared Lane Traffic (%)												
Lane Group Flow (vph)	257	370	0	214	621	630	109	1329	73	163	1409	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	25.0	45.0		25.0	45.0	45.0	20.0	30.0	30.0	20.0	30.0	
Total Split (s)	15.0	35.0		15.0	35.0	35.0	25.0	45.0	45.0	25.0	45.0	
Total Split (%)	12.5%	29.2%		12.5%	29.2%	29.2%	20.8%	37.5%	37.5%	20.8%	37.5%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	0.0	1.3		0.0	1.3	1.3	0.0	1.2	1.2	0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.6		3.0	5.6	5.6	3.0	5.5	5.5	3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	44.4	29.8		43.6	29.4	29.4	60.0	48.1	48.1	66.3	52.1	
Actuated g/C Ratio	0.37	0.25		0.36	0.24	0.24	0.50	0.40	0.40	0.55	0.43	
v/c Ratio	1.01	0.45		0.61	0.75	1.03	0.58	0.70	0.12	0.75	1.00	
Control Delay	90.5	37.3		34.9	48.4	63.7	32.8	33.3	5.8	42.7	57.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	90.5	37.3		34.9	48.4	63.7	32.8	33.3	5.8	42.7	57.8	
LOS	F	D		C	D	E	C	C	A	D	E	
Approach Delay		59.1			53.0			32.0			56.3	
Approach LOS		E			D			C			E	
Stops (vph)	142	243		135	483	234	52	925	8	88	1093	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	14	17		9	29	28	4	58	2	6	57	
CO Emissions (g/hr)	967	1164		644	2046	1982	312	4056	161	402	3987	
NOx Emissions (g/hr)	188	226		125	398	386	61	789	31	78	776	
VOC Emissions (g/hr)	224	270		149	474	459	72	940	37	93	924	
Dilemma Vehicles (#)	0	13		0	22	0	0	40	0	0	50	
Queue Length 50th (ft)	~146	118		115	235	~301	38	306	0	68	556	
Queue Length 95th (ft)	#273	157		171	286	#475	88	375	27	140	#776	
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250		120	230		
Base Capacity (vph)	254	815		355	830	614	351	1895	626	304	1410	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.01	0.45		0.60	0.75	1.03	0.31	0.70	0.12	0.54	1.00	

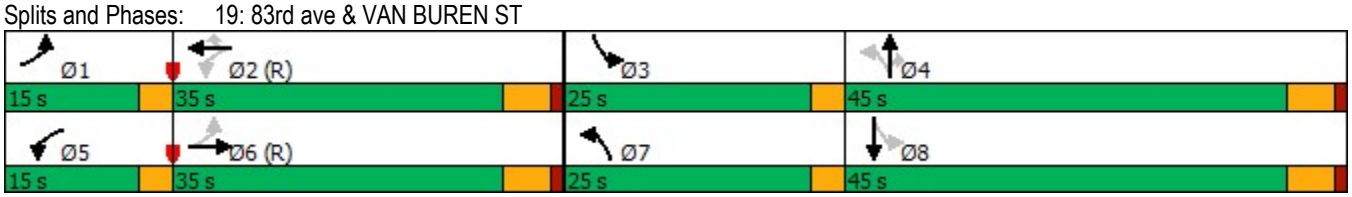
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 71 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 48.6 Intersection LOS: D
Intersection Capacity Utilization 79.0% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	401	116	134	1048	237	116	602	37	128	936	216
Future Volume (vph)	211	401	116	134	1048	237	116	602	37	128	936	216
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.966				0.850			0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	4646	0	3493	4887	1454	1801	3566	1536	2897	4921	0
Flt Permitted	0.125			0.950			0.117			0.950		
Satd. Flow (perm)	232	4646	0	3493	4887	1454	222	3566	1536	2897	4921	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71				231			156		51	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		460			509			976			400	
Travel Time (s)		6.3			6.9			14.8			6.1	
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	4%	12%	2%	2%	8%	13%	2%	3%	7%	23%	2%	14%
Adj. Flow (vph)	218	413	120	140	1092	247	129	669	41	133	975	225
Shared Lane Traffic (%)												
Lane Group Flow (vph)	218	533	0	140	1092	247	129	669	41	133	1200	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	22.0	42.0		15.0	35.0	35.0	10.0	42.0	42.0	11.0	43.0	
Total Split (%)	20.0%	38.2%		13.6%	31.8%	31.8%	9.1%	38.2%	38.2%	10.0%	39.1%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	53.0	38.3		8.7	34.1	34.1	43.4	34.7	34.7	6.9	35.6	
Actuated g/C Ratio	0.48	0.35		0.08	0.31	0.31	0.39	0.32	0.32	0.06	0.32	
v/c Ratio	0.75	0.32		0.51	0.72	0.41	0.75	0.60	0.07	0.73	0.74	
Control Delay	51.6	18.8		54.8	37.9	7.5	46.8	34.2	0.2	74.0	34.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	51.6	18.8		54.8	37.9	7.5	46.8	34.2	0.2	74.0	34.7	
LOS	D	B		D	D	A	D	C	A	E	C	
Approach Delay		28.3			34.4			34.5			38.6	
Approach LOS		C			C			C			D	
Stops (vph)	225	233		124	894	34	67	491	0	116	954	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	13	22		8	57	9	3	14	0	8	60	
CO Emissions (g/hr)	879	1570		549	3965	613	187	987	17	545	4179	
NOx Emissions (g/hr)	171	305		107	771	119	36	192	3	106	813	
VOC Emissions (g/hr)	204	364		127	919	142	43	229	4	126	969	
Dilemma Vehicles (#)	0	7		0	47	0	0	23	0	0	51	
Queue Length 50th (ft)	122	61		49	251	8	53	206	0	48	260	
Queue Length 95th (ft)	200	75		80	#330	75	#124	267	0	#95	314	
Internal Link Dist (ft)		380			429			896			320	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	364	1664		349	1514	609	173	1144	598	184	1658	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.60	0.32		0.40	0.72	0.41	0.75	0.58	0.07	0.72	0.72	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 54 (49%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 34.7 Intersection LOS: C
Intersection Capacity Utilization 70.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	686	168	303	1314	364	294	1164	190	337	1000	172
Future Volume (vph)	156	686	168	303	1314	364	294	1164	190	337	1000	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		1	1		1	2		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	0.91	0.97	0.91	0.91
Frt			0.850			0.850		0.979			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4916	1531	1694	4916	1531	3319	4813	0	3319	4808	0
Flt Permitted	0.110			0.270			0.950			0.950		
Satd. Flow (perm)	198	4916	1531	481	4916	1531	3319	4813	0	3319	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			181			357		25			26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	738	181	322	1398	387	330	1308	213	374	1111	191
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	738	181	322	1398	387	330	1521	0	374	1302	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2						
Detector Phase	1	6	6	5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	11.0	50.2	50.2	6.0	48.2	48.2	10.0	30.8		10.0	30.8	
Total Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	30.0	35.0		30.0	35.0	
Total Split (%)	10.8%	35.0%	35.0%	10.8%	35.0%	35.0%	25.0%	29.2%		25.0%	29.2%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.8	5.8	4.0	5.8	5.8	4.0	5.8		4.0	5.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	47.0	36.2	36.2	47.0	36.2	36.2	16.3	37.3		17.9	38.9	
Actuated g/C Ratio	0.39	0.30	0.30	0.39	0.30	0.30	0.14	0.31		0.15	0.32	
v/c Ratio	0.88	0.50	0.31	1.15	0.94	0.54	0.73	1.00		0.76	0.83	
Control Delay	66.8	35.8	5.9	131.3	54.5	7.8	59.4	65.2		58.9	42.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	66.8	35.8	5.9	131.3	54.5	7.8	59.4	65.2		58.9	42.6	
LOS	E	D	A	F	D	A	E	E		E	D	
Approach Delay		35.6			57.6			64.2			46.2	
Approach LOS		D			E			E			D	
Stops (vph)	92	547	19	195	1200	47	275	1146		314	1002	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	35	6	21	74	13	9	40		10	29	
CO Emissions (g/hr)	605	2480	436	1453	5173	943	602	2779		677	2004	
NOx Emissions (g/hr)	118	483	85	283	1006	184	117	541		132	390	
VOC Emissions (g/hr)	140	575	101	337	1199	219	139	644		157	465	
Dilemma Vehicles (#)	0	29	0	0	53	0	0	51		0	48	
Queue Length 50th (ft)	82	171	0	~214	386	17	128	~430		144	334	
Queue Length 95th (ft)	#210	213	52	#418	#484	100	169	#591		189	#448	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	191	1482	588	279	1482	711	719	1514		719	1576	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.88	0.50	0.31	1.15	0.94	0.54	0.46	1.00		0.52	0.83	

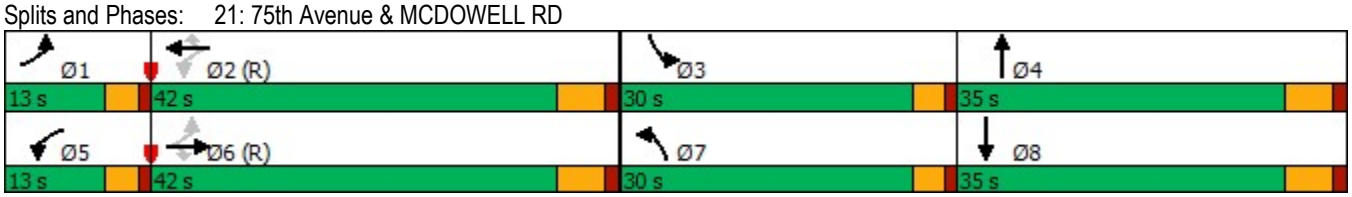
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 53.0 Intersection LOS: D
Intersection Capacity Utilization 81.3% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	216	13	578	480	1552	0	0	985	450
Future Volume (vph)	0	0	0	216	13	578	480	1552	0	0	985	450
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.86	1.00
Frt					0.867	0.850						0.850
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1572	1480	1531	3210	5175	0	0	6457	1611
Flt Permitted				0.950	0.996		0.950					
Satd. Flow (perm)	0	0	0	1572	1480	1531	3210	5175	0	0	6457	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					31	111						457
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	11%	2%	2%	11%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	257	15	688	527	1705	0	0	1071	489
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	231	364	365	527	1705	0	0	1071	489
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							68.0				34.0	34.0
Total Split (%)							45.3%				22.7%	22.7%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				41.8	41.8	41.8	60.4	96.7			28.7	28.7
Actuated g/C Ratio				0.28	0.28	0.28	0.40	0.64			0.19	0.19
v/c Ratio				0.53	0.84	0.72	0.41	0.51			0.87	0.72
Control Delay				51.0	64.3	42.6	22.9	5.2			67.2	13.2
Queue Delay				0.0	0.0	0.0	0.0	0.7			0.0	0.0
Total Delay				51.0	64.3	42.6	22.9	6.0			67.2	13.2
LOS				D	E	D	C	A			E	B
Approach Delay					52.8			10.0			50.3	
Approach LOS					D			A			D	
Stops (vph)				163	256	201	281	773			930	62

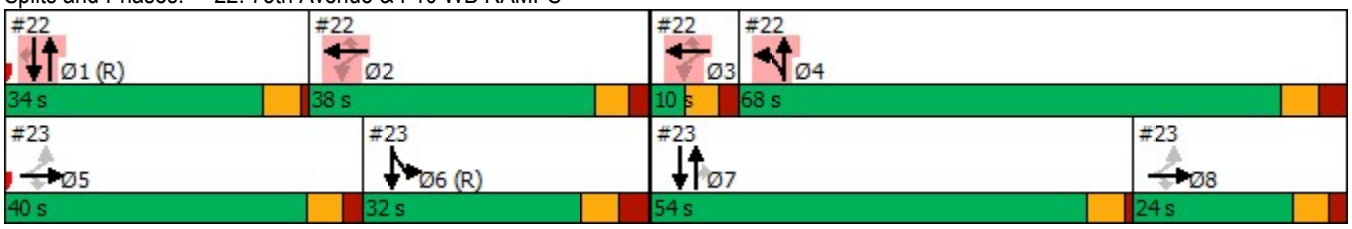
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	38.0	10.0	40.0	32.0	54.0	24.0
Total Split (%)	25%	7%	27%	21%	36%	16%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	11	9	7	17			31	4
CO Emissions (g/hr)				432	738	597	515	1156			2134	313
NOx Emissions (g/hr)				84	144	116	100	225			415	61
VOC Emissions (g/hr)				100	171	138	119	268			494	73
Dilemma Vehicles (#)				0	10	0	0	27			33	0
Queue Length 50th (ft)				202	342	243	123	366			298	26
Queue Length 95th (ft)				273	#445	332	205	433			343	152
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				438	434	506	1292	3336			1235	677
Starvation Cap Reductn				0	0	0	0	1164			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.53	0.84	0.72	0.41	0.78			0.87	0.72

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 31.9 Intersection LOS: C
Intersection Capacity Utilization 77.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	819	5	574	0	0	0	0	1250	308	402	868	0
Future Volume (vph)	819	5	574	0	0	0	0	1250	308	402	868	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	200		150	0		0
Storage Lanes	1		1	0		0	2		2	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.91	1.00
Frt		0.957	0.850						0.850			
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1551	1394	0	0	0	0	7529	1536	1801	4979	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1551	1394	0	0	0	0	7529	1536	1801	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16	119						248			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.95	0.95	0.95	0.25	0.25	0.25	0.91	0.91	0.91	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	12%	0%	0%	0%	0%	4%	7%	2%	6%	0%
Adj. Flow (vph)	862	5	604	0	0	0	0	1374	338	423	914	0
Shared Lane Traffic (%)	41%		24%									
Lane Group Flow (vph)	509	503	459	0	0	0	0	1374	338	423	914	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								27.3	27.3	30.0		
Total Split (s)								54.0	54.0	32.0		
Total Split (%)								36.0%	36.0%	21.3%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	7.8		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	55.2	55.2	55.2					43.6	43.6	31.9	80.8	
Actuated g/C Ratio	0.37	0.37	0.37					0.29	0.29	0.21	0.54	
v/c Ratio	0.81	0.87	0.78					0.63	0.54	1.11	0.34	
Control Delay	53.5	58.4	40.5					47.2	14.6	97.9	21.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	53.5	58.4	40.5					47.2	14.6	97.9	21.4	
LOS	D	E	D					D	B	F	C	
Approach Delay		51.1						40.8			45.6	
Approach LOS		D						D			D	
Stops (vph)	428	417	299					1052	75	283	783	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	34.0	38.0	10.0	68.0	40.0	24.0
Total Split (%)	23%	25%	7%	45%	27%	16%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	16	16	12					55	9	13	16	
CO Emissions (g/hr)	1086	1101	822					3854	647	901	1150	
NOx Emissions (g/hr)	211	214	160					750	126	175	224	
VOC Emissions (g/hr)	252	255	191					893	150	209	267	
Dilemma Vehicles (#)	0	14	0					37	0	0	0	
Queue Length 50th (ft)	440	454	300					285	66	~567	332	
Queue Length 95th (ft)	615	#670	470					307	161	m#721	372	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250						150			
Base Capacity (vph)	717	659	653					2444	666	382	2851	
Starvation Cap Reductn	0	0	0					0	0	0	0	
Spillback Cap Reductn	0	0	0					77	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.71	0.76	0.70					0.58	0.51	1.11	0.32	

Intersection Summary

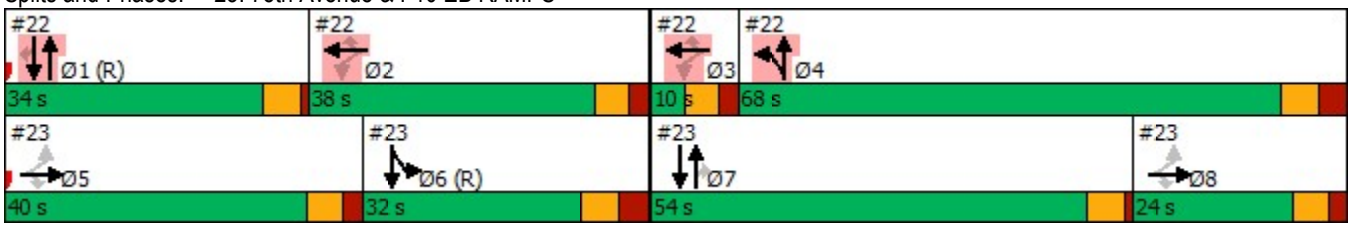
Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 45.6 Intersection LOS: D
Intersection Capacity Utilization 77.2% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	279	71	156	841	276	169	939	126	174	1000	163
Future Volume (vph)	42	279	71	156	841	276	169	939	126	174	1000	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		100	200		270	250		100	220		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3144	1323	1631	3292	1473	1531	3292	1473	1504	3172	1432
Flt Permitted	0.167			0.512			0.094			0.090		
Satd. Flow (perm)	281	3144	1323	879	3292	1473	151	3292	1473	142	3172	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			99			254			99			99
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	9%	11%	18%	7%	6%	6%	14%	6%	6%	16%	10%	9%
Adj. Flow (vph)	48	317	81	168	904	297	190	1055	142	193	1111	181
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	317	81	168	904	297	190	1055	142	193	1111	181
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	15.0	15.0	2.0	15.0	15.0
Minimum Split (s)	9.5	52.0	52.0	9.5	52.0	52.0	9.5	34.0	34.0	16.0	50.0	50.0
Total Split (s)	9.5	51.0	51.0	9.5	51.0	51.0	14.5	48.0	48.0	16.5	50.0	50.0
Total Split (%)	7.6%	40.8%	40.8%	7.6%	40.8%	40.8%	11.6%	38.4%	38.4%	13.2%	40.0%	40.0%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3	4.3	3.5	4.3	4.3	3.0	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3	5.3	4.5	5.3	5.3	4.0	5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	Ped
Act Effct Green (s)	51.6	45.7	45.7	52.6	47.8	47.8	53.3	42.5	42.5	58.3	44.5	44.5
Actuated g/C Ratio	0.41	0.37	0.37	0.42	0.38	0.38	0.43	0.34	0.34	0.47	0.36	0.36
v/c Ratio	0.28	0.28	0.15	0.42	0.72	0.41	1.09	0.94	0.25	0.96	0.98	0.32
Control Delay	24.2	28.8	3.8	26.9	37.4	7.3	124.6	56.7	11.5	85.2	63.4	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	28.8	3.8	26.9	37.4	7.3	124.6	56.7	11.5	85.2	63.4	14.7
LOS	C	C	A	C	D	A	F	E	B	F	E	B
Approach Delay		23.8			29.6			61.4			60.3	
Approach LOS		C			C			E			E	
Stops (vph)	24	191	6	114	704	42	96	848	32	105	897	54

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	13	3	8	45	11	11	54	5	9	48	5
CO Emissions (g/hr)	135	940	179	540	3117	740	790	3759	352	595	3362	355
NOx Emissions (g/hr)	26	183	35	105	606	144	154	731	69	116	654	69
VOC Emissions (g/hr)	31	218	41	125	722	172	183	871	82	138	779	82
Dilemma Vehicles (#)	0	11	0	0	34	0	0	35	0	0	37	0
Queue Length 50th (ft)	22	94	0	82	334	23	~127	433	23	112	464	45
Queue Length 95th (ft)	45	128	22	132	414	91	#278	#558	71	#264	#617	104
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200		100	200		270	250		100	220		100
Base Capacity (vph)	169	1149	546	401	1259	720	175	1124	568	202	1134	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.28	0.15	0.42	0.72	0.41	1.09	0.94	0.25	0.96	0.98	0.31

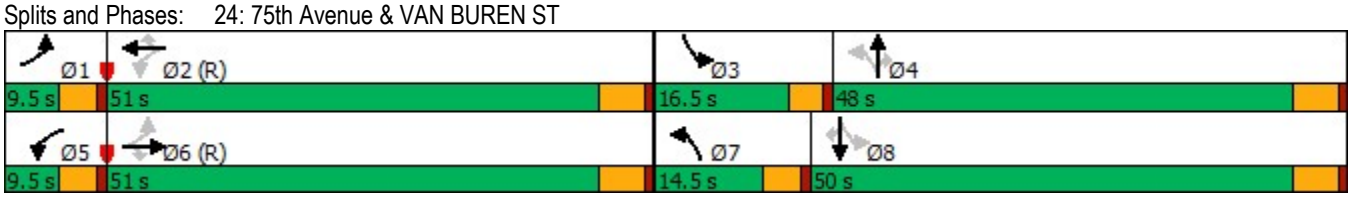
Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 48.2 Intersection LOS: D
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



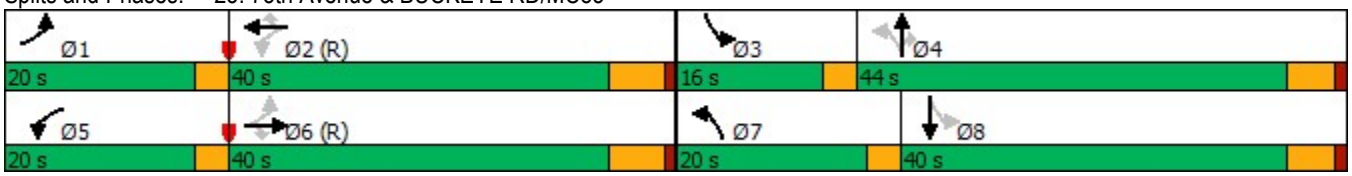
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	426	108	192	1128	163	123	618	69	182	707	108
Future Volume (vph)	60	426	108	192	1128	163	123	618	69	182	707	108
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		100	260		0	270		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.998	0.850			0.850		0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	3113	1442	1685	3249	1323	1685	3339	1405	1640	3346	0
Flt Permitted	0.088			0.363			0.125			0.121		
Satd. Flow (perm)	151	3113	1442	644	3249	1323	222	3339	1405	209	3346	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132		1	105			88		14	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4741			2586			1298			2861	
Travel Time (s)		64.7			35.3			19.7			43.3	
Peak Hour Factor	0.82	0.82	0.82	0.91	0.91	0.91	0.78	0.78	0.78	0.95	0.95	0.95
Heavy Vehicles (%)	13%	18%	14%	9%	8%	13%	9%	10%	17%	12%	8%	5%
Adj. Flow (vph)	73	520	132	211	1240	179	158	792	88	192	744	114
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	73	520	132	211	1258	161	158	792	88	192	858	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	18.0	44.0	44.0	11.0	37.0	37.0	17.0	30.0	30.0	17.0	30.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0	40.0	20.0	44.0	44.0	16.0	40.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%	33.3%	16.7%	36.7%	36.7%	13.3%	33.3%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	0.0	1.1	1.1	0.0	1.1	1.1	0.0	1.2	1.2	0.0	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	6.1	6.1	3.0	6.1	6.1	3.0	5.5	5.5	3.0	5.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	56.1	45.7	45.7	64.3	52.5	52.5	45.6	32.0	32.0	47.6	32.9	
Actuated g/C Ratio	0.47	0.38	0.38	0.54	0.44	0.44	0.38	0.27	0.27	0.40	0.27	
v/c Ratio	0.46	0.44	0.21	0.47	0.88	0.25	0.71	0.89	0.20	0.84	0.92	
Control Delay	27.1	31.1	6.2	18.5	33.8	12.0	40.9	55.0	7.3	57.9	57.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	27.1	31.1	6.2	18.5	33.8	12.0	40.9	55.0	7.3	57.9	57.7	
LOS	C	C	A	B	C	B	D	E	A	E	E	
Approach Delay		26.2			29.6			48.8			57.7	
Approach LOS		C			C			D			E	
Stops (vph)	34	318	14	73	598	72	79	578	10	118	747	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	22	4	8	55	6	3	19	1	10	47	
CO Emissions (g/hr)	199	1522	276	576	3861	445	213	1350	56	691	3283	
NOx Emissions (g/hr)	39	296	54	112	751	87	41	263	11	134	639	
VOC Emissions (g/hr)	46	353	64	134	895	103	49	313	13	160	761	
Dilemma Vehicles (#)	0	18	0	0	85	0	0	22	0	0	28	
Queue Length 50th (ft)	27	158	0	66	271	25	77	310	0	95	330	
Queue Length 95th (ft)	54	215	36	m87	m#707	m37	96	297	26	#209	#420	
Internal Link Dist (ft)		4661			2506			1218			2781	
Turn Bay Length (ft)	260		190	270		100	260			270		
Base Capacity (vph)	288	1186	631	492	1422	638	299	1071	510	238	978	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.44	0.21	0.43	0.88	0.25	0.53	0.74	0.17	0.81	0.88	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 40.2 Intersection LOS: D
Intersection Capacity Utilization 73.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	684	192	249	1394	352	279	1020	109	228	916	200
Future Volume (vph)	187	684	192	249	1394	352	279	1020	109	228	916	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.970			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1531	1711	4768	0	1711	4842	0	1711	4916	1531
Flt Permitted	0.088			0.251			0.135			0.145		
Satd. Flow (perm)	158	3421	1531	452	4768	0	243	4842	0	261	4916	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			206		65			15				140
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	201	735	206	268	1499	378	307	1121	120	259	1041	227
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	735	206	268	1877	0	307	1241	0	259	1041	227
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		5.0	15.0		8.0	15.0	15.0
Minimum Split (s)	11.0	50.3	50.3	9.0	48.3		9.0	33.0		12.0	28.3	28.3
Total Split (s)	11.0	51.0	51.0	13.0	53.0		18.0	35.0		16.0	33.0	33.0
Total Split (%)	9.6%	44.3%	44.3%	11.3%	46.1%		15.7%	30.4%		13.9%	28.7%	28.7%
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4		1.0	1.4		1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7		4.0	5.4		4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		Min	Ped	Ped
Act Effct Green (s)	54.0	45.3	45.3	58.0	47.3		45.0	29.6		41.0	27.6	27.6
Actuated g/C Ratio	0.47	0.39	0.39	0.50	0.41		0.39	0.26		0.36	0.24	0.24
v/c Ratio	1.20	0.55	0.28	0.82	0.94		1.12	0.99		1.06	0.88	0.48
Control Delay	157.5	28.8	4.2	39.8	41.8		121.9	64.8		104.5	52.2	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	157.5	28.8	4.2	39.8	41.8		121.9	64.8		104.5	52.2	18.3
LOS	F	C	A	D	D		F	E		F	D	B
Approach Delay		47.0			41.6			76.1			56.0	
Approach LOS		D			D			E			E	
Stops (vph)	91	512	18	136	1527		173	1013		144	842	70
Fuel Used(gal)	13	34	7	6	48		10	31		11	37	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	941	2345	482	400	3351		718	2201		770	2594	392
NOx Emissions (g/hr)	183	456	94	78	652		140	428		150	505	76
VOC Emissions (g/hr)	218	543	112	93	777		166	510		179	601	91
Dilemma Vehicles (#)	0	30	0	0	74		0	47		0	36	0
Queue Length 50th (ft)	~129	217	0	108	467		~211	332		~158	273	52
Queue Length 95th (ft)	#282	278	46	#211	#581		#390	#439		#314	320	123
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260			170			250		
Base Capacity (vph)	168	1347	727	326	1999		273	1257		244	1179	473
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	1.20	0.55	0.28	0.82	0.94		1.12	0.99		1.06	0.88	0.48

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 54.4 Intersection LOS: D
Intersection Capacity Utilization 90.5% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	177	509	494	514	976	0	0	931	313
Future Volume (vph)	0	0	0	177	509	494	514	976	0	0	931	313
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	1		2	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.962	0.850						0.850
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1533	3128	1466	3361	5175	0	0	5175	1611
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1533	3128	1466	3361	5175	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					38	137						185
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.89	0.89	0.89	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	9%	2%	2%	6%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	211	606	588	578	1097	0	0	1001	337
Shared Lane Traffic (%)				10%		36%						
Lane Group Flow (vph)	0	0	0	190	839	376	578	1097	0	0	1001	337
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							36.0				30.0	30.0
Total Split (%)							27.7%				23.1%	23.1%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				48.1	48.1	48.1	37.9	70.3			24.7	24.7
Actuated g/C Ratio				0.37	0.37	0.37	0.29	0.54			0.19	0.19
v/c Ratio				0.34	0.71	0.60	0.59	0.39			1.02	0.74
Control Delay				29.8	36.3	23.5	32.6	8.8			85.0	32.8
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				29.8	36.3	23.5	32.6	8.8			85.0	32.8
LOS				C	D	C	C	A			F	C
Approach Delay					32.0			17.0			71.9	
Approach LOS					C			B			E	
Stops (vph)				109	555	160	434	556			843	141

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	29.0	35.0	29.0	30.0	48.0	23.0
Total Split (%)	22%	27%	22%	23%	37%	18%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	18	6	10	11			30	5
CO Emissions (g/hr)				260	1277	438	664	748			2089	372
NOx Emissions (g/hr)				51	248	85	129	146			406	72
VOC Emissions (g/hr)				60	296	101	154	173			484	86
Dilemma Vehicles (#)				0	14	0	0	13			33	0
Queue Length 50th (ft)				124	331	176	244	216			~326	123
Queue Length 95th (ft)				158	331	226	310	287			#420	238
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				680	1409	726	980	2799			983	455
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				9	14	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.28	0.60	0.52	0.59	0.39			1.02	0.74

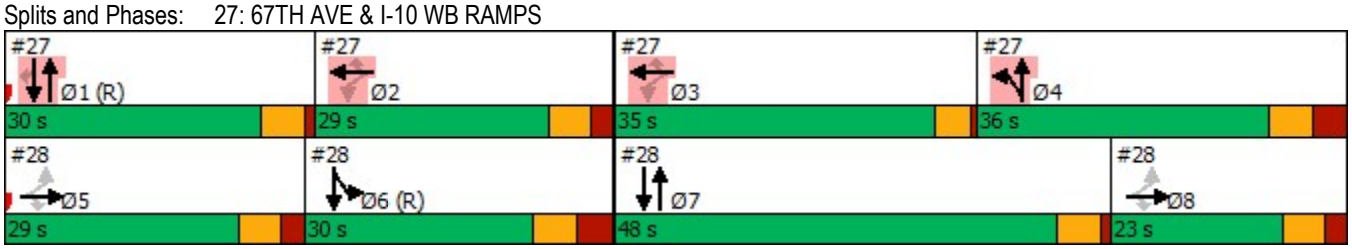
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 38.4 Intersection LOS: D
Intersection Capacity Utilization 66.9% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	636	318	350	0	0	0	0	1537	202	321	738	0
Future Volume (vph)	636	318	350	0	0	0	0	1537	202	321	738	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	200		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.81	0.81	1.00	0.95	1.00
Frt		0.988	0.850					0.983				
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1639	3131	1359	0	0	0	0	7422	0	1801	3498	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1639	3131	1359	0	0	0	0	7422	0	1801	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7	154					27				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	3%	9%	2%	5%	0%
Adj. Flow (vph)	748	374	412	0	0	0	0	1671	220	349	802	0
Shared Lane Traffic (%)	48%		15%									
Lane Group Flow (vph)	389	795	350	0	0	0	0	1891	0	349	802	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								48.0		30.0		
Total Split (%)								36.9%		23.1%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	43.3	43.3	43.3					42.4		24.7	72.4	
Actuated g/C Ratio	0.33	0.33	0.33					0.33		0.19	0.56	
v/c Ratio	0.71	0.76	0.63					0.78		1.02	0.41	
Control Delay	45.7	43.4	24.9					47.6		63.4	16.9	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.9	
Total Delay	45.7	43.4	24.9					47.6		63.4	17.8	
LOS	D	D	C					D		E	B	
Approach Delay		39.8						47.6			31.6	
Approach LOS		D						D			C	
Stops (vph)	284	582	146					1633		256	681	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	29.0	35.0	36.0	29.0	23.0
Total Split (%)	23%	22%	27%	28%	22%	18%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

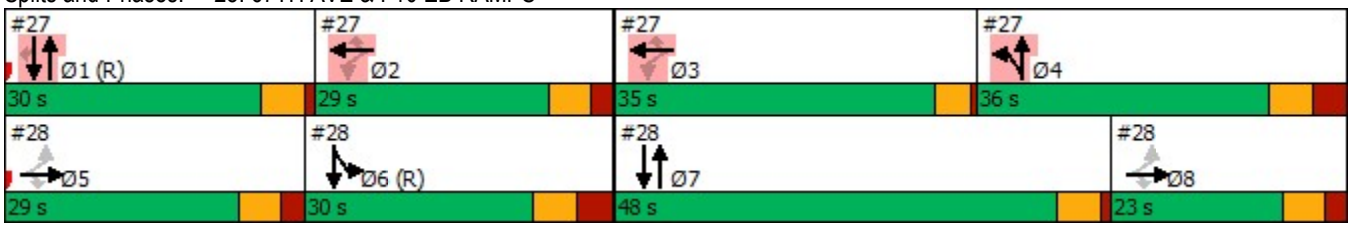
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	20	6					78		8	12	
CO Emissions (g/hr)	705	1420	452					5434		545	829	
NOx Emissions (g/hr)	137	276	88					1057		106	161	
VOC Emissions (g/hr)	163	329	105					1259		126	192	
Dilemma Vehicles (#)	0	24	0					31		0	0	
Queue Length 50th (ft)	304	333	148					389		~344	360	
Queue Length 95th (ft)	401	385	236					m385		m#371	m350	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	580	1112	580					2455		341	1955	
Starvation Cap Reductn	0	0	0					0		0	809	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.67	0.71	0.60					0.77		1.02	0.70	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 41.0 Intersection LOS: D
Intersection Capacity Utilization 66.9% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	448	122	260	983	167	225	1147	136	112	560	104
Future Volume (vph)	145	448	122	260	983	167	225	1147	136	112	560	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		100	260		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.978				0.850		0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3172	1432	1646	3202	0	1572	3323	1406	1572	3099	0
Flt Permitted	0.090			0.359			0.213			0.088		
Satd. Flow (perm)	145	3172	1432	622	3202	0	352	3323	1406	146	3099	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121		16				90		18	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91
Heavy Vehicles (%)	14%	10%	9%	6%	6%	10%	11%	5%	11%	11%	10%	10%
Adj. Flow (vph)	169	521	142	299	1130	192	259	1318	156	123	615	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	521	142	299	1322	0	259	1318	156	123	729	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0		2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	9.0	52.0	52.0	9.0	52.0		9.0	50.0	50.0	9.0	50.0	
Total Split (s)	14.0	50.0	50.0	14.0	50.0		15.0	57.0	57.0	9.0	51.0	
Total Split (%)	10.8%	38.5%	38.5%	10.8%	38.5%		11.5%	43.8%	43.8%	6.9%	39.2%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4		1.0	1.4	1.4	1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7		4.0	5.4	5.4	4.0	5.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes			Yes	Yes		Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped	Ped	None	Ped	
Act Effct Green (s)	56.0	44.3	44.3	56.0	44.3		62.0	51.6	51.6	52.0	45.6	
Actuated g/C Ratio	0.43	0.34	0.34	0.43	0.34		0.48	0.40	0.40	0.40	0.35	
v/c Ratio	1.00	0.48	0.25	0.86	1.20		0.96	1.00	0.25	1.09	0.66	
Control Delay	101.4	35.7	8.5	52.5	136.8		70.8	64.0	12.5	144.7	31.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	101.4	35.7	8.5	52.5	136.8		70.8	64.0	12.5	144.7	31.5	
LOS	F	D	A	D	F		E	E	B	F	C	
Approach Delay		44.4			121.3			60.4			47.9	
Approach LOS		D			F			E			D	
Stops (vph)	83	344	21	184	950		124	1027	40	69	354	

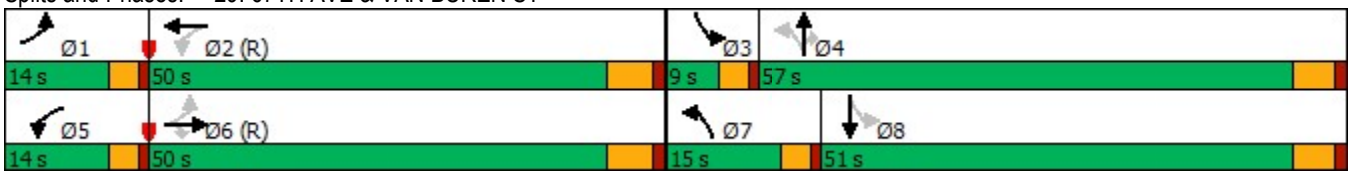
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	23	5	9	61		12	66	6	7	25	
CO Emissions (g/hr)	636	1622	331	624	4261		870	4595	389	480	1734	
NOx Emissions (g/hr)	124	316	64	121	829		169	894	76	93	337	
VOC Emissions (g/hr)	147	376	77	145	988		202	1065	90	111	402	
Dilemma Vehicles (#)	0	17	0	0	36		0	42	0	0	48	
Queue Length 50th (ft)	98	181	12	163	~708		134	578	35	~84	192	
Queue Length 95th (ft)	#233	223	53	#276	#804		#270	#700	80	m#199	270	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250		100	250			250		100	260		
Base Capacity (vph)	169	1080	567	346	1101		271	1318	612	113	1098	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	1.00	0.48	0.25	0.86	1.20		0.96	1.00	0.25	1.09	0.66	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 75.2 Intersection LOS: E
Intersection Capacity Utilization 89.1% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	548	109	182	1139	142	130	710	66	74	617	220
Future Volume (vph)	151	548	109	182	1139	142	130	710	66	74	617	220
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		100	250		100	200		0	260		260
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1701	3140	1522	1749	3280	1381	1783	3498	1522	1371	3465	1480
Flt Permitted	0.084			0.274			0.189			0.130		
Satd. Flow (perm)	150	3140	1522	505	3280	1381	355	3498	1522	188	3465	1480
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			102			75			105			227
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.79	0.79	0.79	0.97	0.97	0.97
Heavy Vehicles (%)	8%	17%	8%	5%	12%	19%	3%	5%	8%	34%	6%	11%
Adj. Flow (vph)	194	703	140	198	1238	154	165	899	84	76	636	227
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	703	140	198	1238	154	165	899	84	76	636	227
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	3.0	15.0	15.0	3.0	15.0	15.0
Minimum Split (s)	15.0	42.0	42.0	11.0	38.0	38.0	12.0	32.0	32.0	17.0	37.0	37.0
Total Split (s)	12.0	43.0	43.0	21.0	52.0	52.0	18.0	38.0	38.0	18.0	38.0	38.0
Total Split (%)	10.0%	35.8%	35.8%	17.5%	43.3%	43.3%	15.0%	31.7%	31.7%	15.0%	31.7%	31.7%
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.2	5.2	3.0	5.2	5.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	Ped
Act Effct Green (s)	61.4	48.1	48.1	62.3	48.8	48.8	47.4	34.8	34.8	41.8	30.1	30.1
Actuated g/C Ratio	0.51	0.40	0.40	0.52	0.41	0.41	0.40	0.29	0.29	0.35	0.25	0.25
v/c Ratio	0.84	0.56	0.21	0.50	0.93	0.25	0.57	0.89	0.16	0.48	0.73	0.42
Control Delay	67.7	25.0	7.6	19.7	47.7	14.0	31.0	52.3	4.2	31.6	46.4	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.7	25.0	7.6	19.7	47.7	14.0	31.0	52.3	4.2	31.6	46.4	6.8
LOS	E	C	A	B	D	B	C	D	A	C	D	A
Approach Delay		30.6			41.0			45.7			35.6	
Approach LOS		C			D			D			D	
Stops (vph)	107	267	25	95	987	49	82	644	6	45	549	23

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	25	4	5	40	3	3	19	1	4	33	8
CO Emissions (g/hr)	599	1735	294	319	2793	216	181	1339	42	248	2315	583
NOx Emissions (g/hr)	117	338	57	62	543	42	35	260	8	48	450	113
VOC Emissions (g/hr)	139	402	68	74	647	50	42	310	10	57	536	135
Dilemma Vehicles (#)	0	29	0	0	45	0	0	25	0	0	20	0
Queue Length 50th (ft)	114	141	4	79	490	39	80	343	0	35	230	0
Queue Length 95th (ft)	m#221	179	m20	130	#648	89	108	363	15	66	297	60
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200		100	250		100	200			260		260
Base Capacity (vph)	232	1259	671	464	1333	606	318	1016	516	220	955	572
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.56	0.21	0.43	0.93	0.25	0.52	0.88	0.16	0.35	0.67	0.40

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 38.8 Intersection LOS: D
Intersection Capacity Utilization 71.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85

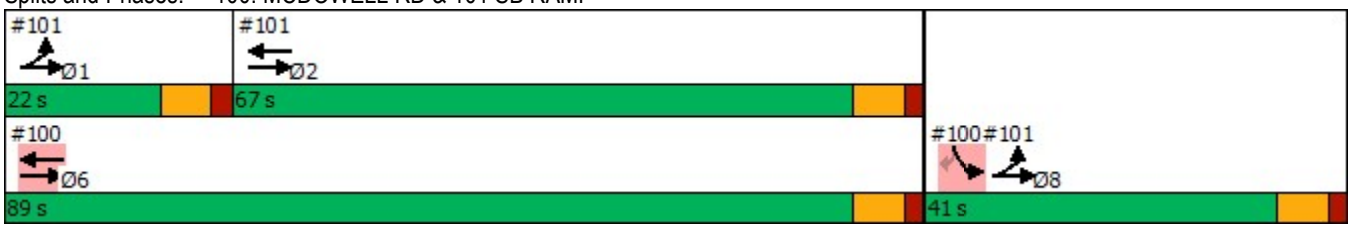
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1654	763	0	636	1272		
Future Volume (vph)	0	1654	763	0	636	1272		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	2	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.95	1.00	0.97	0.86		
Frt					0.946	0.850		
Flt Protected					0.969			
Satd. Flow (prot)	0	6520	3601	0	3371	2771		
Flt Permitted					0.969			
Satd. Flow (perm)	0	6520	3601	0	3371	2771		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)					86	336		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1798	829	0	691	1383		
Shared Lane Traffic (%)						28%		
Lane Group Flow (vph)	0	1798	829	0	1078	996		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		89.0	89.0		41.0	41.0	22.0	67.0
Total Split (%)		68.5%	68.5%		31.5%	31.5%	17%	52%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		82.0	82.0		34.0	34.0		
Actuated g/C Ratio		0.63	0.63		0.26	0.26		
v/c Ratio		0.44	0.37		1.14	1.02		
Control Delay		12.6	5.6		116.1	66.6		
Queue Delay		0.0	0.4		0.0	0.0		
Total Delay		12.6	6.0		116.1	66.6		
LOS		B	A		F	E		
Approach Delay		12.6	6.0		92.3			
Approach LOS		B	A		F			
Stops (vph)		796	110		790	582		
Fuel Used(gal)		25	4		48	34		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		1717	314		3382	2349		
NOx Emissions (g/hr)		334	61		658	457		
VOC Emissions (g/hr)		398	73		784	544		
Dilemma Vehicles (#)		54	46		0	0		
Queue Length 50th (ft)		210	58		~518	~388		
Queue Length 95th (ft)		235	m52		#654	#539		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		4112	2271		945	972		
Starvation Cap Reductn		0	829		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.44	0.57		1.14	1.02		

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 46.6	Intersection LOS: D
Intersection Capacity Utilization 116.4%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: MCDOWELL RD & 101 SB RAMP



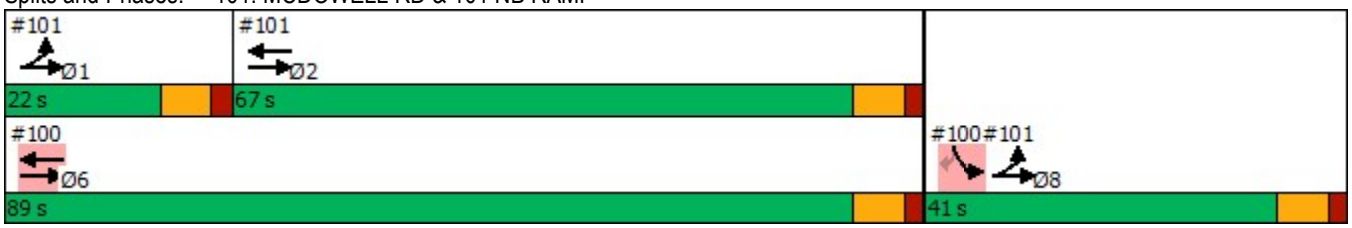
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	509	1781	763	763	0	0			
Future Volume (vph)	509	1781	763	763	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.925						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	2998	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	2998	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			203						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	553	1936	829	829	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	553	1936	1658	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			67.0				22.0	89.0	41.0
Total Split (%)			51.5%				17%	68%	32%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	56.0	130.0	60.0						
Actuated g/C Ratio	0.43	1.00	0.46						
v/c Ratio	0.41	0.60	1.11						
Control Delay	31.0	3.3	89.7						
Queue Delay	0.0	0.0	0.0						
Total Delay	31.0	3.3	89.7						
LOS	C	A	F						
Approach Delay		9.5	89.7						
Approach LOS		A	F						
Stops (vph)	314	397	1209						
Fuel Used(gal)	9	11	81						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	602	797	5659						
NOx Emissions (g/hr)	117	155	1101						
VOC Emissions (g/hr)	140	185	1312						
Dilemma Vehicles (#)	0	0	52						
Queue Length 50th (ft)	148	170	~790						
Queue Length 95th (ft)	m181	m134	#931						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1354	3241	1493						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.41	0.60	1.11						

Intersection Summary	
Area Type: CBD	
Cycle Length: 130	
Actuated Cycle Length: 130	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 41.5	Intersection LOS: D
Intersection Capacity Utilization 116.4%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 101: MCDOWELL RD & 101 NB RAMP



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	650	90	246	324	70	79	565	343	128	524	118
Future Volume (vph)	92	650	90	246	324	70	79	565	343	128	524	118
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	230		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.974				0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	5124	1595	3493	4880	0	1801	3601	1611	1701	3494	0
Flt Permitted	0.507			0.950			0.202			0.157		
Satd. Flow (perm)	925	5124	1595	3493	4880	0	383	3601	1611	281	3494	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		44				242		19	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			15.2			9.3			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.98	0.98	0.98	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles (%)	6%	3%	3%	2%	5%	7%	2%	2%	2%	8%	2%	3%
Adj. Flow (vph)	97	684	95	251	331	71	83	595	361	132	540	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	684	95	251	402	0	83	595	361	132	662	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	20.0	55.0	55.0	20.0	55.0		20.0	31.0	31.0	19.0	30.0	
Total Split (%)	16.0%	44.0%	44.0%	16.0%	44.0%		16.0%	24.8%	24.8%	15.2%	24.0%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	59.7	48.9	48.9	13.4	53.8		34.5	23.7	23.7	39.9	28.4	
Actuated g/C Ratio	0.51	0.42	0.42	0.11	0.46		0.29	0.20	0.20	0.34	0.24	
v/c Ratio	0.18	0.32	0.13	0.63	0.18		0.37	0.82	0.70	0.56	0.77	
Control Delay	12.9	24.6	5.2	57.8	17.7		31.4	55.7	22.7	36.8	48.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	12.9	24.6	5.2	57.8	17.7		31.4	55.7	22.7	36.8	48.5	
LOS	B	C	A	E	B		C	E	C	D	D	
Approach Delay		21.2			33.1			42.3			46.5	
Approach LOS		C			C			D			D	
Stops (vph)	44	424	10	228	201		53	518	116	85	562	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	11	1	14	17		2	17	5	3	18	
CO Emissions (g/hr)	84	796	43	987	1213		117	1156	368	209	1275	
NOx Emissions (g/hr)	16	155	8	192	236		23	225	72	41	248	
VOC Emissions (g/hr)	19	185	10	229	281		27	268	85	49	296	
Dilemma Vehicles (#)	0	28	0	0	13		0	22	0	0	21	
Queue Length 50th (ft)	32	130	0	96	58		43	230	81	70	247	
Queue Length 95th (ft)	61	175	35	144	88		81	312	202	122	#338	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160	230			120		120	150		
Base Capacity (vph)	635	2130	718	477	2256		323	780	538	278	858	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.15	0.32	0.13	0.53	0.18		0.26	0.76	0.67	0.47	0.77	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 36.0 Intersection LOS: D
Intersection Capacity Utilization 51.2% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	103	4	38	275	950	0	0	604	233
Future Volume (vph)	0	0	0	103	4	38	275	950	0	0	604	233
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.990	0.850					0.958	
Flt Protected				0.950	0.958		0.950					
Satd. Flow (prot)	0	0	0	1662	1595	1531	1685	3601	0	0	4957	0
Flt Permitted				0.950	0.958		0.950					
Satd. Flow (perm)	0	0	0	1662	1595	1531	1685	3601	0	0	4957	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	98					59	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		12.3			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.89	0.89	0.89	0.93	0.93	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	2%	2%	9%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	116	4	43	296	1022	0	0	657	253
Shared Lane Traffic (%)				46%		10%						
Lane Group Flow (vph)	0	0	0	63	61	39	296	1022	0	0	910	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							6.0				12.0	
Minimum Split (s)							40.4				30.0	
Total Split (s)							54.9				38.0	
Total Split (%)							36.6%				25.3%	
Yellow Time (s)							3.9				4.3	
All-Red Time (s)							0.5				1.7	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							4.4				6.0	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				Min	
Act Effct Green (s)				23.3	23.3	23.3	49.2	85.4			30.0	
Actuated g/C Ratio				0.20	0.20	0.20	0.43	0.75			0.26	
v/c Ratio				0.19	0.19	0.10	0.41	0.38			0.68	
Control Delay				39.9	38.3	0.5	14.1	4.9			40.2	
Queue Delay				0.0	0.0	0.0	1.4	0.8			0.2	
Total Delay				39.9	38.3	0.5	15.5	5.7			40.4	
LOS				D	D	A	B	A			D	
Approach Delay					29.9			7.9			40.4	
Approach LOS					C			A			D	
Stops (vph)				41	40	0	169	497			679	

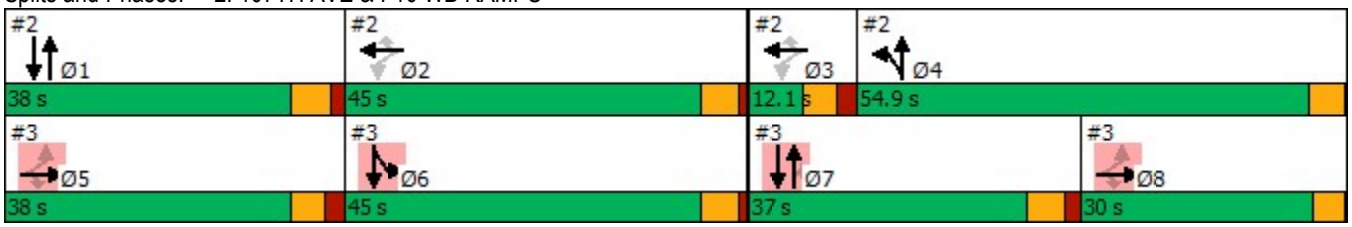
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	12.0	5.0
Minimum Split (s)	43.3	12.1	12.1	43.3	30.0	30.0
Total Split (s)	45.0	12.1	38.0	45.0	37.0	30.0
Total Split (%)	30%	8%	25%	30%	25%	20%
Yellow Time (s)	4.3	3.9	3.9	4.3	4.3	3.5
All-Red Time (s)	1.0	2.2	2.2	1.0	1.7	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				1	1	0	4	9			21	
CO Emissions (g/hr)				90	86	15	246	650			1450	
NOx Emissions (g/hr)				18	17	3	48	127			282	
VOC Emissions (g/hr)				21	20	3	57	151			336	
Dilemma Vehicles (#)				0	2	0	0	3			33	
Queue Length 50th (ft)				43	41	0	95	260			209	
Queue Length 95th (ft)				83	82	0	326	401			328	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				611	588	625	776	2713			1488	
Starvation Cap Reductn				0	0	0	296	1260			0	
Spillback Cap Reductn				38	36	0	0	0			94	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.11	0.11	0.06	0.62	0.70			0.65	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 113.8
Natural Cycle: 135
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 21.7 Intersection LOS: C
Intersection Capacity Utilization 64.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	379	149	551	0	0	0	0	833	272	55	668	0
Future Volume (vph)	379	149	551	0	0	0	0	833	272	55	668	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt		0.924	0.850						0.850			
Flt Protected	0.950	0.995								0.950		
Satd. Flow (prot)	1711	1564	1501	0	0	0	0	5124	1611	1717	3601	0
Flt Permitted	0.950	0.995								0.950		
Satd. Flow (perm)	1711	1564	1501	0	0	0	0	5124	1611	1717	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42	158						280			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.97	0.97	0.97	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	4%	0%	0%	0%	0%	3%	2%	7%	2%	0%
Adj. Flow (vph)	457	180	664	0	0	0	0	859	280	62	751	0
Shared Lane Traffic (%)	10%		35%									
Lane Group Flow (vph)	411	458	432	0	0	0	0	859	280	62	751	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								12.0	12.0	6.0		
Minimum Split (s)								30.0	30.0	43.3		
Total Split (s)								37.0	37.0	45.0		
Total Split (%)								24.7%	24.7%	30.0%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.7	1.7	1.0		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								6.0	6.0	5.3		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	None		
Act Effct Green (s)	44.7	44.7	44.7					27.6	27.6	23.4	57.2	
Actuated g/C Ratio	0.39	0.39	0.39					0.24	0.24	0.21	0.50	
v/c Ratio	0.61	0.72	0.63					0.69	0.47	0.18	0.41	
Control Delay	32.8	34.2	22.1					44.3	7.6	17.9	17.9	
Queue Delay	0.0	0.0	0.0					0.3	0.0	0.0	3.0	
Total Delay	32.8	34.2	22.1					44.7	7.6	17.9	20.9	
LOS	C	C	C					D	A	B	C	
Approach Delay		29.8						35.5			20.6	
Approach LOS		C						D			C	
Stops (vph)	257	280	179					727	26	41	570	

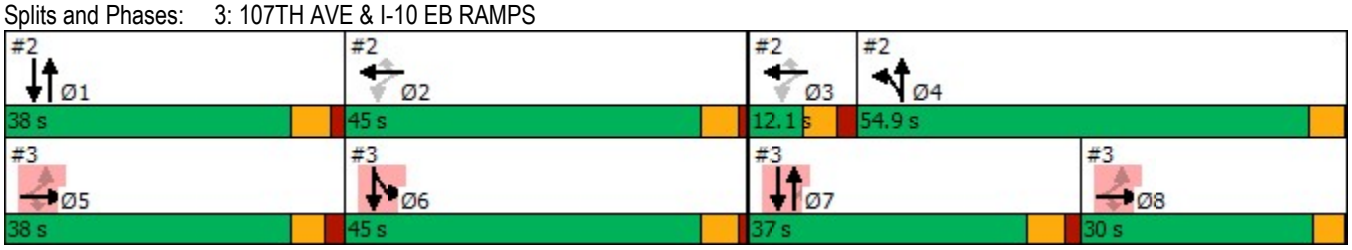
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	12.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	30.0	43.3	12.1	40.4	12.1	30.0
Total Split (s)	38.0	45.0	12.1	54.9	38.0	30.0
Total Split (%)	25%	30%	8%	37%	25%	20%
Yellow Time (s)	4.3	4.3	3.9	3.9	3.9	3.5
All-Red Time (s)	1.7	1.0	2.2	0.5	2.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	8	6					38	8	1	11	
CO Emissions (g/hr)	509	569	401					2650	539	58	772	
NOx Emissions (g/hr)	99	111	78					516	105	11	150	
VOC Emissions (g/hr)	118	132	93					614	125	14	179	
Dilemma Vehicles (#)	0	14	0					32	0	0	4	
Queue Length 50th (ft)	264	297	178					210	0	25	253	
Queue Length 95th (ft)	363	410	268					328	77	m85	429	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	934	873	891					1448	656	621	1955	
Starvation Cap Reductn	0	0	0					0	0	0	1067	
Spillback Cap Reductn	0	1	0					172	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.44	0.53	0.48					0.67	0.43	0.10	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 113.8
Natural Cycle: 135
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 29.5 Intersection LOS: C
Intersection Capacity Utilization 64.1% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	546	130	46	182	46	74	767	84	100	492	83
Future Volume (vph)	146	546	130	46	182	46	74	767	84	100	492	83
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	200		150	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1841	1580	1783	1726	1550	1801	3601	1550	1766	3532	1611
Flt Permitted	0.476			0.386			0.417			0.244		
Satd. Flow (perm)	902	1841	1580	725	1726	1550	790	3601	1550	454	3532	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			115			85			89			90
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			79.7			59.8	
Peak Hour Factor	0.90	0.90	0.90	0.78	0.78	0.78	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	3%	12%	6%	2%	2%	6%	4%	4%	2%
Adj. Flow (vph)	162	607	144	59	233	59	79	816	89	109	535	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	607	144	59	233	59	79	816	89	109	535	90
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	50.0	50.0	38.0	38.0	38.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	13.3%	55.6%	55.6%	42.2%	42.2%	42.2%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	33.9	31.8	31.8	20.3	20.3	20.3	26.7	26.7	26.7	26.7	26.7	26.7
Actuated g/C Ratio	0.48	0.45	0.45	0.29	0.29	0.29	0.38	0.38	0.38	0.38	0.38	0.38
v/c Ratio	0.31	0.74	0.19	0.29	0.47	0.12	0.27	0.60	0.14	0.64	0.40	0.14
Control Delay	13.1	23.1	4.8	25.2	25.2	2.9	19.8	20.6	4.9	40.1	17.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	23.1	4.8	25.2	25.2	2.9	19.8	20.6	4.9	40.1	17.9	4.8
LOS	B	C	A	C	C	A	B	C	A	D	B	A
Approach Delay		18.4			21.5			19.1			19.6	
Approach LOS		B			C			B			B	
Stops (vph)	75	420	23	34	137	4	48	571	13	75	331	13

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	10	1	2	9	2	3	37	3	4	19	2
CO Emissions (g/hr)	136	708	68	156	621	116	239	2552	218	301	1294	166
NOx Emissions (g/hr)	26	138	13	30	121	23	47	497	42	59	252	32
VOC Emissions (g/hr)	32	164	16	36	144	27	55	591	50	70	300	38
Dilemma Vehicles (#)	0	32	0	0	10	0	0	45	0	0	30	0
Queue Length 50th (ft)	38	205	7	20	83	0	21	135	0	35	80	0
Queue Length 95th (ft)	82	374	38	46	134	8	66	253	29	#132	158	29
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170	200		150	210		160
Base Capacity (vph)	535	1182	1056	338	806	769	392	1787	814	225	1753	845
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.51	0.14	0.17	0.29	0.08	0.20	0.46	0.11	0.48	0.31	0.11

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 70.9
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 80.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: 107TH AVE & VAN BUREN ST

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	1028	65	34	401	282	92	654	219	234	406	97
Future Volume (vph)	201	1028	65	34	401	282	92	654	219	234	406	97
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.991				0.850			0.850		0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3532	0	1717	3498	1480	1801	3601	1611	1655	3442	0
Flt Permitted	0.403			0.102			0.388			0.140		
Satd. Flow (perm)	764	3532	0	184	3498	1480	735	3601	1611	244	3442	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				320			183		26	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.96	0.96	0.96	0.86	0.86	0.86
Heavy Vehicles (%)	2%	3%	4%	7%	5%	11%	2%	2%	2%	11%	4%	2%
Adj. Flow (vph)	218	1117	71	39	456	320	96	681	228	272	472	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	218	1188	0	39	456	320	96	681	228	272	585	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7	33.7	9.0	33.8	33.8	9.0	33.8	
Total Split (s)	12.0	49.0		12.0	49.0	49.0	14.0	30.0	30.0	19.0	35.0	
Total Split (%)	10.9%	44.5%		10.9%	44.5%	44.5%	12.7%	27.3%	27.3%	17.3%	31.8%	
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4	4.4	3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.4	2.4	1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.8	6.8	4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Max	Max	None	Max	
Act Effct Green (s)	54.3	46.8		49.5	41.1	41.1	35.3	24.6	24.6	46.2	31.5	
Actuated g/C Ratio	0.49	0.43		0.45	0.37	0.37	0.32	0.22	0.22	0.42	0.29	
v/c Ratio	0.48	0.79		0.24	0.35	0.42	0.31	0.85	0.45	0.93	0.58	
Control Delay	19.3	32.5		19.6	33.0	9.9	23.5	52.5	12.5	65.7	35.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.3	32.5		19.6	33.0	9.9	23.5	52.5	12.5	65.7	35.6	
LOS	B	C		B	C	A	C	D	B	E	D	
Approach Delay		30.4			23.3			40.6			45.1	
Approach LOS		C			C			D			D	
Stops (vph)	113	906		20	324	165	62	590	49	151	407	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	29		2	21	13	2	19	3	13	26	
CO Emissions (g/hr)	272	1998		111	1476	878	134	1353	199	909	1810	
NOx Emissions (g/hr)	53	389		22	287	171	26	263	39	177	352	
VOC Emissions (g/hr)	63	463		26	342	203	31	314	46	211	419	
Dilemma Vehicles (#)	0	49		0	54	0	0	28	0	0	23	
Queue Length 50th (ft)	81	386		15	140	26	42	247	26	140	181	
Queue Length 95th (ft)	128	490		m36	188	107	77	#352	97	#277	233	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	452	1507		198	1345	766	346	805	502	295	1004	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.48	0.79		0.20	0.34	0.42	0.28	0.85	0.45	0.92	0.58	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 34.6 Intersection LOS: C
Intersection Capacity Utilization 72.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	856	148	689	604	17	184	555	782	167	243	46
Future Volume (vph)	70	856	148	689	604	17	184	555	782	167	243	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.91	0.91	0.97	0.91	0.91	0.97	0.91	0.88	0.97	0.91	1.00
Frt		0.978			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	4966	0	3335	5009	0	3242	5036	2682	3213	4988	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4966	0	3335	5009	0	3242	5036	2682	3213	4988	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			4				600			160
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.84	0.84	0.84	0.94	0.94	0.94	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	3%	5%	3%	8%	8%	3%	6%	9%	4%	3%
Adj. Flow (vph)	83	1019	176	733	643	18	190	572	806	172	251	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	1195	0	733	661	0	190	572	806	172	251	47
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases									8			4
Detector Phase	5	2		1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0			20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0			50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	19.0	49.0			68.0		20.0	28.0	28.0	20.0	28.0	28.0
Total Split (%)	14.1%	36.3%			50.4%		14.8%	20.7%	20.7%	14.8%	20.7%	20.7%
Yellow Time (s)	4.0	4.4			4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0			2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4			6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag			Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max			Max		None	None	None	None	None	None
Act Effct Green (s)	8.6	42.6		28.0	67.1		12.6	21.1	21.1	12.1	20.6	20.6
Actuated g/C Ratio	0.07	0.32		0.21	0.51		0.10	0.16	0.16	0.09	0.16	0.16
v/c Ratio	0.37	0.74		1.04	0.26		0.61	0.71	0.86	0.58	0.32	0.12
Control Delay	64.0	42.3		77.0	19.1		66.1	58.3	24.3	65.7	51.0	0.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.0	42.3		77.0	19.1		66.1	58.3	24.3	65.7	51.0	0.7
LOS	E	D		E	B		E	E	C	E	D	A
Approach Delay		43.7			49.5			41.7			51.3	
Approach LOS		D			D			D			D	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	23.0	15.0
Total Split (%)	17%	11%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	66	854		661	338		173	514	212	155	209	0
Fuel Used(gal)	4	54		23	11		6	16	11	6	8	1
CO Emissions (g/hr)	288	3740		1637	740		399	1136	777	433	565	40
NOx Emissions (g/hr)	56	728		319	144		78	221	151	84	110	8
VOC Emissions (g/hr)	67	867		379	171		93	263	180	100	131	9
Dilemma Vehicles (#)	0	38		0	19		0	20	0	0	8	0
Queue Length 50th (ft)	36	327		~227	114		81	172	101	74	71	0
Queue Length 95th (ft)	58	359		#362	153		123	221	#212	112	102	0
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180			200			200		200	230		430
Base Capacity (vph)	364	1622		708	2548		369	817	938	365	809	388
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.74		1.04	0.26		0.51	0.70	0.86	0.47	0.31	0.12

Intersection Summary	
Area Type: Other	
Cycle Length: 135	
Actuated Cycle Length: 131.9	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 45.5	Intersection LOS: D
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: 99TH AVE & MCDOWELL RD

Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	426	319	220	218	1408	0	0	985	88
Future Volume (vph)	0	0	0	426	319	220	218	1408	0	0	985	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		2
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	1.00	1.00	0.86	1.00	1.00	0.86	0.88
Frt						0.850						0.850
Flt Protected				0.950	0.980		0.950					
Satd. Flow (prot)	0	0	0	1305	4284	1516	1466	6134	0	0	6075	2694
Flt Permitted				0.950	0.980		0.950					
Satd. Flow (perm)	0	0	0	1305	4284	1516	1466	6134	0	0	6075	2694
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						91						127
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.96	0.96	0.96	0.94	0.94	0.94	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	15%	4%	3%	19%	3%	0%	0%	4%	2%
Adj. Flow (vph)	0	0	0	444	332	229	232	1498	0	0	1145	102
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	222	554	229	232	1498	0	0	1145	102
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							10.0				20.0	20.0
Minimum Split (s)							47.8				28.9	28.9
Total Split (s)							48.0				48.0	48.0
Total Split (%)							27.4%				27.4%	27.4%
Yellow Time (s)							3.9				4.7	4.7
All-Red Time (s)							1.9				1.2	1.2
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							5.8				5.9	5.9
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				48.7	48.7	48.7	64.1	114.5			44.6	44.6
Actuated g/C Ratio				0.28	0.28	0.28	0.37	0.65			0.25	0.25
v/c Ratio				0.61	0.46	0.47	0.43	0.37			0.74	0.13
Control Delay				62.2	53.3	33.3	15.8	7.9			63.7	3.8
Queue Delay				0.0	0.0	0.0	0.0	0.5			0.3	0.0
Total Delay				62.2	53.3	33.3	15.8	8.4			63.9	3.8
LOS				E	D	C	B	A			E	A
Approach Delay					50.7			9.4			59.0	
Approach LOS					D			A			E	
Stops (vph)				181	429	109	120	884			892	4

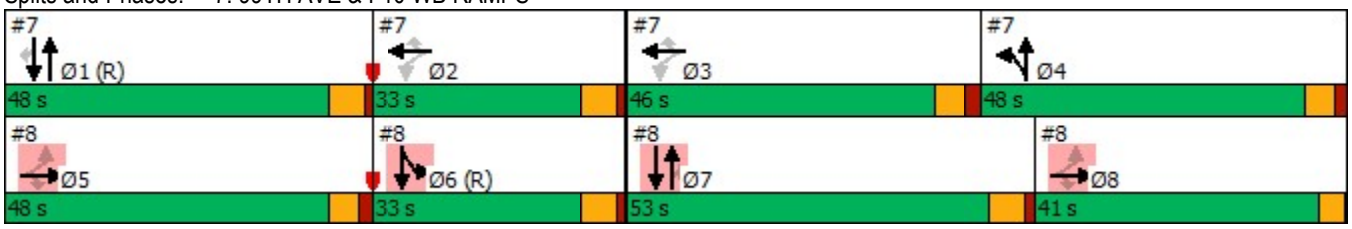
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	8.0	10.0	5.0	20.0	5.0
Minimum Split (s)	30.0	45.8	47.8	30.0	28.9	30.0
Total Split (s)	33.0	46.0	48.0	33.0	53.0	41.0
Total Split (%)	19%	26%	27%	19%	30%	23%
Yellow Time (s)	4.7	3.9	3.9	4.7	4.7	3.5
All-Red Time (s)	1.2	1.9	1.9	1.2	1.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				7	17	5	3	18			30	1
CO Emissions (g/hr)				509	1185	368	206	1268			2074	44
NOx Emissions (g/hr)				99	230	72	40	247			403	9
VOC Emissions (g/hr)				118	275	85	48	294			481	10
Dilemma Vehicles (#)				0	12	0	0	2			28	0
Queue Length 50th (ft)				269	213	136	78	250			359	0
Queue Length 95th (ft)				345	229	203	301	397			383	12
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				553	1814	694	536	4013			1548	781
Starvation Cap Reductn				0	0	0	0	1835			0	0
Spillback Cap Reductn				5	7	0	0	0			71	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.41	0.31	0.33	0.43	0.69			0.78	0.13

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 35.3 Intersection LOS: D
Intersection Capacity Utilization 47.2% ICU Level of Service A
Analysis Period (min) 15
Description: WB I-10 Off ramp

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	449	114	328	0	0	0	0	1125	262	108	1356	0
Future Volume (vph)	449	114	328	0	0	0	0	1125	262	108	1356	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		200	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.91	1.00
Frt		0.960	0.850						0.850			
Flt Protected	0.950	0.976								0.950		
Satd. Flow (prot)	1557	2843	1292	0	0	0	0	5905	1334	1711	4643	0
Flt Permitted	0.950	0.976								0.950		
Satd. Flow (perm)	1557	2843	1292	0	0	0	0	5905	1334	1711	4643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11	91						203			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			8.1	
Peak Hour Factor	0.91	0.91	0.91	0.25	0.25	0.25	0.96	0.96	0.96	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	7%	17%	2%	8%	0%
Adj. Flow (vph)	493	125	360	0	0	0	0	1172	273	123	1541	0
Shared Lane Traffic (%)	49%		37%									
Lane Group Flow (vph)	251	500	227	0	0	0	0	1172	273	123	1541	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								20.0	20.0	5.0		
Minimum Split (s)								28.9	28.9	30.0		
Total Split (s)								53.0	53.0	33.0		
Total Split (%)								30.3%	30.3%	18.9%		
Yellow Time (s)								4.7	4.7	4.7		
All-Red Time (s)								1.2	1.2	1.2		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.9	5.9	5.9		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	C-Max		
Act Effct Green (s)	48.1	48.1	48.1					46.6	46.6	62.6	115.2	
Actuated g/C Ratio	0.27	0.27	0.27					0.27	0.27	0.36	0.66	
v/c Ratio	0.59	0.63	0.54					0.75	0.54	0.20	0.50	
Control Delay	60.5	58.0	35.9					62.1	18.6	12.3	9.5	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	1.0	
Total Delay	60.5	58.0	35.9					62.1	18.6	12.3	10.5	
LOS	E	E	D					E	B	B	B	
Approach Delay		53.5						53.9			10.6	
Approach LOS		D						D			B	
Stops (vph)	193	383	108					1011	65	33	988	

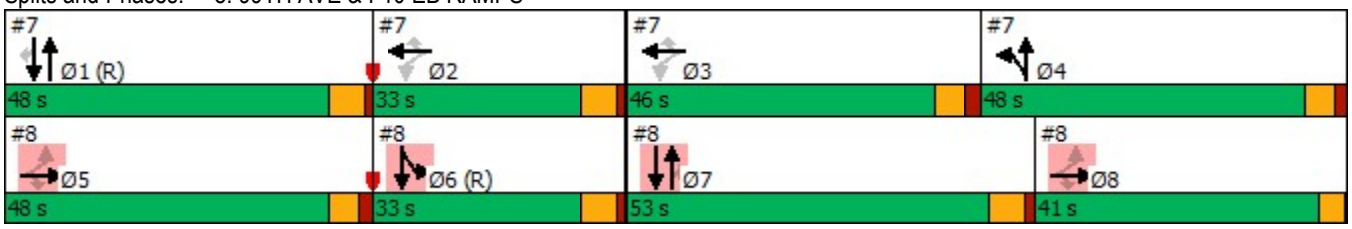
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	10.0	5.0
Minimum Split (s)	28.9	30.0	45.8	47.8	47.8	30.0
Total Split (s)	48.0	33.0	46.0	48.0	48.0	41.0
Total Split (%)	27%	19%	26%	27%	27%	23%
Yellow Time (s)	4.7	4.7	3.9	3.9	3.9	3.5
All-Red Time (s)	1.2	1.2	1.9	1.9	1.9	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	15	5					55	8	1	20	
CO Emissions (g/hr)	550	1080	369					3842	584	74	1371	
NOx Emissions (g/hr)	107	210	72					747	114	14	267	
VOC Emissions (g/hr)	127	250	85					890	135	17	318	
Dilemma Vehicles (#)	0	10	0					31	0	0	2	
Queue Length 50th (ft)	271	284	143					359	64	28	489	
Queue Length 95th (ft)	376	352	245					403	165	m59	513	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						200			
Base Capacity (vph)	702	1287	632					1589	507	612	3068	
Starvation Cap Reductn	0	0	0					0	0	0	1151	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.36	0.39	0.36					0.74	0.54	0.20	0.80	

Intersection Summary

Area Type: Other
Cycle Length: 175
Actuated Cycle Length: 175
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 36.2 Intersection LOS: D
Intersection Capacity Utilization 47.2% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

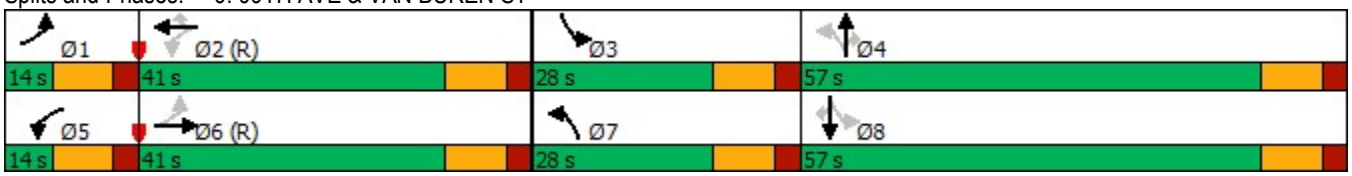
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	468	81	109	151	177	111	813	249	226	562	113
Future Volume (vph)	153	468	81	109	151	177	111	813	249	226	562	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt		0.978				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1586	3252	0	1711	3323	1531	1601	4600	1487	1711	2983	1290
Flt Permitted	0.629			0.314			0.353			0.147		
Satd. Flow (perm)	1050	3252	0	565	3323	1531	595	4600	1487	265	2983	1290
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				230			190			190
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.94	0.94	0.94	0.77	0.77	0.77	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	10%	2%	22%	2%	5%	2%	9%	9%	5%	2%	17%	21%
Adj. Flow (vph)	163	498	86	142	196	230	122	893	274	246	611	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	584	0	142	196	230	122	893	274	246	611	123
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		8
Detector Phase	1	6		5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0		4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1		14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	41.0		14.0	41.0	41.0	28.0	57.0	57.0	28.0	57.0	57.0
Total Split (%)	10.0%	29.3%		10.0%	29.3%	29.3%	20.0%	40.7%	40.7%	20.0%	40.7%	40.7%
Yellow Time (s)	6.4	6.4		6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7		2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1		9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	52.6	41.2		52.7	41.3	41.3	43.9	33.9	33.9	57.7	40.9	40.9
Actuated g/C Ratio	0.38	0.29		0.38	0.30	0.30	0.31	0.24	0.24	0.41	0.29	0.29
v/c Ratio	0.37	0.60		0.47	0.20	0.38	0.47	0.80	0.54	0.87	0.70	0.24
Control Delay	30.0	46.4		31.7	40.2	7.1	30.8	55.5	17.8	58.9	48.5	1.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	46.4		31.7	40.2	7.1	30.8	55.5	17.8	58.9	48.5	1.4
LOS	C	D		C	D	A	C	E	B	E	D	A
Approach Delay		42.9			24.7			45.2			45.2	
Approach LOS		D			C			D			D	
Stops (vph)	110	462		74	113	18	75	745	69	149	487	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	30		6	8	8	5	47	10	10	26	3
CO Emissions (g/hr)	528	2082		406	584	568	382	3252	724	714	1794	201
NOx Emissions (g/hr)	103	405		79	114	110	74	633	141	139	349	39
VOC Emissions (g/hr)	122	483		94	135	132	88	754	168	166	416	47
Dilemma Vehicles (#)	0	20		0	5	0	0	23	0	0	16	0
Queue Length 50th (ft)	92	241		79	72	0	67	282	62	146	258	0
Queue Length 95th (ft)	161	330		118	96	33	99	313	145	#256	312	2
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120			150		280	300		110	370		370
Base Capacity (vph)	438	966		305	979	613	359	1570	632	305	1018	565
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.60		0.47	0.20	0.38	0.34	0.57	0.43	0.81	0.60	0.22

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 41.4 Intersection LOS: D
Intersection Capacity Utilization 70.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	1308	76	47	377	179	164	781	164	167	327	90
Future Volume (vph)	224	1308	76	47	377	179	164	781	164	167	327	90
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.952				0.850		0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	5075	1595	1655	4184	0	1801	3601	1565	1446	3393	0
Flt Permitted	0.340			0.101			0.502			0.119		
Satd. Flow (perm)	644	5075	1595	176	4184	0	952	3601	1565	181	3393	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153		123				170		33	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4799			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.88	0.88	0.88	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	11%	13%	35%	2%	2%	5%	27%	5%	4%
Adj. Flow (vph)	249	1453	84	55	438	208	186	888	186	172	337	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	1453	84	55	646	0	186	888	186	172	430	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	5	2	2	1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0	15.0	4.0	15.0		4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0	19.0	41.0	
Total Split (s)	10.0	47.0	47.0	10.0	47.0		12.0	35.0	35.0	18.0	41.0	
Total Split (%)	9.1%	42.7%	42.7%	9.1%	42.7%		10.9%	31.8%	31.8%	16.4%	37.3%	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7		3.0	4.4	4.4	3.0	4.4	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7	6.7	4.0	6.7		4.0	6.4	6.4	4.0	6.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None	None	None	None	
Act Effct Green (s)	50.0	42.5	42.5	48.1	39.8		39.9	29.6	29.6	48.5	34.6	
Actuated g/C Ratio	0.45	0.39	0.39	0.44	0.36		0.36	0.27	0.27	0.44	0.31	
v/c Ratio	0.69	0.74	0.12	0.36	0.41		0.46	0.92	0.34	0.75	0.39	
Control Delay	21.2	22.6	0.3	23.8	15.8		24.5	54.6	8.2	44.4	28.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	21.2	22.6	0.3	23.8	15.8		24.5	54.6	8.2	44.4	28.4	
LOS	C	C	A	C	B		C	D	A	D	C	
Approach Delay		21.4			16.5			43.3			33.0	
Approach LOS		C			B			D			C	
Stops (vph)	84	1105	1	30	256		118	695	26	106	293	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	67	3	2	24		4	24	2	9	20	
CO Emissions (g/hr)	683	4674	180	157	1693		257	1674	139	601	1430	
NOx Emissions (g/hr)	133	909	35	31	329		50	326	27	117	278	
VOC Emissions (g/hr)	158	1083	42	36	392		60	388	32	139	331	
Dilemma Vehicles (#)	0	19	0	0	7		0	33	0	0	15	
Queue Length 50th (ft)	53	311	0	18	67		79	325	8	75	114	
Queue Length 95th (ft)	m72	m315	m0	m43	76		125	#434	60	#171	160	
Internal Link Dist (ft)		5209			4719			274			849	
Turn Bay Length (ft)	160			170			190			250		
Base Capacity (vph)	361	1960	710	158	1610		407	968	545	241	1089	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.69	0.74	0.12	0.35	0.40		0.46	0.92	0.34	0.71	0.39	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 34 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 28.6 Intersection LOS: C
Intersection Capacity Utilization 67.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85

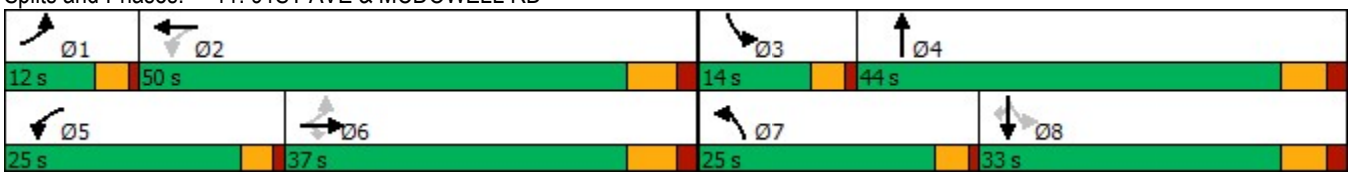
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	670	249	188	406	97	410	898	258	167	632	81
Future Volume (vph)	135	670	249	188	406	97	410	898	258	167	632	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	0.91	0.91	1.00	0.95	1.00
Frt			0.850		0.971			0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3355	1516	1662	4681	0	3319	4749	0	1711	3355	1531
Flt Permitted	0.409			0.116			0.950			0.138		
Satd. Flow (perm)	736	3355	1516	203	4681	0	3319	4749	0	248	3355	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			296		52			63				176
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			14.5			54.8	
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.96	0.96	0.96	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	3%	5%	4%	4%	2%	2%	2%	2%	4%	2%
Adj. Flow (vph)	161	798	296	229	495	118	427	935	269	192	726	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	798	296	229	613	0	427	1204	0	192	726	93
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2						8		8
Detector Phase	1	6	6	5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0	15.0	4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	9.0	30.0	30.0	9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	12.0	37.0	37.0	25.0	50.0		25.0	44.0		14.0	33.0	33.0
Total Split (%)	10.0%	30.8%	30.8%	20.8%	41.7%		20.8%	36.7%		11.7%	27.5%	27.5%
Yellow Time (s)	3.0	4.4	4.4	3.0	4.4		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min		None	None		None	None	None
Act Effct Green (s)	40.9	30.7	30.7	53.7	39.6		18.0	36.9		41.0	29.0	29.0
Actuated g/C Ratio	0.36	0.27	0.27	0.47	0.34		0.16	0.32		0.36	0.25	0.25
v/c Ratio	0.49	0.89	0.48	0.75	0.37		0.82	0.77		0.89	0.86	0.18
Control Delay	25.8	54.5	6.8	40.4	26.4		60.9	37.3		67.2	53.4	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	25.8	54.5	6.8	40.4	26.4		60.9	37.3		67.2	53.4	0.8
LOS	C	D	A	D	C		E	D		E	D	A
Approach Delay		39.6			30.2			43.5			51.2	
Approach LOS		D			C			D			D	
Stops (vph)	96	594	25	126	331		386	963		107	544	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	32	7	10	24		10	22		6	24	2
CO Emissions (g/hr)	369	2205	480	666	1677		712	1555		453	1663	116
NOx Emissions (g/hr)	72	429	93	130	326		139	303		88	324	23
VOC Emissions (g/hr)	85	511	111	154	389		165	360		105	385	27
Dilemma Vehicles (#)	0	28	0	0	17		0	48		0	22	0
Queue Length 50th (ft)	69	306	0	111	114		160	280		90	275	0
Queue Length 95th (ft)	104	#387	51	172	132		220	352		#234	#394	0
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	331	896	622	362	1814		608	1618		216	846	517
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.49	0.89	0.48	0.63	0.34		0.70	0.74		0.89	0.86	0.18

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 114.8
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 41.7 Intersection LOS: D
Intersection Capacity Utilization 72.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	214	5	223	117	1195	0	0	857	97
Future Volume (vph)	0	0	0	214	5	223	117	1195	0	0	857	97
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt					0.916	0.850						0.850
Flt Protected				0.950	0.980		0.950					
Satd. Flow (prot)	0	0	0	1694	1517	1487	1749	3601	0	0	3566	1580
Flt Permitted				0.950	0.980		0.203					
Satd. Flow (perm)	0	0	0	1694	1517	1487	374	3601	0	0	3566	1580
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					50	84						105
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			14.5	
Peak Hour Factor	0.25	0.25	0.25	0.86	0.86	0.86	0.97	0.97	0.97	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	3%	2%	5%	5%	2%	0%	0%	3%	4%
Adj. Flow (vph)	0	0	0	249	6	259	121	1232	0	0	942	107
Shared Lane Traffic (%)				28%		37%						
Lane Group Flow (vph)	0	0	0	179	172	163	121	1232	0	0	942	107
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					2 3!		2!	1 4			1	
Permitted Phases				2 3!		2 3	1 4					1
Detector Phase				2 3	2 3	2 3	2	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							11.0				49.0	49.0
Total Split (%)							8.8%				39.2%	39.2%
Yellow Time (s)							3.9				3.9	3.9
All-Red Time (s)							1.2				1.2	1.2
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							5.1				5.1	5.1
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							Min				Min	Min
Act Effct Green (s)				34.9	34.9	34.9	85.8	79.9			43.9	43.9
Actuated g/C Ratio				0.28	0.28	0.28	0.69	0.64			0.35	0.35
v/c Ratio				0.38	0.37	0.34	0.38	0.54			0.75	0.17
Control Delay				39.2	28.1	19.6	10.7	10.7			40.4	6.0
Queue Delay				0.0	0.0	0.0	0.0	0.2			0.0	0.0
Total Delay				39.2	28.1	19.6	10.7	10.9			40.4	6.0
LOS				D	C	B	B	B			D	A
Approach Delay					29.3			10.9			36.9	
Approach LOS					C			B			D	
Stops (vph)				122	83	55	53	629			738	13

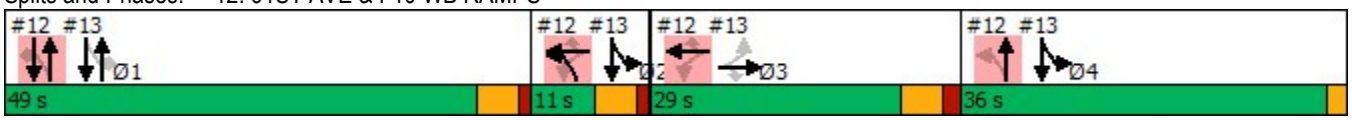
Lane Group	Ø3	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	8.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	29.0	36.0
Total Split (%)	23%	29%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.8	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Max	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	3	3	1	12			17	1
CO Emissions (g/hr)				304	239	188	76	820			1203	52
NOx Emissions (g/hr)				59	46	37	15	160			234	10
VOC Emissions (g/hr)				70	55	44	18	190			279	12
Dilemma Vehicles (#)				0	6	0	0	32			34	0
Queue Length 50th (ft)				123	85	51	28	214			351	1
Queue Length 95th (ft)				184	149	107	m35	242			432	40
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				472	459	475	321	2301			1252	623
Starvation Cap Reductn				0	0	0	0	342			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.38	0.37	0.34	0.38	0.63			0.75	0.17

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 46.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.
! Phase conflict between lane groups.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø3	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	443	10	285	0	0	0	0	860	182	120	967	0
Future Volume (vph)	443	10	285	0	0	0	0	860	182	120	967	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	200		240	0		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt		0.967	0.850						0.850			
Flt Protected	0.950	0.964								0.950		
Satd. Flow (prot)	1711	1604	1516	0	0	0	0	5175	1611	1717	3532	0
Flt Permitted	0.950	0.964								0.212		
Satd. Flow (perm)	1711	1604	1516	0	0	0	0	5175	1611	383	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10	149						192			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.99	0.99	0.99	0.25	0.25	0.25	0.95	0.95	0.95	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	3%	0%	0%	0%	0%	2%	2%	7%	4%	0%
Adj. Flow (vph)	447	10	288	0	0	0	0	905	192	136	1099	0
Shared Lane Traffic (%)	42%		19%									
Lane Group Flow (vph)	259	253	233	0	0	0	0	905	192	136	1099	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	29.0	29.0	29.0					49.0	49.0			
Total Split (%)	23.2%	23.2%	23.2%					39.2%	39.2%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	23.3	23.3	23.3					43.9	43.9	80.7	90.9	
Actuated g/C Ratio	0.19	0.19	0.19					0.35	0.35	0.65	0.73	
v/c Ratio	0.81	0.82	0.58					0.50	0.28	0.21	0.43	
Control Delay	69.5	69.2	23.4					33.0	4.9	7.2	5.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.1	
Total Delay	69.5	69.2	23.4					33.0	4.9	7.2	5.5	
LOS	E	E	C					C	A	A	A	
Approach Delay		54.9						28.1			5.7	
Approach LOS		D						C			A	
Stops (vph)	232	218	83					656	18	40	193	

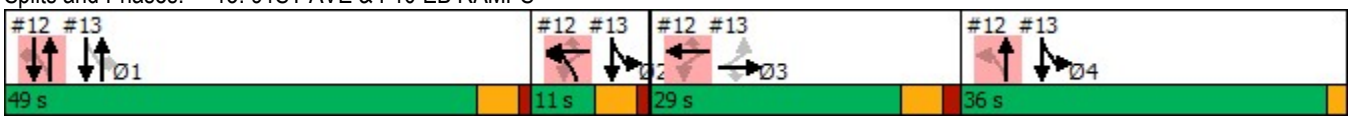
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	11.0	36.0
Total Split (%)	9%	29%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	9	5					36	6	1	6	
CO Emissions (g/hr)	660	636	334					2531	399	64	423	
NOx Emissions (g/hr)	128	124	65					492	78	12	82	
VOC Emissions (g/hr)	153	147	77					587	93	15	98	
Dilemma Vehicles (#)	0	9	0					34	0	0	7	
Queue Length 50th (ft)	213	209	62					209	0	22	98	
Queue Length 95th (ft)	#356	#363	154					253	50	m31	113	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	318	307	403					1817	690	639	2568	
Starvation Cap Reductn	0	0	0					0	0	0	453	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.81	0.82	0.58					0.50	0.28	0.21	0.52	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 46.1% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

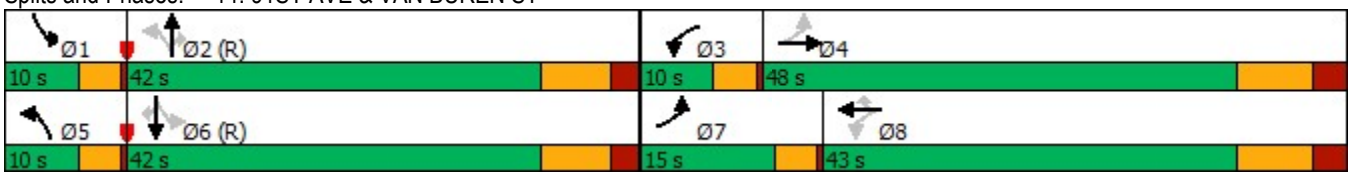
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	365	108	83	265	146	135	689	167	178	592	183
Future Volume (vph)	252	365	108	83	265	146	135	689	167	178	592	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.966				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3232	0	1558	3323	1516	1678	3421	1432	1678	3323	1516
Flt Permitted	0.410			0.368			0.352			0.307		
Satd. Flow (perm)	738	3232	0	603	3323	1516	622	3421	1432	542	3323	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				197			180			180
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.94	0.94	0.94	0.91	0.91	0.91
Heavy Vehicles (%)	2%	5%	2%	12%	5%	3%	4%	2%	9%	4%	5%	3%
Adj. Flow (vph)	304	440	130	112	358	197	144	733	178	196	651	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	304	570	0	112	358	197	144	733	178	196	651	201
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1		10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	15.0	48.0		10.0	43.0	43.0	10.0	42.0	42.0	10.0	42.0	42.0
Total Split (%)	13.6%	43.6%		9.1%	39.1%	39.1%	9.1%	38.2%	38.2%	9.1%	38.2%	38.2%
Yellow Time (s)	3.5	6.2		3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9		0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1		4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	39.3	24.2		30.3	19.2	19.2	58.7	48.6	48.6	58.7	48.6	48.6
Actuated g/C Ratio	0.36	0.22		0.28	0.17	0.17	0.53	0.44	0.44	0.53	0.44	0.44
v/c Ratio	0.84	0.77		0.51	0.62	0.46	0.37	0.49	0.24	0.56	0.44	0.26
Control Delay	49.9	44.4		33.6	46.1	8.8	8.2	11.0	0.7	21.2	23.4	5.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	44.4		33.6	46.1	8.8	8.2	11.0	0.7	21.2	23.4	5.3
LOS	D	D		C	D	A	A	B	A	C	C	A
Approach Delay		46.3			33.0			8.9			19.5	
Approach LOS		D			C			A			B	
Stops (vph)	187	403		64	236	19	32	263	1	99	404	25

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	14	27		4	15	6	6	30	6	7	23	6
CO Emissions (g/hr)	1008	1870		300	1015	442	396	2099	451	474	1636	406
NOx Emissions (g/hr)	196	364		58	198	86	77	408	88	92	318	79
VOC Emissions (g/hr)	234	433		69	235	102	92	487	105	110	379	94
Dilemma Vehicles (#)	0	0		0	0	0	0	18	0	0	27	0
Queue Length 50th (ft)	166	186		54	124	0	20	77	1	64	164	8
Queue Length 95th (ft)	202	207		70	128	26	m41	96	2	120	240	57
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160			160		220	155		155	120		120
Base Capacity (vph)	360	1168		218	1024	603	389	1510	732	351	1467	770
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.49		0.51	0.35	0.33	0.37	0.49	0.24	0.56	0.44	0.26

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 25.3 Intersection LOS: C
Intersection Capacity Utilization 64.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: 91ST AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	1179	125	57	435	167	128	784	60	153	564	116
Future Volume (vph)	148	1179	125	57	435	167	128	784	60	153	564	116
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.986			0.958			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	4764	0	1531	4141	0	1749	5110	0	1749	3566	1508
Flt Permitted	0.350			0.094			0.278			0.154		
Satd. Flow (perm)	599	4764	0	151	4141	0	512	5110	0	284	3566	1508
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			107			11				122
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		445			470			399			4882	
Travel Time (s)		6.1			6.4			6.0			74.0	
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	13%	10%	2%	20%	26%	12%	5%	2%	4%	5%	3%	9%
Adj. Flow (vph)	164	1310	139	64	489	188	154	945	72	161	594	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	1449	0	64	677	0	154	1017	0	161	594	122
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	9.0	48.0		12.0	51.0		11.0	40.0		10.0	39.0	39.0
Total Split (%)	8.2%	43.6%		10.9%	46.4%		10.0%	36.4%		9.1%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	53.3	46.3		54.5	45.4		41.2	31.9		39.4	31.1	31.1
Actuated g/C Ratio	0.48	0.42		0.50	0.41		0.37	0.29		0.36	0.28	0.28
v/c Ratio	0.48	0.72		0.41	0.38		0.57	0.68		0.88	0.59	0.24
Control Delay	11.9	14.3		33.1	26.0		30.8	36.6		67.7	39.0	14.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	11.9	14.3		33.1	26.0		30.8	36.6		67.7	39.0	14.9
LOS	B	B		C	C		C	D		E	D	B
Approach Delay		14.0			26.6			35.8			41.0	
Approach LOS		B			C			D			D	
Stops (vph)	36	350		35	723		86	715		114	493	48

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	53		3	34		3	22		9	30	5
CO Emissions (g/hr)	408	3672		195	2377		204	1540		615	2097	347
NOx Emissions (g/hr)	79	714		38	463		40	300		120	408	68
VOC Emissions (g/hr)	95	851		45	551		47	357		143	486	80
Dilemma Vehicles (#)	0	107		0	134		0	36		0	13	0
Queue Length 50th (ft)	22	90		26	121		68	224		89	201	27
Queue Length 95th (ft)	m50	163		56	108		104	245		#171	262	79
Internal Link Dist (ft)		365			390			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	344	2017		176	1770		270	1577		183	1063	535
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.48	0.72		0.36	0.38		0.57	0.64		0.88	0.56	0.23

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 94 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 27.3 Intersection LOS: C
Intersection Capacity Utilization 62.5% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85

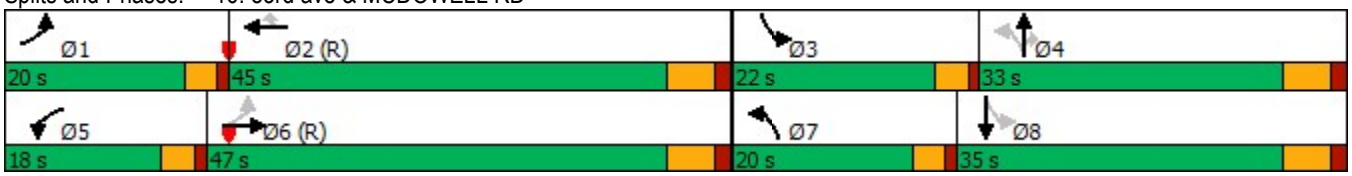
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	1090	113	275	387	76	113	739	289	291	752	46
Future Volume (vph)	84	1090	113	275	387	76	113	739	289	291	752	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.91	0.91
Frt		0.986				0.850			0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4787	0	3255	4821	1516	1646	4775	1531	1711	4824	0
Flt Permitted	0.506			0.950			0.266			0.156		
Satd. Flow (perm)	911	4787	0	3255	4821	1516	461	4775	1531	281	4824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				99			252		7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.77	0.77	0.77	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93
Heavy Vehicles (%)	2%	3%	6%	4%	4%	3%	6%	5%	2%	2%	3%	3%
Adj. Flow (vph)	109	1416	147	286	403	79	124	812	318	313	809	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	1563	0	286	403	79	124	812	318	313	858	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6					2	4		4	8		
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9	32.9	11.0	32.9	
Total Split (s)	20.0	47.0		18.0	45.0	45.0	20.0	33.0	33.0	22.0	35.0	
Total Split (%)	16.7%	39.2%		15.0%	37.5%	37.5%	16.7%	27.5%	27.5%	18.3%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6	1.6	1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9	5.9	4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	52.5	42.0		13.3	46.7	46.7	39.1	27.0	27.0	50.8	34.7	
Actuated g/C Ratio	0.44	0.35		0.11	0.39	0.39	0.33	0.22	0.22	0.42	0.29	
v/c Ratio	0.24	0.93		0.80	0.21	0.12	0.50	0.76	0.59	0.94	0.61	
Control Delay	17.2	47.9		75.5	16.4	3.4	24.6	32.5	6.3	66.7	39.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.2	47.9		75.5	16.4	3.4	24.6	32.5	6.3	66.7	39.2	
LOS	B	D		E	B	A	C	C	A	E	D	
Approach Delay		45.9			37.1			25.1			46.5	
Approach LOS		D			D			C			D	
Stops (vph)	47	1075		266	154	8	58	664	65	190	671	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	66		17	17	3	2	17	3	12	30	
CO Emissions (g/hr)	262	4633		1190	1158	194	134	1205	194	833	2102	
NOx Emissions (g/hr)	51	901		232	225	38	26	234	38	162	409	
VOC Emissions (g/hr)	61	1074		276	268	45	31	279	45	193	487	
Dilemma Vehicles (#)	0	49		0	37	0	0	34	0	0	27	
Queue Length 50th (ft)	43	425		117	32	0	33	198	5	177	208	
Queue Length 95th (ft)	63	392		m#171	m79	m6	71	249	13	#354	267	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	559	1686		380	1877	650	330	1078	540	333	1401	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.19	0.93		0.75	0.21	0.12	0.38	0.75	0.59	0.94	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 39.3 Intersection LOS: D
Intersection Capacity Utilization 72.8% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: 83rd ave & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	303	8	310	402	1075	0	0	669	363
Future Volume (vph)	0	0	0	303	8	310	402	1075	0	0	669	363
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.919	0.850						0.850
Flt Protected				0.950	0.979		0.950					
Satd. Flow (prot)	0	0	0	1479	1406	1446	2921	5124	0	0	5124	1611
Flt Permitted				0.950	0.979		0.950					
Satd. Flow (perm)	0	0	0	1479	1406	1446	2921	5124	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					48	130						454
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.92	0.92	0.92	0.88	0.88	0.88	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	18%	17%	8%	22%	3%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	329	9	337	457	1222	0	0	836	454
Shared Lane Traffic (%)				29%		36%						
Lane Group Flow (vph)	0	0	0	234	225	216	457	1222	0	0	836	454
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				30.0	30.0
Total Split (%)							42.5%				25.0%	25.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				32.7	32.7	32.7	44.8	75.7			24.7	24.7
Actuated g/C Ratio				0.27	0.27	0.27	0.37	0.63			0.21	0.21
v/c Ratio				0.58	0.54	0.44	0.42	0.38			0.79	0.66
Control Delay				44.5	34.4	17.6	9.4	2.3			31.4	14.6
Queue Delay				0.8	0.5	0.0	0.0	0.3			0.0	0.0
Total Delay				45.4	35.0	17.6	9.4	2.6			31.4	14.6
LOS				D	C	B	A	A			C	B
Approach Delay					33.0			4.5			25.5	
Approach LOS					C			A			C	
Stops (vph)				185	138	69	135	296			554	185

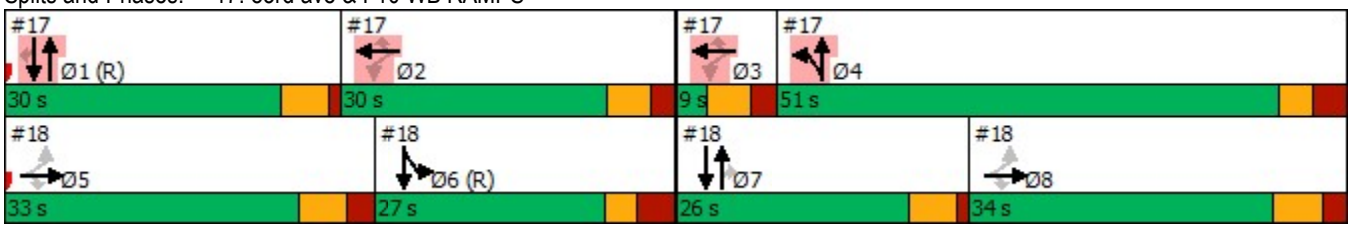
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	30.0	9.0	33.0	27.0	26.0	34.0
Total Split (%)	25%	8%	28%	23%	22%	28%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	5	4	4	8			15	5
CO Emissions (g/hr)				453	371	254	264	541			1039	377
NOx Emissions (g/hr)				88	72	49	51	105			202	73
VOC Emissions (g/hr)				105	86	59	61	125			241	87
Dilemma Vehicles (#)				0	9	0	0	13			21	0
Queue Length 50th (ft)				165	128	54	24	12			197	166
Queue Length 95th (ft)				257	219	131	m35	m11			216	m197
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				403	418	488	1090	3232			1054	692
Starvation Cap Reductn				0	0	0	0	1209			0	0
Spillback Cap Reductn				40	38	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.64	0.59	0.44	0.42	0.60			0.79	0.66

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 17.2 Intersection LOS: B
Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	464	17	1053	0	0	0	0	1033	149	174	815	0
Future Volume (vph)	464	17	1053	0	0	0	0	1033	149	174	815	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt		0.879	0.850						0.850			
Flt Protected	0.950	0.992								0.950		
Satd. Flow (prot)	1639	2653	1347	0	0	0	0	6046	1284	3493	3401	0
Flt Permitted	0.950	0.992								0.950		
Satd. Flow (perm)	1639	2653	1347	0	0	0	0	6046	1284	3493	3401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34	137						160			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			54.4			7.7	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.93	0.93	0.93	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	11%	0%	0%	0%	0%	10%	28%	2%	8%	0%
Adj. Flow (vph)	533	20	1210	0	0	0	0	1111	160	212	994	0
Shared Lane Traffic (%)	23%		50%									
Lane Group Flow (vph)	410	748	605	0	0	0	0	1111	160	212	994	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								26.0	26.0	27.0		
Total Split (%)								21.7%	21.7%	22.5%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	56.1	56.1	56.1					20.7	20.7	24.7	50.7	
Actuated g/C Ratio	0.47	0.47	0.47					0.17	0.17	0.21	0.42	
v/c Ratio	0.54	0.94dr	0.86					1.07	0.45	0.30	0.69	
Control Delay	24.9	24.0	34.8					74.0	6.8	20.1	24.0	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	1.8	
Total Delay	24.9	24.0	34.8					74.0	6.8	20.1	25.8	
LOS	C	C	C					E	A	C	C	
Approach Delay		27.9						65.6			24.8	
Approach LOS		C						E			C	
Stops (vph)	242	439	372					871	42	135	771	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	9.0	51.0	33.0	34.0
Total Split (%)	25%	25%	8%	43%	28%	28%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

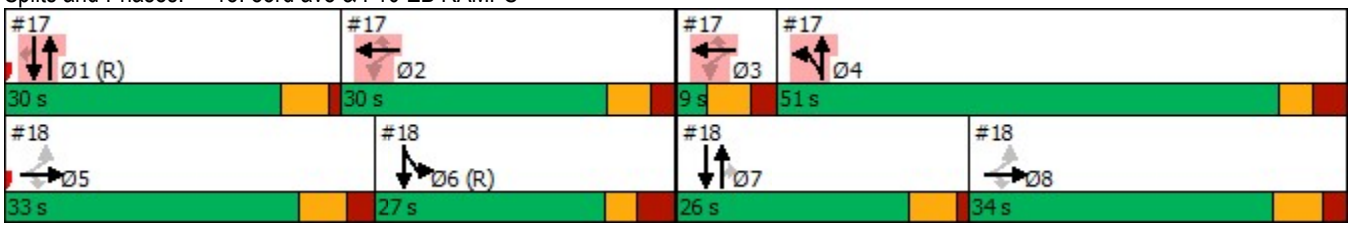
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	16	14					50	4	3	16	
CO Emissions (g/hr)	623	1127	1006					3527	293	207	1137	
NOx Emissions (g/hr)	121	219	196					686	57	40	221	
VOC Emissions (g/hr)	144	261	233					817	68	48	263	
Dilemma Vehicles (#)	0	25	0					61	0	0	2	
Queue Length 50th (ft)	224	214	336					~275	9	70	424	
Queue Length 95th (ft)	307	266	498					#334	m22	m97	447	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	823	1350	745					1042	353	718	1436	
Starvation Cap Reductn	0	0	0					0	0	0	274	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.50	0.55	0.81					1.07	0.45	0.30	0.86	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 38.3 Intersection LOS: D
Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

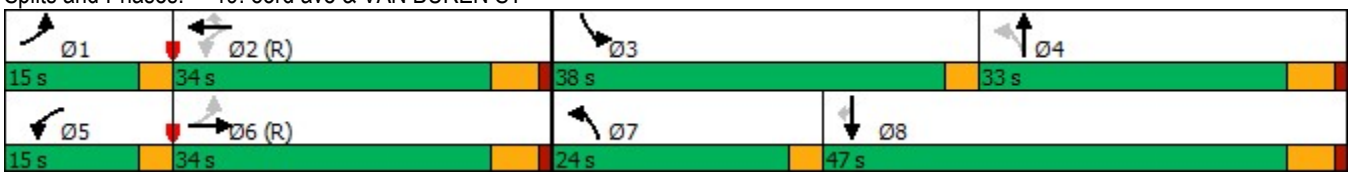
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	586	38	59	108	123	9	824	116	497	1103	122
Future Volume (vph)	155	586	38	59	108	123	9	824	116	497	1103	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	0.97	0.95	1.00
Frt		0.991				0.850		0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3327	0	1312	2957	1290	1531	4466	0	3077	3231	1487
Flt Permitted	0.597			0.227			0.231			0.950		
Satd. Flow (perm)	962	3327	0	313	2957	1290	372	4466	0	3077	3231	1487
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				176		20				106
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			54.4	
Peak Hour Factor	0.90	0.90	0.90	0.70	0.70	0.70	0.89	0.89	0.89	0.95	0.95	0.95
Heavy Vehicles (%)	14%	4%	3%	33%	18%	21%	14%	10%	12%	10%	8%	5%
Adj. Flow (vph)	172	651	42	84	154	176	10	926	130	523	1161	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	693	0	84	154	176	10	1056	0	523	1161	128
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4					8
Detector Phase	1	6		5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	15.0
Minimum Split (s)	25.0	45.0		25.0	45.0	45.0	20.0	30.0		20.0	30.0	30.0
Total Split (s)	15.0	34.0		15.0	34.0	34.0	24.0	33.0		38.0	47.0	47.0
Total Split (%)	12.5%	28.3%		12.5%	28.3%	28.3%	20.0%	27.5%		31.7%	39.2%	39.2%
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	4.3
All-Red Time (s)	0.0	1.3		0.0	1.3	1.3	0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.6		3.0	5.6	5.6	3.0	5.5		3.0	5.5	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	Ped
Act Effct Green (s)	49.3	37.3		45.2	33.5	33.5	40.7	33.3		24.9	59.4	59.4
Actuated g/C Ratio	0.41	0.31		0.38	0.28	0.28	0.34	0.28		0.21	0.50	0.50
v/c Ratio	0.38	0.67		0.44	0.19	0.36	0.06	0.84		0.82	0.73	0.16
Control Delay	27.1	41.6		47.1	52.5	25.0	15.6	47.5		47.7	29.3	5.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	27.1	41.6		47.1	52.5	25.0	15.6	47.5		47.7	29.3	5.0
LOS	C	D		D	D	C	B	D		D	C	A
Approach Delay		38.7			39.7			47.2			32.9	
Approach LOS		D			D			D			C	
Stops (vph)	105	520		48	97	112	6	831		443	936	23

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	33		3	6	6	0	52		22	44	3
CO Emissions (g/hr)	540	2338		221	420	431	29	3617		1532	3069	227
NOx Emissions (g/hr)	105	455		43	82	84	6	704		298	597	44
VOC Emissions (g/hr)	125	542		51	97	100	7	838		355	711	53
Dilemma Vehicles (#)	0	25		0	1	0	0	34		0	59	0
Queue Length 50th (ft)	87	253		52	60	62	4	273		181	380	8
Queue Length 95th (ft)	149	#373		m75	71	75	11	#344		m231	491	m21
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250			230		
Base Capacity (vph)	453	1038		224	825	487	378	1252		897	1600	789
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.38	0.67		0.38	0.19	0.36	0.03	0.84		0.58	0.73	0.16

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 55 (46%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 38.4 Intersection LOS: D
Intersection Capacity Utilization 64.0% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	1521	43	17	356	141	80	557	144	218	438	219
Future Volume (vph)	225	1521	43	17	356	141	80	557	144	218	438	219
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.996				0.850			0.850		0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	4910	0	2897	4435	1358	1801	3566	1580	3098	4558	0
Flt Permitted	0.473			0.950			0.367			0.950		
Satd. Flow (perm)	816	4910	0	2897	4435	1358	696	3566	1580	3098	4558	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				150			116		116	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		461			432			976			409	
Travel Time (s)		6.3			5.9			14.8			6.2	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90	0.99	0.99	0.99
Heavy Vehicles (%)	12%	7%	9%	23%	19%	21%	2%	3%	4%	15%	7%	16%
Adj. Flow (vph)	242	1635	46	18	379	150	89	619	160	220	442	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	242	1681	0	18	379	150	89	619	160	220	663	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	11.0	49.0		9.0	47.0	47.0	13.0	37.0	37.0	15.0	39.0	
Total Split (%)	10.0%	44.5%		8.2%	42.7%	42.7%	11.8%	33.6%	33.6%	13.6%	35.5%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	56.6	51.1		4.8	42.3	42.3	37.7	27.5	27.5	10.4	32.2	
Actuated g/C Ratio	0.51	0.46		0.04	0.38	0.38	0.34	0.25	0.25	0.09	0.29	
v/c Ratio	0.50	0.74		0.14	0.22	0.24	0.28	0.70	0.33	0.75	0.47	
Control Delay	9.9	15.9		47.1	36.9	20.4	22.0	41.7	12.4	64.8	27.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	9.9	15.9		47.1	36.9	20.4	22.0	41.7	12.4	64.8	27.2	
LOS	A	B		D	D	C	C	D	B	E	C	
Approach Delay		15.2			32.7			34.3			36.6	
Approach LOS		B			C			C			D	
Stops (vph)	48	968		18	298	114	50	489	39	205	430	

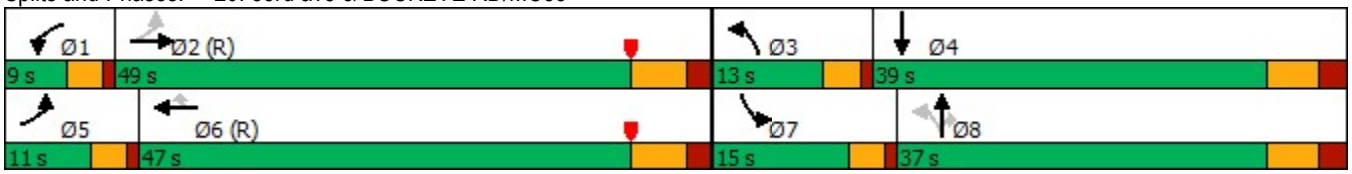
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	71		1	19	7	1	14	2	13	32	
CO Emissions (g/hr)	598	4966		70	1335	491	104	1002	123	906	2212	
NOx Emissions (g/hr)	116	966		14	260	96	20	195	24	176	430	
VOC Emissions (g/hr)	138	1151		16	309	114	24	232	29	210	513	
Dilemma Vehicles (#)	0	64		0	10	0	0	23	0	0	24	
Queue Length 50th (ft)	36	108		6	91	31	37	205	24	78	114	
Queue Length 95th (ft)	m52	499		m16	122	m94	68	263	76	#128	153	
Internal Link Dist (ft)		381			352			896			329	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	482	2283		132	1706	614	338	982	519	309	1434	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.50	0.74		0.14	0.22	0.24	0.26	0.63	0.31	0.71	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 61 (55%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 25.9 Intersection LOS: C
Intersection Capacity Utilization 63.5% ICU Level of Service B
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



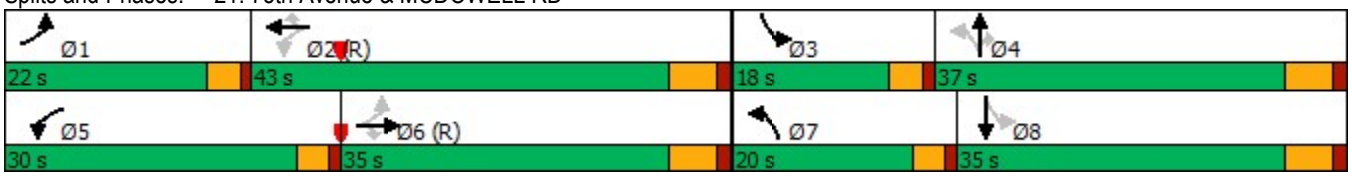
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	929	313	303	452	164	114	952	207	200	843	56
Future Volume (vph)	123	929	313	303	452	164	114	952	207	200	843	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	0.91
Frt			0.850			0.850			0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4916	1516	1711	4821	1531	1711	4775	1531	1711	4827	0
Flt Permitted	0.438			0.106			0.140			0.119		
Satd. Flow (perm)	789	4916	1516	191	4821	1531	252	4775	1531	214	4827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290			198			230		8	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.87	0.87	0.87	0.83	0.83	0.83	0.90	0.90	0.90	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	3%	2%	4%	2%	2%	5%	2%	2%	3%	2%
Adj. Flow (vph)	141	1068	360	365	545	198	127	1058	230	233	980	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	1068	360	365	545	198	127	1058	230	233	1045	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	11.0	50.2	50.2	6.0	48.2	48.2	10.0	30.8	30.8	10.0	30.8	
Total Split (s)	22.0	35.0	35.0	30.0	43.0	43.0	20.0	37.0	37.0	18.0	35.0	
Total Split (%)	18.3%	29.2%	29.2%	25.0%	35.8%	35.8%	16.7%	30.8%	30.8%	15.0%	29.2%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.8	5.8	4.0	5.8	5.8	4.0	5.8	5.8	4.0	5.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	45.3	33.7	33.7	62.4	46.8	46.8	42.0	30.0	30.0	48.4	33.6	
Actuated g/C Ratio	0.38	0.28	0.28	0.52	0.39	0.39	0.35	0.25	0.25	0.40	0.28	
v/c Ratio	0.38	0.77	0.57	0.94	0.29	0.28	0.60	0.89	0.41	0.90	0.77	
Control Delay	15.5	33.0	6.6	74.3	47.5	26.5	34.5	53.2	6.9	66.5	44.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.5	33.0	6.6	74.3	47.5	26.5	34.5	53.2	6.9	66.5	44.0	
LOS	B	C	A	E	D	C	C	D	A	E	D	
Approach Delay		25.4			52.6			44.0			48.1	
Approach LOS		C			D			D			D	
Stops (vph)	49	647	77	291	402	141	74	884	23	129	796	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	5	46	12	18	25	8	2	27	2	5	23	
CO Emissions (g/hr)	366	3240	852	1291	1725	573	165	1859	121	374	1580	
NOx Emissions (g/hr)	71	630	166	251	336	111	32	362	23	73	307	
VOC Emissions (g/hr)	85	751	197	299	400	133	38	431	28	87	366	
Dilemma Vehicles (#)	0	73	0	0	17	0	0	37	0	0	33	
Queue Length 50th (ft)	43	223	25	285	157	72	60	286	0	124	265	
Queue Length 95th (ft)	m54	m269	m36	#372	183	m119	102	343	62	#259	316	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	490	1381	634	428	1881	718	295	1241	568	260	1357	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.77	0.57	0.85	0.29	0.28	0.43	0.85	0.40	0.90	0.77	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 41.3 Intersection LOS: D
Intersection Capacity Utilization 75.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	402	0	393	287	1023	0	0	1077	388
Future Volume (vph)	0	0	0	402	0	393	287	1023	0	0	1077	388
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	2		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.920	0.850						0.850
Flt Protected				0.950	0.977		0.950					
Satd. Flow (prot)	0	0	0	1544	1461	1501	3126	5075	0	0	5124	1611
Flt Permitted				0.950	0.977		0.950					
Satd. Flow (perm)	0	0	0	1544	1461	1501	3126	5075	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					128	128						404
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.94	0.94	0.94	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	13%	2%	4%	14%	4%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	462	0	452	305	1088	0	0	1298	467
Shared Lane Traffic (%)				31%		36%						
Lane Group Flow (vph)	0	0	0	319	306	289	305	1088	0	0	1298	467
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							46.0				39.0	39.0
Total Split (%)							35.4%				30.0%	30.0%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				38.7	38.7	38.7	38.5	79.8			33.7	33.7
Actuated g/C Ratio				0.30	0.30	0.30	0.30	0.61			0.26	0.26
v/c Ratio				0.69	0.58	0.54	0.33	0.35			0.98	0.65
Control Delay				49.6	27.0	24.8	25.1	3.3			67.6	11.6
Queue Delay				7.4	1.6	0.0	0.0	0.0			0.0	0.0
Total Delay				57.0	28.6	24.8	25.1	3.3			67.6	11.6
LOS				E	C	C	C	A			E	B
Approach Delay					37.3			8.1			52.8	
Approach LOS					D			A			D	
Stops (vph)				244	136	119	159	393			988	68

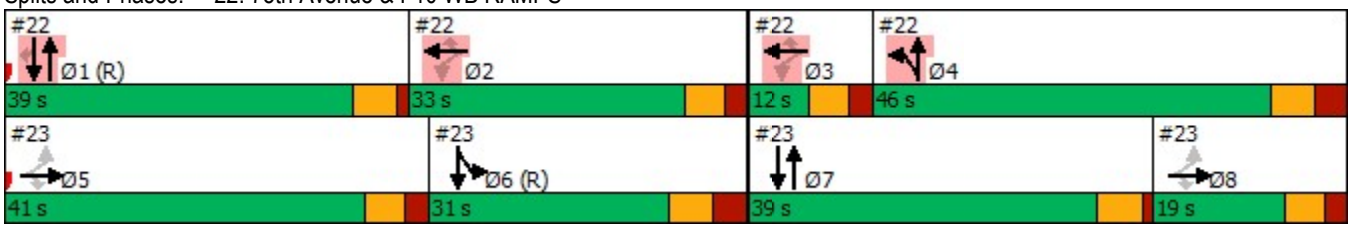
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	33.0	12.0	41.0	31.0	39.0	19.0
Total Split (%)	25%	9%	32%	24%	30%	15%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				9	6	6	4	9			33	4
CO Emissions (g/hr)				623	425	385	309	632			2313	274
NOx Emissions (g/hr)				121	83	75	60	123			450	53
VOC Emissions (g/hr)				144	99	89	72	147			536	63
Dilemma Vehicles (#)				0	10	0	0	12			40	0
Queue Length 50th (ft)				250	138	117	58	12			399	41
Queue Length 95th (ft)				349	232	202	89	13			#418	106
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				460	525	537	925	3114			1328	716
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				101	96	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.89	0.71	0.54	0.33	0.35			0.98	0.65

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 34.0 Intersection LOS: C
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	406	19	1052	0	0	0	0	784	210	309	1258	0
Future Volume (vph)	406	19	1052	0	0	0	0	784	210	309	1258	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	200		150	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.81	0.81	0.97	0.91	1.00
Frt		0.872	0.850					0.968				
Flt Protected	0.950	0.994								0.950		
Satd. Flow (prot)	1592	2682	1385	0	0	0	0	6761	0	3493	4979	0
Flt Permitted	0.950	0.994								0.950		
Satd. Flow (perm)	1592	2682	1385	0	0	0	0	6761	0	3493	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14	137					50				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.89	0.89	0.89	0.25	0.25	0.25	0.84	0.84	0.84	0.83	0.83	0.83
Heavy Vehicles (%)	5%	2%	8%	0%	0%	0%	0%	10%	20%	2%	6%	0%
Adj. Flow (vph)	456	21	1182	0	0	0	0	933	250	372	1516	0
Shared Lane Traffic (%)	17%		50%									
Lane Group Flow (vph)	378	690	591	0	0	0	0	1183	0	372	1516	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								8.0		5.0		
Minimum Split (s)								27.3		30.0		
Total Split (s)								39.0		31.0		
Total Split (%)								30.0%		23.8%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.5		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		7.8		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	52.1	52.1	52.1					33.0		25.5	63.9	
Actuated g/C Ratio	0.40	0.40	0.40					0.25		0.20	0.49	
v/c Ratio	0.59	1.05dr	0.93					0.67		0.54	0.62	
Control Delay	34.8	33.5	50.4					43.8		29.4	27.1	
Queue Delay	0.0	0.0	0.0					0.0		0.0	3.5	
Total Delay	34.8	33.5	50.4					43.8		29.4	30.6	
LOS	C	C	D					D		C	C	
Approach Delay		39.8						43.8			30.3	
Approach LOS		D						D			C	
Stops (vph)	259	471	384					837		271	1197	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	39.0	33.0	12.0	46.0	41.0	19.0
Total Split (%)	30%	25%	9%	35%	32%	15%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

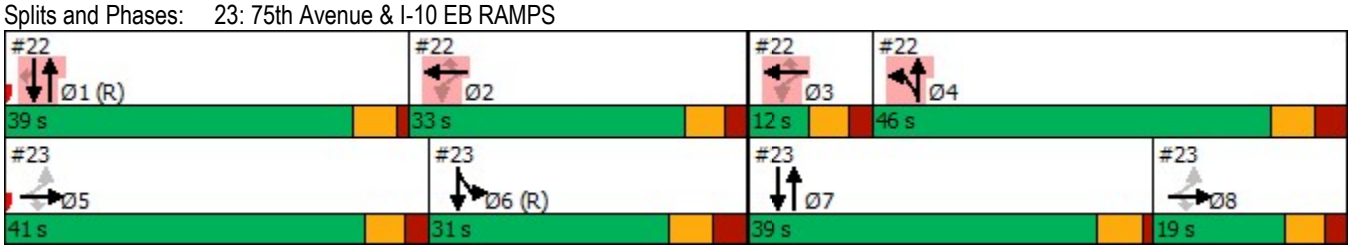
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	16	16					43		6	26	
CO Emissions (g/hr)	631	1140	1086					3017		438	1824	
NOx Emissions (g/hr)	123	222	211					587		85	355	
VOC Emissions (g/hr)	146	264	252					699		102	423	
Dilemma Vehicles (#)	0	23	0					37		0	4	
Queue Length 50th (ft)	265	257	413					211		145	479	
Queue Length 95th (ft)	374	326	#664					226		m165	465	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250									
Base Capacity (vph)	666	1131	659					1789		686	2472	
Starvation Cap Reductn	0	0	0					0		0	839	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.57	0.61	0.90					0.66		0.54	0.93	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 37.0 Intersection LOS: D
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	818	174	74	188	75	45	824	291	277	1332	73
Future Volume (vph)	74	818	174	74	188	75	45	824	291	277	1332	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		270	250		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850		0.957			0.961			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1302	3202	1432	1442	2820	0	1491	4321	0	1531	4628	0
Flt Permitted	0.497			0.110			0.105			0.095		
Satd. Flow (perm)	681	3202	1432	167	2820	0	165	4321	0	153	4628	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			168		52			78			9	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.83	0.83	0.83	0.76	0.76	0.76	0.83	0.83	0.83	0.89	0.89	0.89
Heavy Vehicles (%)	34%	9%	9%	21%	15%	27%	17%	11%	13%	14%	7%	16%
Adj. Flow (vph)	89	986	210	97	247	99	54	993	351	311	1497	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	986	210	97	346	0	54	1344	0	311	1579	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		
Detector Phase	1	6	6	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		5.0	15.0		2.0	15.0	
Minimum Split (s)	9.5	52.0	52.0	9.5	52.0		9.5	34.0		16.0	50.0	
Total Split (s)	10.0	41.0	41.0	11.0	42.0		12.0	43.0		25.0	56.0	
Total Split (%)	8.3%	34.2%	34.2%	9.2%	35.0%		10.0%	35.8%		20.8%	46.7%	
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		3.5	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3		4.5	5.3		4.0	5.3	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes			Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	42.6	36.0	36.0	44.6	37.0		44.9	37.2		63.4	52.7	
Actuated g/C Ratio	0.36	0.30	0.30	0.37	0.31		0.37	0.31		0.53	0.44	
v/c Ratio	0.33	1.03	0.38	0.72	0.38		0.39	0.96		0.97	0.78	
Control Delay	29.2	74.3	13.3	73.7	48.8		24.8	55.7		77.6	32.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.2	74.3	13.3	73.7	48.8		24.8	55.7		77.6	32.2	
LOS	C	E	B	E	D		C	E		E	C	
Approach Delay		61.2			54.2			54.5			39.7	
Approach LOS		E			D			D			D	
Stops (vph)	38	718	46	69	531		27	973		192	1162	

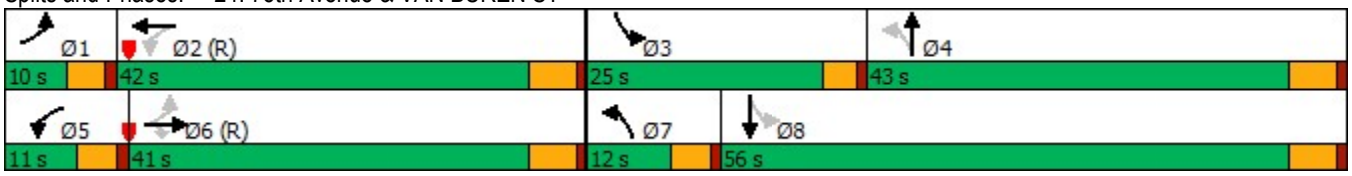
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	49	7	5	18		2	63		13	57	
CO Emissions (g/hr)	239	3418	487	319	1287		148	4420		938	4014	
NOx Emissions (g/hr)	47	665	95	62	250		29	860		183	781	
VOC Emissions (g/hr)	55	792	113	74	298		34	1024		217	930	
Dilemma Vehicles (#)	0	9	0	0	1		0	44		0	49	
Queue Length 50th (ft)	37	~441	38	72	128		20	354		195	383	
Queue Length 95th (ft)	m57	#476	m58	m#101	145		38	373		#371	440	
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200			200			250			220		
Base Capacity (vph)	270	961	547	134	906		145	1411		321	2036	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.33	1.03	0.38	0.72	0.38		0.37	0.95		0.97	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 50.6 Intersection LOS: D
Intersection Capacity Utilization 75.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



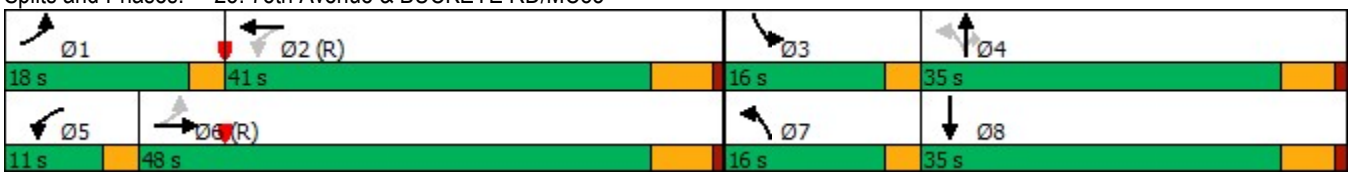
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	1406	150	37	352	165	93	728	216	282	534	50
Future Volume (vph)	209	1406	150	37	352	165	93	728	216	282	534	50
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		0	260		0	270		0
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.986			0.952				0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	4797	0	1670	4231	0	1505	3370	1565	3098	3331	0
Flt Permitted	0.338			0.100			0.295			0.950		
Satd. Flow (perm)	634	4797	0	176	4231	0	467	3370	1565	3098	3331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			114				155		9	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4818			2586			1298			2861	
Travel Time (s)		65.7			35.3			19.7			43.3	
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	3%	8%	13%	10%	21%	14%	22%	9%	5%	15%	8%	18%
Adj. Flow (vph)	227	1528	163	45	424	199	101	791	235	310	587	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	227	1691	0	45	623	0	101	791	235	310	642	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4		4			
Detector Phase	1	6		5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	18.0	44.0		11.0	37.0		17.0	30.0	30.0	17.0	30.0	
Total Split (s)	18.0	48.0		11.0	41.0		16.0	35.0	35.0	16.0	35.0	
Total Split (%)	16.4%	43.6%		10.0%	37.3%		14.5%	31.8%	31.8%	14.5%	31.8%	
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	0.0	1.1		0.0	1.1		0.0	1.2	1.2	0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	6.1		3.0	6.1		3.0	5.5	5.5	3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped	Ped	None	Ped	
Act Effct Green (s)	57.9	47.4		49.0	39.9		38.4	27.8	27.8	12.7	32.5	
Actuated g/C Ratio	0.53	0.43		0.45	0.36		0.35	0.25	0.25	0.12	0.30	
v/c Ratio	0.50	0.81		0.28	0.39		0.42	0.93	0.46	0.87	0.65	
Control Delay	6.5	18.5		18.9	22.6		25.2	57.9	15.0	71.7	36.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	6.5	18.5		18.9	22.6		25.2	57.9	15.0	71.7	36.9	
LOS	A	B		B	C		C	E	B	E	D	
Approach Delay		17.1			22.4			46.0			48.2	
Approach LOS		B			C			D			D	
Stops (vph)	49	1343		21	309		59	673	66	258	488	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	78		2	24		2	23	3	17	31	
CO Emissions (g/hr)	558	5473		119	1704		139	1613	231	1192	2139	
NOx Emissions (g/hr)	109	1065		23	331		27	314	45	232	416	
VOC Emissions (g/hr)	129	1268		28	395		32	374	53	276	496	
Dilemma Vehicles (#)	0	72		0	24		0	30	0	0	21	
Queue Length 50th (ft)	45	426		15	98		42	281	44	112	198	
Queue Length 95th (ft)	m20	#494		32	124		78	#386	115	#186	274	
Internal Link Dist (ft)		4738			2506			1218			2781	
Turn Bay Length (ft)	260			270			260			270		
Base Capacity (vph)	490	2076		190	1609		306	903	533	366	991	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.46	0.81		0.24	0.39		0.33	0.88	0.44	0.85	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 68.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	861	310	290	678	164	204	734	90	158	960	112
Future Volume (vph)	204	861	310	290	678	164	204	734	90	158	960	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850			0.850		0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3355	1501	1711	4868	1531	1711	4700	0	1711	4868	1531
Flt Permitted	0.312			0.102			0.129			0.172		
Satd. Flow (perm)	562	3355	1501	184	4868	1531	232	4700	0	310	4868	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			300			205		17				126
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.94	0.94	0.94	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	2%	4%	4%	2%	3%	2%	2%	4%	13%	2%	3%	2%
Adj. Flow (vph)	217	916	330	363	848	205	224	807	99	178	1079	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	916	330	363	848	205	224	906	0	178	1079	126
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4			8		8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	15.0		8.0	15.0	15.0
Minimum Split (s)	11.0	50.3	50.3	9.0	48.3	48.3	9.0	33.0		12.0	28.3	28.3
Total Split (s)	23.0	41.0	41.0	24.0	42.0	42.0	20.0	35.0		20.0	35.0	35.0
Total Split (%)	19.2%	34.2%	34.2%	20.0%	35.0%	35.0%	16.7%	29.2%		16.7%	29.2%	29.2%
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4	1.4	1.0	1.4		1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.4		4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped		Min	Ped	Ped
Act Effct Green (s)	50.0	35.3	35.3	62.7	44.4	44.4	47.2	31.0		42.5	28.6	28.6
Actuated g/C Ratio	0.42	0.29	0.29	0.52	0.37	0.37	0.39	0.26		0.35	0.24	0.24
v/c Ratio	0.61	0.93	0.51	0.96	0.47	0.29	0.82	0.74		0.70	0.93	0.27
Control Delay	25.0	35.8	2.8	72.1	31.0	5.2	44.1	41.0		38.4	59.1	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	25.0	35.8	2.8	72.1	31.0	5.2	44.1	41.0		38.4	59.1	7.8
LOS	C	D	A	E	C	A	D	D		D	E	A
Approach Delay		26.8			37.8			41.6			51.8	
Approach LOS		C			D			D			D	
Stops (vph)	115	783	36	190	508	18	157	776		106	892	16

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	45	11	9	16	2	5	19		6	40	3
CO Emissions (g/hr)	656	3158	778	626	1123	120	320	1353		389	2821	187
NOx Emissions (g/hr)	128	614	151	122	219	23	62	263		76	549	36
VOC Emissions (g/hr)	152	732	180	145	260	28	74	314		90	654	43
Dilemma Vehicles (#)	0	43	0	0	28	0	0	12		0	36	0
Queue Length 50th (ft)	35	371	4	~253	187	0	137	252		87	297	0
Queue Length 95th (ft)	m86	m#493	m9	#364	212	34	#247	309		137	#368	47
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	444	986	653	378	1802	696	288	1237		305	1200	472
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.49	0.93	0.51	0.96	0.47	0.29	0.78	0.73		0.58	0.90	0.27

Intersection Summary

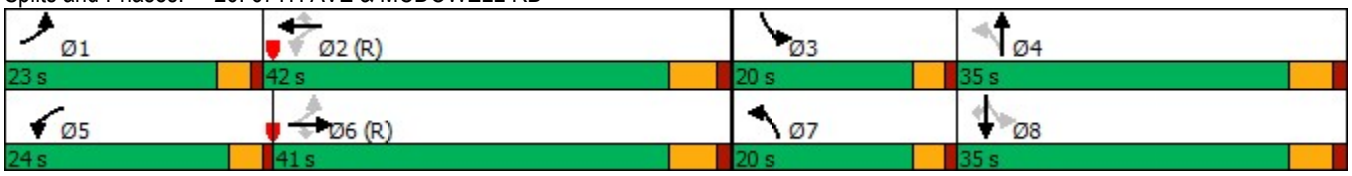
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 39.2 Intersection LOS: D
Intersection Capacity Utilization 80.3% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 26: 67TH AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	276	254	323	282	655	0	0	1239	277
Future Volume (vph)	0	0	0	276	254	323	282	655	0	0	1239	277
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	2		2	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	3072	1289	1565	3210	5075	0	0	5175	1611
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	3072	1289	1565	3210	5075	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						278						265
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	16%	50%	5%	11%	4%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	297	273	347	300	697	0	0	1291	289
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	297	273	347	300	697	0	0	1291	289
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							51.0				34.0	34.0
Total Split (%)							42.5%				28.3%	28.3%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				28.3	28.3	28.3	39.6	80.1			32.8	32.8
Actuated g/C Ratio				0.24	0.24	0.24	0.33	0.67			0.27	0.27
v/c Ratio				0.41	0.90	0.60	0.28	0.21			0.91	0.46
Control Delay				40.7	76.5	13.7	13.8	3.7			52.0	14.7
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				40.7	76.5	13.7	13.8	3.7			52.0	14.7
LOS				D	E	B	B	A			D	B
Approach Delay					41.1			6.7			45.2	
Approach LOS					D			A			D	
Stops (vph)				228	224	73	162	317			846	148

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	16.0	19.0	22.0	28.0	45.0	25.0
Total Split (%)	13%	16%	18%	23%	38%	21%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				8	9	5	3	6			29	4
CO Emissions (g/hr)				527	626	324	237	415			2008	273
NOx Emissions (g/hr)				102	122	63	46	81			391	53
VOC Emissions (g/hr)				122	145	75	55	96			465	63
Dilemma Vehicles (#)				0	9	0	0	1			135	0
Queue Length 50th (ft)				100	205	43	52	64			~307	39
Queue Length 95th (ft)				143	#364	140	78	64			m#455	m67
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				734	308	585	1158	3387			1413	632
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.40	0.89	0.59	0.26	0.21			0.91	0.46

Intersection Summary

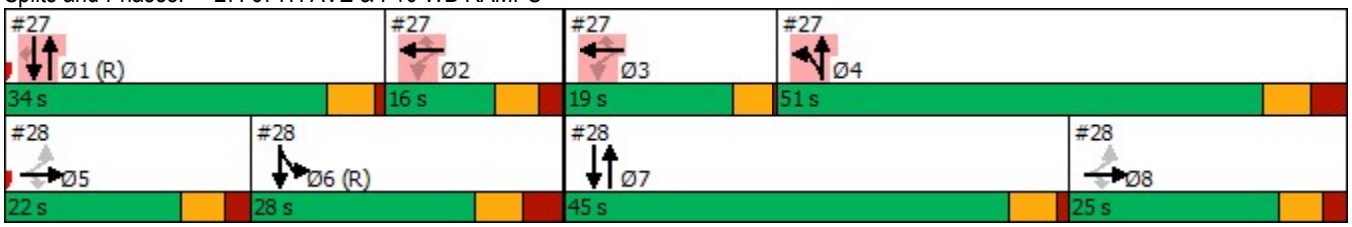
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 33.2 Intersection LOS: C
Intersection Capacity Utilization 54.2% ICU Level of Service A
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	13	636	0	0	0	0	856	240	364	1128	0
Future Volume (vph)	216	13	636	0	0	0	0	856	240	364	1128	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	200		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	0.86	1.00	0.91	1.00
Frt		0.864	0.850					0.967				
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1639	2736	1424	0	0	0	0	6000	0	1801	4979	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1639	2736	1424	0	0	0	0	6000	0	1801	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56	178					63				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.89	0.89	0.89	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	5%	0%	0%	0%	0%	5%	15%	2%	6%	0%
Adj. Flow (vph)	254	15	748	0	0	0	0	962	270	387	1200	0
Shared Lane Traffic (%)	10%		50%									
Lane Group Flow (vph)	229	414	374	0	0	0	0	1232	0	387	1200	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								45.0		28.0		
Total Split (%)								37.5%		23.3%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	33.8	33.8	33.8					37.1		29.5	71.9	
Actuated g/C Ratio	0.28	0.28	0.28					0.31		0.25	0.60	
v/c Ratio	0.50	0.51	0.71					0.65		0.87	0.40	
Control Delay	39.2	32.7	26.9					57.0		40.1	5.1	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.3	
Total Delay	39.2	32.7	26.9					57.0		40.1	5.4	
LOS	D	C	C					E		D	A	
Approach Delay		32.0						57.0			13.9	
Approach LOS		C						E			B	
Stops (vph)	158	247	156					1028		268	652	

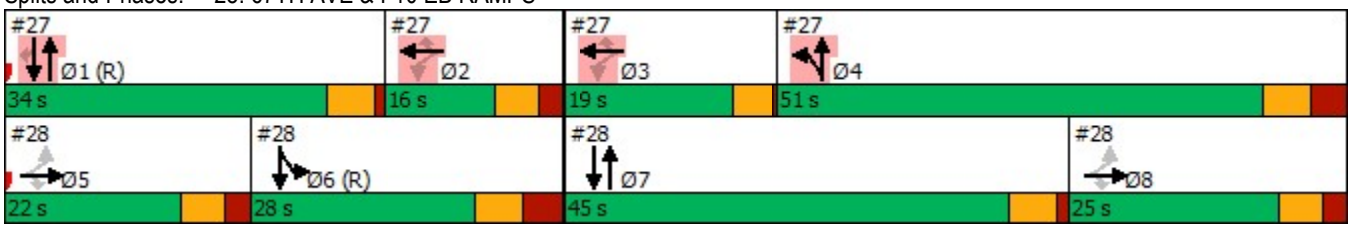
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	34.0	16.0	19.0	51.0	22.0	25.0
Total Split (%)	28%	13%	16%	43%	18%	21%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	9	7					51		7	12	
CO Emissions (g/hr)	389	637	491					3568		482	812	
NOx Emissions (g/hr)	76	124	96					694		94	158	
VOC Emissions (g/hr)	90	148	114					827		112	188	
Dilemma Vehicles (#)	0	13	0					8		0	0	
Queue Length 50th (ft)	164	136	153					277		201	0	
Queue Length 95th (ft)	214	162	227					313		m#484	m328	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	521	908	574					2027		443	3092	
Starvation Cap Reductn	0	0	0					0		0	1108	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.44	0.46	0.65					0.61		0.87	0.60	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 32.5 Intersection LOS: C
Intersection Capacity Utilization 54.2% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	936	168	140	239	106	140	782	359	249	892	64
Future Volume (vph)	201	936	168	140	239	106	140	782	359	249	892	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		0	250		0	260		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt			0.850			0.850		0.953			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3116	1301	1601	4214	1249	1662	4342	0	1586	3152	0
Flt Permitted	0.527			0.125			0.111			0.100		
Satd. Flow (perm)	849	3116	1301	211	4214	1249	194	4342	0	167	3152	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158			167		102			7	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	14%	12%	20%	9%	19%	25%	5%	11%	8%	10%	9%	18%
Adj. Flow (vph)	214	996	179	152	260	115	151	841	386	290	1037	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	996	179	152	260	115	151	1227	0	290	1111	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4			8		
Detector Phase	1	6	6	5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	9.0	52.0	52.0	9.0	52.0	52.0	9.0	50.0		9.0	50.0	
Total Split (s)	17.0	40.0	40.0	12.0	35.0	35.0	15.0	44.0		24.0	53.0	
Total Split (%)	14.2%	33.3%	33.3%	10.0%	29.2%	29.2%	12.5%	36.7%		20.0%	44.2%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes			Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	49.9	35.6	35.6	43.4	32.0	32.0	48.1	36.0		61.1	45.0	
Actuated g/C Ratio	0.42	0.30	0.30	0.36	0.27	0.27	0.40	0.30		0.51	0.38	
v/c Ratio	0.50	1.08	0.36	0.81	0.23	0.25	0.73	0.89		0.91	0.94	
Control Delay	21.0	74.0	5.3	58.8	36.0	2.7	49.2	63.8		69.8	57.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	21.0	74.0	5.3	58.8	36.0	2.7	49.2	63.8		69.8	57.5	
LOS	C	E	A	E	D	A	D	E		E	E	
Approach Delay		57.0			35.3			62.2			60.1	
Approach LOS		E			D			E			E	
Stops (vph)	83	664	32	84	184	4	126	1769		225	911	

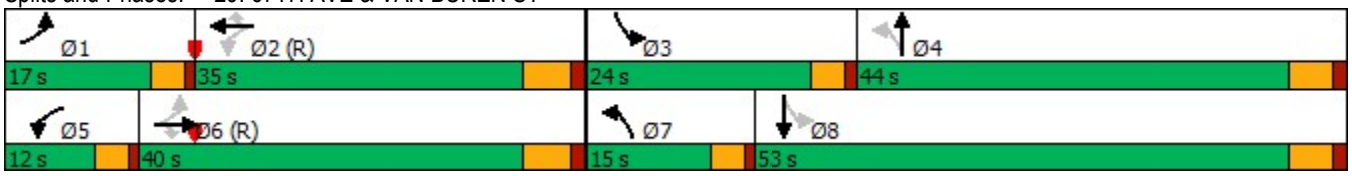
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	55	6	5	8	2	8	73		12	45	
CO Emissions (g/hr)	624	3852	451	336	531	118	532	5081		850	3127	
NOx Emissions (g/hr)	121	750	88	65	103	23	103	989		165	608	
VOC Emissions (g/hr)	145	893	105	78	123	27	123	1178		197	725	
Dilemma Vehicles (#)	0	60	0	0	10	0	0	85		0	15	
Queue Length 50th (ft)	89	~454	5	76	59	0	101	306		205	454	
Queue Length 95th (ft)	m91	m#456	m5	#209	86	14	m123	354		#312	482	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250			250			250			260		
Base Capacity (vph)	432	923	496	188	1124	455	213	1465		321	1254	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.50	1.08	0.36	0.81	0.23	0.25	0.71	0.84		0.90	0.89	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 57.0 Intersection LOS: E
Intersection Capacity Utilization 81.2% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



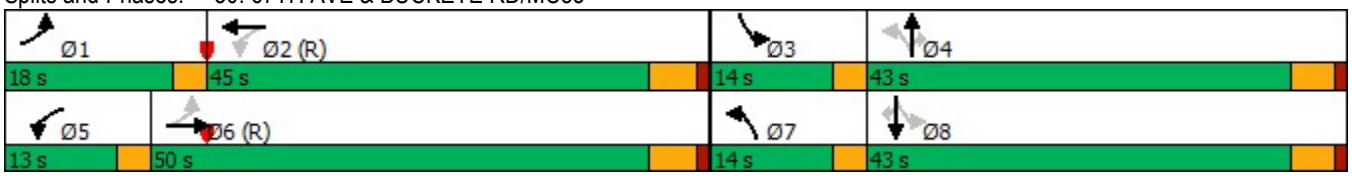
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	336	1327	98	94	385	92	165	795	238	142	608	287
Future Volume (vph)	336	1327	98	94	385	92	165	795	238	142	608	287
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		0	200		0	260		260
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.990			0.971				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1640	4699	0	1701	4199	0	1717	3566	1595	1640	3433	1494
Flt Permitted	0.374			0.097			0.169			0.115		
Satd. Flow (perm)	646	4699	0	174	4199	0	305	3566	1595	199	3433	1494
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			50				211			354
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.85	0.85	0.85	0.81	0.81	0.81
Heavy Vehicles (%)	12%	11%	14%	8%	23%	18%	7%	3%	3%	12%	7%	10%
Adj. Flow (vph)	369	1458	108	104	428	102	194	935	280	175	751	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	369	1566	0	104	530	0	194	935	280	175	751	354
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4		4	8		8
Detector Phase	1	6		5	2		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0	15.0	3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0		12.0	32.0	32.0	17.0	37.0	37.0
Total Split (s)	18.0	50.0		13.0	45.0		14.0	43.0	43.0	14.0	43.0	43.0
Total Split (%)	15.0%	41.7%		10.8%	37.5%		11.7%	35.8%	35.8%	11.7%	35.8%	35.8%
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2		0.0	1.2	1.2	0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5		3.0	5.2	5.2	3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped	Ped	None	Ped	Ped
Act Effct Green (s)	63.2	49.0		52.6	41.3		47.7	34.6	34.6	48.0	34.8	34.8
Actuated g/C Ratio	0.53	0.41		0.44	0.34		0.40	0.29	0.29	0.40	0.29	0.29
v/c Ratio	0.78	0.81		0.56	0.36		0.78	0.91	0.46	0.83	0.76	0.52
Control Delay	32.4	36.3		30.4	27.8		44.8	54.3	11.4	65.1	48.0	12.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	36.3		30.4	27.8		44.8	54.3	11.4	65.1	48.0	12.4
LOS	C	D		C	C		D	D	B	E	D	B
Approach Delay		35.6			28.2			44.4			40.5	
Approach LOS		D			C			D			D	
Stops (vph)	196	1207		53	316		102	741	53	110	415	110

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	16	74		3	14		4	22	3	8	32	12
CO Emissions (g/hr)	1127	5187		183	950		261	1535	198	559	2209	838
NOx Emissions (g/hr)	219	1009		36	185		51	299	39	109	430	163
VOC Emissions (g/hr)	261	1202		42	220		60	356	46	130	512	194
Dilemma Vehicles (#)	0	59		0	20		0	29	0	0	43	0
Queue Length 50th (ft)	172	395		40	103		94	361	39	110	211	71
Queue Length 95th (ft)	#304	481		85	136		#143	403	95	m134	232	m85
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250			200			260		260
Base Capacity (vph)	475	1923		205	1479		251	1123	646	211	1081	713
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.81		0.51	0.36		0.77	0.83	0.43	0.83	0.69	0.50

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 32 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 38.3 Intersection LOS: D
Intersection Capacity Utilization 70.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85



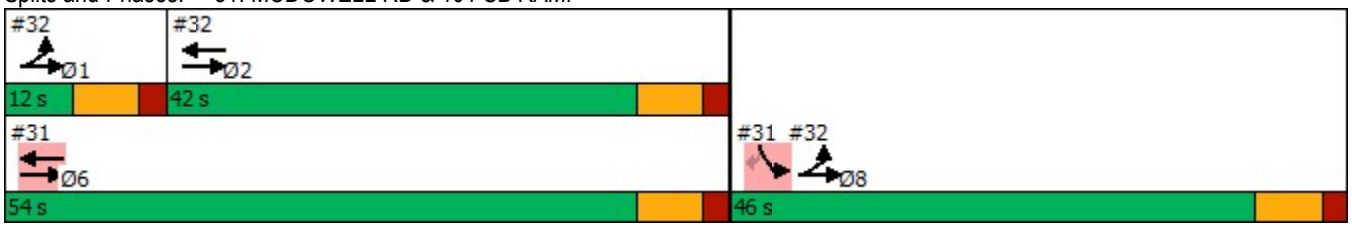
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1654	763	0	763	509		
Future Volume (vph)	0	1654	763	0	763	509		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	2	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.91	1.00	0.97	0.86		
Frt					0.991	0.850		
Flt Protected					0.955			
Satd. Flow (prot)	0	6520	5175	0	3480	2771		
Flt Permitted					0.955			
Satd. Flow (perm)	0	6520	5175	0	3480	2771		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)					8	181		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1798	829	0	829	553		
Shared Lane Traffic (%)						10%		
Lane Group Flow (vph)	0	1798	829	0	884	498		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		54.0	54.0		46.0	46.0	12.0	42.0
Total Split (%)		54.0%	54.0%		46.0%	46.0%	12%	42%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		47.0	47.0		39.0	39.0		
Actuated g/C Ratio		0.47	0.47		0.39	0.39		
v/c Ratio		0.59	0.34		0.65	0.42		
Control Delay		20.4	8.4		27.4	14.9		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		20.4	8.4		27.4	14.9		
LOS		C	A		C	B		
Approach Delay		20.4	8.4		22.9			
Approach LOS		C	A		C			
Stops (vph)		1154	145		636	205		
Fuel Used(gal)		32	5		25	11		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		2210	374		1735	762		
NOx Emissions (g/hr)		430	73		338	148		
VOC Emissions (g/hr)		512	87		402	177		
Dilemma Vehicles (#)		80	82		0	0		
Queue Length 50th (ft)		235	35		230	80		
Queue Length 95th (ft)		272	m52		297	129		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		3064	2432		1362	1191		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.59	0.34		0.65	0.42		

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 18.8	Intersection LOS: B
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

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

Splits and Phases: 31: MCDOWELL RD & 101 SB RAMP



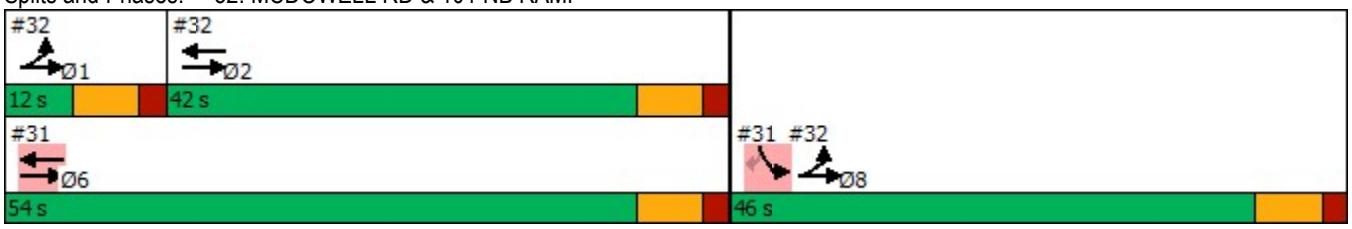
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	636	1781	763	636	0	0			
Future Volume (vph)	636	1781	763	636	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.91	0.91	1.00	1.00			
Frt			0.932						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	4340	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	4340	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			185						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	691	1936	829	691	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	691	1936	1520	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			42.0				12.0	54.0	46.0
Total Split (%)			42.0%				12%	54%	46%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	51.0	100.0	35.0						
Actuated g/C Ratio	0.51	1.00	0.35						
v/c Ratio	0.43	0.60	1.09dr						
Control Delay	27.6	3.8	38.5						
Queue Delay	0.0	0.0	0.0						
Total Delay	27.6	3.8	38.5						
LOS	C	A	D						
Approach Delay		10.1	38.5						
Approach LOS		B	D						
Stops (vph)	495	448	1135						
Fuel Used(gal)	12	12	60						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	812	854	4193						
NOx Emissions (g/hr)	158	166	816						
VOC Emissions (g/hr)	188	198	972						
Dilemma Vehicles (#)	0	0	68						
Queue Length 50th (ft)	179	147	304						
Queue Length 95th (ft)	233	154	#407						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1603	3241	1639						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.43	0.60	0.93						

Intersection Summary	
Area Type: CBD	
Cycle Length: 100	
Actuated Cycle Length: 100	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 32: MCDOWELL RD & 101 NB RAMP



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	725	159	538	780	195	212	669	319	216	452	197
Future Volume (vph)	123	725	159	538	780	195	212	669	319	216	452	197
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		160	0		0	120		120	150		100
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	115			115			80			100		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.970				0.850		0.955	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	5175	1611	3493	5009	0	1801	3601	1611	1801	3439	0
Flt Permitted	0.270			0.950			0.210			0.118		
Satd. Flow (perm)	502	5175	1611	3493	5009	0	398	3601	1611	224	3439	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146		52				179		48	
Link Speed (mph)		45			30			45			35	
Link Distance (ft)		680			1006			616			1181	
Travel Time (s)		10.3			22.9			9.3			23.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.89	0.89	0.89	0.91	0.91	0.91
Heavy Vehicles (%)	4%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	128	755	166	560	813	203	238	752	358	237	497	216
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	755	166	560	1016	0	238	752	358	237	713	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6				4		4	8		
Detector Phase	1	6	6	5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	10.0	20.0		6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	10.5	29.3	29.3	14.5	29.3		10.5	35.6	35.6	10.5	35.6	
Total Split (s)	13.0	42.0	42.0	39.0	68.0		15.0	45.0	45.0	19.0	49.0	
Total Split (%)	9.0%	29.0%	29.0%	26.9%	46.9%		10.3%	31.0%	31.0%	13.1%	33.8%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3		4.0	5.6	5.6	4.0	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Min		None	None	None	None	None	
Act Effct Green (s)	47.0	36.0	36.0	26.4	53.7		46.6	33.9	33.9	54.2	37.7	
Actuated g/C Ratio	0.36	0.27	0.27	0.20	0.41		0.35	0.26	0.26	0.41	0.29	
v/c Ratio	0.49	0.53	0.30	0.80	0.49		0.92	0.81	0.65	0.87	0.70	
Control Delay	26.5	43.6	10.5	59.4	28.3		69.4	53.6	27.4	61.7	43.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	26.5	43.6	10.5	59.4	28.3		69.4	53.6	27.4	61.7	43.1	
LOS	C	D	B	E	C		E	D	C	E	D	
Approach Delay		36.2			39.3			49.4			47.7	
Approach LOS		D			D			D			D	
Stops (vph)	82	600	27	496	656		141	608	145	133	525	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	17	1	31	47		6	19	6	6	15	
CO Emissions (g/hr)	156	1195	96	2139	3270		428	1343	396	388	1061	
NOx Emissions (g/hr)	30	232	19	416	636		83	261	77	76	206	
VOC Emissions (g/hr)	36	277	22	496	758		99	311	92	90	246	
Dilemma Vehicles (#)	0	27	0	0	0		0	23	0	0	17	
Queue Length 50th (ft)	56	205	13	239	226		135	316	136	138	266	
Queue Length 95th (ft)	97	279	77	313	278		#276	417	258	#322	364	
Internal Link Dist (ft)		600			926			536			1101	
Turn Bay Length (ft)	200		160				120		120	150		
Base Capacity (vph)	268	1418	547	938	2399		259	1088	612	274	1177	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.48	0.53	0.30	0.60	0.42		0.92	0.69	0.58	0.86	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 145
Actuated Cycle Length: 131.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 43.1 Intersection LOS: D
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 107TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	167	14	57	357	1140	0	0	672	439
Future Volume (vph)	0	0	0	167	14	57	357	1140	0	0	672	439
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	260		260	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.990	0.850					0.941	
Flt Protected				0.950	0.962		0.950					
Satd. Flow (prot)	0	0	0	1694	1630	1531	1749	3601	0	0	4869	0
Flt Permitted				0.950	0.962		0.950					
Satd. Flow (perm)	0	0	0	1694	1630	1531	1749	3601	0	0	4869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	142					100	
Link Speed (mph)		30			45			45			45	
Link Distance (ft)		812			899			352			387	
Travel Time (s)		18.5			13.6			5.3			5.9	
Peak Hour Factor	0.25	0.25	0.25	0.87	0.87	0.87	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	3%	2%	2%	5%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	192	16	66	397	1267	0	0	715	467
Shared Lane Traffic (%)				44%		10%						
Lane Group Flow (vph)	0	0	0	108	107	59	397	1267	0	0	1182	0
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						
Detector Phase				2 3	2 3	2 3	4	1 4			1	
Switch Phase												
Minimum Initial (s)							6.0				12.0	
Minimum Split (s)							40.4				30.0	
Total Split (s)							54.9				38.0	
Total Split (%)							36.6%				25.3%	
Yellow Time (s)							3.9				4.3	
All-Red Time (s)							0.5				1.7	
Lost Time Adjust (s)							0.0				0.0	
Total Lost Time (s)							4.4				6.0	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Recall Mode							None				Min	
Act Effct Green (s)				23.1	23.1	23.1	47.8	84.4			32.1	
Actuated g/C Ratio				0.19	0.19	0.19	0.40	0.71			0.27	
v/c Ratio				0.33	0.34	0.14	0.56	0.50			0.91dr	
Control Delay				44.6	43.7	0.7	11.3	6.4			45.2	
Queue Delay				0.0	0.0	0.0	4.9	4.2			3.1	
Total Delay				44.6	43.7	0.7	16.2	10.5			48.3	
LOS				D	D	A	B	B			D	
Approach Delay					34.8			11.9			48.3	
Approach LOS					C			B			D	
Stops (vph)				77	74	0	219	755			928	

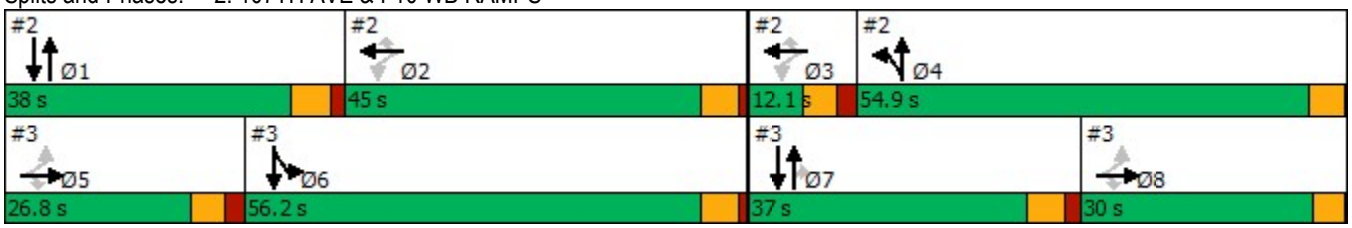
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	12.0	5.0
Minimum Split (s)	43.3	12.1	12.1	43.3	30.0	30.0
Total Split (s)	45.0	12.1	26.8	56.2	37.0	30.0
Total Split (%)	30%	8%	18%	37%	25%	20%
Yellow Time (s)	4.3	3.9	3.9	4.3	4.3	3.5
All-Red Time (s)	1.0	2.2	2.2	1.0	1.7	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				2	2	0	4	13			29	
CO Emissions (g/hr)				165	160	21	305	942			2026	
NOx Emissions (g/hr)				32	31	4	59	183			394	
VOC Emissions (g/hr)				38	37	5	71	218			470	
Dilemma Vehicles (#)				0	4	0	0	1			46	
Queue Length 50th (ft)				77	78	0	90	377			301	
Queue Length 95th (ft)				129	132	0	m275	445			#399	
Internal Link Dist (ft)		732			819			272			307	
Turn Bay Length (ft)				260		260						
Base Capacity (vph)				568	548	607	746	2545			1388	
Starvation Cap Reductn				0	0	0	275	1177			0	
Spillback Cap Reductn				0	0	0	0	0			125	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.19	0.20	0.10	0.84	0.93			0.94	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 118.8
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 27.7 Intersection LOS: C
Intersection Capacity Utilization 68.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 2: 107TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	447	47	265	0	0	0	0	1055	195	80	763	0
Future Volume (vph)	447	47	265	0	0	0	0	1055	195	80	763	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	190		190	0		0	90		0	0		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt		0.982	0.850						0.850			
Flt Protected	0.950	0.966								0.950		
Satd. Flow (prot)	1711	1618	1459	0	0	0	0	5175	1595	1801	3601	0
Flt Permitted	0.950	0.966								0.950		
Satd. Flow (perm)	1711	1618	1459	0	0	0	0	5175	1595	1801	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5	159						168			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		814			927			3947			352	
Travel Time (s)		12.3			14.0			59.8			5.3	
Peak Hour Factor	0.87	0.87	0.87	0.25	0.25	0.25	0.95	0.95	0.95	0.89	0.89	0.89
Heavy Vehicles (%)	2%	5%	7%	0%	0%	0%	0%	2%	3%	2%	2%	0%
Adj. Flow (vph)	514	54	305	0	0	0	0	1111	205	90	857	0
Shared Lane Traffic (%)	41%		12%									
Lane Group Flow (vph)	303	302	268	0	0	0	0	1111	205	90	857	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								12.0	12.0	6.0		
Minimum Split (s)								30.0	30.0	43.3		
Total Split (s)								37.0	37.0	56.2		
Total Split (%)								24.7%	24.7%	37.5%		
Yellow Time (s)								4.3	4.3	4.3		
All-Red Time (s)								1.7	1.7	1.0		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								6.0	6.0	5.3		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	None		
Act Effct Green (s)	35.1	35.1	35.1					31.1	31.1	35.1	72.2	
Actuated g/C Ratio	0.30	0.30	0.30					0.26	0.26	0.30	0.61	
v/c Ratio	0.60	0.63	0.49					0.82	0.38	0.17	0.39	
Control Delay	41.2	41.9	16.8					47.9	11.3	9.5	6.4	
Queue Delay	0.0	0.0	0.0					16.3	0.0	0.0	2.0	
Total Delay	41.2	41.9	16.8					64.2	11.3	9.5	8.4	
LOS	D	D	B					E	B	A	A	
Approach Delay		33.9						56.0			8.5	
Approach LOS		C						E			A	
Stops (vph)	219	216	77					951	40	28	495	

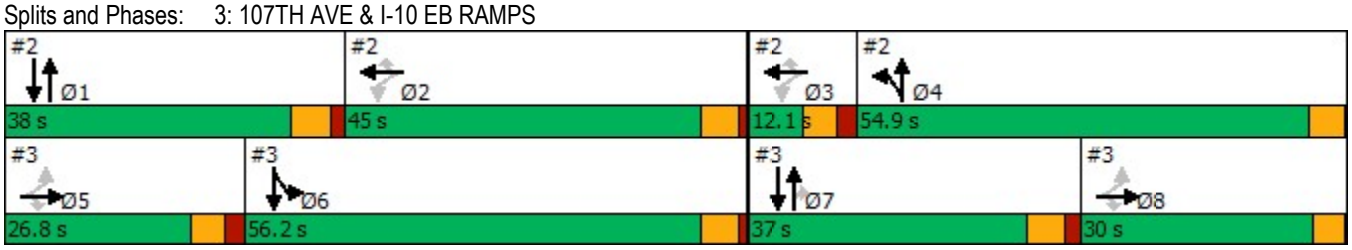
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	12.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	30.0	43.3	12.1	40.4	12.1	30.0
Total Split (s)	38.0	45.0	12.1	54.9	26.8	30.0
Total Split (%)	25%	30%	8%	37%	18%	20%
Yellow Time (s)	4.3	4.3	3.9	3.9	3.9	3.5
All-Red Time (s)	1.7	1.0	2.2	0.5	2.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	6	3					49	6	1	9	
CO Emissions (g/hr)	443	442	209					3435	415	48	622	
NOx Emissions (g/hr)	86	86	41					668	81	9	121	
VOC Emissions (g/hr)	103	102	48					796	96	11	144	
Dilemma Vehicles (#)	0	9	0					44	0	0	4	
Queue Length 50th (ft)	211	218	68					303	22	15	121	
Queue Length 95th (ft)	294	307	141					379	90	m34	345	
Internal Link Dist (ft)		734			847			3867			272	
Turn Bay Length (ft)	190		190									
Base Capacity (vph)	686	652	680					1354	541	774	2189	
Starvation Cap Reductn	0	0	0					0	0	0	1130	
Spillback Cap Reductn	0	0	0					257	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.44	0.46	0.39					1.01	0.38	0.12	0.81	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 118.8
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 35.5 Intersection LOS: D
Intersection Capacity Utilization 68.9% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: 107TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	262	92	145	603	153	93	801	66	33	751	184
Future Volume (vph)	98	262	92	145	603	153	93	801	66	33	751	184
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	130		130	170		170	0		0	210		160
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	1774	1580	1783	1877	1565	1783	3566	1611	1640	3601	1611
Flt Permitted	0.145			0.583			0.219			0.210		
Satd. Flow (perm)	275	1774	1580	1094	1877	1565	411	3566	1611	362	3601	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38			107			69			168
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		659			682			5262			3947	
Travel Time (s)		10.0			10.3			119.6			59.8	
Peak Hour Factor	0.91	0.91	0.91	0.97	0.97	0.97	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	9%	4%	3%	3%	5%	3%	3%	2%	12%	2%	2%
Adj. Flow (vph)	108	288	101	149	622	158	97	834	69	36	816	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	288	101	149	622	158	97	834	69	36	816	200
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phase	1	6	6	2	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	9.0	36.0	36.0	37.0	37.0	37.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	12.0	68.0	68.0	56.0	56.0	56.0	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	10.9%	61.8%	61.8%	50.9%	50.9%	50.9%	38.2%	38.2%	38.2%	38.2%	38.2%	38.2%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	48.0	45.9	45.9	37.5	37.5	37.5	34.3	34.3	34.3	34.3	34.3	34.3
Actuated g/C Ratio	0.52	0.49	0.49	0.40	0.40	0.40	0.37	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.42	0.33	0.13	0.34	0.82	0.23	0.64	0.63	0.11	0.27	0.61	0.29
Control Delay	16.0	14.7	8.3	22.4	35.4	7.8	52.0	29.0	6.8	32.3	28.6	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	14.7	8.3	22.4	35.4	7.8	52.0	29.0	6.8	32.3	28.6	7.5
LOS	B	B	A	C	D	A	D	C	A	C	C	A
Approach Delay		13.7			28.7			29.7			24.7	
Approach LOS		B			C			C			C	
Stops (vph)	41	137	27	91	505	33	71	631	11	26	585	32

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	1	4	1	7	31	6	5	41	3	1	31	5
CO Emissions (g/hr)	87	252	62	473	2190	413	363	2872	200	97	2159	377
NOx Emissions (g/hr)	17	49	12	92	426	80	71	559	39	19	420	73
VOC Emissions (g/hr)	20	58	14	110	508	96	84	666	46	22	500	87
Dilemma Vehicles (#)	0	11	0	0	27	0	0	0	0	0	36	0
Queue Length 50th (ft)	32	100	19	64	345	20	50	224	0	16	218	13
Queue Length 95th (ft)	57	152	44	114	491	58	#153	343	31	51	333	68
Internal Link Dist (ft)		579			602			5182			3867	
Turn Bay Length (ft)	130		130	170		170				210		160
Base Capacity (vph)	280	1226	1104	621	1065	935	168	1457	699	148	1472	758
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.23	0.09	0.24	0.58	0.17	0.58	0.57	0.10	0.24	0.55	0.26

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 92.8
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 79.7% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: VAN BUREN ST & 107TH AVE

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	430	122	164	1020	239	104	425	62	155	668	206
Future Volume (vph)	151	430	122	164	1020	239	104	425	62	155	668	206
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	100		0	150		0	160		0	70		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.967				0.850			0.850		0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1801	3482	0	1801	3566	1508	1801	3601	1611	1749	3467	0
Flt Permitted	0.103			0.338			0.133			0.396		
Satd. Flow (perm)	195	3482	0	641	3566	1508	252	3601	1611	729	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37				244			116		38	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1075			5289			378			5262	
Travel Time (s)		14.7			72.1			5.7			79.7	
Peak Hour Factor	0.93	0.93	0.93	0.98	0.98	0.98	0.89	0.89	0.89	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	3%	9%	2%	2%	2%	5%	2%	3%
Adj. Flow (vph)	162	462	131	167	1041	244	117	478	70	160	689	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	593	0	167	1041	244	117	478	70	160	901	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	15.0	15.0	4.0	15.0	
Minimum Split (s)	9.0	33.7		9.0	33.7	33.7	9.0	33.8	33.8	9.0	33.8	
Total Split (s)	12.0	46.0		12.0	46.0	46.0	12.0	40.0	40.0	12.0	40.0	
Total Split (%)	10.9%	41.8%		10.9%	41.8%	41.8%	10.9%	36.4%	36.4%	10.9%	36.4%	
Yellow Time (s)	3.0	4.7		3.0	4.7	4.7	3.0	4.4	4.4	3.0	4.4	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.4	2.4	1.0	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.8	6.8	4.0	6.8	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Max	Max	None	Max	
Act Effct Green (s)	49.5	38.9		49.2	38.7	38.7	44.3	34.1	34.1	45.0	34.4	
Actuated g/C Ratio	0.45	0.35		0.45	0.35	0.35	0.40	0.31	0.31	0.41	0.31	
v/c Ratio	0.80	0.47		0.45	0.83	0.35	0.57	0.43	0.12	0.43	0.81	
Control Delay	48.2	27.2		10.3	20.3	0.8	29.9	31.9	1.6	23.5	40.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.2	27.2		10.3	20.3	0.8	29.9	31.9	1.6	23.5	40.6	
LOS	D	C		B	C	A	C	C	A	C	D	
Approach Delay		31.7			15.9			28.4			38.0	
Approach LOS		C			B			C			D	
Stops (vph)	83	388		51	498	7	63	330	2	98	748	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	4	13		7	46	8	2	10	1	7	46	
CO Emissions (g/hr)	265	892		463	3221	571	155	709	36	507	3242	
NOx Emissions (g/hr)	51	174		90	627	111	30	138	7	99	631	
VOC Emissions (g/hr)	61	207		107	746	132	36	164	8	118	751	
Dilemma Vehicles (#)	0	25		0	88	0	0	19	0	0	39	
Queue Length 50th (ft)	62	157		38	155	1	49	142	0	69	300	
Queue Length 95th (ft)	#167	210		m38	m158	m1	85	190	8	114	382	
Internal Link Dist (ft)		995			5209			298			5182	
Turn Bay Length (ft)	100			150			160			70		
Base Capacity (vph)	204	1267		372	1274	695	215	1116	579	373	1110	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.79	0.47		0.45	0.82	0.35	0.54	0.43	0.12	0.43	0.81	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 30 (27%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 27.0 Intersection LOS: C
Intersection Capacity Utilization 75.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: 107TH AVE & BUCKEYE RD/MC85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	805	195	711	1230	97	445	642	707	177	766	145
Future Volume (vph)	103	805	195	711	1230	97	445	642	707	177	766	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	180		220	200		0	200		200	230		430
Storage Lanes	2		0	2		0	2		2	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.91	0.91	0.97	0.91	0.91	0.97	0.91	0.88	0.97	0.91	1.00
Frt		0.971			0.989				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	4938	0	3367	5029	0	3433	5085	2787	3400	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4938	0	3367	5029	0	3433	5085	2787	3400	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			10				698			217
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4248			985			908			1873	
Travel Time (s)		64.4			14.9			13.8			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.98	0.98	0.98	0.99	0.99	0.99	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	114	894	217	726	1255	99	449	648	714	190	824	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	114	1111	0	726	1354	0	449	648	714	190	824	156
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases									8			4
Detector Phase	5	2		1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0			20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	50.0			50.0		11.0	45.0	45.0	11.0	45.0	45.0
Total Split (s)	15.0	42.0			70.0		30.0	46.0	46.0	19.0	35.0	35.0
Total Split (%)	10.0%	28.0%			46.7%		20.0%	30.7%	30.7%	12.7%	23.3%	23.3%
Yellow Time (s)	4.0	4.4			4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0			2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4			6.4		5.0	6.6	6.6	5.0	6.6	6.6
Lead/Lag	Lead	Lag			Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Max			Max		None	None	None	Min	None	None
Act Effct Green (s)	9.3	40.0		33.0	68.8		23.2	38.2	38.2	12.7	27.7	27.7
Actuated g/C Ratio	0.06	0.26		0.22	0.45		0.15	0.25	0.25	0.08	0.18	0.18
v/c Ratio	0.54	0.84		0.99	0.59		0.86	0.51	0.58	0.67	0.89	0.33
Control Delay	79.7	58.1		75.9	32.7		79.3	50.5	5.7	79.8	73.2	3.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.7	58.1		75.9	32.7		79.3	50.5	5.7	79.8	73.2	3.0
LOS	E	E		E	C		E	D	A	E	E	A
Approach Delay		60.1			47.8			40.0			64.9	
Approach LOS		E			D			D			E	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	6.0	5.0
Minimum Split (s)	11.0	9.5
Total Split (s)	31.0	12.0
Total Split (%)	21%	8%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Stops (vph)	98	899		745	961		421	537	51	169	720	3
Fuel Used(gal)	6	57		25	29		15	17	6	7	30	2
CO Emissions (g/hr)	448	3993		1734	2046		1052	1193	393	498	2075	132
NOx Emissions (g/hr)	87	777		337	398		205	232	76	97	404	26
VOC Emissions (g/hr)	104	925		402	474		244	276	91	115	481	31
Dilemma Vehicles (#)	0	33		0	35		0	17	0	0	24	0
Queue Length 50th (ft)	58	382		~295	375		228	205	6	96	300	0
Queue Length 95th (ft)	93	441		#434	426		292	249	60	140	#360	11
Internal Link Dist (ft)		4168			905			828			1793	
Turn Bay Length (ft)	180			200			200		200	230		430
Base Capacity (vph)	226	1326		731	2280		564	1319	1240	313	950	472
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.84		0.99	0.59		0.80	0.49	0.58	0.61	0.87	0.33

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 152	
Natural Cycle: 160	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 51.1	Intersection LOS: D
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: 99TH AVE & MCDOWELL RD

Lane Group	Ø1	Ø9
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	249	935	440	337	1430	0	0	1125	562
Future Volume (vph)	0	0	0	249	935	440	337	1430	0	0	1125	562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	370		370	0		0	180		0
Storage Lanes	0		0	1		1	1		0	1		2
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	1.00	1.00	0.86	1.00	1.00	0.86	0.88
Frt						0.850						0.850
Flt Protected				0.950	0.999		0.950					
Satd. Flow (prot)	0	0	0	1364	4588	1531	1586	6194	0	0	6194	2694
Flt Permitted				0.950	0.999		0.950					
Satd. Flow (perm)	0	0	0	1364	4588	1531	1586	6194	0	0	6194	2694
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						106						185
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2395			1692			534			908	
Travel Time (s)		36.3			25.6			8.1			13.8	
Peak Hour Factor	0.25	0.25	0.25	0.93	0.93	0.93	0.89	0.89	0.89	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	10%	3%	2%	10%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	268	1005	473	379	1607	0	0	1293	646
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	0	0	0	241	1032	473	379	1607	0	0	1293	646
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							10.0				20.0	20.0
Minimum Split (s)							47.8				28.9	28.9
Total Split (s)							50.0				40.0	40.0
Total Split (%)							33.3%				26.7%	26.7%
Yellow Time (s)							3.9				4.7	4.7
All-Red Time (s)							1.9				1.2	1.2
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							5.8				5.9	5.9
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				51.8	51.8	51.8	46.4	86.4			34.2	34.2
Actuated g/C Ratio				0.35	0.35	0.35	0.31	0.58			0.23	0.23
v/c Ratio				0.51	0.65	0.79	0.77	0.45			0.92	0.85
Control Delay				43.0	43.4	44.2	34.3	13.8			67.3	51.2
Queue Delay				0.2	0.1	0.0	1.1	0.5			0.0	0.0
Total Delay				43.2	43.5	44.2	35.4	14.4			67.3	51.2
LOS				D	D	D	D	B			E	D
Approach Delay					43.6			18.4			61.9	
Approach LOS					D			B			E	
Stops (vph)				175	789	317	299	1135			1054	388

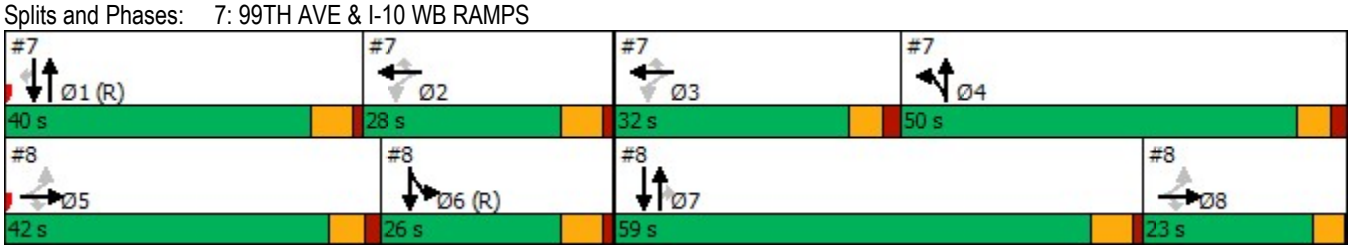
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	8.0	10.0	5.0	20.0	5.0
Minimum Split (s)	30.0	45.8	47.8	30.0	28.9	30.0
Total Split (s)	28.0	32.0	42.0	26.0	59.0	23.0
Total Split (%)	19%	21%	28%	17%	39%	15%
Yellow Time (s)	4.7	3.9	3.9	4.7	4.7	3.5
All-Red Time (s)	1.2	1.9	1.9	1.2	1.2	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	Min	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				7	29	13	7	23			35	14
CO Emissions (g/hr)				461	2016	890	506	1615			2456	978
NOx Emissions (g/hr)				90	392	173	98	314			478	190
VOC Emissions (g/hr)				107	467	206	117	374			569	227
Dilemma Vehicles (#)				0	30	0	0	0			37	0
Queue Length 50th (ft)				212	322	325	361	395			362	256
Queue Length 95th (ft)				315	376	474	m#495	425			393	326
Internal Link Dist (ft)		2315			1612			454			828	
Turn Bay Length (ft)				370		370						
Base Capacity (vph)				491	1654	619	490	3565			1412	757
Starvation Cap Reductn				0	0	0	24	1367			0	0
Spillback Cap Reductn				29	43	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.52	0.64	0.76	0.81	0.73			0.92	0.85

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 41.0 Intersection LOS: D
Intersection Capacity Utilization 75.3% ICU Level of Service D
Analysis Period (min) 15
Description: WB I-10 Off ramp
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: 99TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	173	230	0	0	0	0	1659	604	300	1189	0
Future Volume (vph)	347	173	230	0	0	0	0	1659	604	300	1189	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		190	0		0	0		200	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.91	1.00
Frt		0.978	0.850						0.850			
Flt Protected	0.950	0.980								0.950		
Satd. Flow (prot)	1557	2828	1146	0	0	0	0	6017	1473	1711	4686	0
Flt Permitted	0.950	0.980								0.950		
Satd. Flow (perm)	1557	2828	1146	0	0	0	0	6017	1473	1711	4686	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14	106						419			
Link Speed (mph)		45			45			45			30	
Link Distance (ft)		1799			1538			401			534	
Travel Time (s)		27.3			23.3			6.1			12.1	
Peak Hour Factor	0.93	0.93	0.93	0.25	0.25	0.25	0.98	0.98	0.98	0.87	0.87	0.87
Heavy Vehicles (%)	2%	6%	24%	0%	0%	0%	0%	5%	6%	2%	7%	0%
Adj. Flow (vph)	373	186	247	0	0	0	0	1693	616	345	1367	0
Shared Lane Traffic (%)	45%		25%									
Lane Group Flow (vph)	205	416	185	0	0	0	0	1693	616	345	1367	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								20.0	20.0	5.0		
Minimum Split (s)								28.9	28.9	30.0		
Total Split (s)								59.0	59.0	26.0		
Total Split (%)								39.3%	39.3%	17.3%		
Yellow Time (s)								4.7	4.7	4.7		
All-Red Time (s)								1.2	1.2	1.2		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.9	5.9	5.9		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								Min	Min	C-Max		
Act Effct Green (s)	35.5	35.5	35.5					53.1	53.1	43.8	102.8	
Actuated g/C Ratio	0.24	0.24	0.24					0.35	0.35	0.29	0.69	
v/c Ratio	0.56	0.61	0.53					0.79	0.78	0.69	0.43	
Control Delay	56.1	53.1	26.1					70.4	43.7	25.0	8.3	
Queue Delay	0.0	0.0	0.0					0.1	0.0	0.0	1.1	
Total Delay	56.1	53.1	26.1					70.5	43.7	25.0	9.4	
LOS	E	D	C					E	D	C	A	
Approach Delay		47.7						63.3			12.6	
Approach LOS		D						E			B	
Stops (vph)	165	328	65					1550	334	222	912	

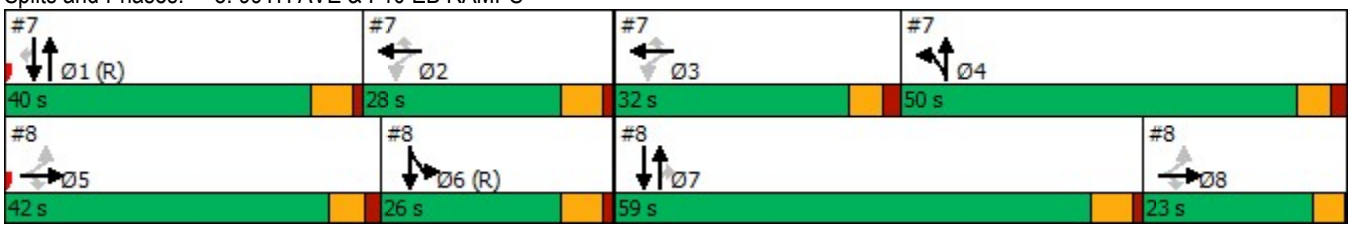
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	10.0	5.0
Minimum Split (s)	28.9	30.0	45.8	47.8	47.8	30.0
Total Split (s)	40.0	28.0	32.0	50.0	42.0	23.0
Total Split (%)	27%	19%	21%	33%	28%	15%
Yellow Time (s)	4.7	4.7	3.9	3.9	3.9	3.5
All-Red Time (s)	1.2	1.2	1.9	1.9	1.9	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	13	4					85	25	4	12	
CO Emissions (g/hr)	452	894	261					5911	1722	280	839	
NOx Emissions (g/hr)	88	174	51					1150	335	54	163	
VOC Emissions (g/hr)	105	207	60					1370	399	65	194	
Dilemma Vehicles (#)	0	10	0					77	0	0	0	
Queue Length 50th (ft)	200	211	73					482	350	145	411	
Queue Length 95th (ft)	274	255	156					527	474	m388	458	
Internal Link Dist (ft)		1719			1458			321			454	
Turn Bay Length (ft)	190		190						200			
Base Capacity (vph)	602	1102	508					2130	792	499	3211	
Starvation Cap Reductn	0	0	0					0	0	0	1506	
Spillback Cap Reductn	4	7	0					24	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.34	0.38	0.36					0.80	0.78	0.69	0.80	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 175
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 42.7 Intersection LOS: D
Intersection Capacity Utilization 75.3% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: 99TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

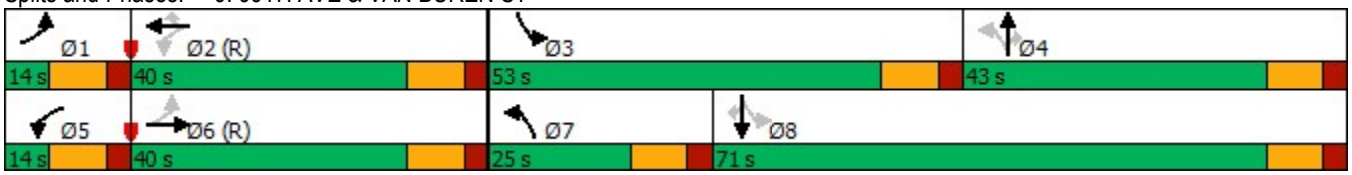
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	148	73	108	530	226	142	1067	79	181	850	193
Future Volume (vph)	123	148	73	108	530	226	142	1067	79	181	850	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		120	150		280	300		110	370		370
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt		0.951				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1454	3161	0	1711	3421	1531	1616	4775	1531	1711	3292	1432
Flt Permitted	0.234			0.603			0.167			0.115		
Satd. Flow (perm)	358	3161	0	1086	3421	1531	284	4775	1531	207	3292	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51				245			244			194
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		558			611			324			3101	
Travel Time (s)		8.5			9.3			4.9			47.0	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.96	0.96	0.96	0.99	0.99	0.99
Heavy Vehicles (%)	20%	4%	7%	2%	2%	2%	8%	5%	2%	2%	6%	9%
Adj. Flow (vph)	134	161	79	115	564	240	148	1111	82	183	859	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	240	0	115	564	240	148	1111	82	183	859	195
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		8
Detector Phase	1	6		5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	5.0		4.0	5.0	5.0	4.0	10.0	10.0	4.0	10.0	10.0
Minimum Split (s)	14.0	49.1		14.0	49.1	49.1	14.0	50.2	50.2	14.0	50.2	50.2
Total Split (s)	14.0	40.0		14.0	40.0	40.0	25.0	43.0	43.0	53.0	71.0	71.0
Total Split (%)	9.3%	26.7%		9.3%	26.7%	26.7%	16.7%	28.7%	28.7%	35.3%	47.3%	47.3%
Yellow Time (s)	6.4	6.4		6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
All-Red Time (s)	2.7	2.7		2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.1	9.1		9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Min	Min	None	None	None
Act Effct Green (s)	60.5	44.3		46.7	36.8	36.8	55.8	44.2	44.2	62.6	47.6	47.6
Actuated g/C Ratio	0.40	0.30		0.31	0.25	0.25	0.37	0.29	0.29	0.42	0.32	0.32
v/c Ratio	0.49	0.25		0.30	0.67	0.43	0.71	0.79	0.13	0.78	0.82	0.33
Control Delay	36.4	34.2		31.6	56.6	7.6	44.8	53.4	0.4	78.4	33.4	3.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	34.2		31.6	56.6	7.6	44.8	53.4	0.4	78.4	33.4	3.8
LOS	D	C		C	E	A	D	D	A	E	C	A
Approach Delay		35.0			40.7			49.2			35.4	
Approach LOS		C			D			D			D	
Stops (vph)	83	133		77	472	22	93	960	0	133	324	11

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	6	11		6	31	10	7	60	3	9	31	5
CO Emissions (g/hr)	431	753		403	2194	726	514	4220	191	634	2172	358
NOx Emissions (g/hr)	84	147		78	427	141	100	821	37	123	423	70
VOC Emissions (g/hr)	100	175		93	508	168	119	978	44	147	503	83
Dilemma Vehicles (#)	0	7		0	18	0	0	28	0	0	55	0
Queue Length 50th (ft)	82	72		68	261	0	87	371	0	135	159	0
Queue Length 95th (ft)	147	126		126	351	71	123	417	0	213	233	32
Internal Link Dist (ft)		478			531			244			3021	
Turn Bay Length (ft)	120			150		280	300		110	370		370
Base Capacity (vph)	271	969		379	838	560	253	1406	622	533	1356	704
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.25		0.30	0.67	0.43	0.58	0.79	0.13	0.34	0.63	0.28

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 41.4 Intersection LOS: D
Intersection Capacity Utilization 73.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 9: 99TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	411	62	148	1041	359	188	675	75	155	688	216
Future Volume (vph)	169	411	62	148	1041	359	188	675	75	155	688	216
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	160		0	170		250	190		0	250		250
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.962				0.850		0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1783	4933	1611	1801	4741	0	1801	3498	1611	1413	3472	0
Flt Permitted	0.106			0.452			0.111			0.217		
Satd. Flow (perm)	199	4933	1611	857	4741	0	210	3498	1611	323	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113		81				116		40	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		5289			4797			354			929	
Travel Time (s)		72.1			65.4			5.4			14.1	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	2%	2%	3%	19%	2%	5%	2%	30%	2%	2%
Adj. Flow (vph)	211	514	78	163	1144	395	214	767	85	168	748	235
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	514	78	163	1539	0	214	767	85	168	983	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	5	2	2	1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0	15.0	4.0	15.0		4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	19.0	41.0	41.0	19.0	41.0		19.0	41.0	41.0	19.0	41.0	
Total Split (s)	15.0	44.0	44.0	11.0	40.0		13.0	43.0	43.0	12.0	42.0	
Total Split (%)	13.6%	40.0%	40.0%	10.0%	36.4%		11.8%	39.1%	39.1%	10.9%	38.2%	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7		3.0	4.4	4.4	3.0	4.4	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7	6.7	4.0	6.7		4.0	6.4	6.4	4.0	6.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None	None	None	None	
Act Effct Green (s)	51.3	37.9	37.9	43.7	34.1		47.5	36.1	36.1	45.5	35.1	
Actuated g/C Ratio	0.47	0.34	0.34	0.40	0.31		0.43	0.33	0.33	0.41	0.32	
v/c Ratio	0.86	0.30	0.12	0.41	1.01		0.97	0.67	0.14	0.79	0.87	
Control Delay	68.6	31.8	7.3	14.0	46.2		79.7	35.1	2.7	47.7	43.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	68.6	31.8	7.3	14.0	46.2		79.7	35.1	2.7	47.7	43.1	
LOS	E	C	A	B	D		E	D	A	D	D	
Approach Delay		39.1			43.1			41.5			43.7	
Approach LOS		D			D			D			D	
Stops (vph)	131	270	18	48	959		104	564	4	96	786	

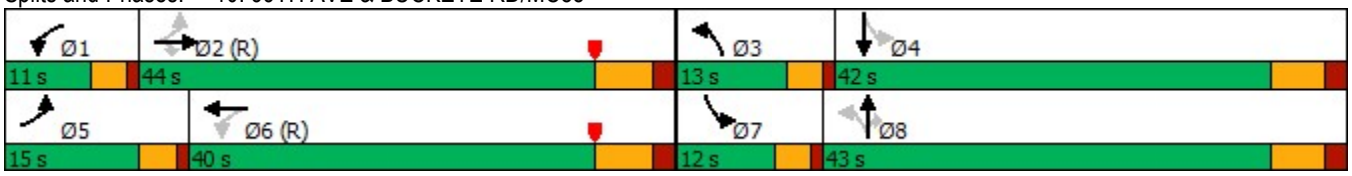
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	21	2	6	74		6	18	1	8	49	
CO Emissions (g/hr)	702	1439	171	425	5204		415	1227	51	563	3419	
NOx Emissions (g/hr)	137	280	33	83	1012		81	239	10	109	665	
VOC Emissions (g/hr)	163	334	40	99	1206		96	284	12	130	792	
Dilemma Vehicles (#)	0	60	0	0	99		0	28	0	0	39	
Queue Length 50th (ft)	127	92	0	33	~266		96	242	0	70	327	
Queue Length 95th (ft)	#198	116	10	m57	#491		#239	301	17	#157	413	
Internal Link Dist (ft)		5209			4717			274			849	
Turn Bay Length (ft)	160			170			190			250		
Base Capacity (vph)	251	1697	628	401	1525		220	1163	613	213	1150	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.84	0.30	0.12	0.41	1.01		0.97	0.66	0.14	0.79	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 71 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 42.2 Intersection LOS: D
Intersection Capacity Utilization 81.9% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: 99TH AVE & BUCKEYE RD/MC85



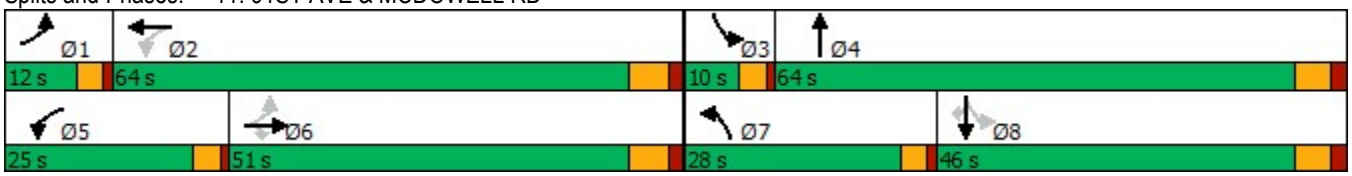
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	557	270	238	869	197	365	913	192	120	749	142
Future Volume (vph)	150	557	270	238	869	197	365	913	192	120	749	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	400		0	230		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	0.91	0.91	1.00	0.95	1.00
Frt			0.850		0.972			0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1516	1711	4778	0	3319	4788	0	1711	3421	1531
Flt Permitted	0.154			0.239			0.950			0.190		
Satd. Flow (perm)	277	3421	1516	430	4778	0	3319	4788	0	342	3421	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			297		40			35				141
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		842			5255			745			2813	
Travel Time (s)		12.8			79.6			12.7			47.9	
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	165	612	297	267	976	221	388	971	204	128	797	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	612	297	267	1197	0	388	1175	0	128	797	151
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2						8		8
Detector Phase	1	6	6	5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0	15.0	4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	9.0	30.0	30.0	9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	12.0	51.0	51.0	25.0	64.0		28.0	64.0		10.0	46.0	46.0
Total Split (%)	8.0%	34.0%	34.0%	16.7%	42.7%		18.7%	42.7%		6.7%	30.7%	30.7%
Yellow Time (s)	3.0	4.4	4.4	3.0	4.4		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min		None	None		None	None	None
Act Effct Green (s)	49.1	38.5	38.5	62.4	47.8		19.7	51.4		46.0	37.9	37.9
Actuated g/C Ratio	0.37	0.29	0.29	0.46	0.36		0.15	0.38		0.34	0.28	0.28
v/c Ratio	0.88	0.62	0.46	0.73	0.69		0.80	0.63		0.72	0.83	0.28
Control Delay	69.1	45.7	6.5	35.8	38.1		69.6	34.7		50.6	54.6	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	69.1	45.7	6.5	35.8	38.1		69.6	34.7		50.6	54.6	9.2
LOS	E	D	A	D	D		E	C		D	D	A
Approach Delay		38.5			37.7			43.4			47.8	
Approach LOS		D			D			D			D	
Stops (vph)	91	468	24	144	847		341	840		83	666	20

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	7	25	7	12	55		10	22		4	29	3
CO Emissions (g/hr)	488	1742	517	814	3853		725	1513		304	2039	222
NOx Emissions (g/hr)	95	339	101	158	750		141	294		59	397	43
VOC Emissions (g/hr)	113	404	120	189	893		168	351		70	472	51
Dilemma Vehicles (#)	0	17	0	0	33		0	33		0	25	0
Queue Length 50th (ft)	87	254	0	150	324		175	298		63	350	7
Queue Length 95th (ft)	#218	337	72	224	385		248	381		#150	#488	64
Internal Link Dist (ft)		762			5175			665			2733	
Turn Bay Length (ft)	260			160			400			230		250
Base Capacity (vph)	188	1154	708	403	2105		602	2121		179	1035	561
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.88	0.53	0.42	0.66	0.57		0.64	0.55		0.72	0.77	0.27

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 134.2
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 41.7 Intersection LOS: D
Intersection Capacity Utilization 71.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: 91ST AVE & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	187	17	243	243	1244	0	0	1137	263
Future Volume (vph)	0	0	0	187	17	243	243	1244	0	0	1137	263
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt					0.899	0.850						0.850
Flt Protected				0.950	0.990		0.950					
Satd. Flow (prot)	0	0	0	1711	1525	1531	1801	3601	0	0	3601	1611
Flt Permitted				0.950	0.990		0.141					
Satd. Flow (perm)	0	0	0	1711	1525	1531	267	3601	0	0	3601	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					61	159						289
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		2307			1597			509			745	
Travel Time (s)		35.0			24.2			9.9			12.7	
Peak Hour Factor	0.25	0.25	0.25	0.90	0.90	0.90	0.96	0.96	0.96	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	8%	2%	2%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	208	19	270	253	1296	0	0	1249	289
Shared Lane Traffic (%)				17%		41%						
Lane Group Flow (vph)	0	0	0	173	165	159	253	1296	0	0	1249	289
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					1 4
Detector Phase				3	3	3	2	1 2			1 4	1 4
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	30.0					
Total Split (s)				25.0	25.0	25.0	21.0					
Total Split (%)				17.9%	17.9%	17.9%	15.0%					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					
Lost Time Adjust (s)				0.0	0.0	0.0	0.0					
Total Lost Time (s)				5.7	5.7	5.7	5.1					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?												
Recall Mode				Max	Max	Max	Min					
Act Effct Green (s)				19.3	19.3	19.3	84.8	89.9			88.9	88.9
Actuated g/C Ratio				0.14	0.14	0.14	0.61	0.64			0.64	0.64
v/c Ratio				0.74	0.63	0.46	0.76	0.56			0.55	0.26
Control Delay				76.9	47.1	12.3	42.9	6.4			15.4	1.6
Queue Delay				0.0	0.0	0.0	0.0	0.2			0.6	0.0
Total Delay				76.9	47.1	12.3	42.9	6.6			16.0	1.6
LOS				E	D	B	D	A			B	A
Approach Delay					46.3			12.5			13.3	
Approach LOS					D			B			B	
Stops (vph)				143	89	20	210	302			607	11

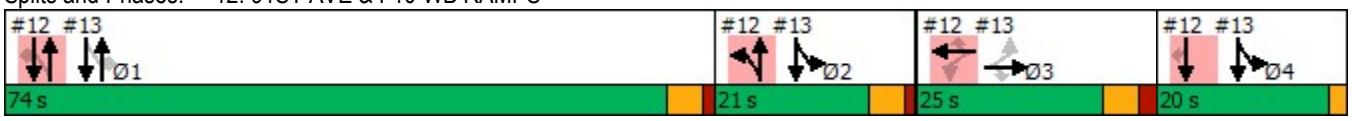
Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	74.0	20.0
Total Split (%)	53%	14%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	4	2	5	8			15	2
CO Emissions (g/hr)				408	284	146	321	591			1068	107
NOx Emissions (g/hr)				79	55	28	62	115			208	21
VOC Emissions (g/hr)				95	66	34	74	137			247	25
Dilemma Vehicles (#)				0	5	0	0	0			41	0
Queue Length 50th (ft)				161	98	0	118	75			315	0
Queue Length 95th (ft)				#272	189	70	#221	84			373	33
Internal Link Dist (ft)		2227			1517			429			665	
Turn Bay Length (ft)				450		450						
Base Capacity (vph)				235	262	348	335	2312			2286	1128
Starvation Cap Reductn				0	0	0	0	285			600	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.74	0.63	0.46	0.76	0.64			0.74	0.26

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 17.5 Intersection LOS: B
Intersection Capacity Utilization 59.2% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 12: 91ST AVE & I-10 WB RAMPS



Lane Group	Ø1	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	5	112	0	0	0	0	1329	228	276	1035	0
Future Volume (vph)	163	5	112	0	0	0	0	1329	228	276	1035	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	550		350	0		0	200		240	0		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt		0.961	0.850						0.850			
Flt Protected	0.950	0.967								0.950		
Satd. Flow (prot)	1678	1558	1446	0	0	0	0	5175	1611	1801	3601	0
Flt Permitted	0.950	0.967								0.126		
Satd. Flow (perm)	1678	1558	1446	0	0	0	0	5175	1611	239	3601	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10	97						235			
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1766			1748			411			509	
Travel Time (s)		26.8			26.5			8.0			9.9	
Peak Hour Factor	0.90	0.90	0.90	0.25	0.25	0.25	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	4%	2%	8%	0%	0%	0%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	181	6	124	0	0	0	0	1370	235	294	1101	0
Shared Lane Traffic (%)	40%		22%									
Lane Group Flow (vph)	109	105	97	0	0	0	0	1370	235	294	1101	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	25.0	25.0	25.0					74.0	74.0			
Total Split (%)	17.9%	17.9%	17.9%					52.9%	52.9%			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0			
Total Lost Time (s)	5.7	5.7	5.7					5.1	5.1			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?												
Recall Mode	Max	Max	Max					Min	Min			
Act Effct Green (s)	19.3	19.3	19.3					68.9	68.9	99.7	109.9	
Actuated g/C Ratio	0.14	0.14	0.14					0.49	0.49	0.71	0.78	
v/c Ratio	0.47	0.47	0.34					0.54	0.26	0.57	0.39	
Control Delay	63.2	57.9	13.4					25.5	3.0	28.0	1.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.1	
Total Delay	63.2	57.9	13.4					25.5	3.0	28.0	2.0	
LOS	E	E	B					C	A	C	A	
Approach Delay		45.9						22.2			7.4	
Approach LOS		D						C			A	
Stops (vph)	89	78	15					887	15	150	135	

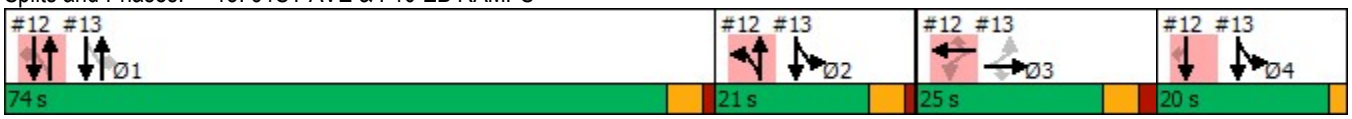
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	21.0	20.0
Total Split (%)	15%	14%
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	3	1					53	7	4	5	
CO Emissions (g/hr)	244	221	99					3702	490	260	364	
NOx Emissions (g/hr)	47	43	19					720	95	51	71	
VOC Emissions (g/hr)	57	51	23					858	114	60	84	
Dilemma Vehicles (#)	0	3	0					47	0	0	0	
Queue Length 50th (ft)	97	89	0					308	0	102	74	
Queue Length 95th (ft)	165	158	55					353	44	186	64	
Internal Link Dist (ft)		1686			1668			331			429	
Turn Bay Length (ft)	550		350						240			
Base Capacity (vph)	231	223	282					2546	912	513	2826	
Starvation Cap Reductn	0	0	0					0	0	0	684	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.47	0.47	0.34					0.54	0.26	0.57	0.51	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 18.2 Intersection LOS: B
Intersection Capacity Utilization 59.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 13: 91ST AVE & I-10 EB RAMPS



Lane Group	Ø2	Ø4
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

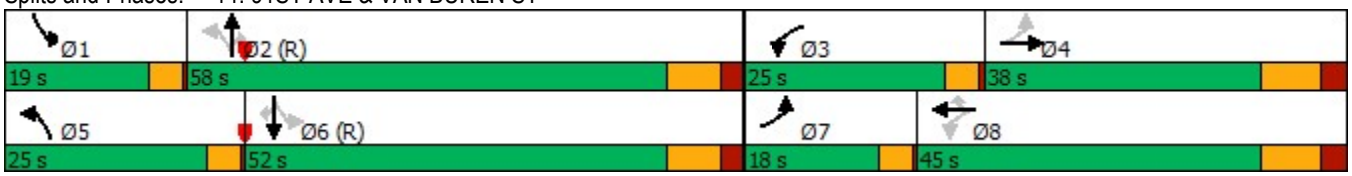
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	289	125	153	450	343	99	901	205	92	660	128
Future Volume (vph)	218	289	125	153	450	343	99	901	205	92	660	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		80	160		220	155		155	120		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3267	0	1711	3421	1531	1711	3421	1487	1694	3421	1516
Flt Permitted	0.295			0.326			0.320			0.189		
Satd. Flow (perm)	531	3267	0	587	3421	1531	576	3421	1487	337	3421	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44				265			141			172
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4651			2557			447			1565	
Travel Time (s)		126.8			69.7			8.7			30.5	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.91	0.91	0.91	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	3%	2%	3%
Adj. Flow (vph)	251	332	144	172	506	385	109	990	225	96	688	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	251	476	0	172	506	385	109	990	225	96	688	133
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	45.1		10.0	45.1	45.1	10.0	41.1	41.1	10.0	41.1	41.1
Total Split (s)	18.0	38.0		25.0	45.0	45.0	25.0	58.0	58.0	19.0	52.0	52.0
Total Split (%)	12.9%	27.1%		17.9%	32.1%	32.1%	17.9%	41.4%	41.4%	13.6%	37.1%	37.1%
Yellow Time (s)	3.5	6.2		3.5	6.2	6.2	3.5	5.7	5.7	3.5	5.7	5.7
All-Red Time (s)	0.5	2.9		0.5	2.9	2.9	0.5	2.4	2.4	0.5	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	9.1		4.0	9.1	9.1	4.0	8.1	8.1	4.0	8.1	8.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	47.1	28.1		47.1	28.1	28.1	77.2	64.4	64.4	76.3	63.9	63.9
Actuated g/C Ratio	0.34	0.20		0.34	0.20	0.20	0.55	0.46	0.46	0.54	0.46	0.46
v/c Ratio	0.85	0.69		0.56	0.74	0.74	0.28	0.63	0.30	0.36	0.44	0.17
Control Delay	60.1	52.4		37.6	58.8	24.6	16.6	32.4	11.1	18.7	28.3	2.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	52.4		37.6	58.8	24.6	16.6	32.4	11.1	18.7	28.3	2.0
LOS	E	D		D	E	C	B	C	B	B	C	A
Approach Delay		55.1			43.0			27.4			23.5	
Approach LOS		E			D			C			C	
Stops (vph)	167	343		106	410	111	46	680	52	43	446	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	13	24		8	26	16	4	46	9	3	27	4
CO Emissions (g/hr)	905	1682		557	1809	1139	314	3195	611	238	1868	271
NOx Emissions (g/hr)	176	327		108	352	222	61	622	119	46	363	53
VOC Emissions (g/hr)	210	390		129	419	264	73	741	142	55	433	63
Dilemma Vehicles (#)	0	0		0	0	0	0	32	0	0	24	0
Queue Length 50th (ft)	169	194		110	230	103	43	353	43	38	219	0
Queue Length 95th (ft)	#243	239		153	270	208	83	494	116	75	318	20
Internal Link Dist (ft)		4571			2477			367			1485	
Turn Bay Length (ft)	160			160		220	155		155	120		120
Base Capacity (vph)	296	720		383	877	589	502	1572	759	339	1561	785
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.66		0.45	0.58	0.65	0.22	0.63	0.30	0.28	0.44	0.17

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 35.6 Intersection LOS: D
Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: 91ST AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	430	83	116	1083	184	218	650	38	150	556	197
Future Volume (vph)	128	430	83	116	1083	184	218	650	38	150	556	197
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	264		0	262		0	269		0	264		364
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.976			0.978			0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1717	4695	0	1766	4850	0	1733	5111	0	1717	3601	1550
Flt Permitted	0.092			0.431			0.252			0.269		
Satd. Flow (perm)	166	4695	0	801	4850	0	460	5111	0	486	3601	1550
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			33			8				164
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		447			450			399			4882	
Travel Time (s)		6.1			6.1			6.0			74.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	7%	11%	3%	4%	7%	3%	6%	2%	10%	7%	2%	6%
Adj. Flow (vph)	135	453	87	129	1203	204	232	691	40	161	598	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	135	540	0	129	1407	0	232	731	0	161	598	212
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	8.0
Minimum Split (s)	12.0	42.0		12.0	42.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	10.0	46.0		10.0	46.0		15.0	39.0		15.0	39.0	39.0
Total Split (%)	9.1%	41.8%		9.1%	41.8%		13.6%	35.5%		13.6%	35.5%	35.5%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.2		3.0	4.2	4.2
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.2		4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	53.6	43.3		51.9	42.5		42.0	29.0		40.5	28.2	28.2
Actuated g/C Ratio	0.49	0.39		0.47	0.39		0.38	0.26		0.37	0.26	0.26
v/c Ratio	0.71	0.29		0.29	0.74		0.77	0.54		0.55	0.65	0.41
Control Delay	58.5	17.0		11.2	18.3		40.4	35.6		27.8	39.5	10.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	58.5	17.0		11.2	18.3		40.4	35.6		27.8	39.5	10.9
LOS	E	B		B	B		D	D		C	D	B
Approach Delay		25.3			17.7			36.8			31.3	
Approach LOS		C			B			D			C	
Stops (vph)	129	221		35	435		146	560		94	478	44

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	22		5	53		5	18		7	30	8
CO Emissions (g/hr)	543	1554		321	3690		376	1225		503	2064	547
NOx Emissions (g/hr)	106	302		63	718		73	238		98	402	106
VOC Emissions (g/hr)	126	360		74	855		87	284		117	478	127
Dilemma Vehicles (#)	0	17		0	94		0	25		0	21	0
Queue Length 50th (ft)	77	64		27	118		107	160		71	195	26
Queue Length 95th (ft)	m#148	75		m51	195		#173	192		111	244	85
Internal Link Dist (ft)		367			370			319			4802	
Turn Bay Length (ft)	264			262			269			264		364
Base Capacity (vph)	189	1874		439	1894		303	1529		306	1073	577
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.71	0.29		0.29	0.74		0.77	0.48		0.53	0.56	0.37

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 7 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 26.6 Intersection LOS: C
Intersection Capacity Utilization 68.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: 91ST AVE & BUCKEYE RD/MC85

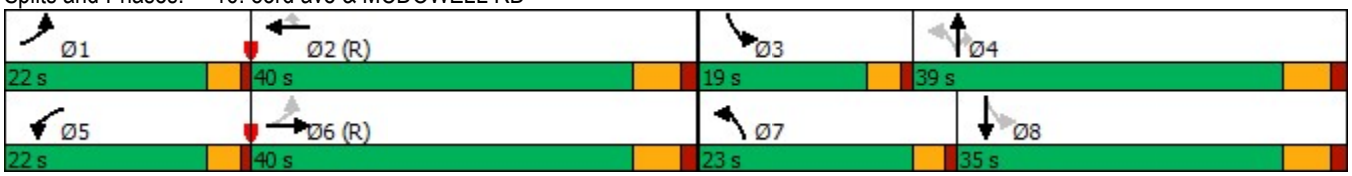
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	702	140	347	1130	382	251	1127	218	212	940	159
Future Volume (vph)	184	702	140	347	1130	382	251	1127	218	212	940	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	250		500	270		0	280		0
Storage Lanes	1		0	2		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.91	0.91
Frt		0.975				0.850			0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4793	0	3319	4916	1531	1711	4916	1531	1711	4808	0
Flt Permitted	0.110			0.950			0.120			0.134		
Satd. Flow (perm)	198	4793	0	3319	4916	1531	216	4916	1531	241	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35				340			234		26	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5267			512			852			2964	
Travel Time (s)		79.8			7.8			12.9			44.9	
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	204	780	156	377	1228	415	270	1212	234	226	1000	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	936	0	377	1228	415	270	1212	234	226	1169	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6					2	4		4	8		
Detector Phase	1	6		5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	12.0	45.1		10.0	43.1	43.1	9.0	32.9	32.9	11.0	32.9	
Total Split (s)	22.0	40.0		22.0	40.0	40.0	23.0	39.0	39.0	19.0	35.0	
Total Split (%)	18.3%	33.3%		18.3%	33.3%	33.3%	19.2%	32.5%	32.5%	15.8%	29.2%	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	1.0	1.6		1.0	1.6	1.6	1.0	1.6	1.6	1.0	1.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.9		4.0	5.9	5.9	4.0	5.9	5.9	4.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	52.1	36.4		16.6	39.3	39.3	52.4	33.2	33.2	45.6	29.8	
Actuated g/C Ratio	0.43	0.30		0.14	0.33	0.33	0.44	0.28	0.28	0.38	0.25	
v/c Ratio	0.79	0.63		0.82	0.76	0.57	0.87	0.89	0.40	0.86	0.96	
Control Delay	48.0	37.4		78.8	23.5	3.0	56.7	51.1	6.3	59.0	62.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.0	37.4		78.8	23.5	3.0	56.7	51.1	6.3	59.0	62.2	
LOS	D	D		E	C	A	E	D	A	E	E	
Approach Delay		39.3			29.6			45.9			61.7	
Approach LOS		D			C			D			E	
Stops (vph)	126	688		318	876	93	174	1032	23	144	972	
Fuel Used(gal)	10	44		21	55	15	6	31	2	8	47	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	675	3059		1503	3865	1019	451	2152	124	588	3296	
NOx Emissions (g/hr)	131	595		292	752	198	88	419	24	114	641	
VOC Emissions (g/hr)	156	709		348	896	236	105	499	29	136	764	
Dilemma Vehicles (#)	0	35		0	44	0	0	43	0	0	42	
Queue Length 50th (ft)	104	227		143	260	2	149	331	0	118	325	
Queue Length 95th (ft)	183	277		m157	m380	m35	#286	#398	61	#251	#430	
Internal Link Dist (ft)		5187			432			772			2884	
Turn Bay Length (ft)	160			250		500	270			280		
Base Capacity (vph)	319	1479		497	1610	730	331	1367	594	277	1214	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.64	0.63		0.76	0.76	0.57	0.82	0.89	0.39	0.82	0.96	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 43.0 Intersection LOS: D
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: 83rd ave & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	230	13	522	742	1371	0	0	826	632
Future Volume (vph)	0	0	0	230	13	522	742	1371	0	0	826	632
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	230		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.869	0.850						0.850
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1586	1481	1531	3330	5175	0	0	5124	1611
Flt Permitted				0.950	0.996		0.950					
Satd. Flow (perm)	0	0	0	1586	1481	1531	3330	5175	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					36	122						513
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1616			1595			510			852	
Travel Time (s)		24.5			24.2			7.7			12.9	
Peak Hour Factor	0.25	0.25	0.25	0.88	0.88	0.88	0.91	0.91	0.91	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	10%	6%	2%	7%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	261	15	593	815	1507	0	0	928	710
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	235	320	314	815	1507	0	0	928	710
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							54.0				35.0	35.0
Total Split (%)							38.6%				25.0%	25.0%
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							6.2				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				39.6	39.6	39.6	52.9	88.8			29.7	29.7
Actuated g/C Ratio				0.28	0.28	0.28	0.38	0.63			0.21	0.21
v/c Ratio				0.52	0.72	0.60	0.65	0.46			0.85	0.95
Control Delay				46.0	49.2	30.3	21.9	3.4			61.8	38.4
Queue Delay				0.5	1.6	0.0	1.4	0.6			0.0	0.0
Total Delay				46.5	50.8	30.3	23.3	4.0			61.8	38.4
LOS				D	D	C	C	A			E	D
Approach Delay					42.2			10.8			51.7	
Approach LOS					D			B			D	
Stops (vph)				168	223	148	558	575			773	189

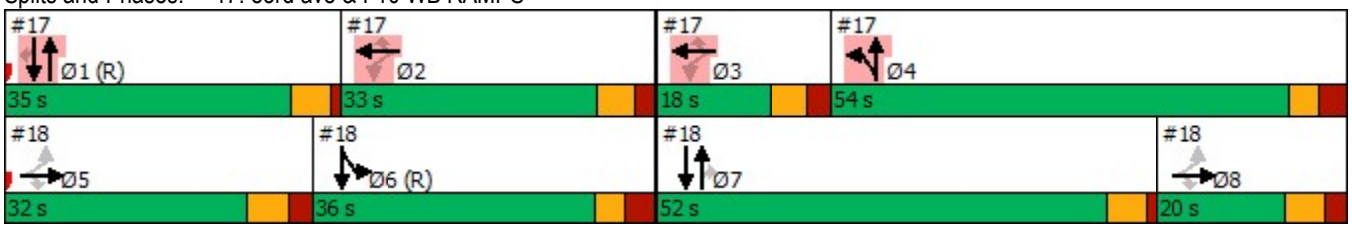
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	33.0	18.0	32.0	36.0	52.0	20.0
Total Split (%)	24%	13%	23%	26%	37%	14%
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	2.4	2.4	3.5	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	9	6	13	13			25	11
CO Emissions (g/hr)				431	595	447	888	883			1718	754
NOx Emissions (g/hr)				84	116	87	173	172			334	147
VOC Emissions (g/hr)				100	138	104	206	205			398	175
Dilemma Vehicles (#)				0	9	0	0	7			29	0
Queue Length 50th (ft)				189	258	158	222	5			300	217
Queue Length 95th (ft)				261	353	246	393	190			351	#471
Internal Link Dist (ft)		1536			1515			430			772	
Turn Bay Length (ft)				250		250						
Base Capacity (vph)				475	468	543	1257	3281			1087	745
Starvation Cap Reductn				0	0	0	248	1250			0	0
Spillback Cap Reductn				53	50	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.56	0.77	0.58	0.81	0.74			0.85	0.95

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 30.3 Intersection LOS: C
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 17: 83rd ave & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	4	538	0	0	0	0	1612	538	290	869	0
Future Volume (vph)	534	4	538	0	0	0	0	1612	538	290	869	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	650		650	0		0	230		200	0		0
Storage Lanes	1		1	0		0	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt		0.924	0.850						0.850			
Flt Protected	0.950	0.976								0.950		
Satd. Flow (prot)	1639	2768	1312	0	0	0	0	6395	1454	3493	3498	0
Flt Permitted	0.950	0.976								0.950		
Satd. Flow (perm)	1639	2768	1312	0	0	0	0	6395	1454	3493	3498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		134	134						399			
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		1768			1442			3588			510	
Travel Time (s)		26.8			21.8			61.2			7.7	
Peak Hour Factor	0.86	0.86	0.86	0.25	0.25	0.25	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	33%	14%	0%	0%	0%	0%	4%	13%	2%	5%	0%
Adj. Flow (vph)	621	5	626	0	0	0	0	1791	598	309	924	0
Shared Lane Traffic (%)	48%		50%									
Lane Group Flow (vph)	323	616	313	0	0	0	0	1791	598	309	924	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								52.0	52.0	36.0		
Total Split (%)								37.1%	37.1%	25.7%		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								0.0	0.0	0.0		
Total Lost Time (s)								5.3	5.3	6.5		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?												
Recall Mode								None	None	C-Min		
Act Effct Green (s)	39.5	39.5	39.5					48.1	48.1	33.9	87.3	
Actuated g/C Ratio	0.28	0.28	0.28					0.34	0.34	0.24	0.62	
v/c Ratio	0.70	0.70	0.67					0.82	0.79	0.37	0.42	
Control Delay	52.9	38.7	31.5					45.9	21.8	17.2	18.2	
Queue Delay	0.0	0.0	0.0					0.1	0.0	0.0	1.9	
Total Delay	52.9	38.7	31.5					46.0	21.8	17.2	20.1	
LOS	D	D	C					D	C	B	C	
Approach Delay		40.6						39.9			19.4	
Approach LOS		D						D			B	
Stops (vph)	243	368	140					1437	200	218	779	

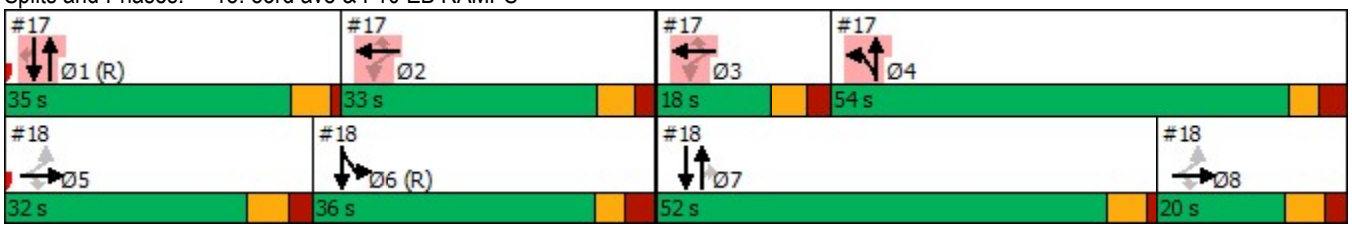
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	35.0	33.0	18.0	54.0	32.0	20.0
Total Split (%)	25%	24%	13%	39%	23%	14%
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	2.4	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	15	7					68	17	5	16	
CO Emissions (g/hr)	643	1037	458					4782	1219	328	1104	
NOx Emissions (g/hr)	125	202	89					930	237	64	215	
VOC Emissions (g/hr)	149	240	106					1108	283	76	256	
Dilemma Vehicles (#)	0	17	0					55	0	0	1	
Queue Length 50th (ft)	285	228	159					438	177	118	423	
Queue Length 95th (ft)	367	272	245					487	356	m161	508	
Internal Link Dist (ft)		1688			1362			3508			430	
Turn Bay Length (ft)	650		650						200			
Base Capacity (vph)	534	992	518					2197	761	846	2181	
Starvation Cap Reductn	0	0	0					0	0	0	1049	
Spillback Cap Reductn	0	0	0					40	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.60	0.62	0.60					0.83	0.79	0.37	0.82	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 34.9 Intersection LOS: C
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: 83rd ave & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	247	71	184	534	542	93	1130	62	148	1084	198
Future Volume (vph)	221	247	71	184	534	542	93	1130	62	148	1084	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	260		0	250		120	230		0
Storage Lanes	1		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	0.97	0.95	1.00
Frt		0.966				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3194	0	1586	3388	1432	1631	4688	0	2645	3292	1501
Flt Permitted	0.171			0.532			0.088			0.950		
Satd. Flow (perm)	288	3194	0	888	3388	1432	151	4688	0	2645	3292	1501
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29				326		7				210
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		306			447			1356			3588	
Travel Time (s)		6.0			8.7			20.5			61.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	9%	6%	4%	10%	3%	9%	7%	6%	8%	28%	6%	4%
Adj. Flow (vph)	257	287	83	214	621	630	109	1329	73	163	1191	218
Shared Lane Traffic (%)												
Lane Group Flow (vph)	257	370	0	214	621	630	109	1402	0	163	1191	218
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4					8
Detector Phase	1	6		5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0	15.0	2.0	15.0		2.0	15.0	15.0
Minimum Split (s)	25.0	45.0		25.0	45.0	45.0	20.0	30.0		20.0	30.0	30.0
Total Split (s)	17.0	33.0		15.0	31.0	31.0	12.0	46.0		26.0	60.0	60.0
Total Split (%)	14.2%	27.5%		12.5%	25.8%	25.8%	10.0%	38.3%		21.7%	50.0%	50.0%
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	4.3		3.0	4.3	4.3
All-Red Time (s)	0.0	1.3		0.0	1.3	1.3	0.0	1.2		0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	5.6		3.0	5.6	5.6	3.0	5.5		3.0	5.5	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max	C-Max	None	Ped		None	Ped	Ped
Act Effct Green (s)	51.2	33.5		42.6	27.5	27.5	55.9	45.2		11.8	48.8	48.8
Actuated g/C Ratio	0.43	0.28		0.36	0.23	0.23	0.47	0.38		0.10	0.41	0.41
v/c Ratio	0.79	0.41		0.55	0.80	1.09	0.64	0.79		0.63	0.89	0.30
Control Delay	45.7	35.6		25.0	43.7	72.3	36.8	36.7		62.6	42.1	4.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	45.7	35.6		25.0	43.7	72.3	36.8	36.7		62.6	42.1	4.1
LOS	D	D		C	D	E	D	D		E	D	A
Approach Delay		39.8			53.2			36.7			39.0	
Approach LOS		D			D			D			D	
Stops (vph)	132	238		96	442	249	53	1017		139	973	19

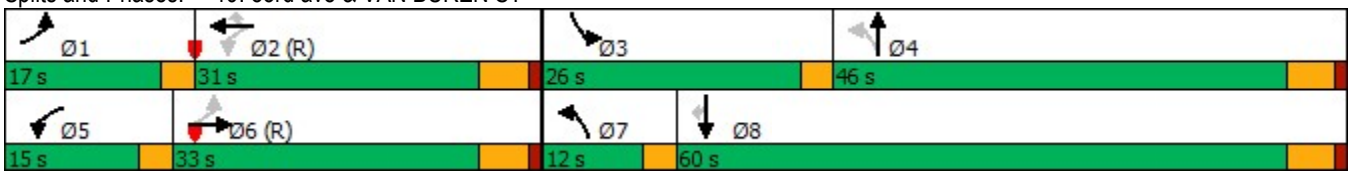
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	12	17		8	28	29	5	63		7	45	5
CO Emissions (g/hr)	822	1155		585	1976	2061	318	4372		479	3162	361
NOx Emissions (g/hr)	160	225		114	385	401	62	851		93	615	70
VOC Emissions (g/hr)	191	268		136	458	478	74	1013		111	733	84
Dilemma Vehicles (#)	0	13		0	40	0	0	40		0	37	0
Queue Length 50th (ft)	137	119		89	201	~192	40	338		63	437	4
Queue Length 95th (ft)	#290	161		m100	m212	m#213	82	362		96	499	47
Internal Link Dist (ft)		226			367			1276			3508	
Turn Bay Length (ft)	150			260			250			230		
Base Capacity (vph)	324	911		396	776	579	182	1780		506	1495	796
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.79	0.41		0.54	0.80	1.09	0.60	0.79		0.32	0.80	0.27

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 71 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 42.4 Intersection LOS: D
Intersection Capacity Utilization 77.4% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: 83rd ave & VAN BUREN ST



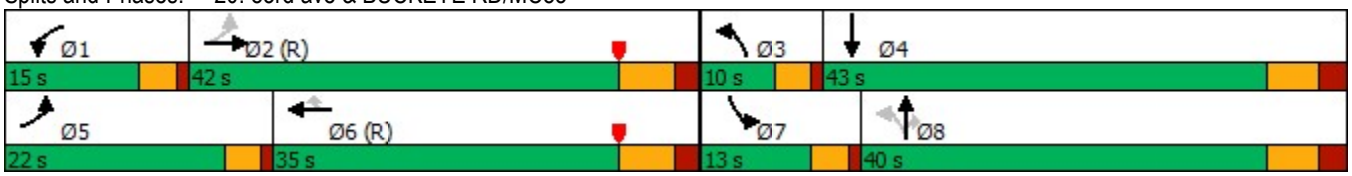
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	401	116	134	1048	237	116	602	37	128	936	216
Future Volume (vph)	211	401	116	134	1048	237	116	602	37	128	936	216
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	261		0	261		264	263		413	180		100
Storage Lanes	1		0	2		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	0.91
Frt		0.966				0.850			0.850		0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1766	4646	0	3493	4887	1454	1801	3566	1536	2897	4921	0
Flt Permitted	0.125			0.950			0.122			0.950		
Satd. Flow (perm)	232	4646	0	3493	4887	1454	231	3566	1536	2897	4921	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71				230			156		51	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		460			509			976			400	
Travel Time (s)		6.3			6.9			14.8			6.1	
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	4%	12%	2%	2%	8%	13%	2%	3%	7%	23%	2%	14%
Adj. Flow (vph)	218	413	120	140	1092	247	129	669	41	133	975	225
Shared Lane Traffic (%)												
Lane Group Flow (vph)	218	533	0	140	1092	247	129	669	41	133	1200	0
Turn Type	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2					6	8		8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	8.0	8.0	4.0	8.0	
Minimum Split (s)	8.0	41.7		8.0	41.7	41.7	12.0	41.7	41.7	12.0	41.7	
Total Split (s)	22.0	42.0		15.0	35.0	35.0	10.0	40.0	40.0	13.0	43.0	
Total Split (%)	20.0%	38.2%		13.6%	31.8%	31.8%	9.1%	36.4%	36.4%	11.8%	39.1%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.2	4.2	3.0	4.2	
All-Red Time (s)	1.0	2.2		1.0	2.2	2.2	1.0	2.5	2.5	1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	
Act Effct Green (s)	53.0	38.3		8.7	34.1	34.1	42.0	33.3	33.3	8.3	35.6	
Actuated g/C Ratio	0.48	0.35		0.08	0.31	0.31	0.38	0.30	0.30	0.08	0.32	
v/c Ratio	0.75	0.32		0.51	0.72	0.41	0.75	0.62	0.07	0.61	0.74	
Control Delay	48.7	27.2		54.8	37.9	7.6	46.9	35.9	0.2	61.6	34.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.7	27.2		54.8	37.9	7.6	46.9	35.9	0.2	61.6	34.7	
LOS	D	C		D	D	A	D	D	A	E	C	
Approach Delay		33.4			34.5			35.8			37.4	
Approach LOS		C			C			D			D	
Stops (vph)	196	301		124	894	35	68	504	0	122	954	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	12	24		8	57	9	3	14	0	8	60	
CO Emissions (g/hr)	839	1705		549	3965	615	188	1012	17	527	4179	
NOx Emissions (g/hr)	163	332		107	771	120	37	197	3	103	813	
VOC Emissions (g/hr)	194	395		127	919	142	44	235	4	122	969	
Dilemma Vehicles (#)	0	4		0	47	0	0	24	0	0	51	
Queue Length 50th (ft)	122	85		49	251	8	53	212	0	47	260	
Queue Length 95th (ft)	200	114		80	#330	75	#126	275	0	80	314	
Internal Link Dist (ft)		380			429			896			320	
Turn Bay Length (ft)	261			261		264	263		413	180		
Base Capacity (vph)	364	1664		349	1514	609	173	1085	575	237	1658	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.60	0.32		0.40	0.72	0.41	0.75	0.62	0.07	0.56	0.72	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 54 (49%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 35.4 Intersection LOS: D
Intersection Capacity Utilization 70.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: 83rd ave & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	686	168	303	1314	364	294	1164	190	337	1000	172
Future Volume (vph)	156	686	168	303	1314	364	294	1164	190	337	1000	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	240		0	210		0	260		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	0.91
Frt			0.850			0.850			0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	4916	1531	1694	4916	1531	1711	4916	1531	1711	4808	0
Flt Permitted	0.154			0.182			0.125			0.118		
Satd. Flow (perm)	277	4916	1531	325	4916	1531	225	4916	1531	212	4808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			181			353			196		27	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2660			614			856			796	
Travel Time (s)		40.3			9.3			13.0			12.1	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	738	181	322	1398	387	330	1308	213	374	1111	191
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	738	181	322	1398	387	330	1308	213	374	1302	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	11.0	50.2	50.2	6.0	48.2	48.2	10.0	30.8	30.8	10.0	30.8	
Total Split (s)	14.0	31.0	31.0	24.0	41.0	41.0	29.0	36.0	36.0	29.0	36.0	
Total Split (%)	11.7%	25.8%	25.8%	20.0%	34.2%	34.2%	24.2%	30.0%	30.0%	24.2%	30.0%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.8	5.8	4.0	5.8	5.8	4.0	5.8	5.8	4.0	5.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped	Ped	None	Ped	
Act Effct Green (s)	37.6	26.0	26.0	51.0	35.4	35.4	55.3	32.1	32.1	58.7	33.8	
Actuated g/C Ratio	0.31	0.22	0.22	0.42	0.30	0.30	0.46	0.27	0.27	0.49	0.28	
v/c Ratio	0.83	0.69	0.38	0.90	0.96	0.55	0.90	0.99	0.39	0.96	0.95	
Control Delay	66.3	64.7	28.0	56.1	58.4	8.3	58.3	67.8	8.6	68.9	56.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	66.3	64.7	28.0	56.1	58.4	8.3	58.3	67.8	8.6	68.9	56.7	
LOS	E	E	C	E	E	A	E	E	A	E	E	
Approach Delay		58.8			48.9			59.3			59.4	
Approach LOS		E			D			E			E	
Stops (vph)	151	675	138	201	1194	50	217	1009	29	246	987	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	9	41	8	16	75	14	8	35	2	10	32	
CO Emissions (g/hr)	655	2873	592	1134	5242	948	547	2453	122	666	2227	
NOx Emissions (g/hr)	127	559	115	221	1020	185	106	477	24	130	433	
VOC Emissions (g/hr)	152	666	137	263	1215	220	127	568	28	154	516	
Dilemma Vehicles (#)	0	5	0	0	52	0	0	44	0	0	45	
Queue Length 50th (ft)	122	218	60	174	391	19	195	~406	10	233	~370	
Queue Length 95th (ft)	m#185	267	m113	#340	#496	105	#324	#493	70	#417	#497	
Internal Link Dist (ft)		2580			534			776			716	
Turn Bay Length (ft)	230			240			210			260		
Base Capacity (vph)	206	1064	473	366	1450	700	418	1315	552	416	1374	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.82	0.69	0.38	0.88	0.96	0.55	0.79	0.99	0.39	0.90	0.95	

Intersection Summary

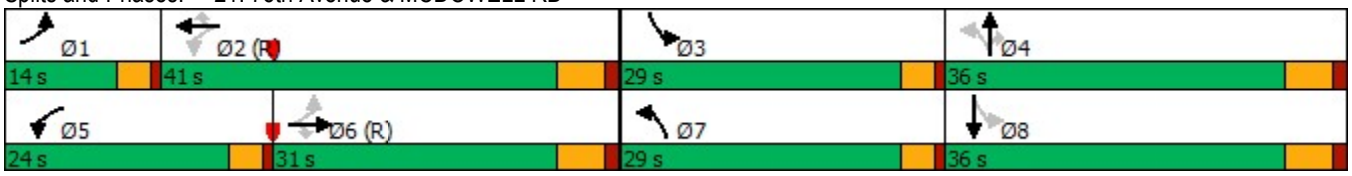
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 56.0 Intersection LOS: E
Intersection Capacity Utilization 86.1% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 21: 75th Avenue & MCDOWELL RD



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	216	13	578	480	1552	0	0	985	450
Future Volume (vph)	0	0	0	216	13	578	480	1552	0	0	985	450
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	250		250	0		0	140		220
Storage Lanes	0		0	1		1	2		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.867	0.850						0.850
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1572	1480	1531	3210	5175	0	0	5124	1611
Flt Permitted				0.950	0.996		0.950					
Satd. Flow (perm)	0	0	0	1572	1480	1531	3210	5175	0	0	5124	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					19	117						421
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1484			1698			523			856	
Travel Time (s)		22.5			25.7			7.9			13.0	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	11%	2%	2%	11%	2%	0%	0%	3%	2%
Adj. Flow (vph)	0	0	0	257	15	688	527	1705	0	0	1071	489
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	0	0	0	231	364	365	527	1705	0	0	1071	489
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							25.8				30.0	30.0
Total Split (s)							53.0				38.0	38.0
Total Split (%)							35.3%				25.3%	25.3%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.3				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.6				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				46.2	46.2	46.2	52.0	92.3			32.7	32.7
Actuated g/C Ratio				0.31	0.31	0.31	0.35	0.62			0.22	0.22
v/c Ratio				0.48	0.78	0.66	0.47	0.54			0.96	0.72
Control Delay				44.7	56.2	35.3	26.7	7.0			76.3	15.3
Queue Delay				0.4	2.1	0.0	0.0	0.6			1.7	0.0
Total Delay				45.1	58.3	35.3	26.7	7.6			78.0	15.3
LOS				D	E	D	C	A			E	B
Approach Delay					46.4			12.1			58.4	
Approach LOS					D			B			E	
Stops (vph)				153	261	184	319	840			913	84

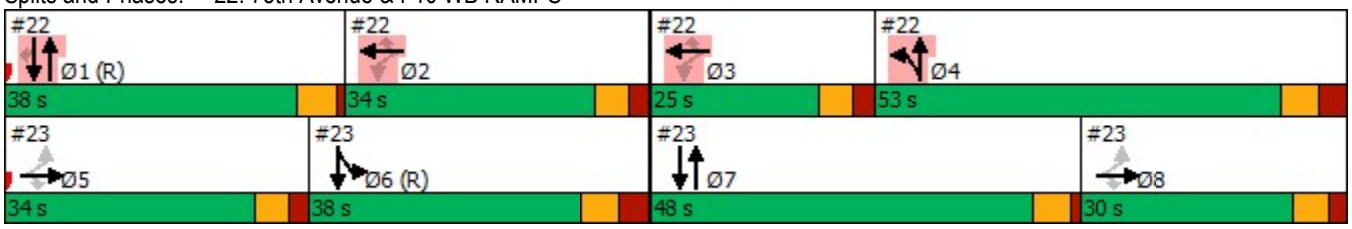
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	1.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.0	41.2	30.0	27.3	30.0
Total Split (s)	34.0	25.0	34.0	38.0	48.0	30.0
Total Split (%)	23%	17%	23%	25%	32%	20%
Yellow Time (s)	3.9	3.9	3.9	4.3	4.3	3.9
All-Red Time (s)	2.3	2.3	2.3	3.5	1.0	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				6	10	8	8	18			32	5
CO Emissions (g/hr)				406	707	551	573	1252			2246	346
NOx Emissions (g/hr)				79	138	107	112	244			437	67
VOC Emissions (g/hr)				94	164	128	133	290			521	80
Dilemma Vehicles (#)				0	9	0	0	11			32	0
Queue Length 50th (ft)				192	337	224	167	380			383	55
Queue Length 95th (ft)				244	408	290	279	439			#478	193
Internal Link Dist (ft)		1404			1618			443			776	
Turn Bay Length (ft)				250		250						220
Base Capacity (vph)				540	521	602	1113	3184			1117	680
Starvation Cap Reductn				0	0	0	0	983			0	0
Spillback Cap Reductn				70	65	0	0	0			15	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.49	0.80	0.61	0.47	0.77			0.97	0.72

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 34.2 Intersection LOS: C
Intersection Capacity Utilization 61.7% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 22: 75th Avenue & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	819	5	574	0	0	0	0	1250	308	402	868	0
Future Volume (vph)	819	5	574	0	0	0	0	1250	308	402	868	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		250	0		0	200		150	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.81	0.81	0.97	0.95	1.00
Frt		0.942	0.850					0.970				
Flt Protected	0.950	0.970								0.950		
Satd. Flow (prot)	1639	2871	1335	0	0	0	0	7262	0	3493	3465	0
Flt Permitted	0.950	0.970								0.950		
Satd. Flow (perm)	1639	2871	1335	0	0	0	0	7262	0	3493	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76	119					41				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1572			1501			825			523	
Travel Time (s)		23.8			22.7			12.5			7.9	
Peak Hour Factor	0.95	0.95	0.95	0.25	0.25	0.25	0.91	0.91	0.91	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	12%	0%	0%	0%	0%	4%	7%	2%	6%	0%
Adj. Flow (vph)	862	5	604	0	0	0	0	1374	338	423	914	0
Shared Lane Traffic (%)	50%		45%									
Lane Group Flow (vph)	431	708	332	0	0	0	0	1712	0	423	914	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								8.0		5.0		
Minimum Split (s)								27.3		30.0		
Total Split (s)								48.0		38.0		
Total Split (%)								32.0%		25.3%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.5		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		7.8		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	51.6	51.6	51.6					42.5		36.6	84.4	
Actuated g/C Ratio	0.34	0.34	0.34					0.28		0.24	0.56	
v/c Ratio	0.76	0.68	0.62					0.82		0.50	0.47	
Control Delay	52.9	40.4	30.0					52.9		18.7	19.1	
Queue Delay	0.1	0.0	0.0					0.0		0.0	2.3	
Total Delay	53.0	40.4	30.0					52.9		18.7	21.4	
LOS	D	D	C					D		B	C	
Approach Delay		41.7						52.9			20.6	
Approach LOS		D						D			C	
Stops (vph)	356	506	171					1394		311	788	

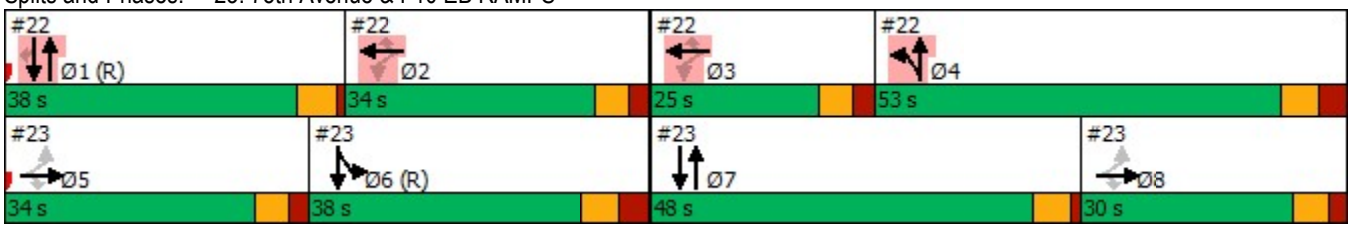
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	1.0	5.0	1.0	10.0
Minimum Split (s)	30.0	30.0	9.0	25.8	41.2	30.0
Total Split (s)	38.0	34.0	25.0	53.0	34.0	30.0
Total Split (%)	25%	23%	17%	35%	23%	20%
Yellow Time (s)	4.3	3.9	3.9	4.3	3.9	3.9
All-Red Time (s)	1.0	2.3	2.3	3.3	2.3	2.3
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	13	19	7					72		7	16	
CO Emissions (g/hr)	909	1307	508					5002		473	1127	
NOx Emissions (g/hr)	177	254	99					973		92	219	
VOC Emissions (g/hr)	211	303	118					1159		110	261	
Dilemma Vehicles (#)	0	20	0					50		0	0	
Queue Length 50th (ft)	405	305	189					379		189	463	
Queue Length 95th (ft)	527	366	295					418		m219	m497	
Internal Link Dist (ft)		1492			1421			745			443	
Turn Bay Length (ft)			250									
Base Capacity (vph)	638	1166	593					2096		852	1954	
Starvation Cap Reductn	0	0	0					0		0	869	
Spillback Cap Reductn	9	14	0					9		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.69	0.61	0.56					0.82		0.50	0.84	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 39.7 Intersection LOS: D
Intersection Capacity Utilization 61.7% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: 75th Avenue & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	279	71	156	841	276	169	939	126	174	1000	163
Future Volume (vph)	42	279	71	156	841	276	169	939	126	174	1000	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		270	250		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850		0.963			0.982			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1601	3144	1323	1631	3170	0	1531	4645	0	1504	4468	0
Flt Permitted	0.101			0.485			0.100			0.121		
Satd. Flow (perm)	170	3144	1323	833	3170	0	161	4645	0	192	4468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			139		38			23			27	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		529			1331			1057			2877	
Travel Time (s)		8.0			20.2			16.0			43.6	
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89	0.90	0.90	0.90
Heavy Vehicles (%)	9%	11%	18%	7%	6%	6%	14%	6%	6%	16%	10%	9%
Adj. Flow (vph)	48	317	81	168	904	297	190	1055	142	193	1111	181
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	317	81	168	1201	0	190	1197	0	193	1292	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		
Detector Phase	1	6	6	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		5.0	15.0		2.0	15.0	
Minimum Split (s)	9.5	52.0	52.0	9.5	52.0		9.5	34.0		16.0	50.0	
Total Split (s)	12.0	42.0	42.0	12.0	42.0		23.0	49.0		17.0	43.0	
Total Split (%)	10.0%	35.0%	35.0%	10.0%	35.0%		19.2%	40.8%		14.2%	35.8%	
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		3.5	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3		4.5	5.3		4.0	5.3	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes			Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	47.3	39.6	39.6	50.8	43.1		56.1	40.2		50.5	36.6	
Actuated g/C Ratio	0.39	0.33	0.33	0.42	0.36		0.47	0.34		0.42	0.30	
v/c Ratio	0.32	0.31	0.15	0.41	1.03		0.75	0.76		0.89	0.93	
Control Delay	46.9	51.7	16.9	13.0	53.4		51.7	25.9		65.9	52.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	46.9	51.7	16.9	13.0	53.4		51.7	25.9		65.9	52.6	
LOS	D	D	B	B	D		D	C		E	D	
Approach Delay		44.9			48.5			29.5			54.3	
Approach LOS		D			D			C			D	
Stops (vph)	30	246	39	37	636		182	976		107	1053	

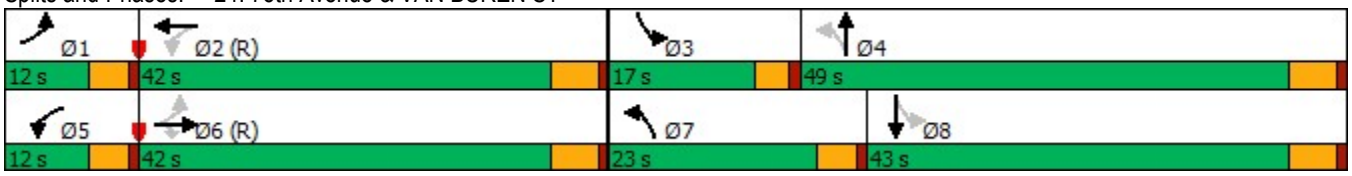
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	2	15	3	6	59		10	54		8	54	
CO Emissions (g/hr)	153	1077	219	443	4134		690	3808		549	3740	
NOx Emissions (g/hr)	30	210	43	86	804		134	741		107	728	
VOC Emissions (g/hr)	36	250	51	103	958		160	883		127	867	
Dilemma Vehicles (#)	0	15	0	0	38		0	19		0	42	
Queue Length 50th (ft)	1	136	11	32	~595		76	325		94	340	
Queue Length 95th (ft)	m69	m179	m49	m40	m#734		m137	343		#229	#433	
Internal Link Dist (ft)		449			1251			977			2797	
Turn Bay Length (ft)	200			200			250			220		
Base Capacity (vph)	157	1037	529	409	1163		288	1706		223	1429	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.31	0.15	0.41	1.03		0.66	0.70		0.87	0.90	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 111 (93%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 44.4 Intersection LOS: D
Intersection Capacity Utilization 78.0% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: 75th Avenue & VAN BUREN ST



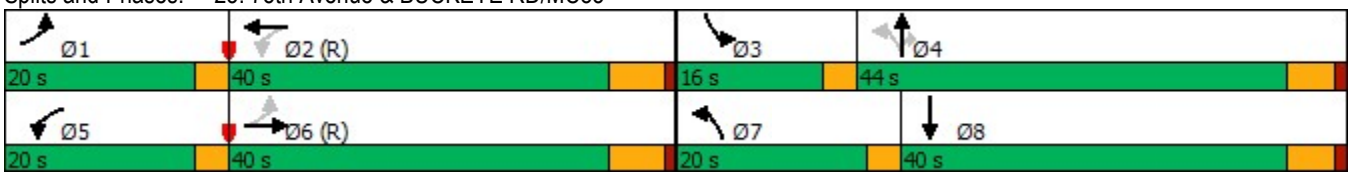
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	426	108	192	1128	163	123	618	69	182	707	108
Future Volume (vph)	60	426	108	192	1128	163	123	618	69	182	707	108
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	260		190	270		0	260		0	270		0
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.970			0.981				0.850		0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1625	4369	0	1685	4766	0	1685	3339	1405	3181	3346	0
Flt Permitted	0.118			0.326			0.121			0.950		
Satd. Flow (perm)	202	4369	0	578	4766	0	215	3339	1405	3181	3346	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			22				88		14	
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		4741			2586			1298			2861	
Travel Time (s)		64.7			35.3			19.7			43.3	
Peak Hour Factor	0.82	0.82	0.82	0.91	0.91	0.91	0.78	0.78	0.78	0.95	0.95	0.95
Heavy Vehicles (%)	13%	18%	14%	9%	8%	13%	9%	10%	17%	12%	8%	5%
Adj. Flow (vph)	73	520	132	211	1240	179	158	792	88	192	744	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	652	0	211	1419	0	158	792	88	192	858	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4		4			
Detector Phase	1	6		5	2		7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0		2.0	15.0		2.0	15.0	15.0	2.0	15.0	
Minimum Split (s)	18.0	44.0		11.0	37.0		17.0	30.0	30.0	17.0	30.0	
Total Split (s)	20.0	40.0		20.0	40.0		20.0	44.0	44.0	16.0	40.0	
Total Split (%)	16.7%	33.3%		16.7%	33.3%		16.7%	36.7%	36.7%	13.3%	33.3%	
Yellow Time (s)	3.0	5.0		3.0	5.0		3.0	4.3	4.3	3.0	4.3	
All-Red Time (s)	0.0	1.1		0.0	1.1		0.0	1.2	1.2	0.0	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	6.1		3.0	6.1		3.0	5.5	5.5	3.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped	Ped	None	Ped	
Act Effct Green (s)	56.2	45.8		64.4	52.6		46.7	33.0	33.0	11.1	32.8	
Actuated g/C Ratio	0.47	0.38		0.54	0.44		0.39	0.28	0.28	0.09	0.27	
v/c Ratio	0.41	0.38		0.50	0.68		0.71	0.86	0.20	0.65	0.93	
Control Delay	22.9	27.1		19.3	22.0		40.8	51.7	7.2	46.8	68.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	22.9	27.1		19.3	22.0		40.8	51.7	7.2	46.8	68.2	
LOS	C	C		B	C		D	D	A	D	E	
Approach Delay		26.7			21.7			46.3			64.3	
Approach LOS		C			C			D			E	
Stops (vph)	33	355		70	587		79	571	10	176	790	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	3	26		8	58		3	19	1	10	49	
CO Emissions (g/hr)	195	1833		576	4044		213	1315	56	713	3442	
NOx Emissions (g/hr)	38	357		112	787		41	256	11	139	670	
VOC Emissions (g/hr)	45	425		133	937		49	305	13	165	798	
Dilemma Vehicles (#)	0	22		0	94		0	22	0	0	2	
Queue Length 50th (ft)	27	124		50	161		76	304	0	79	369	
Queue Length 95th (ft)	53	163		128	238		96	297	26	m93	m415	
Internal Link Dist (ft)		4661			2506			1218			2781	
Turn Bay Length (ft)	260			270			260			270		
Base Capacity (vph)	308	1699		467	2100		297	1071	510	344	978	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.24	0.38		0.45	0.68		0.53	0.74	0.17	0.56	0.88	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 38.3 Intersection LOS: D
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: 75th Avenue & BUCKEYE RD/MC85



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	684	192	249	1394	352	279	1020	109	228	916	200
Future Volume (vph)	187	684	192	249	1394	352	279	1020	109	228	916	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	260		280	170		0	250		0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850			0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1531	1711	4916	1531	1711	4842	0	1711	4916	1531
Flt Permitted	0.095			0.300			0.150			0.169		
Satd. Flow (perm)	171	3421	1531	540	4916	1531	270	4842	0	304	4916	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			206			340		16				127
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2610			1243			867			3075	
Travel Time (s)		39.5			18.8			14.8			52.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	201	735	206	268	1499	378	307	1121	120	259	1041	227
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	735	206	268	1499	378	307	1241	0	259	1041	227
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4			8		8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	15.0		8.0	15.0	15.0
Minimum Split (s)	11.0	50.3	50.3	9.0	48.3	48.3	9.0	33.0		12.0	28.3	28.3
Total Split (s)	13.0	48.0	48.0	9.0	44.0	44.0	19.0	32.0		16.0	29.0	29.0
Total Split (%)	12.4%	45.7%	45.7%	8.6%	41.9%	41.9%	18.1%	30.5%		15.2%	27.6%	27.6%
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4	1.4	1.0	1.4		1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.4		4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped		Min	Ped	Ped
Act Effct Green (s)	53.0	42.3	42.3	45.0	38.3	38.3	43.0	26.6		37.0	23.6	23.6
Actuated g/C Ratio	0.50	0.40	0.40	0.43	0.36	0.36	0.41	0.25		0.35	0.22	0.22
v/c Ratio	0.92	0.53	0.28	0.93	0.84	0.49	0.97	1.00		0.97	0.94	0.51
Control Delay	67.5	25.6	3.9	63.8	35.6	6.3	72.0	65.4		75.6	57.0	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	67.5	25.6	3.9	63.8	35.6	6.3	72.0	65.4		75.6	57.0	20.3
LOS	E	C	A	E	D	A	E	E		E	E	C
Approach Delay		29.1			34.0			66.7			54.7	
Approach LOS		C			C			E			D	
Stops (vph)	101	503	18	175	1235	47	181	1005		149	833	81
Fuel Used(gal)	10	33	7	7	37	4	8	32		10	38	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
CO Emissions (g/hr)	710	2306	481	519	2566	271	525	2205		680	2651	405
NOx Emissions (g/hr)	138	449	94	101	499	53	102	429		132	516	79
VOC Emissions (g/hr)	165	534	111	120	595	63	122	511		158	614	94
Dilemma Vehicles (#)	0	33	0	0	66	0	0	51		0	40	0
Queue Length 50th (ft)	83	194	0	102	332	16	154	~304		122	253	56
Queue Length 95th (ft)	#224	251	44	#237	395	86	#329	#411		#273	#327	127
Internal Link Dist (ft)		2530			1163			787			2995	
Turn Bay Length (ft)	270			260		280	170			250		
Base Capacity (vph)	218	1378	739	287	1793	774	316	1238		267	1104	442
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.92	0.53	0.28	0.93	0.84	0.49	0.97	1.00		0.97	0.94	0.51

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 46.0 Intersection LOS: D
Intersection Capacity Utilization 82.7% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 26: 67TH AVE & MCDOWELL RD

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	177	509	494	514	976	0	0	931	313
Future Volume (vph)	0	0	0	177	509	494	514	976	0	0	931	313
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	0		0	0		250	0		0	130		0
Storage Lanes	0		0	2		2	2		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	3269	1895	1611	3361	5175	0	0	5175	1611
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	3269	1895	1611	3361	5175	0	0	5175	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						181						185
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1330			1346			526			867	
Travel Time (s)		20.2			20.4			9.0			14.8	
Peak Hour Factor	0.25	0.25	0.25	0.84	0.84	0.84	0.89	0.89	0.89	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	9%	2%	2%	6%	2%	0%	0%	2%	2%
Adj. Flow (vph)	0	0	0	211	606	588	578	1097	0	0	1001	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	211	606	588	578	1097	0	0	1001	337
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				10.0	10.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							35.0				31.0	31.0
Total Split (%)							26.9%				23.8%	23.8%
Yellow Time (s)							4.3				4.3	4.3
All-Red Time (s)							3.4				1.0	1.0
Lost Time Adjust (s)							0.0				0.0	0.0
Total Lost Time (s)							7.7				5.3	5.3
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Recall Mode							None				C-Min	C-Min
Act Effct Green (s)				52.8	52.8	52.8	32.2	65.6			25.7	25.7
Actuated g/C Ratio				0.41	0.41	0.41	0.25	0.50			0.20	0.20
v/c Ratio				0.16	0.79	0.77	0.70	0.42			0.98	0.72
Control Delay				23.9	41.4	29.6	36.2	11.1			75.2	31.4
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				23.9	41.4	29.6	36.2	11.1			75.2	31.4
LOS				C	D	C	D	B			E	C
Approach Delay					33.8			19.8			64.2	
Approach LOS					C			B			E	
Stops (vph)				106	432	309	453	631			854	142

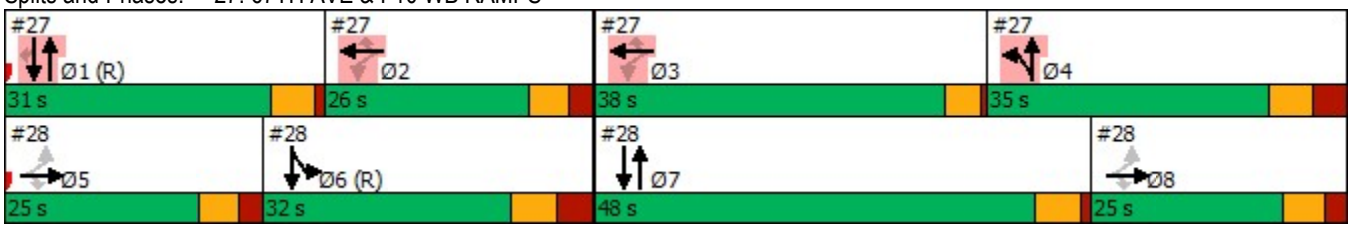
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	5.0	8.0	5.0	10.0	8.0
Minimum Split (s)	30.0	9.0	30.0	30.0	30.0	30.0
Total Split (s)	26.0	38.0	25.0	32.0	48.0	25.0
Total Split (%)	20%	29%	19%	25%	37%	19%
Yellow Time (s)	3.9	3.5	3.9	4.3	4.3	3.9
All-Red Time (s)	2.4	0.5	2.4	3.7	1.0	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	Min	C-Min	None	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)				4	14	11	10	12			28	5
CO Emissions (g/hr)				260	986	778	704	831			1966	366
NOx Emissions (g/hr)				51	192	151	137	162			382	71
VOC Emissions (g/hr)				60	229	180	163	193			456	85
Dilemma Vehicles (#)				0	13	0	0	8			34	0
Queue Length 50th (ft)				55	424	293	244	244			310	121
Queue Length 95th (ft)				73	498	373	m287	m279			#408	236
Internal Link Dist (ft)		1250			1266			446			787	
Turn Bay Length (ft)						250						
Base Capacity (vph)				1450	841	815	831	2610			1023	466
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.15	0.72	0.72	0.70	0.42			0.98	0.72

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 37.7 Intersection LOS: D
Intersection Capacity Utilization 71.8% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: 67TH AVE & I-10 WB RAMPS



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	636	318	350	0	0	0	0	1537	202	321	738	0
Future Volume (vph)	636	318	350	0	0	0	0	1537	202	321	738	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	250		250	0		0	200		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.86	0.86	1.00	0.91	1.00
Frt		0.988	0.850					0.983				
Flt Protected	0.950	0.978								0.950		
Satd. Flow (prot)	1639	3131	1359	0	0	0	0	6304	0	1801	5027	0
Flt Permitted	0.950	0.978								0.950		
Satd. Flow (perm)	1639	3131	1359	0	0	0	0	6304	0	1801	5027	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6	164					27				
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1619			1317			857			526	
Travel Time (s)		24.5			20.0			14.6			9.0	
Peak Hour Factor	0.85	0.85	0.85	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	10%	0%	0%	0%	0%	3%	9%	2%	5%	0%
Adj. Flow (vph)	748	374	412	0	0	0	0	1671	220	349	802	0
Shared Lane Traffic (%)	48%		15%									
Lane Group Flow (vph)	389	795	350	0	0	0	0	1891	0	349	802	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8									
Detector Phase	5 8	5 8	5 8					7		6	6 7	
Switch Phase												
Minimum Initial (s)								10.0		5.0		
Minimum Split (s)								30.0		30.0		
Total Split (s)								48.0		32.0		
Total Split (%)								36.9%		24.6%		
Yellow Time (s)								4.3		4.3		
All-Red Time (s)								1.0		3.7		
Lost Time Adjust (s)								0.0		0.0		
Total Lost Time (s)								5.3		8.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Recall Mode								None		C-Min		
Act Effct Green (s)	42.1	42.1	42.1					42.7		25.6	73.6	
Actuated g/C Ratio	0.32	0.32	0.32					0.33		0.20	0.57	
v/c Ratio	0.73	0.78	0.64					0.91		0.99	0.28	
Control Delay	48.0	45.5	24.6					48.4		53.7	9.8	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.0	
Total Delay	48.0	45.5	24.6					48.4		53.7	9.8	
LOS	D	D	C					D		D	A	
Approach Delay		41.3						48.4			23.1	
Approach LOS		D						D			C	
Stops (vph)	288	593	140					1579		271	628	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	8.0	5.0	5.0	8.0	8.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	26.0	38.0	35.0	25.0	25.0
Total Split (%)	24%	20%	29%	27%	19%	19%
Yellow Time (s)	4.3	3.9	3.5	4.3	3.9	3.9
All-Red Time (s)	1.0	2.4	0.5	3.4	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	C-Min	None	None	None	Min	Min
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Stops (vph)						

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	10	21	6					77		7	10	
CO Emissions (g/hr)	719	1449	445					5416		511	718	
NOx Emissions (g/hr)	140	282	87					1054		99	140	
VOC Emissions (g/hr)	167	336	103					1255		118	166	
Dilemma Vehicles (#)	0	24	0					66		0	1	
Queue Length 50th (ft)	312	343	143					436		~328	219	
Queue Length 95th (ft)	410	395	232					488		m#365	m230	
Internal Link Dist (ft)		1539			1237			777			446	
Turn Bay Length (ft)	250		250									
Base Capacity (vph)	550	1056	565					2088		354	2844	
Starvation Cap Reductn	0	0	0					0		0	0	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.71	0.75	0.62					0.91		0.99	0.28	

Intersection Summary

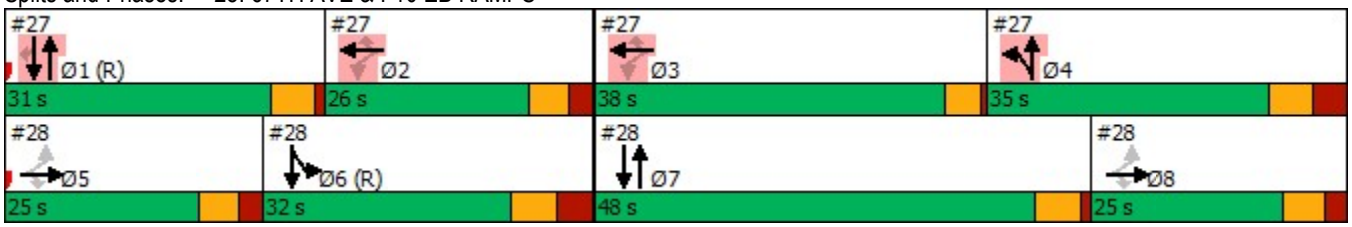
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 1:NBSB and 6:, Start of 1st Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 39.7 Intersection LOS: D
Intersection Capacity Utilization 71.8% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 28: 67TH AVE & I-10 EB RAMPS



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Fuel Used(gal)						
CO Emissions (g/hr)						
NOx Emissions (g/hr)						
VOC Emissions (g/hr)						
Dilemma Vehicles (#)						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

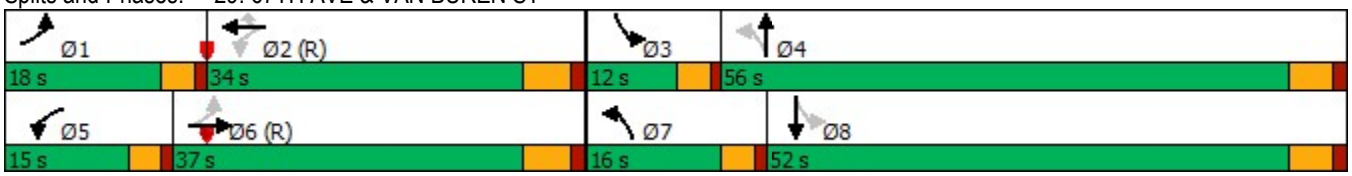
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	448	122	260	983	167	225	1147	136	112	560	104
Future Volume (vph)	145	448	122	260	983	167	225	1147	136	112	560	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		0	250		0	260		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt			0.850			0.850		0.984			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1531	3172	1432	1646	4730	1419	1572	4671	0	1572	3099	0
Flt Permitted	0.126			0.281			0.199			0.101		
Satd. Flow (perm)	203	3172	1432	487	4730	1419	329	4671	0	167	3099	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142			187		21			21	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1509			2292			5231			2940	
Travel Time (s)		22.9			34.7			89.2			50.1	
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.87	0.87	0.91	0.91	0.91
Heavy Vehicles (%)	14%	10%	9%	6%	6%	10%	11%	5%	11%	11%	10%	10%
Adj. Flow (vph)	169	521	142	299	1130	192	259	1318	156	123	615	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	521	142	299	1130	192	259	1474	0	123	729	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4			8		
Detector Phase	1	6	6	5	2	2	7	4		3	8	
Switch Phase												
Minimum Initial (s)	2.0	15.0	15.0	2.0	15.0	15.0	2.0	15.0		2.0	15.0	
Minimum Split (s)	9.0	52.0	52.0	9.0	52.0	52.0	9.0	50.0		9.0	50.0	
Total Split (s)	18.0	37.0	37.0	15.0	34.0	34.0	16.0	56.0		12.0	52.0	
Total Split (%)	15.0%	30.8%	30.8%	12.5%	28.3%	28.3%	13.3%	46.7%		10.0%	43.3%	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	4.3	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.4	1.4	1.0	1.4	1.4	1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.4		4.0	5.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes			Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Ped		None	Ped	
Act Effct Green (s)	47.6	31.7	31.7	52.1	35.2	35.2	56.9	43.5		48.9	39.5	
Actuated g/C Ratio	0.40	0.26	0.26	0.43	0.29	0.29	0.47	0.36		0.41	0.33	
v/c Ratio	0.71	0.62	0.29	0.78	0.81	0.35	0.93	0.86		0.76	0.71	
Control Delay	44.0	49.8	16.5	41.6	46.2	7.7	73.7	60.8		51.6	37.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	44.0	49.8	16.5	41.6	46.2	7.7	73.7	60.8		51.6	37.8	
LOS	D	D	B	D	D	A	E	E		D	D	
Approach Delay		42.9			40.8			62.7			39.8	
Approach LOS		D			D			E			D	
Stops (vph)	109	427	90	160	821	23	177	1217		65	543	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	26	6	8	34	3	13	73		5	28	
CO Emissions (g/hr)	540	1784	405	563	2382	212	916	5125		329	1923	
NOx Emissions (g/hr)	105	347	79	110	463	41	178	997		64	374	
VOC Emissions (g/hr)	125	414	94	131	552	49	212	1188		76	446	
Dilemma Vehicles (#)	0	10	0	0	38	0	0	76		0	21	
Queue Length 50th (ft)	94	211	25	150	302	3	180	431		53	250	
Queue Length 95th (ft)	m142	m252	m56	#307	#406	57	m#206	m433		#133	296	
Internal Link Dist (ft)		1429			2212			5151			2860	
Turn Bay Length (ft)	250			250			250			260		
Base Capacity (vph)	250	837	482	382	1387	548	280	1981		161	1216	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.68	0.62	0.29	0.78	0.81	0.35	0.93	0.74		0.76	0.60	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 48.5 Intersection LOS: D
Intersection Capacity Utilization 69.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 67TH AVE & VAN BUREN ST



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	548	109	182	1139	142	130	710	66	74	617	220
Future Volume (vph)	151	548	109	182	1139	142	130	710	66	74	617	220
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Storage Length (ft)	200		0	250		0	200		0	260		260
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.975			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1701	4455	0	1749	4601	0	1783	3498	1522	1371	3465	1480
Flt Permitted	0.113			0.263			0.151			0.148		
Satd. Flow (perm)	202	4455	0	484	4601	0	283	3498	1522	214	3465	1480
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			23				105			225
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		2673			2247			468			5231	
Travel Time (s)		40.5			34.0			8.0			89.2	
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.79	0.79	0.79	0.97	0.97	0.97
Heavy Vehicles (%)	8%	17%	8%	5%	12%	19%	3%	5%	8%	34%	6%	11%
Adj. Flow (vph)	194	703	140	198	1238	154	165	899	84	76	636	227
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	843	0	198	1392	0	165	899	84	76	636	227
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4		4	8		8
Detector Phase	1	6		5	2		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0	15.0	3.0	15.0	15.0
Minimum Split (s)	15.0	42.0		11.0	38.0		12.0	32.0	32.0	17.0	37.0	37.0
Total Split (s)	14.0	52.0		21.0	59.0		17.0	30.0	30.0	17.0	30.0	30.0
Total Split (%)	11.7%	43.3%		17.5%	49.2%		14.2%	25.0%	25.0%	14.2%	25.0%	25.0%
Yellow Time (s)	3.0	4.3		3.0	4.3		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	1.2		0.0	1.2		0.0	1.2	1.2	0.0	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.5		3.0	5.5		3.0	5.2	5.2	3.0	5.2	5.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	Ped	Ped	None	Ped	Ped
Act Effct Green (s)	65.7	52.6		68.0	53.9		43.3	30.7	30.7	38.7	26.5	26.5
Actuated g/C Ratio	0.55	0.44		0.57	0.45		0.36	0.26	0.26	0.32	0.22	0.22
v/c Ratio	0.80	0.43		0.50	0.67		0.65	1.01	0.18	0.46	0.83	0.45
Control Delay	56.4	19.9		16.3	27.6		39.1	77.0	5.2	43.0	60.2	15.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	19.9		16.3	27.6		39.1	77.0	5.2	43.0	60.2	15.7
LOS	E	B		B	C		D	E	A	D	E	B
Approach Delay		26.7			26.2			66.3			48.0	
Approach LOS		C			C			E			D	
Stops (vph)	127	286		83	964		91	576	6	54	484	114

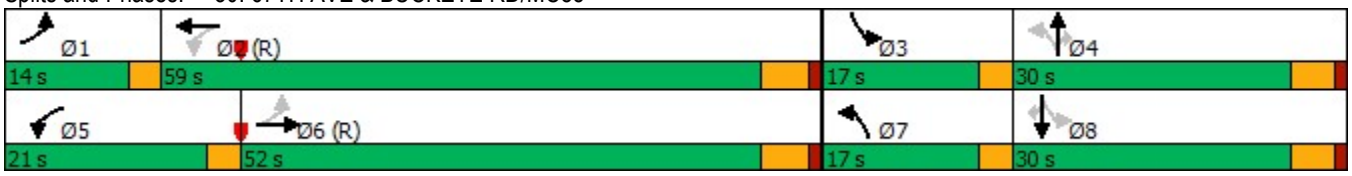
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	8	29		4	38		3	22	1	4	34	10
CO Emissions (g/hr)	592	2005		300	2648		202	1541	43	266	2391	673
NOx Emissions (g/hr)	115	390		58	515		39	300	8	52	465	131
VOC Emissions (g/hr)	137	465		70	614		47	357	10	62	554	156
Dilemma Vehicles (#)	0	22		0	53		0	25	0	0	59	0
Queue Length 50th (ft)	90	98		68	301		88	~405	0	40	207	26
Queue Length 95th (ft)	#152	106		108	356		123	#475	17	m76	#346	m79
Internal Link Dist (ft)		2593			2167			388			5151	
Turn Bay Length (ft)	200			250			200			260		260
Base Capacity (vph)	248	1974		472	2078		276	893	467	210	766	502
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.43		0.42	0.67		0.60	1.01	0.18	0.36	0.83	0.45

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 40.4 Intersection LOS: D
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 67TH AVE & BUCKEYE RD/MC85



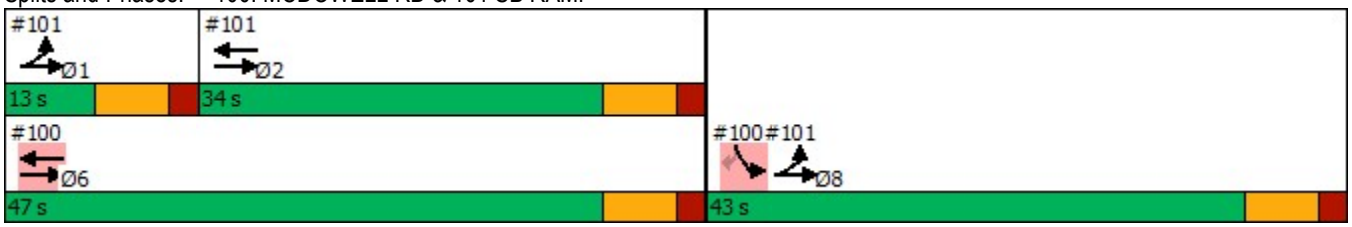
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1654	763	0	636	1272		
Future Volume (vph)	0	1654	763	0	636	1272		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000		
Storage Length (ft)	150			0	0	0		
Storage Lanes	2			0	2	2		
Taper Length (ft)	100				100			
Lane Util. Factor	1.00	0.86	0.91	1.00	0.97	0.86		
Frt					0.946	0.850		
Flt Protected					0.969			
Satd. Flow (prot)	0	6520	5175	0	3371	2771		
Flt Permitted					0.969			
Satd. Flow (perm)	0	6520	5175	0	3371	2771		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)					92	158		
Link Speed (mph)		45	45		45			
Link Distance (ft)		969	455		2345			
Travel Time (s)		14.7	6.9		35.5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1798	829	0	691	1383		
Shared Lane Traffic (%)						28%		
Lane Group Flow (vph)	0	1798	829	0	1078	996		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		47.0	47.0		43.0	43.0	13.0	34.0
Total Split (%)		52.2%	52.2%		47.8%	47.8%	14%	38%
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		
Total Lost Time (s)		7.0	7.0		7.0	7.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?								
Recall Mode		None	None		None	None	None	Ped
Act Effct Green (s)		41.0	41.0		36.0	36.0		
Actuated g/C Ratio		0.45	0.45		0.40	0.40		
v/c Ratio		0.61	0.36		0.78	0.84		
Control Delay		20.1	11.8		26.5	28.4		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		20.1	11.8		26.5	28.4		
LOS		C	B		C	C		
Approach Delay		20.1	11.8		27.4			
Approach LOS		C	B		C			
Stops (vph)		1193	223		777	686		
Fuel Used(gal)		32	7		30	28		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
CO Emissions (g/hr)		2237	480		2105	1941		
NOx Emissions (g/hr)		435	93		410	378		
VOC Emissions (g/hr)		518	111		488	450		
Dilemma Vehicles (#)		73	91		0	0		
Queue Length 50th (ft)		220	57		251	252		
Queue Length 95th (ft)		258	m52		330	351		
Internal Link Dist (ft)		889	375		2265			
Turn Bay Length (ft)								
Base Capacity (vph)		2937	2331		1389	1191		
Starvation Cap Reductn		0	0		0	0		
Spillback Cap Reductn		0	0		0	0		
Storage Cap Reductn		0	0		0	0		
Reduced v/c Ratio		0.61	0.36		0.78	0.84		

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 91	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 21.9	Intersection LOS: C
Intersection Capacity Utilization 101.9%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 100: MCDOWELL RD & 101 SB RAMP



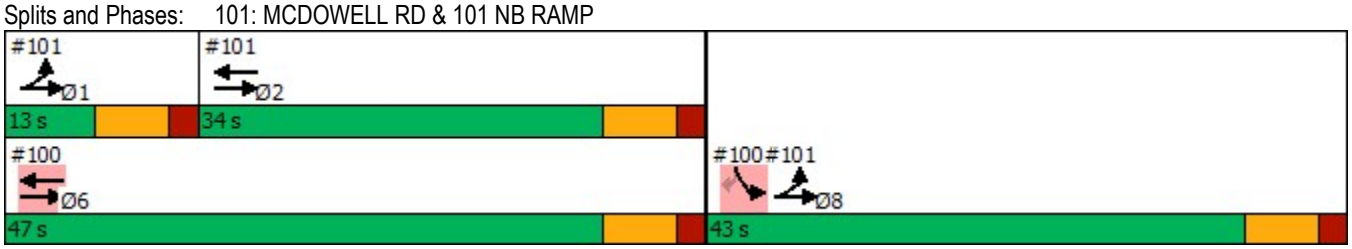
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	509	1781	763	763	0	0			
Future Volume (vph)	509	1781	763	763	0	0			
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000			
Storage Length (ft)	459			0	0	0			
Storage Lanes	0			0	0	0			
Taper Length (ft)	100				100				
Lane Util. Factor	0.97	0.95	0.91	0.91	1.00	1.00			
Frt			0.925						
Flt Protected	0.950								
Satd. Flow (prot)	3144	3241	4308	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3144	3241	4308	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			287						
Link Speed (mph)		45	45		45				
Link Distance (ft)		455	677		1958				
Travel Time (s)		6.9	10.3		29.7				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	553	1936	829	829	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	553	1936	1658	0	0	0			
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			34.0				13.0	47.0	43.0
Total Split (%)			37.8%				14%	52%	48%
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			2.0				2.0	2.0	2.0
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			7.0						
Lead/Lag			Lag				Lead		
Lead-Lag Optimize?									
Recall Mode			Ped				None	None	None
Act Effct Green (s)	49.0	91.0	28.0						
Actuated g/C Ratio	0.54	1.00	0.31						
v/c Ratio	0.33	0.60	1.27dr						
Control Delay	24.4	4.8	77.3						
Queue Delay	0.0	0.0	0.0						
Total Delay	24.4	4.8	77.3						
LOS	C	A	E						
Approach Delay		9.1	77.3						
Approach LOS		A	E						
Stops (vph)	390	573	1140						
Fuel Used(gal)	9	14	76						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
CO Emissions (g/hr)	621	986	5331						
NOx Emissions (g/hr)	121	192	1037						
VOC Emissions (g/hr)	144	229	1235						
Dilemma Vehicles (#)	0	0	75						
Queue Length 50th (ft)	132	179	~352						
Queue Length 95th (ft)	m175	202	#448						
Internal Link Dist (ft)		375	597		1878				
Turn Bay Length (ft)	459								
Base Capacity (vph)	1692	3241	1524						
Starvation Cap Reductn	0	0	0						
Spillback Cap Reductn	0	0	0						
Storage Cap Reductn	0	0	0						
Reduced v/c Ratio	0.33	0.60	1.09						

Intersection Summary	
Area Type: CBD	
Cycle Length: 90	
Actuated Cycle Length: 91	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 36.4	Intersection LOS: D
Intersection Capacity Utilization 101.9%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

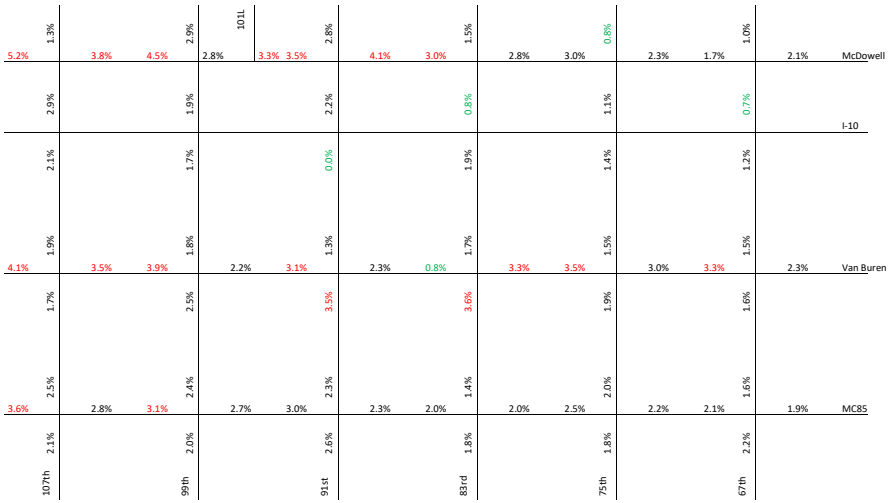
Splits and Phases: 101: MCDOWELL RD & 101 NB RAMP



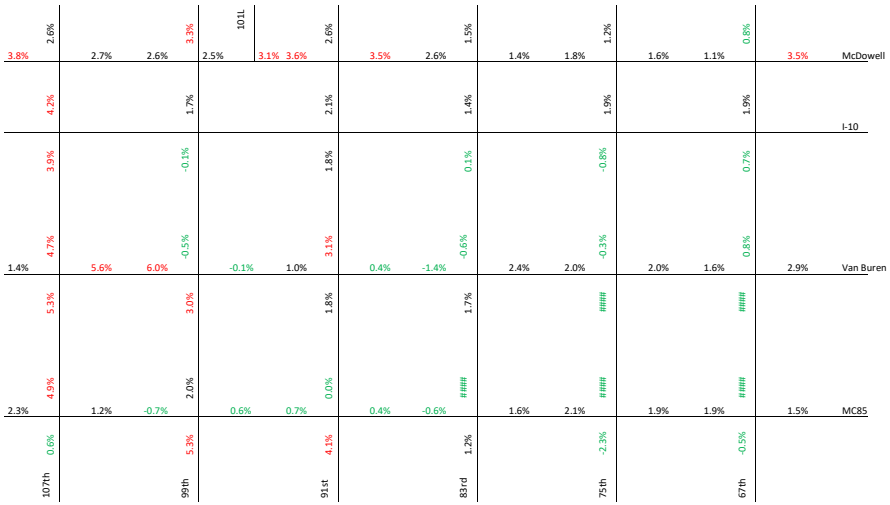
APPENDIX C – 2040 GROWTH RATE CALCULATION

Main Street	Cross Street	Direction	Volumes 2018	2030 No Build	2030 Build	2040 No Build	2040 Build	Growth Rates 2018 - 2030 No Build	2018 - 2030 Build	2018-2040 No Build	2018-2040 Build
McDowell	107th	W	7,033	12,937	11,019	24,507	15,945	5.2%	3.8%	5.8%	3.8%
	107th	E	22,314	34,925	30,730	44,496	34,307	3.8%	2.7%	3.2%	2.0%
	99th	W	16,251	27,516	22,165	38,799	28,786	4.5%	2.6%	4.0%	2.6%
	99th	E	29,476	41,035	39,778	48,185	43,252	2.8%	2.5%	2.3%	1.8%
	101 L	E	12,900	18,973	18,690	22,668	21,208	3.3%	3.1%	2.6%	2.3%
	91st	W	9,122	13,832	13,940	16,145	15,539	3.5%	3.6%	2.6%	2.5%
	91st	E	10,125	16,357	15,298	21,499	17,896	4.1%	3.5%	3.5%	2.6%
	83rd	W	9,885	14,149	13,489	18,496	15,283	3.0%	2.6%	2.9%	2.0%
	83rd	E	19,076	26,548	22,439	33,676	24,781	2.8%	1.4%	2.6%	1.2%
	75th	W	12,188	17,328	15,051	23,482	16,229	3.0%	1.8%	3.0%	1.3%
	75th	E	15,845	20,907	19,201	26,152	20,288	2.3%	1.6%	2.3%	1.1%
	67th	W	18,355	22,432	21,002	27,164	21,750	1.7%	1.1%	1.8%	0.8%
	67th	E	19,096	24,538	28,802	29,751	29,806	2.1%	3.5%	2.0%	2.0%
Van Buren	107th	W	13,507	21,904	15,944	18,743	19,094	4.1%	1.4%	1.5%	1.6%
	107th	E	11,710	17,762	22,490	21,178	23,772	3.5%	5.6%	2.7%	3.3%
	99th	W	11,121	17,529	22,397	20,231	22,858	3.9%	6.0%	2.8%	3.3%
	99th	E	18,314	23,845	18,170	30,940	22,720	2.2%	-0.1%	2.4%	1.0%
	91st	W	13,123	19,025	14,820	26,187	14,934	3.1%	1.0%	3.2%	0.6%
	91st	E	14,046	18,556	14,682	25,162	16,408	2.3%	0.4%	2.7%	0.7%
	83rd	W	17,509	19,281	14,712	27,504	18,057	0.8%	-1.4%	2.1%	0.1%
	83rd	E	10,366	15,353	13,730	18,182	13,079	3.3%	2.4%	2.6%	1.1%
	75th	W	7,794	11,795	9,906	15,240	9,232	3.5%	2.0%	3.1%	0.8%
	75th	E	16,483	23,373	20,823	29,291	19,811	3.0%	2.0%	2.6%	0.8%
	67th	W	14,396	21,217	17,324	26,120	16,712	3.3%	1.6%	2.7%	0.7%
	67th	E	19,674	25,796	27,777	30,086	26,908	2.3%	2.9%	1.9%	1.4%
MC85	107th	W	13,021	19,937	17,077	28,119	19,178	3.6%	2.3%	3.6%	1.8%
	107th	E	18,394	25,677	21,245	32,394	21,651	2.8%	1.2%	2.6%	0.7%
	99th	W	18,745	27,068	17,228	34,748	16,884	3.1%	-0.7%	2.8%	-0.5%
	99th	E	18,160	24,952	19,547	31,620	19,664	2.7%	0.6%	2.6%	0.4%
	91st	W	16,377	23,217	17,735	29,587	18,057	3.0%	0.7%	2.7%	0.4%
	91st	E	17,820	23,358	18,681	28,355	18,227	2.3%	0.4%	2.1%	0.1%
	83rd	W	18,299	23,159	17,101	27,986	17,458	2.0%	-0.6%	1.9%	-0.2%
	83rd	E	19,884	25,343	24,020	29,939	21,842	2.0%	1.6%	1.9%	0.4%
	75th	W	16,207	21,754	20,842	26,589	18,053	2.5%	2.1%	2.3%	0.5%
	75th	E	19,166	24,796	24,035	29,309	22,233	2.2%	1.9%	1.9%	0.7%
	67th	W	17,039	21,821	21,449	26,629	18,383	2.1%	1.9%	2.1%	0.3%
	67th	E	19,334	24,161	23,227	28,402	21,011	1.9%	1.5%	1.8%	0.4%
107th	McDowell	N	10,567	12,370	14,439	13,357	16,637	1.3%	2.6%	1.1%	2.1%
	McDowell	S	19,155	26,891	31,416	29,971	35,408	2.9%	4.2%	2.1%	2.8%
	I-10	S	19,332	24,714	30,637	28,539	34,951	2.1%	3.9%	1.8%	2.7%
	Van Buren	N	12,448	15,572	21,501	17,769	24,213	1.9%	4.7%	1.6%	3.1%
	Van Buren	S	17,212	21,047	32,149	27,570	36,276	1.7%	5.3%	2.2%	3.4%
	MC85	N	12,779	17,245	22,750	18,813	25,398	2.5%	4.9%	1.8%	3.2%
	MC85	S	15,891	20,437	17,040	24,484	17,374	2.1%	0.6%	2.0%	0.4%
99th	McDowell	N	15,062	21,223	22,347	25,725	26,986	2.9%	3.3%	2.5%	2.7%
	McDowell	S	35,171	43,831	43,115	48,535	49,603	1.9%	1.7%	1.5%	1.6%
	I-10	S	41,936	51,096	41,288	58,064	44,520	1.7%	-0.1%	1.5%	0.3%
	Van Buren	N	31,152	38,727	29,160	44,146	30,441	1.8%	-0.5%	1.6%	-0.1%
	Van Buren	S	22,531	30,333	32,213	33,460	31,012	2.5%	3.0%	1.8%	1.5%
	MC85	N	17,672	23,590	22,452	27,336	25,252	2.4%	2.0%	2.0%	1.6%
	MC85	S	13,676	17,426	25,398	19,442	26,672	2.0%	5.3%	1.6%	3.1%
91st	McDowell	N	15,602	21,840	21,335	24,805	24,096	2.8%	2.6%	2.1%	2.0%
	McDowell	S	22,780	29,706	29,390	33,147	33,684	2.2%	2.1%	1.7%	1.8%
	I-10	S	22,845	22,726	28,186	30,219	32,231	0.0%	1.8%	1.3%	1.6%
	Van Buren	N	13,689	16,015	19,757	17,337	20,641	1.3%	3.1%	1.1%	1.9%
	Van Buren	S	20,572	30,915	25,590	29,835	22,886	3.5%	1.8%	1.7%	0.5%
	MC85	N	15,241	19,947	15,178	24,609	16,382	2.3%	0.0%	2.2%	0.3%
	MC85	S	9,614	13,064	15,548	15,846	15,962	2.6%	4.1%	2.3%	2.3%
83rd	McDowell	N	26,095	31,326	31,334	35,575	35,077	1.5%	1.5%	1.4%	1.4%
	McDowell	S	30,483	33,594	36,016	38,349	41,327	0.8%	1.4%	1.0%	1.4%
	I-10	S	35,990	44,955	36,620	48,485	38,301	1.9%	0.1%	1.4%	0.3%
	Van Buren	N	30,775	37,591	28,575	40,195	29,977	1.7%	-0.6%	1.2%	-0.1%
	Van Buren	S	19,397	29,518	23,786	29,236	19,651	3.6%	1.7%	1.9%	0.1%
	MC85	N	20,900	24,565	18,468	28,362	20,321	1.4%	-1.0%	1.4%	-0.1%
	MC85	S	15,464	19,130	17,788	22,629	18,260	1.8%	1.2%	1.7%	0.8%
75th	McDowell	N	30,481	33,638	34,995	37,432	39,407	0.8%	1.2%	0.9%	1.2%
	McDowell	S	32,665	37,404	40,708	40,926	44,756	1.1%	1.9%	1.0%	1.4%
	I-10	S	27,540	32,408	24,932	34,787	29,870	1.4%	-0.8%	1.1%	0.4%
	Van Buren	N	22,690	27,086	21,907	29,593	23,817	1.5%	-0.3%	1.2%	0.2%
	Van Buren	S	21,477	26,874	17,128	29,048	17,625	1.9%	-1.9%	1.4%	-0.9%
	MC85	N	17,299	22,060	12,488	24,447	13,369	2.0%	-2.7%	1.6%	-1.2%
	MC85	S	18,509	22,870	13,997	25,422	13,882	1.8%	-2.3%	1.5%	-1.3%
67th	McDowell	N	27,820	31,467	30,775	32,934	34,101	1.0%	0.8%	0.8%	0.9%
	McDowell	S	33,272	36,177	41,789	38,199	46,224	0.7%	1.9%	0.6%	1.5%
	I-10	S	29,222	33,745	31,607	36,369	32,841	1.2%	0.7%	1.0%	0.5%
	Van Buren	N	21,661	26,041	23,899	28,924	25,220	1.5%	0.8%	1.3%	0.7%
	Van Buren	S	19,374	23,441	14,751	30,010	16,740	1.6%	-2.2%	2.0%	-0.7%
	MC85	N	18,926	22,887	13,349	27,063	14,662	1.6%	-2.9%	1.6%	-1.2%
	MC85	S	16,251	21,060	15,299	24,631	15,588	2.2%	-0.5%	1.9%	-0.2%
Sum McDowell			201,666	291,477	271,604	375,020	305,070	3.1%	2.5%	2.9%	1.9%
Sum Van Buren			168,043	235,436	212,775	288,864	223,585	2.9%	2.0%	2.5%	1.3%
Sum MC85			212,446	285,243	242,187	353,677	232,641	2.5%	1.1%	2.3%	0.4%
Sum 107th			107,384	138,276	169,932	160,503	190,257	2.1%	3.9%	1.8%	2.6%
Sum 99th			177,200	226,226	215,973	256,708	234,486	2.1%	1.7%	1.7%	1.3%
Sum 91st			120,343	154,213	154,984	175,798	165,882	2.1%	2.1%	1.7%	1.5%
Sum 83rd			179,104	220,679	192,587	242,831	202,914	1.8%	0.6%	1.4%	0.6%
Sum 75th			170,661	202,340	166,155	221,655	182,726	1.4%	-0.2%	1.2%	0.3%
Sum 67th			166,526	194,818	171,469	218,130	185,376	1.3%	0.2%	1.2%	0.5%
Sum E-W			582,155	812,156	726,566	1,017,561	761,296	2.8%	1.9%	2.6%	1.2%
Sum N-S			921,218	1,136,552	1,071,100	1,275,625	1,161,641	1.8%	1.3%	1.5%	1.1%
Sum ALL			**1,503,373**	**1,948,708**	**1,797,666**	**2,293,186**	**1,922,937**	**2.2%**	**1.5%**	**1.9%**	1.1%

2018 to 2030 No Build



2018 to 2030 Build



APPENDIX D – PLANNING-LEVEL OPINION OF PROBABLE COST

OPINION OF PROBABLE COST
Southwest Freight Subarea
67TH AVE AND I-10

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	1	$2,000.00	$2,000.00
301.01000	Subgrade Preparation	SY	3,802	$4.00	$15,208.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	1,854	$20.00	$37,080.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	642	$80.00	$51,360.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	856	$80.00	$68,480.00
336.02100	Microseal	SY	2,288	$4.00	$9,152.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	1,278	$15.00	$19,170.00
340.01150	Single Curb, Type A, MAG Det 222	LF	2,969	$15.00	$44,535.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	7,314	$5.00	$36,570.00
340.01215	Concrete Median Paving, 4 in Thick	SF	4,145	$5.00	$20,725.00
340.01300	Curb Ramp	EACH	6	$2,500.00	$15,000.00
340.01430	Return Type Driveway (Commercial/Industrial)	SF	2,534	$8.00	$20,272.00
340.01600	Concrete Apron & Valley Gutter, MAG Det 240	SF	962	$8.00	$7,696.00
350.01852	Remove Concrete Median on Bridge	SF	1,547	$4.00	$6,188.00
350.04100	Remove Tapered Tube Sign Structure	EACH	2	$5,000.00	$10,000.00
430.43000	Decomposed Granite, 3 in Thick	SY	913	$5.00	$4,565.00
440.11000	Median Landscaping	SY	913	$5.00	$4,565.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	4,415	$0.50	$2,207.50
462.01200	4 in Yellow Thermoplastic Traffic Stripe	LF	1,285	$0.50	$642.50
462.01501	Thermoplastic/Preformed Symbol	EACH	12	$200.00	$2,400.00
464.02002	Sign Structure (Tapered Tube)	Each	2	$30,000.00	$60,000.00
470.00002	Remove Traffic Signal (Full Intersection)	EACH	1	$30,000.00	$30,000.00
470.00005	Remove Traffic Signal Pole, Mast Arm and Foundation	EACH	3	$5,000.00	$15,000.00
472.61001	Foundation for Sign Structure (Tapered Tube)	EACH	2	$6,000.00	$12,000.00
472.61100	Pole Foundation, Type A, Det 4720	EACH	3	$800.00	$2,400.00
474.60114	Type A Signal Pole 14 ft	EACH	3	$1,000.00	$3,000.00
505.10000	Catch Basin	EACH	4	$4,000.00	$16,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR			EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS				$516,216.00
(B)	UNIDENTIFIED ITEMS	30%			$154,864.80
(C)	**TOTAL ITEMS COST (LINES A-B)**				**$671,080.80**
(D)	TRAFFIC CONTROL @	10%			$67,108.08
(E)	AZPDES @	2%			$13,421.62
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%			$13,421.62
(G)	MOBILIZATION/DEMOBILIZATION @	10%			$67,108.08
(H)	CONSTRUCTION QUALITY CONTROL	2%			$13,421.62
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**				**$845,561.81**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5	YEARS	$134,676.07
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**				**$980,237.88**
(L)	CONSTRUCTION CONTINGENCY @	5%			$49,011.89
(M)	CONSTRUCTION MANAGEMENT @	10%			$98,023.79
(N)	DESIGN @	10%			$98,023.79
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**				**$245,059.47**
(P)	RIGHT-OF-WAY	SF	46,730.17	$ 6.00	$280,380.99
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF	7,390.47	$ 0.60	$4,434.28
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**				**$284,815.27**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**				**$1,510,112.62**
(T)	AGENCY IN-HOUSE COSTS @	5%			$75,505.63
(U)	**TOTAL COST**				**$1,585,618.26**

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to the Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

OPINION OF PROBABLE COST
Southwest Freight Subarea
75TH AVE AND I-10

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	1	$2,000.00	$2,000.00
301.01000	Subgrade Preparation	SY	1,996	$4.00	$7,984.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	973	$20.00	$19,460.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	337	$80.00	$26,960.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	449	$80.00	$35,920.00
336.02100	Microseal	SY	13,965	$4.00	$55,860.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	825	$15.00	$12,375.00
340.01150	Single Curb, Type A, MAG Det 222	LF	1,465	$15.00	$21,975.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	2,674	$5.00	$13,370.00
340.01215	Concrete Median Paving, 4 in Thick	SF	2,409	$5.00	$12,045.00
340.01300	Curb Ramp	EACH	2	$2,500.00	$5,000.00
340.01405	Driveway Entrance, MAG Det 250-1, Commercial/Industrial	SF	769	$8.00	$6,152.00
350.01852	Remove Concrete Median on Bridge	SF	1,500	$4.00	$6,000.00
350.04100	Remove Tapered Tube Sign Structure	EACH	2	$5,000.00	$10,000.00
430.43000	Decomposed Granite, 3 in Thick	SY	219	$5.00	$1,095.00
440.11000	Median Landscaping	SY	219	$5.00	$1,095.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	8,981	$0.50	$4,490.50
462.01501	Thermoplastic/Preformed Symbol	EACH	27	$200.00	$5,400.00
464.02002	Sign Structure (Tapered Tube)	Each	2	$30,000.00	$60,000.00
470.00005	Remove Traffic Signal Pole, Mast Arm and Foundation	EACH	5	$5,000.00	$25,000.00
472.61001	Foundation for Sign Structure (Tapered Tube)	EACH	2	$6,000.00	$12,000.00
472.61100	Pole Foundation, Type A, Det 4720	EACH	3	$800.00	$2,400.00
474.60114	Type A Signal Pole 14 ft	EACH	5	$1,000.00	$5,000.00
505.10000	Catch Basin	EACH	4	$4,000.00	$16,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR			EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS				$365,581.50
(B)	UNIDENTIFIED ITEMS	30%			$109,674.45
(C)	**TOTAL ITEMS COST (LINES A-B)**				**$475,255.95**
(D)	TRAFFIC CONTROL @	10%			$47,525.60
(E)	AZPDES @	2%			$9,505.12
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%			$9,505.12
(G)	MOBILIZATION/DEMOBILIZATION @	10%			$47,525.60
(H)	CONSTRUCTION QUALITY CONTROL	2%			$9,505.12
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**				**$598,822.50**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5	YEARS	$95,376.90
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**				**$694,199.40**
(L)	CONSTRUCTION CONTINGENCY @	5%			$34,709.97
(M)	CONSTRUCTION MANAGEMENT @	10%			$69,419.94
(N)	DESIGN @	10%			$69,419.94
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**				**$173,549.85**
(P)	RIGHT-OF-WAY	SF	1,396.20	$ 6.00	$8,377.22
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF		$ 0.60	$0.00
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**				**$8,377.22**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**				**$876,126.47**
(T)	AGENCY IN-HOUSE COSTS @	5%			$43,806.32
(U)	**TOTAL COST**				**$919,932.79**

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OPINION OF PROBABLE COST
Southwest Freight Subarea
83RD AVE AND I-10

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	1	$2,000.00	$2,000.00
301.01000	Subgrade Preparation	SY	1,137	$4.00	$4,548.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	554	$20.00	$11,080.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	192	$80.00	$15,360.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	256	$80.00	$20,480.00
336.02100	Microseal	SY	3,524	$4.00	$14,096.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	457	$15.00	$6,855.00
340.01150	Single Curb, Type A, MAG Det 222	LF	1,343	$15.00	$20,145.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	1,335	$5.00	$6,675.00
340.01215	Concrete Median Paving, 4 in Thick	SF	1,588	$5.00	$7,940.00
340.01300	Curb Ramp	EACH	2	$2,500.00	$5,000.00
350.01852	Remove Concrete Median on Bridge	SF	1,548	$4.00	$6,192.00
350.04100	Remove Tapered Tube Sign Structure	EACH	2	$5,000.00	$10,000.00
430.43000	Decomposed Granite, 3 in Thick	SY	308	$5.00	$1,540.00
440.11000	Median Landscaping	SY	308	$5.00	$1,540.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	5,728	$0.50	$2,864.00
462.01200	4 in Yellow Thermoplastic Traffic Stripe	LF	336	$0.50	$168.00
462.01501	Thermoplastic/Preformed Symbol	EACH	17	$200.00	$3,400.00
464.02002	Sign Structure (Tapered Tube)	Each	2	$30,000.00	$60,000.00
470.00005	Remove Traffic Signal Pole, Mast Arm and Foundation	EACH	5	$5,000.00	$25,000.00
472.61000	Signal Pole Foundation	EACH	1	$4,000.00	$4,000.00
472.61001	Foundation for Sign Structure (Tapered Tube)	EACH	2	$6,000.00	$12,000.00
472.61100	Pole Foundation, Type A, Det 4720	EACH	2	$800.00	$1,600.00
474.60100	Signal Pole and Mast Arm	EACH	1	$25,000.00	$25,000.00
474.60114	Type A Signal Pole 14 ft	EACH	4	$1,000.00	$4,000.00
505.10000	Catch Basin	EACH	2	$4,000.00	$8,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR		EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS			$277,483.00
(B)	UNIDENTIFIED ITEMS	30%		$83,244.90
(C)	**TOTAL ITEMS COST (LINES A-B)**			**$360,727.90**
(D)	TRAFFIC CONTROL @	10%		$36,072.79
(E)	AZPDES @	2%		$7,214.56
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%		$7,214.56
(G)	MOBILIZATION/DEMOBILIZATION @	10%		$36,072.79
(H)	CONSTRUCTION QUALITY CONTROL	2%		$7,214.56
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**			**$454,517.15**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5 YEARS	$72,392.80
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**			**$526,909.95**
(L)	CONSTRUCTION CONTINGENCY @	5%		$26,345.50
(M)	CONSTRUCTION MANAGEMENT @	10%		$52,691.00
(N)	DESIGN @	10%		$52,691.00
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**			**$131,727.49**
(P)	RIGHT-OF-WAY	SF	$ 6.00	$0.00
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF	$ 0.60	$0.00
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**			**$0.00**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**			**$658,637.44**
(T)	AGENCY IN-HOUSE COSTS @	5%		$32,931.87
(U)	**TOTAL COST**			**$691,569.31**

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OPINION OF PROBABLE COST
Southwest Freight Subarea
99TH AVE AND I-10

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	1	$2,000.00	$2,000.00
301.01000	Subgrade Preparation	SY	668	$4.00	$2,672.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	326	$20.00	$6,520.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	113	$80.00	$9,040.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	150	$80.00	$12,000.00
336.02100	Microseal	SY	2,113	$4.00	$8,452.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	442	$15.00	$6,630.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	1,757	$5.00	$8,785.00
340.01300	Curb Ramp	EACH	1	$2,500.00	$2,500.00
350.04000	Remove and Salvage Traffic Sign Assembly	EACH	1	$5,000.00	$5,000.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	2,257	$0.50	$1,128.50
462.01501	Thermoplastic/Preformed Symbol	EACH	5	$200.00	$1,000.00
464.02002	Sign Structure (Tapered Tube)	Each	1	$30,000.00	$30,000.00
470.00005	Remove Traffic Signal Pole, Mast Arm and Foundation	EACH	1	$5,000.00	$5,000.00
472.61000	Signal Pole Foundation	EACH	1	$4,000.00	$4,000.00
472.61001	Foundation for Sign Structure (Tapered Tube)	EACH	2	$6,000.00	$12,000.00
474.60100	Signal Pole and Mast Arm	EACH	1	$25,000.00	$25,000.00
474.80010	Remove and Replace Light Pole	EACH	2	$5,000.00	$10,000.00
505.10000	Catch Basin	EACH	2	$4,000.00	$8,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR			EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS				$157,727.50
(B)	UNIDENTIFIED ITEMS	30%			$47,318.25
(C)	**TOTAL ITEMS COST (LINES A-B)**				**$205,045.75**
(D)	TRAFFIC CONTROL @	10%			$20,504.58
(E)	AZPDES @	2%			$4,100.92
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%			$4,100.92
(G)	MOBILIZATION/DEMOBILIZATION @	10%			$20,504.58
(H)	CONSTRUCTION QUALITY CONTROL	2%			$4,100.92
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**				**$258,357.65**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5 YEARS		$41,149.67
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**				**$299,507.32**
(L)	CONSTRUCTION CONTINGENCY @	5%			$14,975.37
(M)	CONSTRUCTION MANAGEMENT @	10%			$29,950.73
(N)	DESIGN @	10%			$29,950.73
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**				**$74,876.83**
(P)	RIGHT-OF-WAY	SF	3,673.54	$ 6.00	$22,041.26
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF		$ 0.60	$0.00
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**				**$22,041.26**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**				**$396,425.41**
(T)	AGENCY IN-HOUSE COSTS @	5%			$19,821.27
(U)	**TOTAL COST**				**$416,246.68**

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OPINION OF PROBABLE COST
Southwest Freight Subarea
VAN BUREN ST - 59TH AVE TO 75TH AVE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	5	$2,000.00	$10,000.00
301.01000	Subgrade Preparation	SY	4,855	$4.00	$19,420.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	2,367	$20.00	$47,340.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	808	$80.00	$64,640.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	1,077	$80.00	$86,160.00
336.02100	Microseal	SY	62,232	$4.00	$248,928.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	3,132	$15.00	$46,980.00
340.01150	Single Curb, Type A, MAG Det 222	LF	10,137	$15.00	$152,055.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	95,041	$5.00	$475,205.00
340.01215	Concrete Median Paving, 4 in Thick	SF	1,027	$5.00	$5,135.00
340.01300	Curb Ramp	EACH	35	$2,500.00	$87,500.00
340.01405	Driveway Entrance, MAG Det 250-1, Commercial/Industrial	SF	885	$8.00	$7,080.00
340.01430	Return Type Driveway (Commercial/Industrial)	SF	2,950	$8.00	$23,600.00
340.01600	Concrete Apron & Valley Gutter, MAG Det 240	SF	615	$8.00	$4,920.00
430.01040	Native Shade Tree - 15 gal	Each	180	$1,000.00	$180,000.00
430.43000	Decomposed Granite, 3 in Thick	SY	5,062	$5.00	$25,310.00
440.11000	Median Landscaping	SY	5,062	$5.00	$25,310.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	31,268	$0.50	$15,634.00
462.01200	4 in Yellow Thermoplastic Traffic Stripe	LF	8,994	$0.50	$4,497.00
462.01501	Thermoplastic/Preformed Symbol	EACH	42	$200.00	$8,400.00
470.00002	Remove Traffic Signal (Full Intersection)	EACH	3	$30,000.00	$90,000.00
471.01000	Signalize Intersection	EACH	3	$250,000.00	$750,000.00
472.61000	Signal Pole Foundation	EACH	2	$4,000.00	$8,000.00
474.60100	Signal Pole and Mast Arm	EACH	2	$25,000.00	$50,000.00
474.80020	Install Pedestrian Lighting (Includes LED Luminaire, Mast Arm, Pole, & Found	Each	112	$5,000.00	$560,000.00
505.10000	Catch Basin	EACH	6	$4,000.00	$24,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR			EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS				$3,020,114.00
(B)	UNIDENTIFIED ITEMS	30%			$906,034.20
(C)	**TOTAL ITEMS COST (LINES A-B)**				**$3,926,148.20**
(D)	TRAFFIC CONTROL @	10%			$392,614.82
(E)	AZPDES @	2%			$78,522.96
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%			$78,522.96
(G)	MOBILIZATION/DEMOBILIZATION @	10%			$392,614.82
(H)	CONSTRUCTION QUALITY CONTROL	2%			$78,522.96
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**				**$4,946,946.73**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5	YEARS	$787,920.36
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**				**$5,734,867.09**
(L)	CONSTRUCTION CONTINGENCY @	5%			$286,743.35
(M)	CONSTRUCTION MANAGEMENT @	10%			$573,486.71
(N)	DESIGN @	10%			$573,486.71
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**				**$1,433,716.77**
(P)	RIGHT-OF-WAY	SF	59,801.67	$ 6.00	$358,810.01
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF	244.24	$ 0.60	$146.55
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**				**$358,956.55**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**				**$7,527,540.42**
(T)	AGENCY IN-HOUSE COSTS @	5%			$376,377.02
(U)	**TOTAL COST**				**$7,903,917.44**

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OPINION OF PROBABLE COST
Southwest Freight Subarea
VAN BUREN ST - 75TH AVE TO 83RD AVE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	5	$2,000.00	$10,000.00
301.01000	Subgrade Preparation	SY	6,461	$4.00	$25,844.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	3,150	$20.00	$63,000.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	1,054	$80.00	$84,320.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	1,405	$80.00	$112,400.00
336.02100	Microseal	SY	29,605	$4.00	$118,420.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	7,160	$15.00	$107,400.00
340.01150	Single Curb, Type A, MAG Det 222	LF	7,153	$15.00	$107,295.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	65,573	$5.00	$327,865.00
340.01215	Concrete Median Paving, 4 in Thick	SF	362	$5.00	$1,810.00
340.01300	Curb Ramp	EACH	10	$2,500.00	$25,000.00
340.01600	Concrete Apron & Valley Gutter, MAG Det 240	SF	596	$8.00	$4,768.00
340.20000	Concrete Bus Bay Pavement, 9 in Thick, MAG Det 252	SF	1,350	$6.00	$8,100.00
350.01500	Remove Headwall	EACH	2	$3,000.00	$6,000.00
430.01040	Native Shade Tree - 15 gal	Each	169	$1,000.00	$169,000.00
430.43000	Decomposed Granite, 3 in Thick	SY	3,764	$5.00	$18,820.00
440.11000	Median Landscaping	SY	3,764	$5.00	$18,820.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	17,102	$0.50	$8,551.00
462.01200	4 in Yellow Thermoplastic Traffic Stripe	LF	2,716	$0.50	$1,358.00
462.01501	Thermoplastic/Preformed Symbol	EACH	18	$200.00	$3,600.00
470.00002	Remove Traffic Signal (Full Intersection)	EACH	1	$30,000.00	$30,000.00
471.01000	Signalize Intersection	EACH	1	$250,000.00	$250,000.00
474.80020	Install Pedestrian Lighting (Includes LED Luminaire, Mast Arm, Pole, & Found	Each	59	$5,000.00	$295,000.00
505.10000	Catch Basin	EACH	12	$4,000.00	$48,000.00
618.20548	48 in RGRCP, Class V	LF	325	$200.00	$65,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR			EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS				$1,910,371.00
(B)	UNIDENTIFIED ITEMS	30%			$573,111.30
(C)	**TOTAL ITEMS COST (LINES A-B)**				**$2,483,482.30**
(D)	TRAFFIC CONTROL @	10%			$248,348.23
(E)	AZPDES @	2%			$49,669.65
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%			$49,669.65
(G)	MOBILIZATION/DEMOBILIZATION @	10%			$248,348.23
(H)	CONSTRUCTION QUALITY CONTROL	2%			$49,669.65
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**				**$3,129,187.70**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5	YEARS	$498,398.47
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**				**$3,627,586.17**
(L)	CONSTRUCTION CONTINGENCY @	5%			$181,379.31
(M)	CONSTRUCTION MANAGEMENT @	10%			$362,758.62
(N)	DESIGN @	10%			$362,758.62
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**				**$906,896.54**
(P)	RIGHT-OF-WAY	SF	50,685.74	$ 6.00	$304,114.41
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF	-	$ 0.60	$0.00
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**				**$304,114.41**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**				**$4,838,597.12**
(T)	AGENCY IN-HOUSE COSTS @	5%			$241,929.86
(U)	**TOTAL COST**				**$5,080,526.98**

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OPINION OF PROBABLE COST
Southwest Freight Subarea
VAN BUREN ST - 83RD AVE TO 91ST AVE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	4	$2,000.00	$8,000.00
301.01000	Subgrade Preparation	SY	8,487	$4.00	$33,948.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	4,137	$20.00	$82,740.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	1,103	$80.00	$88,240.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	1,471	$80.00	$117,680.00
324.01090	Portland Cement Concrete Pavement (PCCP) 9 in Thick	SY	1,554	$40.00	$62,160.00
336.02100	Microseal	SY	29,446	$4.00	$117,784.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	6,290	$15.00	$94,350.00
340.01150	Single Curb, Type A, MAG Det 222	LF	4,677	$15.00	$70,155.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	53,920	$5.00	$269,600.00
340.01215	Concrete Median Paving, 4 in Thick	SF	903	$5.00	$4,515.00
340.01300	Curb Ramp	EACH	31	$2,500.00	$77,500.00
340.01405	Driveway Entrance, MAG Det 250-1, Commercial/Industrial	SF	616	$8.00	$4,928.00
340.01430	Return Type Driveway (Commercial/Industrial)	SF	3,208	$8.00	$25,664.00
340.01600	Concrete Apron & Valley Gutter, MAG Det 240	SF	2,203	$8.00	$17,624.00
340.20000	Concrete Bus Bay Pavement, 9 in Thick, MAG Det 252	SF	1,350	$6.00	$8,100.00
430.01040	Native Shade Tree - 15 gal	Each	70	$1,000.00	$70,000.00
430.43000	Decomposed Granite, 3 in Thick	SY	2,158	$5.00	$10,790.00
440.11000	Median Landscaping	SY	2,158	$5.00	$10,790.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	18,034	$0.50	$9,017.00
462.01200	4 in Yellow Thermoplastic Traffic Stripe	LF	5,022	$0.50	$2,511.00
462.01501	Thermoplastic/Preformed Symbol	EACH	31	$200.00	$6,200.00
470.00002	Remove Traffic Signal (Full Intersection)	EACH	2	$30,000.00	$60,000.00
471.01000	Signalize Intersection	EACH	2	$250,000.00	$500,000.00
472.61000	Signal Pole Foundation	EACH	2	$4,000.00	$8,000.00
474.60100	Signal Pole and Mast Arm	EACH	2	$25,000.00	$50,000.00
474.80020	Install Pedestrian Lighting (Includes LED Luminaire, Mast Arm, Pole, & Found	Each	44	$5,000.00	$220,000.00
505.10000	Catch Basin	EACH	11	$4,000.00	$44,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR			EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS				$2,074,296.00
(B)	UNIDENTIFIED ITEMS	30%			$622,288.80
(C)	**TOTAL ITEMS COST (LINES A-B)**				**$2,696,584.80**
(D)	TRAFFIC CONTROL @	10%			$269,658.48
(E)	AZPDES @	2%			$53,931.70
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%			$53,931.70
(G)	MOBILIZATION/DEMOBILIZATION @	10%			$269,658.48
(H)	CONSTRUCTION QUALITY CONTROL	2%			$53,931.70
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**				**$3,397,696.85**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5	YEARS	$541,165.02
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**				**$3,938,861.87**
(L)	CONSTRUCTION CONTINGENCY @	5%			$196,943.09
(M)	CONSTRUCTION MANAGEMENT @	10%			$393,886.19
(N)	DESIGN @	10%			$393,886.19
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**				**$984,715.47**
(P)	RIGHT-OF-WAY	SF	28,037.60	$ 6.00	$168,225.58
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF	6,932.84	$ 0.60	$4,159.70
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**				**$172,385.28**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**				**$5,095,962.61**
(T)	AGENCY IN-HOUSE COSTS @	5%			$254,798.13
(U)	**TOTAL COST**				**$5,350,760.75**

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OPINION OF PROBABLE COST
Southwest Freight Subarea
75TH AVE IMPROVEMENTS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	3	$2,000.00	$6,000.00
301.01000	Subgrade Preparation	SY	18,268	$4.00	$73,072.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	8,906	$20.00	$178,120.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	3,055	$80.00	$244,400.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	4,073	$80.00	$325,840.00
324.01090	Portland Cement Concrete Pavement (PCCP) 9 in Thick	SY	20	$40.00	$800.00
336.02100	Microseal	SY	1,273	$4.00	$5,092.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	4,207	$15.00	$63,105.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	19,476	$5.00	$97,380.00
340.01300	Curb Ramp	EACH	4	$2,500.00	$10,000.00
340.01405	Driveway Entrance, MAG Det 250-1, Commercial/Industrial	SF	350	$8.00	$2,800.00
340.01430	Return Type Driveway (Commercial/Industrial)	SF	3,798	$8.00	$30,384.00
340.20000	Concrete Bus Bay Pavement, 9 in Thick, MAG Det 252	SF	1,346	$6.00	$8,076.00
430.01040	Native Shade Tree - 15 gal	Each	78	$1,000.00	$78,000.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	9,585	$0.50	$4,792.50
462.01200	4 in Yellow Thermoplastic Traffic Stripe	LF	7,793	$0.50	$3,896.50
462.01501	Thermoplastic/Preformed Symbol	EACH	12	$200.00	$2,400.00
470.00002	Remove Traffic Signal (Full Intersection)	EACH	1	$30,000.00	$30,000.00
471.01000	Signalize Intersection	EACH	1	$250,000.00	$250,000.00
505.10000	Catch Basin	EACH	8	$4,000.00	$32,000.00
625.01400	Relocate Irrigation Drop Structure (SRPI)	EACH	1	$10,000.00	$10,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR			EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS				$1,450,158.00
(B)	UNIDENTIFIED ITEMS	30%			$435,047.40
(C)	**TOTAL ITEMS COST (LINES A-B)**				**$1,885,205.40**
(D)	TRAFFIC CONTROL @	10%			$188,520.54
(E)	AZPDES @	2%			$37,704.11
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%			$37,704.11
(G)	MOBILIZATION/DEMOBILIZATION @	10%			$188,520.54
(H)	CONSTRUCTION QUALITY CONTROL	2%			$37,704.11
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**				**$2,375,358.80**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5	YEARS	$378,333.07
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**				**$2,753,691.88**
(L)	CONSTRUCTION CONTINGENCY @	5%			$137,684.59
(M)	CONSTRUCTION MANAGEMENT @	10%			$275,369.19
(N)	DESIGN @	10%			$275,369.19
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**				**$688,422.97**
(P)	RIGHT-OF-WAY	SF	22,930.51	$ 6.00	$137,583.08
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF	1,683.11	$ 0.60	$1,009.87
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**				**$138,592.95**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**				**$3,580,707.80**
(T)	AGENCY IN-HOUSE COSTS @	5%			$179,035.39
(U)	**TOTAL COST**				**$3,759,743.19**

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OPINION OF PROBABLE COST
Southwest Freight Subarea
107TH AVE AND VAN BUREN ST

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	1	$2,000.00	$2,000.00
301.01000	Subgrade Preparation	SY	245	$4.00	$980.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	120	$20.00	$2,400.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	41	$80.00	$3,280.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	55	$80.00	$4,400.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	196	$15.00	$2,940.00
350.01500	Remove Headwall	EACH	1	$3,000.00	$3,000.00
470.00005	Remove Traffic Signal Pole, Mast Arm and Foundation	EACH	1	$5,000.00	$5,000.00
472.61000	Signal Pole Foundation	EACH	1	$4,000.00	$4,000.00
474.60100	Signal Pole and Mast Arm	EACH	1	$25,000.00	$25,000.00
505.10000	Catch Basin	EACH	2	$4,000.00	$8,000.00
523.01010	Headwall (Concrete)	EACH	1	$4,000.00	$4,000.00
618.20536	36 in RGRCP, Class V	LF	50	$150.00	$7,500.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR				EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS					$70,500.00
(B)	UNIDENTIFIED ITEMS	30%				$21,150.00
(C)	**TOTAL ITEMS COST (LINES A-B)**					**$91,650.00**
(D)	TRAFFIC CONTROL @	10%				$9,165.00
(E)	AZPDES @	2%				$1,833.00
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%				$1,833.00
(G)	MOBILIZATION/DEMOBILIZATION @	10%				$9,165.00
(H)	CONSTRUCTION QUALITY CONTROL	2%				$1,833.00
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**					**$115,479.00**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5	YEARS		$18,392.81
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**					**$133,871.81**
(L)	CONSTRUCTION CONTINGENCY @	5%				$6,693.59
(M)	CONSTRUCTION MANAGEMENT @	10%				$13,387.18
(N)	DESIGN @	10%				$13,387.18
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**					**$33,467.95**
(P)	RIGHT-OF-WAY	SF	348.54	$	6.00	$2,091.26
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF		$	0.60	$0.00
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**					**$2,091.26**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**					**$169,431.02**
(T)	AGENCY IN-HOUSE COSTS @	5%				$8,471.55
(U)	**TOTAL COST**					**$177,902.57**

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OPINION OF PROBABLE COST
Southwest Freight Subarea
67TH AVE AND MC85/BUCKEYE RD

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	1	$2,000.00	$2,000.00
301.01000	Subgrade Preparation	SY	482	$4.00	$1,928.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	235	$20.00	$4,700.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	79	$80.00	$6,320.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	105	$80.00	$8,400.00
324.01090	Portland Cement Concrete Pavement (PCCP) 9 in Thick	SY	142	$40.00	$5,680.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	332	$15.00	$4,980.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	1,091	$5.00	$5,455.00
340.01300	Curb Ramp	EACH	2	$2,500.00	$5,000.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	1,308	$0.50	$654.00
470.00005	Remove Traffic Signal Pole, Mast Arm and Foundation	EACH	2	$5,000.00	$10,000.00
472.61000	Signal Pole Foundation	EACH	1	$4,000.00	$4,000.00
472.61100	Pole Foundation, Type A, Det 4720	EACH	1	$800.00	$800.00
474.60100	Signal Pole and Mast Arm	EACH	1	$25,000.00	$25,000.00
505.10000	Catch Basin	EACH	2	$4,000.00	$8,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR			EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS				$90,917.00
(B)	UNIDENTIFIED ITEMS	30%			$27,275.10
(C)	**TOTAL ITEMS COST (LINES A-B)**				**$118,192.10**
(D)	TRAFFIC CONTROL @	10%			$11,819.21
(E)	AZPDES @	2%			$2,363.84
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%			$2,363.84
(G)	MOBILIZATION/DEMOBILIZATION @	10%			$11,819.21
(H)	CONSTRUCTION QUALITY CONTROL	2%			$2,363.84
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**				**$148,922.05**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5	YEARS	$23,719.42
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**				**$172,641.47**
(L)	CONSTRUCTION CONTINGENCY @	5%			$8,632.07
(M)	CONSTRUCTION MANAGEMENT @	10%			$17,264.15
(N)	DESIGN @	10%			$17,264.15
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**				**$43,160.37**
(P)	RIGHT-OF-WAY	SF	1,891.65	$ 6.00	$11,349.89
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF		$ 0.60	$0.00
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**				**$11,349.89**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**				**$227,151.72**
(T)	AGENCY IN-HOUSE COSTS @	5%			$11,357.59
(U)	**TOTAL COST**				**$238,509.31**

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OPINION OF PROBABLE COST
Southwest Freight Subarea
75TH AVE AND MC85/BUCKEYE RD

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED AMOUNT
201.01000	Clearing and Grubbing	Acre	1	$2,000.00	$2,000.00
301.01000	Subgrade Preparation	SY	628	$4.00	$2,512.00
310.03255	Aggregate Base Course, 10 in Thick	Ton	306	$20.00	$6,120.00
321.01202	Asphalt Concrete Pavement (3 in, Superpave 1/2 in Mix, High Traffic)	Ton	106	$80.00	$8,480.00
321.01302	Asphalt Concrete Pavement (4 in, Superpave 3/4 in Mix, High Traffic)	Ton	141	$80.00	$11,280.00
340.01110	Vertical Curb & Gutter, Type A, H=6 in, MAG Det 220	LF	415	$15.00	$6,225.00
340.01210	Concrete Sidewalk, MAG Det 230	SF	1,643	$5.00	$8,215.00
340.01300	Curb Ramp	EACH	1	$2,500.00	$2,500.00
462.01100	4 in White Thermoplastic Traffic Stripe	LF	1,299	$0.50	$649.50
470.00005	Remove Traffic Signal Pole, Mast Arm and Foundation	EACH	2	$5,000.00	$10,000.00
472.61000	Signal Pole Foundation	EACH	1	$4,000.00	$4,000.00
472.61100	Pole Foundation, Type A, Det 4720	EACH	1	$800.00	$800.00
474.60100	Signal Pole and Mast Arm	EACH	1	$25,000.00	$25,000.00
505.10000	Catch Basin	EACH	2	$4,000.00	$8,000.00

LINE	DESCRIPTION	UNIT/PERCENTAGE FACTOR			EXTENDED AMOUNT
(A)	IDENTIFIED ITEMS				$93,781.50
(B)	UNIDENTIFIED ITEMS	30%			$28,134.45
(C)	**TOTAL ITEMS COST (LINES A-B)**				**$121,915.95**
(D)	TRAFFIC CONTROL @	10%			$12,191.60
(E)	AZPDES @	2%			$2,438.32
(F)	ENVIRONMENTAL MITIGATION MEASURES @	2%			$2,438.32
(G)	MOBILIZATION/DEMOBILIZATION @	10%			$12,191.60
(H)	CONSTRUCTION QUALITY CONTROL	2%			$2,438.32
(I)	**TOTAL CONSTRUCTION COST (LINES C-H)**				**$153,614.10**
(J)	PRICE ESCALATION (3% PER YEAR)	3%	5	YEARS	$24,466.74
(K)	**TOTAL CONSTRUCTION COST @ BID (LINES I-J)**				**$178,080.84**
(L)	CONSTRUCTION CONTINGENCY @	5%			$8,904.04
(M)	CONSTRUCTION MANAGEMENT @	10%			$17,808.08
(N)	DESIGN @	10%			$17,808.08
(O)	**SUBTOTAL OTHER PROJECT COST (LINES L-N)**				**$44,520.21**
(P)	RIGHT-OF-WAY	SF	1,736.43	$ 6.00	$10,418.55
(Q)	TEMPORARY CONSTRUCTION EASEMENT	SF		$ 0.60	$0.00
(R)	**SUBTOTAL RIGHT-OF-WAY COST (LINES P-Q)**				**$10,418.55**
(S)	**SUBTOTAL PROJECT COST (LINES K, O, AND R)**				**$233,019.60**
(T)	AGENCY IN-HOUSE COSTS @	5%			$11,650.98
(U)	**TOTAL COST**				**$244,670.58**

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APPENDIX E – PROJECT SHEETS

PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
67th Avenue Improvements: I-10 to Roosevelt Street

Project Location	67th Avenue: I-10 to Roosevelt Street			
Project Length (miles)	0.25 miles			
Jurisdictional Agencies	City of Phoenix, ADOT			
Partnering Agencies	MAG			
Project Cost	Design: $0.10M	Construction: $1.21M	R/W: $0.28M	Total: $1.59M
Priority	High ☒	Medium ☐	Low ☐	
Project Description	This project includes the following components: • Modify median and install 2 NB left-turn lanes on bridge • Modify median south of EB ramps and install 2 additional inside NBT lanes • Install raised median south of EB ramps • Construct new road connecting Latham St to Roosevelt St • Relocate Flying J driveway on Latham St • Install raised median on 67th Ave through existing 67th Ave/Latham intersection			
Comments				

Location Map

PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
75th Avenue/I-10 TI Improvements

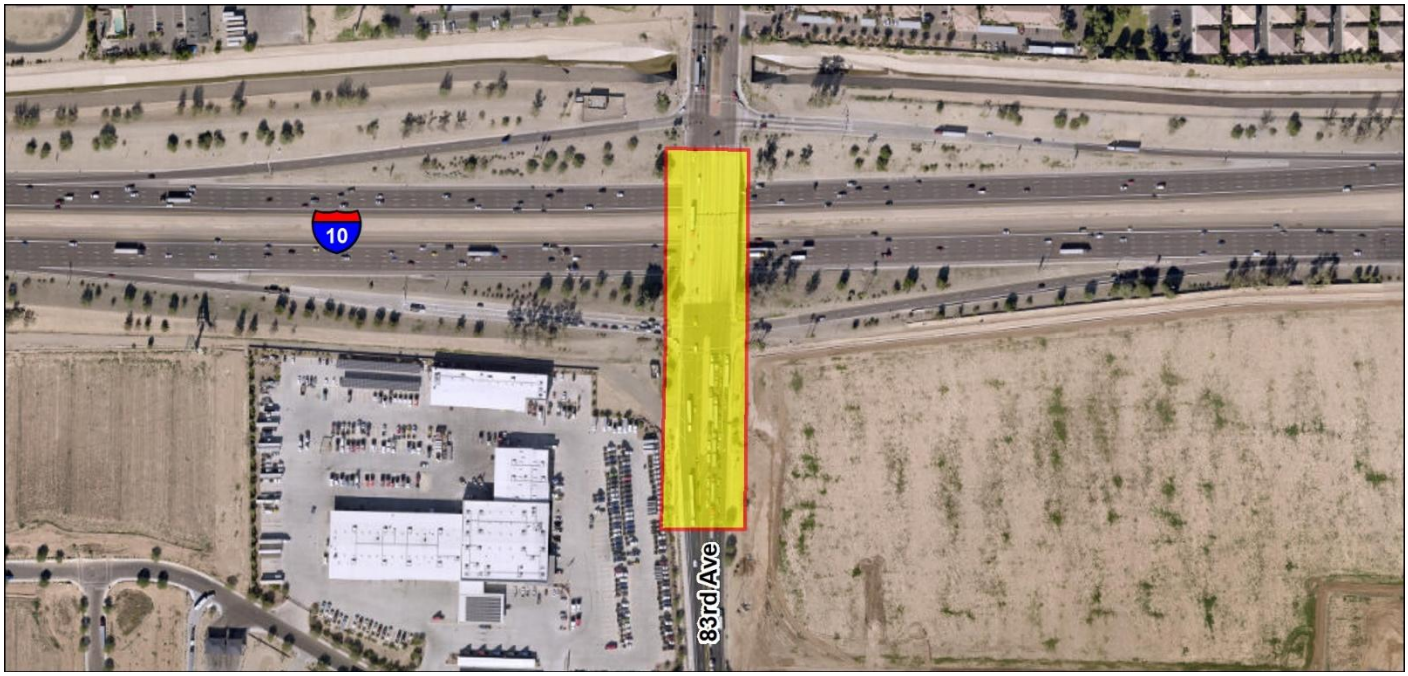
Project Location	75th Avenue at I-10			
Project Length (miles)	0.30 miles			
Jurisdictional Agencies	ADOT			
Partnering Agencies	MAG, City of Phoenix			
Project Cost	Design: $0.07M	Construction: $0.84M	R/W: $0.01M	Total: $0.92M
Priority	High ☒	Medium ☐	Low ☐	
Project Description	This project includes the following components: • Install 2 NB left-turn lanes on bridge • Modify median south of EB ramps and install 2 additional NBT inside lanes • Install raised median south of EB ramps • Restripe to provide third SB through lane on bridge and provide third SB through lane that becomes a trap right-turn lane at Roosevelt St south of the EB ramps • Install exclusive SB and NB right-turn lanes at ramps			
Comments				

Location Map

PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
83rd Avenue/I-10 TI Improvements

Project Location	83rd Avenue at I-10			
Project Length (miles)	0.20 miles			
Jurisdictional Agencies	ADOT, City of Phoenix			
Partnering Agencies	MAG, City of Tolleson			
Project Cost	Design: $0.05M	Construction: $0.64M	R/W: $0.00M	Total: $0.69M
Priority	High ☐	Medium ☒	Low ☐	
Project Description	This project includes the following components: • Install 2 NB left-turn lanes on bridge • Install raised median south of EB ramps • Modify median south of EB ramps and install 2 additional NBT inside lanes • Install exclusive NB right-turn lane at EB ramps			
Comments				

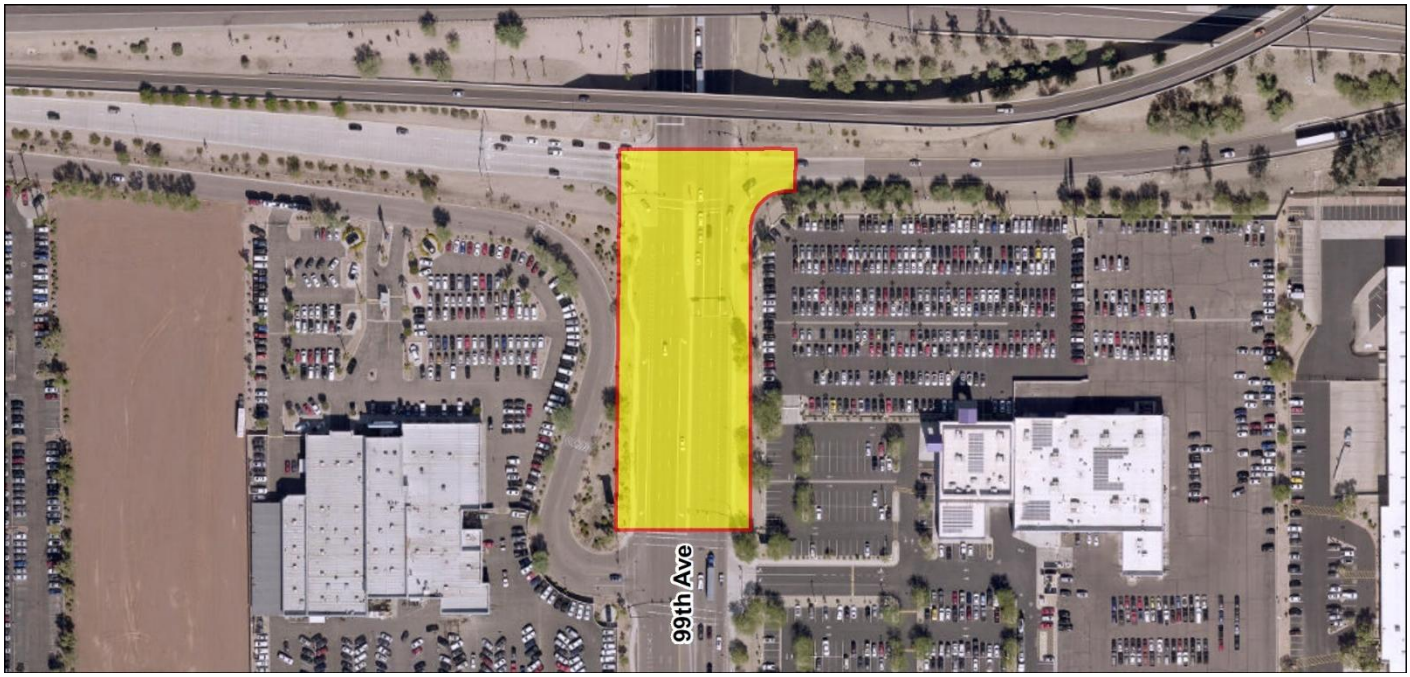
Location Map



PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
99th Avenue/I-10 TI Improvements

Project Location	99th Avenue at I-10 EB Ramps			
Project Length (miles)	400 feet			
Jurisdictional Agencies	ADOT, City of Avondale			
Partnering Agencies	MAG, MCDOT, City of Tolleson			
Project Cost	Design: $0.03M	Construction: $0.37M	R/W: $0.02M	Total: $0.42M
Priority	High ☐	Medium ☒	Low ☐	
Project Description	This project includes the following components: • Install exclusive NB right-turn lane at EB ramps			
Comments				

Location Map



PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
Van Buren Street Improvements: 59th Avenue to 75th Avenue

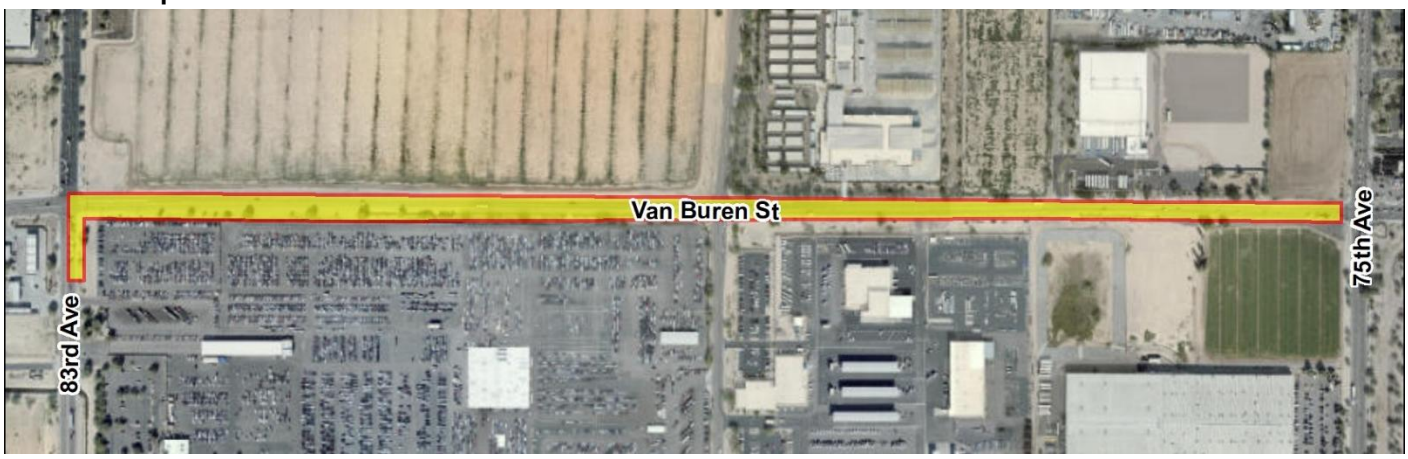
Project Location	Van Buren Street: 59th Avenue to 75th Avenue			
Project Length (miles)	2.0 miles			
Jurisdictional Agencies	City of Phoenix			
Partnering Agencies	MAG, MCDOT			
Project Cost	Design: $0.57M	Construction: $6.97M	R/W: $0.36M	Total: $7.90M
Priority	High ☒	Medium ☐	Low ☐	
Project Description	This project includes the following components: • Restripe roadway to provide 2 lanes in each direction, realigning roadway where necessary to avoid residential impacts while still providing the desired cross-section • Provide a 10' and an 11' travel lane in each direction • Install a 10' shared use path on the north side of Van Buren St • Install new sidewalk ramps at intersection corners • Install 6' bike lanes • Install new 10' raised median • Install new PHB mid-block signalized crossing west of 64th Dr • Install exclusive WB right-turn lane at 75th Ave • Install exclusive NB and EB right-turn lanes at 67th Ave • Install reduced speed limit signs to either 35 mph or 40 mph			
Comments				

Location Map

PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
Van Buren Street Improvements: 75th Avenue to 83rd Avenue

Project Location	Van Buren Street: 75th Avenue to 83rd Avenue			
Project Length (miles)	1.0 miles			
Jurisdictional Agencies	City of Phoenix, City of Tolleson			
Partnering Agencies	MAG, MCDOT			
Project Cost	Design: $0.36M	Construction: $4.42M	R/W: $0.30M	Total: $5.08M
Priority	High ☒	Medium ☐	Low ☐	
Project Description	This project includes the following components: • Widen and restripe roadway where necessary to provide 2 lanes in each direction • Provide a 10' and an 11' travel lane in each direction • Install a 10' shared use path on the north side of Van Buren St • Install new sidewalk ramps at intersection corners • Install 6' bike lanes • Install new 10' raised median • Install new irrigation pipe in place of canal on south side of Van Buren St • Install exclusive NB and WB right-turn lanes at 83rd Ave • Install exclusive WB right-turn lane at 79th Ave • Install bus bay for WB buses just west of 75th Ave • Install exclusive EB right-turn lane at 75th Ave • Install reduced speed limit signs to either 35 mph or 40 mph			
Comments				

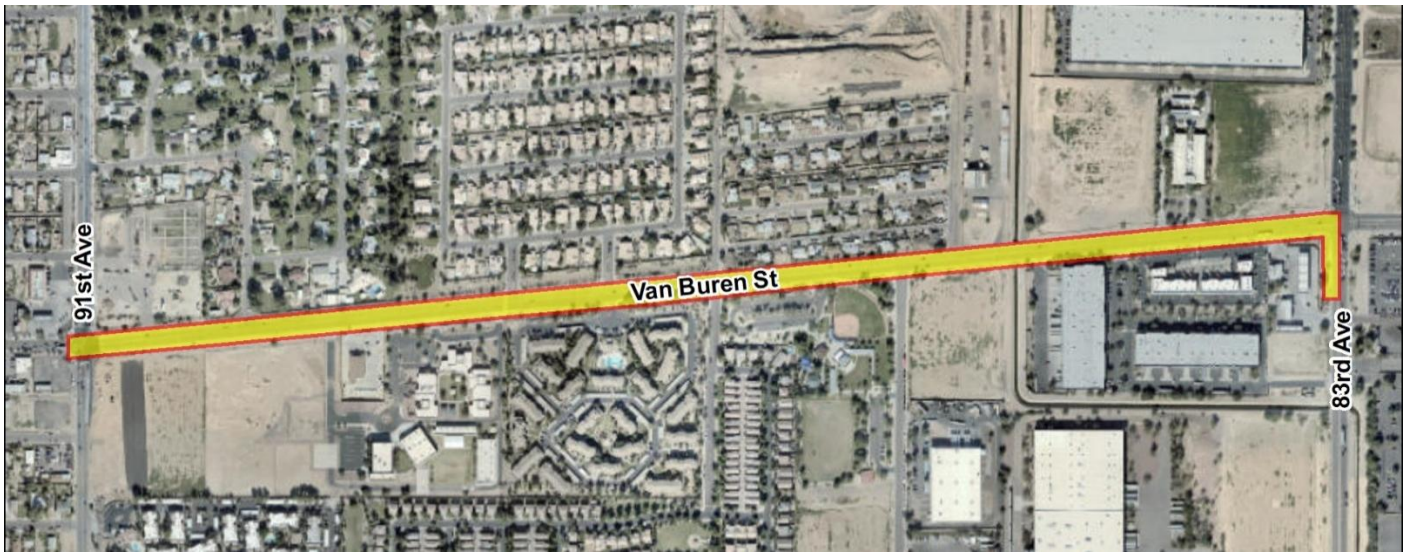
Location Map



PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
Van Buren Street Improvements: 83rd Avenue to 91st Avenue

Project Location	Van Buren Street: 83rd Avenue to 91st Avenue			
Project Length (miles)	1.0 miles			
Jurisdictional Agencies	City of Tolleson			
Partnering Agencies	MAG, MCDOT			
Project Cost	Design: $0.39M	Construction: $4.92M	R/W: $0.17M	Total: $5.35M
Priority	High ☐	Medium ☐	Low ☒	
Project Description	This project includes the following components: • Widen roadway to provide 2 lanes in each direction, realigning roadway where necessary to avoid residential impacts while still providing the desired cross-section • Provide a 10' and an 11' travel lane in each direction • Install a 10' shared use path on the north side of Van Buren St except where 8' sidewalk already exists • Install new sidewalk ramps at intersection corners • Install 6' bike lanes • Install new 10' raised median • Install bus bay for EB buses just east of 91st Ave • Install new PHB mid-block signalized crossing at 87th Dr • Install reduced speed limit signs to either 35 mph or 40 mph			
Comments				

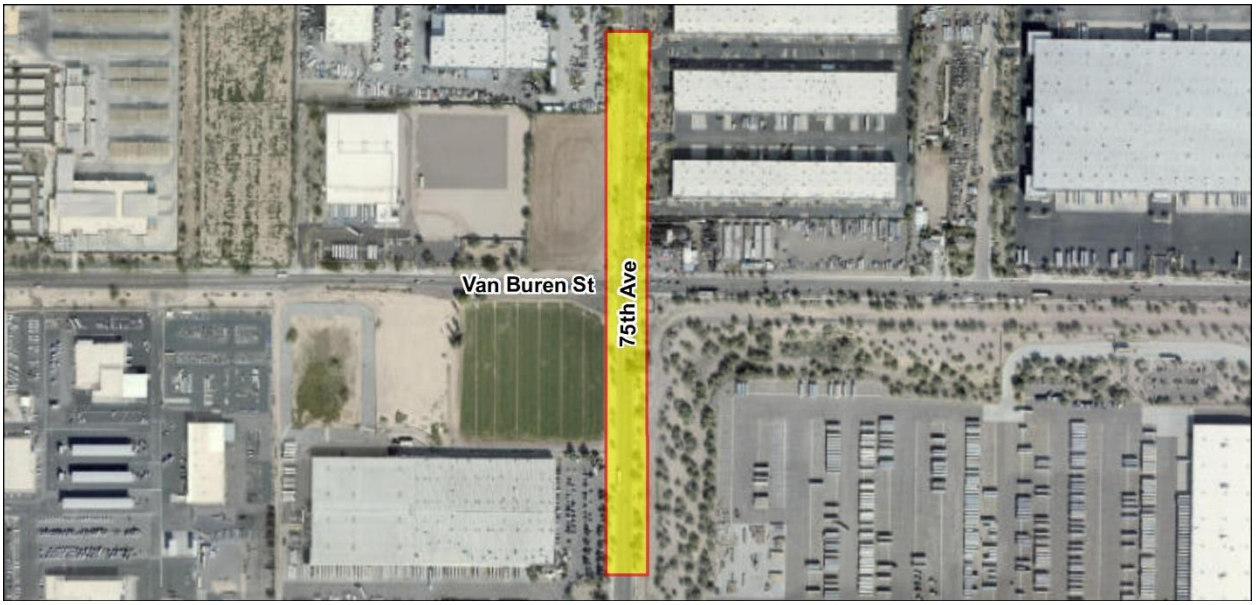
Location Map



PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
75th Avenue/Van Buren Street Improvements

Project Location	75th Avenue at Van Buren Street			
Project Length (miles)	0.5 miles			
Jurisdictional Agencies	City of Phoenix, City of Tolleson			
Partnering Agencies	MAG, MCDOT			
Project Cost	Design: $0.28M	Construction: $3.34M	R/W: $0.14M	Total: $3.86M
Priority	High ☒	Medium ☐	Low ☐	
Project Description	This project includes the following components: • Widen intersection for future second NB/SB left-turn lane at 75th Ave • Relocate existing gas utilities and irrigation structure at 75th Ave • Install exclusive NB and SB right-turn lanes at 75th Ave			
Comments				

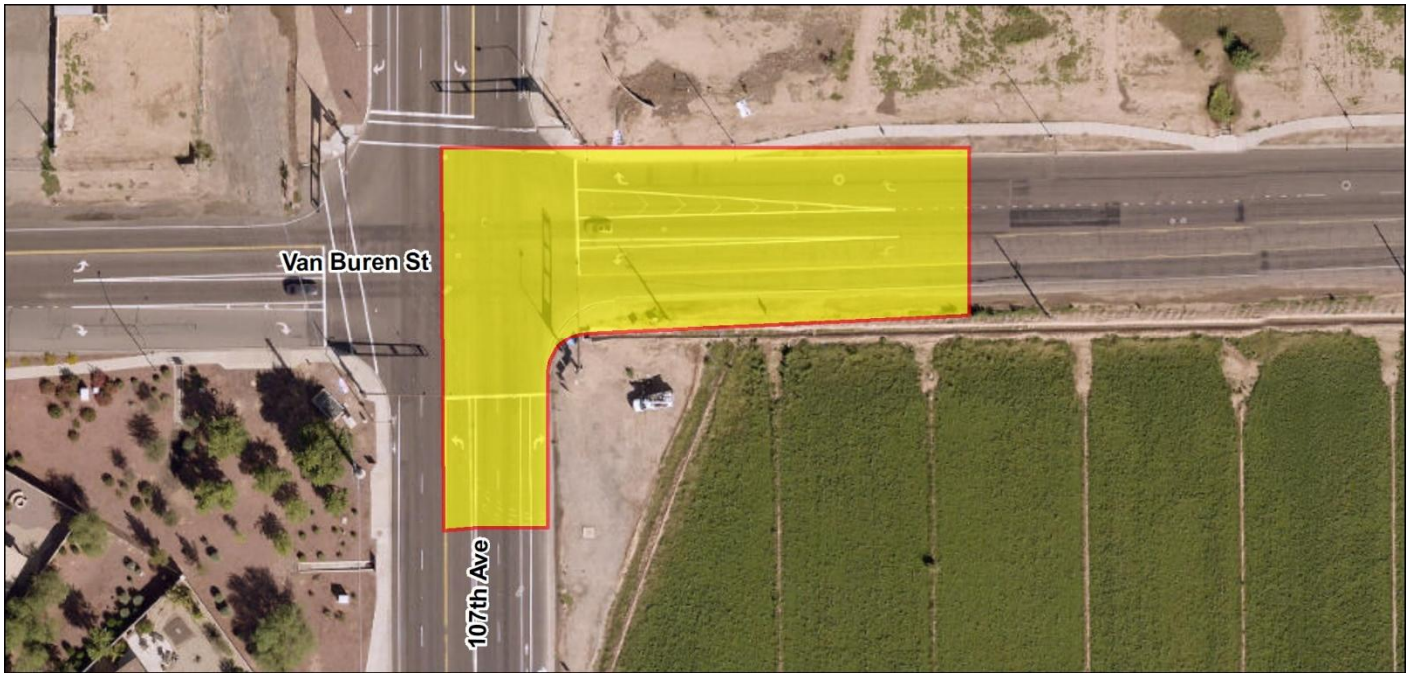
Location Map



PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
107th Avenue/Van Buren Street Improvements

Project Location	107th Avenue at Van Buren Street			
Project Length (miles)	300 feet			
Jurisdictional Agencies	City of Avondale, City of Tolleson			
Partnering Agencies	MAG			
Project Cost	Design: $0.01M	Construction: $0.16M	R/W: $0.01M	Total: $0.18M
Priority	High ☐	Medium ☐	Low ☒	
Project Description	This project includes the following components: • Reconstruct southeast corner curb to provide for right-turning trucks • Relocate existing traffic signal • Relocate existing irrigation headwall			
Comments				

Location Map



PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
67th Avenue/Buckeye Road/MC 85 Improvements

Project Location	67th Avenue at Buckeye Road/MC 85			
Project Length (miles)	350 feet			
Jurisdictional Agencies	City of Phoenix			
Partnering Agencies	MAG, MCDOT			
Project Cost	Design: $0.02M	Construction: $0.21M	R/W: $0.01M	Total: $0.24M
Priority	High ☐	Medium ☐	Low ☒	
Project Description	This project includes the following components: • Reconstruct northeast corner curb to provide for right-turning trucks • Install exclusive WB right-turn lane			
Comments				

Location Map

PROJECT INFORMATION SHEET
MAG SOUTHWEST FREIGHT SUBAREA PROJECT ASSESSMENT
75th Avenue/Buckeye Road/MC 85 Improvements

Project Location	75th Avenue and Buckeye Road/MC 85			
Project Length (miles)	350 feet			
Jurisdictional Agencies	City of Phoenix			
Partnering Agencies	MAG, MCDOT			
Project Cost	Design: $0.02M	Construction: $0.21M	R/W: $0.01M	Total: $0.24M
Priority	High ☐	Medium ☐	Low ☒	
Project Description	This project includes the following components: • Reconstruct northeast corner curb to provide for right-turning trucks • Install exclusive WB right-turn lane			
Comments				

Location Map